fORDER OF THE STATE OF WISCONSIN
NATURAL RESOURCES BOARD
REPEALING, RENUMBERING AND AMENDING, AMENDING, REPEALING AND RECREATING AND CREATING RULES

AM-05-06

The Wisconsin Natural Resources Board proposes an order to **repeal** NR 440.07(1)(b), 440.215(7)(f)9., (9)(j)3. and 4.a. and b., (10c)(h) and (i) and (10u), 440.26(8)(d), 440.285(1)(c), 440.50(6)(d) and (e), 440.642(1)(c) and (d), (3)(a), (4)(h), (j)1.a. and b. and (p)4.b.2) and (6)(c), 440.684(2)(b)4., 440.688(7)(b) and 440.71(5)(a)1. and 2. and (8)(c)1. and 2.; to **renumber** NR 440.20(9)(g) and (h), 440.21(4)(a), 440.26(8)(e), 440.29(2)(a), (b) and (c), 440.44(2)(a), 440.50(5)(c)3. and 4., 440.62(3)(j)7., 440.675(4)(d) and (e), 440.686(4)(d) and (e) and 440.688(6)(c)(intro.), 1., 2. and 3.; to **renumber and amend** NR 440.07(5) and (6), 440.20(7)(c) and (9)(i), 440.205(7)(f) and (9)(b), 440.207(1) and (6)(a)4. to 7., 440.21(3)(a), 440.215(1)(a), (9)(j)4.(intro.), (10i), (10k) and (10n), 440.26(6)(a)8., 9. and 12. and (7)(e), 440.37(3)(a), 440.38(3)(a), 440.39(3)(a), 440.40(3)(a), 440.46(4)(d)3.(intro.), a., b. and c. and (e), 440.50(3)(a)3. and Note, (5)(c)(intro.) and (6)(f), 440.59(5)(f), 440.62(2)(v), (x) and (z), 440.64(3)(e)3., 440.642(4)(j)1.(intro.) and (p)4.b.1), 440.644(3)(a)7.b., c. and d. and (b)1., 440.647(6)(h)1. and 2., 440.67(3)(a), 440.675(4)(c)3. and (5)(b)5., (c), (d), (e) and (f), 440.684(2)(b)5. to 7., 440.686(4)(c)3. and (5)(b)5., (c), (d), (e), (f) and (g), 440.70(13)(a)3. and 440.71(5)(a)(intro.) and (8)(c)(intro.); to **amend** NR 440.07(1)(intro.) and (3)(intro.), 440.08(2)(intro.) and (4), 440.10(1) and (2), 440.11(2) and (5)(b) and (f), 440.13(4)(a) and (b) and (8), 440.14(2)(a), 440.17(1) and (2)(intro.), (e) and (h)1., 2. and 3. and (i)1. and 2., 440.18(6)(a) and (c), 440 Subchapter I (title), 440.19(2)(a), (6)(b)2., (f)4.a., b. and f., 5.a. and b., (g)(intro.), (7)(b)2.a. and b. and (c)2., 440.20(1)(b) and (2)(b), (j), (n), (q)1.b. and (y), (4)(d)2., (f), (5)(a)(intro.), (b) and (c), (6)(c), (7)(e) and (i)1., (8)(title) and (b)2.b. and (9)(a), 440.205(2) (b), (d), (h), (t), (y)2. and (zf), (4)(a)1.(intro.) and (g), (5)(a)(intro.), (b), (c) and (e), (7)(d)4., (9)(h) and (10)(d), (e), (h)(intro.), (i), (j), (k)2. and 3., (m)(intro.), (n)(intro.), 1., 2. and 3., (q)(intro.), 2. and 3. and (r), 440.207(2)(g), (q)2., (v), (4)(a)1., (b)(intro.), (5)(i) and (6)(a)1. and 3.a. and b., (7)(b), (d)(intro.) and (9)(b), (c), (d) and (e)(intro.), 2., 3. and 11., 440.21(5)(b)1. and 3.a., 440.215(title), (1)(e) and (f), (2)(d), (f), (fm), (g), (gm), (h) and (hm), (jm), (k), (o), (p), (q) and (y), (7)(a) and (d), (9)(b)3. and 8., (e)14., (f)2., (h)1., 2. and 6.a. and b. and 10., (10), (10i)(title) and (10k)(title), 440.22(5)(b)1., 440.24(5)(d), 440.26(3)(a)1., (5)(b)1. and 2., (6)(a)3.a. and c., 4.c., 5.a. and b., 6.a. and b. and 7.a., (c) and (d), (7)(b)2., 3.a. and b. and 4., (f)1. and 3., (g) and (i)2.a., b. and c., 10. and 11., (j)2., (8)(a), (c)(intro.), 5. and 6. and (9)(e), 440.27(2)(g) and (i), 440.28(1)(a), (2)(f) and (h) and (6)(d)2., 440.285(1)(a) and (b), (2)(f), (i), (j)(intro.) and 1. and (k) and (7)(b), (e)3., (f)2. and (g), 440.30(4)(b)1., 440.31(5)(c), 440.315(4)(c), (5)(d) and (6)(e) to (g), 440.32(4)(b)3. and (5)(b)4. and 5.(intro.) and c., 440.33(6)(d)2., 440.36(1)(b), (3)(a)(intro.) and (6)(b)1. and 2., 440.37(4)(b) and (5)(b)1. and 3.(intro.), 440.38(4)(b) and (5)(b)1. and 3.(intro.), 440.39(4)(b), (5)(b)1. and 3.(intro.), 440.40(4)(b), (5)(b)1. and 3.(intro.), 440.41(2)(b) and (c), (3)(a), (4)(b) and (c) and (5)(a)2., (c)1. and 3.(intro.), 440.42(1)(a), (2)(a) and (b), (3)(b)1., (4)(a)1. and (5)(b)(inrto.), 440.43(2)(c), (i), (k), (o), (q), (t) and (v) and (7)(c)1. and 2.b., 440.44(2)(e), (j) and (n), (3)(a)3.c., (4)(b) and (c), (5)(a)4., (b), (c), (f), (g) and (i)(intro.), (6)(e)4. and (i) and (7)(a) and (b), 440.445(2)(a), (e) and (g), (4)(c), (5)(b), (c), (d), (f), (g) and (h)(intro.) and 4., (6)(e)4. and (7)(e) and (f)6.d., 440.45(2)(f) and (o), (3)(a)3.a., (4)(a)1.(intro.), a., b., c. and e., (5)(a)2.b., (c)(intro.) and 3. and (d)3.b. and (6)(c)1., (e)1. and (f)1. and 2., 440.46(1)(c), (3)(a)2., (4)(c)4. and 5. and (d)1.(intro.) and (7)(b)3., 440.48(2)(b)1. to 24., (4)(c)1.(intro.) and 2.a.(intro.) and (6)(a)2., 440.50(1)(a), (2)(p), (3)(a)1. and 2., (4)(b), (5)(a) and (6)(c)(intro.), 1. and 2., (d), (e) and (f)1., 440.51(5)(b)2., 440.52(3)(a)1., 2., 3., 5. and 6. and (5)(c)1., 440.525(2)(o), (3)(a)1. and (6)(c), 440.53(2)(b)7., (4)(c)1.a.(intro.), (6)(d) and (7)(a)1. and 2. and (b) and (c), 440.54(4)(f), 440.55(5)(b)3.(intro.), 440.56(4)(a)5.(intro.), a., c. and d., (6)(a)1. and 2., (b) and (d)(intro.) and 1., 440.565(1)(b), (2)(a)3. and (b)14. and 15., (3)(a)2.a., (4)(e), and (7)(a) and (b), 440.57(4)(b)1.(intro.) and 3.a., (6)(c)1. and 2. and (7)(a)1. and 2. to 5. and (c), 440.58(4)(c)1.(intro.) and (7)(a)1. to 5. and (c), 440.59(3)(a)1., (b), (4)(a) to (c) and (5)(c)1., 440.62(1)(d)2., (2)(a)1.a. and (b), (3)(a)1. and (b)4.a. and 6., (c)2.(intro.), a. and b. and 8. and (d)3., (e)1., 2.(intro.), a. and b. and 3., (f)3., (g)(title), (h)(title), (i)1. and (j)2. and 3., (6)(d)(intro.) and 1., (e)1. and 2., (g)5. and 6., (7)(a)1. and (f)(intro.) and 1., (8)(d) and Table A in (10)(a), 440.63(4)(b)1.(intro.) and c., (5)(b), (6)(a)1. and (7)(a)1. and 2.(intro.) and (b) and (c), 440.64(2)(L) and (3)(e)4., 440.642(2)(m)2., 3. and 4., (3)(b)1.(intro.), b. and 2., (4)(e)1. (intro.) and b., (k)1. and 2.(intro.) and (L)1.b., (6)(b)9. and (7)(a)3.b. and d. and (f)3. and (j)2.e., 440.644(2)(a)(intro.), (3)(a)1.b.1) to 5), 2.b.1) to 5), 3., 4., 5., 6.b.1) to 5) and 7.(intro.) and a., (3)(a)8.b.1) to 5) and 9.b.1) to 5), (4)(c)(intro.), (d)(intro.), (e)(intro.), (f)2.d.7) and 8), (j)4. and 5.b., (n)(intro.) and 5., (6)(b)(intro.) and 2. and (d), (7)(a), (c)1. to 3. and 5., (d), (f)1. and 2., (j) and (8)(a)2., 5.(intro.) and a., 440.647(1)(a)4.a. and (b)1.b. Table 1, (2)(a)12., 21., 22., 30. and 31., (3)(a)1.c.(intro.), (b)1.a. and b., (c)1.a.1) and b.1) to 3), 2.a. and b.1) to 3), (4)(d) and (6)(c)1., (f)1. and 3., (j)1.(intro.) and a. and 2. and (7)(a)1.b., (f)1.(intro.) and a. and (g)(intro.) and 1., 440.65(2)(a)6. and (b)15. to 17, (4)(a)(intro.) and 1., (b)4. and 5. and (c)2. to 4. and (5)(b)1. and 2. and (c)1., 440.66(title) and (4)(b)2. and (d), 440.67(1)(a), (4)(b)(intro.) and (5)(b), 440.675(5)(b)4.b. and c. and (6)(e) and (g)(intro.), 440.68(1)(b) and (5), 440.682(3)(f) and (4)(h)1. and 2., 440.684(2)(a)8. and (b)1. to 3., (5)(b)1. to 3. and (c)2. and 4. and (7)(b)1. and (c), 440.686(4)(c)(intro.), (5)(b)4.b. and c., (6)(g)(intro.), (i), (L)5. and 6. and (8), 440.688(1)(a) and (d)2., (3)(a)(intro.) and 1., (b) and (c), (7)(a)(intro.), 1., and 4.a. and b. and (f), 440.69(4)(b) and (6)(c)1., 2. and 3.a., 440.70(2)(d), (11)(a)2. and 3. and (13)(a)1. and 2., 440.705(1)(c)2., 3. and 4., (5)(d)2.b. and 4. and (f)1., (6)(L)1., 4., 5. and 8. and (8), 440.71(8)(d)(intro.), 440.72(4)(b)1. and (5)(a)2. and 440.73(3)(intro.) and (a); to **repeal and recreate** NR 440.17(2)(a), 440.215(1)(c) and and (g), (2)(cm) and (i), 440.26(7)(b)1. and 3.(intro.), (c)1. and (i)9., 440.32(5)(b)1. and 3., 440.50(5)(b) and (c)1. and 2., (6)(a), (b) and (c)3., 440.51(5)(b)1., 440.59(5)(c)4.b., 440.62(3)(h)1. and (j)6. and (6)(g)3. and 4., 440.642(3)(b)1.a., (7)(i)4.b. and (9)(e), 440.644(2)(b), 440.647(6)(d)1.(intro.) and (f)(intro.), (g)2. and 3., (h)(intro.) and (j)1.d., 440.67(4)(b)2., 440.684(5)(c)3. and (7)(e) and 440.70(15)(j)2.; and to **create** NR 405.02(27)(a)8. in Table A, 440 Subchapter I (title) preceding s. NR 440.01, 440.01(2)Note, (5m) and (15), 440.07(5) and (6)(b) to (d), 440.08(2m), 440.13(10), 440.14(2)(intro.), 440.17(2)(e)3., (i)3. and 4. and (k) to (m), 440.185, 440.20(2)(dm), (eg), (er), (fm), (gg), (gr), (jm), (ke), (km), (ks), (Lg), (Lm) and (Lr), (nm), (tm) and (zs), (5)(d), (5m), (6)(a)(title), (b)(title), (d)(title), (e)(title), (f)(title), (g)(title) and (h)(title) and (i) to (L), (7)(c)2. and (k) to (r), (8)(f) to (i), (9)(g) and (k) and (10), 440.205(1)(g) and (h), (2)(zdm), (5)(L), (7)(f)1. and 2., (9)(b)1. and 2. and (10)(s) and (t), 440.207(1)(c) and (d), (2)(em), (6)(a)4. and (9)(j), 440.215(1)(a)1. and 2. and (h) to (k), (2)(be), (ds), (rm), (tg), (tr), (ug), (ur) and (xm), (ze), (zm) and (zs), (9)(h)6.c. and d., (10i)(b) and (c), (10k)(b) and (c) and (10n)(b), 440.216, 440.218, 440.26(6)(a)8.a. and b., 9.a. and b. and 12.a. and b., (7)(e)1.a., b. and c. and 2. and (8)(e), 440.28(1)(c), 440.285(1)(d)8. and (e), (2)(hm) and (j)3., 440.29(2)(a), 440.36(1)(c), 440.41(3)(b) and (4)(d), 440.44(2)(a), (4)(d) to (g) and (7)(c) to (e), 440.445(2)(am), (hm) and (om), (4)(d) to (f) and (7)(g) and (h), 440.45(5)(f), 440.50(2)(bg), (br), (fm), (km), (L), (t) and (u), (3)(a)3., (5)(c) to (i) and (j)5. and (6)(c)4. to 11., 440.59(5)(f)1. and 2., 440.62(1)(e), (2)(fm), (he), (hm), (hs) and (tm), (3)(b)7. and 8., (d)4., (e)2.d., (f)4. and 5. and (j)7. to 12., 440.64(2)(d) and (hm), (3)(e)3.a.1) and 2) and b., (4)(e) and (f) and (6)(e), 440.647(1)(j) and (6)(h)1., 440.675(1)(d), 440.686(1)(d), 440.688(1)(am), (2)(ym) and (z), (3)(f) to (h), (6)(c)2. to 4., (g) and (h) and (7)(g) and (i), 440.70(13)(a)3.a. and b., (15)(j)11. and 12. and (o) and (16)(e)4., 440.705(1)(d), 440.75, 440.76 and 440.77, relating to incorporation of revisions and additions to the federal New Source Performance Standards.

Analysis Prepared by the Department of Natural Resources

1. **Statute interpreted:** s. 285.11(1), Stats.

2. **Statutory authority:** ss. 227.11(2)(a), 227.14(1m)(a), 285.11(1) and 285.27(1)(a) , Stats.

3. **Explanation of agency authority:** Section 227.11(2)(a), Stats., confers authority to the Department to promulgate rules interpreting the provisions of any statute enforced

or administered by the Department if the Department considers rules necessary to effectuate the purpose of the statute. Section 227.14(1m)(a) allows the Department to use the format of federal regulations if all or part of the state regulatory program is to be administered according to standards, requirements or methods which are identical to those specified in the federal regulatory program. Section 285.11(1) establishes a duty that the Department promulgate rules implementing and consistent with ch. 285, Stats. Section 285.27(1)(a), Stats. requires that the Department promulgate by rule an emission standard, including administrative requirements that are consistent with the federal administrative requirements, similar to any standard of performance for new stationary sources (NSPS), promulgated under section 111 of the Clean Air Act. The statute further provides that the standard promulgated by the Department may not be more restrictive in terms of emission limitations than the federal standard except as provided in s. 285.27(4), Stats.

4. **Related statute or rule:** There are no related statutes not identified above. Requirements in chs. NR 400 to 499 may relate to the implementation of ch. NR 440.

5. **Plain language analysis:** Under section 111 of the Clean Air Act, the administrator of the United States Environmental Protection Agency (EPA) is required to promulgate regulations establishing standards of performance for new stationary sources (NSPS). Such standards are to be promulgated for any category of sources determined by the EPA to cause or contribute significantly to air pollution and which may reasonably be anticipated to endanger public health or welfare. NSPS are contained in Title 40 of the Code of Federal Regulations, Part 60 (40 CFR part 60). The EPA is also required under the Clean Air Act, to periodically review and, if appropriate, revise NSPS. The EPA has delegated to Wisconsin, under section 111(c)(1) of the Clean Air Act, the authority to implement and enforce NSPS.

NSPS incorporated into Wisconsin administrative code as required under s. 285.27(1)(a), Stats., are contained in ch. NR 440. The last revisions the Department proposed to ch. NR 440 became effective on January 1, 1996 and reflected changes made by the EPA to 40 CFR, part 60 through July 1, 1994. The proposed rules contained in this order reflect subsequent changes made by the EPA as identified in a table created in the note in s. NR 440.01(2), see SECTION 3 of the order. These proposed rules include amendments to existing standards for 60 source categories. Changes made by the EPA to existing general requirements which apply to all source categories are also proposed. Standards are proposed for five new source categories for which EPA has promulgated new NSPS since the Department's last update of ch. NR 440. New general notification and reporting requirements promulgated by the EPA since the Department's last update are also proposed.

6. **Summary of, and comparison with, existing or proposed federal regulation:** Generally, the format of these proposed rules is that used in 40 CFR part 60 as allowed under s. 227.14(1m), Stats. Some minor changes have been made to improve clarity or consistency. Consistent with s. 285.27(1)(a), Stats., the proposed emission standards are not more restrictive than the corresponding federal standard and proposed administrative requirements are consistent with the corresponding federal requirements.

The EPA NSPS often refer to procedures developed by the American Society for Testing and Materials (ASTM). These procedures, or methods, are incorporated by reference into the federal rules in 40 CFR 60.17. Periodic reviews by ASTM may result in a method being revised. A 2 digit number preceded by a hyphen is added to the method designation to reflect the year a method was revised. It had been EPA's practice to update NSPS to only reference the most recent version of a method. EPA has changed this practice and has made changes to many NSPS to reference multiple versions of the same method. Some versions referenced in NSPS are old enough to be out of print and may be very difficult at best for the owner or operator of a regulated facility, or the general public, to obtain. In addition, if the Department were to reference these older versions it would have to obtain copies as part of the incorporation by reference process so they could be made available to the public. To avoid this administrative burden the Department is proposing to only reference, and incorporate into rule through s. NR 440.17, the most recent version appearing in 40 CFR 60.17. In order to preserve the flexibility the federal rule provides, language is proposed in s. NR 440.08(2m) which allows the owner or operator of a facility to use any version of an ASTM method as long as it is allowed under 40 CFR part 60, and is incorporated by reference in 40 CFR 60.17(a). This proposed Department provision makes clear that an owner or operator choosing to use a version of an ASTM method meeting these criteria is not required to obtain any special Department or EPA approval.

Additional changes to the federal rule language and organization were made to accommodate state administrative rule format, but no substantive changes were made and the proposed rule is essentially identical to the federal rules in 40 CFR part 60.

7. **Comparison with rules in adjacent states:** Because the NSPS are federal rules that are effective nation-wide, and the Department is proposing rules essentially identical to the federal rules in 40 CFR part 60, the proposed rules are identical to rules in effect in adjacent states.

8. **Summary of factual data and analytical methodologies:** Since the Department is merely adopting federal regulations, the Department did not make use of any factual data or analytical methodologies in the rule development.

9. **Analysis and supporting documents used to determine effect on small business or in preparation of economic impact report:** An analysis of the effect of the proposed rules on small business was not performed since identical requirements are already in effect through 40 CFR part 60. Preparation of an economic impact report has not been requested.

10. **Effect on small business:** Because the proposed rules are already in effect at the federal level through 40 CFR part 60, promulgation of identical rules at the state level will have no effect on small business.

11. **Agency contact person: (including email and telephone):**
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The consent of the Attorney General and the Revisor of Statutes will be requested for the incorporation by reference of new and updated test methods in s. NR 440.17.

SECTION 1. NR 405.02(27)(a)8. in Table A is created to read:

NR 405.02(27)(a)19. Municipal solid waste landfill emissions (measured as nonmethane organic compounds): 50 tpy

SECTION 2. NR 440 Subchapter I (title) preceding s. NR 440.01 is created to read:

NR 440 (title) **Subchapter I - General Provisions**

SECTION 3. NR 440.01(2)Note is created to read:

NR 440.01(2)**Note:** This chapter is based on the federal regulations contained in 40 CFR part 60. Sections of this chapter correspond to the subparts of 40 CFR part 60 as indicated in the following table:

	Section of this chapter	**40 CFR part 60 subpart**
1.	NR 440.01 to 440.08 and 440.11 to 440.185	Subpart A as last revised on Aug. 27, 2001
2.	NR 440.19	Subpart B as last revised on Oct. 17, 2000
3.	NR 440.20	Subpart Da as last revised on Mar. 29, 2005
4.	NR 440.205	Subpart Db as last revised on July 7, 2004
5.	NR 440.207	Subpart Dc as last revised on Oct. 17, 2000
6.	NR 440.21	Subpart E as last revised on Oct. 17, 2000
7.	NR 440.215	Subpart Ea as last revised on Oct. 17, 2000
8.	NR 440.216	Subpart Eb as last revised on Nov. 16, 2001
9.	NR 440.218	Subpart Ec as last revised on Oct. 17, 2000
10.	NR 440.22	Subpart F as last revised on Oct. 17, 2000
11.	NR 440.23	Subpart G as last revised on Feb. 14, 1989
12.	NR 440.24	Subpart H as last revised on Oct. 17, 2000
13.	NR 440.25	Subpart I as last revised on Feb. 14, 1989
14.	NR 440.26	Subpart J as last revised on Oct. 17, 2000
15.	NR 440.27	Subpart K as last revised on Oct. 17, 2000
16.	NR 440.28	Subpart Ka as last revised on Dec. 14, 2000
17.	NR 440.285	Subpart Kb as last revised on Oct. 15, 2003
18.	NR 440.29	Subpart L as last revised on Oct. 17, 2000
19.	NR 440.30	Subpart M as last revised on Oct. 17, 2000
20.	NR 440.31	Subpart N as last revised on Oct. 17, 2000
21.	NR 440.315	Subpart Na as last revised on Oct. 17, 2000
22.	NR 440.32	Subpart O as last revised on Oct. 17, 2000
23.	NR 440.33	Subpart P as last revised on Oct. 17, 2000
24.	NR 440.34	Subpart Q as last revised on Feb. 14, 1989
25.	NR 440.35	Subpart R as last revised on Feb. 14, 1989
26.	NR 440.36	Subpart S as last revised on Oct. 17, 2000
27.	NR 440.37	Subpart T as last revised on Oct. 17, 2000
28.	NR 440.38	Subpart U as last revised on Oct. 17, 2000
29.	NR 440.39	Subpart V as last revised on Oct. 17, 2000
30.	NR 440.40	Subpart W as last revised on Oct. 17, 2000
31.	NR 440.41	Subpart X as last revised on Oct. 17, 2000

32.	NR 440.42	Subpart Y as last revised on Oct. 17, 2000
33.	NR 440.43	Subpart Z as last revised on Oct. 17, 2000
34.	NR 440.44	Subpart AA as last revised on Feb. 22, 2005
35.	NR 440.445	Subpart AAa as last revised on Feb. 22, 2005
36.	NR 440.45	Subpart BB as last revised on Oct. 17, 2000
37.	NR 440.46	Subpart CC as last revised on Oct. 17, 2000
38.	NR 440.47	Subpart DD as last revised on Oct. 17, 2000
39.	NR 440.48	Subpart EE as last revised on Oct. 17, 2000
40.	NR 440.50	Subpart GG as last revised on Feb. 24, 2006
41.	NR 440.51	Subpart HH as last revised on Oct. 17, 2000
42.	NR 440.52	Subpart KK as last revised on Oct. 17, 2000
43.	NR 440.525	Subpart LL as last revised on Oct. 17, 2000
44.	NR 440.53	Subpart MM as last revised on Oct. 17, 2000
45.	NR 440.54	Subpart NN as last revised on Oct. 17, 2000
46.	NR 440.55	Subpart PP as last revised on Oct. 17, 2000
47.	NR 440.56	Subpart QQ as last revised on Apr. 9, 2004
48.	NR 440.565	Subpart RR as last revised on Oct. 17, 2000
49.	NR 440.57	Subpart SS as last revised on Oct. 17, 2000
50.	NR 440.58	Subpart TT as last revised on Oct. 17, 2000
51.	NR 440.59	Subpart UU as last revised on Oct. 17, 2000
52.	NR 440.62	Subpart VV as last revised on Dec. 14, 2000
53.	NR 440.63	Subpart WW as last revised on Oct. 17, 2000
54.	NR 440.64	Subpart XX as last revised on Dec. 19, 2003
55.	NR 440.642	Subpart AAA as last revised on Oct. 17, 2000
56.	NR 440.644	Subpart BBB as last revised on Oct. 17, 2000
57.	NR 440.647	Subpart DDD as last revised on Dec. 14, 2000
58.	NR 440.65	Subpart FFF as last revised on Oct. 17, 2000
59.	NR 440.66	Subpart GGG as last revised on Oct. 17, 2000
60.	NR 440.67	Subpart HHH as last revised on Oct. 17, 2000
61.	NR 440.675	Subpart III as last revised on Dec. 14, 2000
62.	NR 440.68	Subpart JJJ as last revised on Oct. 17, 2000
63.	NR 440.682	Subpart KKK as last revised on Oct. 17, 2000
64.	NR 440.684	Subpart LLL as last revised on Oct. 17, 2000
65.	NR 440.686	Subpart NNN as last revised on Dec. 14, 2000
66.	NR 440.688	Subpart OOO as last revised on Oct. 17, 2000
67.	NR 440.69	Subpart PPP as last revised on Oct. 17, 2000
68.	NR 440.70	Subpart QQQ as last revised on Oct. 17, 2000
69.	NR 440.705	Subpart RRR as last revised on Dec. 14, 2000
70.	NR 440.71	Subpart SSS as last revised on Feb. 12, 1999
71.	NR 440.72	Subpart TTT as last revised on Oct. 17, 2000
72.	NR 440.73	Subpart UUU as last revised on Oct. 17, 2000
73.	NR 440.74	Subpart VVV as created on Sep. 11, 1989
74.	NR 440.75	Subpart WWW as last rvised on Oct. 17, 2000
75.	NR 440.76	Subpart AAAA as created on Dec. 6, 2000
76.	NR 440.77	Subpart CCCC as last revised on Mar. 27, 2001

SECTION 4. NR 440.02(5m) and (15) are created to read:

NR 440.02(5m) "Calendar year" means 365 consecutive days, or 366 consecutive days for leap years, starting on January 1 and ending on December 31.

(15) "Malfunction'' means any sudden, infrequent and not reasonably preventable failure of air pollution control equipment, process equipment or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

SECTION 5. NR 440.07(1)(intro.) is amended to read:

NR 440.07(1)(intro.) Any owner or operator subject to the provisions of this chapter shall furnish the department written notification or, if acceptable to both the department and the owner or operator of a source, electronic notification, as follows:

SECTION 6. NR 440.07(1)(b) is repealed.

SECTION 7. NR 440.07(3)(intro.) is amended to read:

NR 440.07(3)(intro.) Each owner or operator required to install a continuous monitoring ~~system (CMS) or monitoring~~ device shall submit an excess emissions and monitoring systems performance report~~,~~ (excess emissions are defined in applicable sections~~,~~) or a summary report form as described in sub. (4), or both, to the department semiannually, except when: more frequent reporting is specifically required by an applicable section; ~~or the CMS data are to be used directly for compliance determination, in which case quarterly reports shall be submitted;~~ or the department, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the ~~new~~ source. All reports shall be postmarked by the 30th day following the end of each ~~calendar half, or quarter, as appropriate~~ 6-month period. Written reports of excess emissions shall include the following information:

SECTION 8. NR 440.07(5) and (6) are renumbered NR 440.07(6)(a) and (7) and as renumbered NR 440.07(6)(a) is amended to read:

NR 440.07(6)(a) Any owner or operator subject to 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 2 years following the date of such measurements, maintenance, reports and records, except as provided for in pars. (b) to (d).

SECTION 9. NR 440.07(5) and (6)(b) to (d) are created to read:

NR 440.07(5)(a) Notwithstanding the frequency of reporting requirements specified in sub. (3), an owner or operator who is required by an applicable section to submit excess emissions and monitoring systems performance reports and summary reports on a quarterly, or more frequent, basis may reduce the frequency of reporting for that standard to semiannual if the conditions in subds. 1. and 2. are met. The department does not object to a reduced frequency of reporting for the affected facility, as provided in par. (b).

1. For 1 full year (for example, 4 quarterly or 12 monthly reporting periods), the affected facility’s excess emissions and monitoring systems reports submitted to comply with a standard under this chapter continually demonstrate that the facility is in compliance with the applicable standard.

2. The owner or operator continues to comply with all recordkeeping and monitoring requirements specified in this section and the applicable standard.

(b) The frequency of reporting of excess emissions and monitoring systems performance and summary reports may be reduced only after the owner or operator notifies the department in writing of the intention to make a change and the department does not object to the intended change. In deciding whether to approve a reduced frequency of reporting, the department may review information concerning the source’s entire previous performance history during the required recordkeeping period prior to the intended change, including performance test results, monitoring data and evaluations of an owner or operator’s conformance with operation and maintenance requirements. This information may be used by the department to make a judgement about the source’s potential for noncompliance in the future. If the department disapproves the owner or operator’s request to reduce the frequency of reporting, the department will notify the owner or operator in writing within 45 days after receiving notice of the owner or operator’s intention. The notification from the department to the owner or operator will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

(c) As soon as monitoring data indicate that the affected facility is not in compliance with any emission limitation or operating parameter specified in the applicable standard, the frequency of reporting shall revert to the frequency specified in the applicable standard, and the owner or operator shall submit an excess emissions and monitoring systems performance report, and summary report if required, at the next appropriate reporting period following the noncomplying event. After demonstrating compliance with the applicable standard for another full year, the owner or operator may again request approval from the department to reduce the frequency of reporting for that standard as provided for in pars. (a) and (b).

(6)(b) This paragraph applies to owners or operators required to install a continuous emissions monitoring system (CEMS) where the CEMS installed is automated, and where the calculated data averages do not exclude periods of CEMS breakdown or malfunction. An automated CEMS records and reduces the measured data to the form of the pollutant emission standard through the use of a computerized data acquisitions system. In lieu of maintaining a file of all CEMS subhourly measurements, as required under par. (a), the owner or operator shall retain the most recent consecutive 3 averaging periods of subhourly measurements and a file that contains a hard copy of the data acquisition system algorithm used to reduce the measured data into the reportable form of the standard.

(c) This paragraph applies to owners or operators required to install a continuous emissions monitoring system (CEMS) where the measured data is manually reduced to obtain the reportable form of the standard, and where the calculated data averages do not exclude periods of CEMS breakdown or malfunction. In lieu of maintaining a file of all CEMS subhourly measurements, as required under par. (a), the owner or operator shall retain all subhourly measurements for the most recent reporting period. The subhourly measurements shall be retained for 120 days from the date of the most recent summary or excess emission report submitted to the department.

(d) The department, upon notification to the source, may require the owner or operator to maintain all measurements, as required under par. (a), if the department determines these records are required to more accurately assess the compliance status of the affected source.

SECTION 10. NR 440.08(2)(intro.) is amended to read:

NR 440.08 Performance tests. (2)(intro.) ~~Performance~~ Except as provided in sub. (2m), performance tests shall be conducted and test data reduced in accordance with the test methods and procedures contained in each applicable section of this chapter unless the department specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, or waives 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, or the department approves shorter sampling times and smaller sampling volumes when necessitated by process variables or other factors, or unless the administrator:

SECTION 11. NR 440.08(2m) is created to read:

NR 440.08(2m) The owner or operator of a facility may use a version of an ASTM method not specified in the applicable section of this chapter if the version is allowed under 40 CFR part 60, is incorporated by reference in 40 CFR 60.17(a), and the version predates the version specified in the applicable section of this chapter. An owner or operator choosing to use a version of an ASTM method under this subsection is not required to obtain department or administrator approval under sub. (2).

SECTION 12. NR 440.08(4) is amended to read:

NR 440.08(4) The owner or operator of ~~the~~ an affected facility shall provide the department at least 30 days prior notice of any performance tests, except as specified under other sections of this chapter, to afford the department the opportunity to have an observer present. If after 30 days notice for an initially scheduled performance test, there is a delay in conducting the scheduled performance test, the owner or operator of an affected facility shall notify the department as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the rescheduled date of the performance test, or by arranging a rescheduled date with the department by mutual agreement.

SECTION 13. NR 440.10(1) and (2) are amended to read:

NR 440.10(1) Exemption or the granting of an exemption from any requirement of this chapter does not relieve any person from compliance with other requirements under this chapter or with requirements under chs. NR 400 to 439 or 445 to 499 or ch. 285 or s. 299.15, Stats.

(2) In cases where an emission limitation or other requirement set in chs. NR 400 to 439 or 445 to 499, a permit, plan approval or special order also applies to a source or facility affected by this chapter, the more restrictive limitation shall be met.

SECTION 14. NR 440.11(2) and (5)(b) and (f) are amended to read:

NR 440.11(2) Compliance with opacity standards in this chapter shall be determined by conducting observations in accordance with ~~Reference~~ Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), with any alternative method that is approved by the administrator, or as provided in sub. (5)(e). For purposes of determining initial compliance, the minimum total time of observations shall be 3 hours (30 6-minute averages) for the performance test or other set of observations (meaning those fugitive-type emission sources subject only to an opacity standard).

(5)(b) When the conditions specified in par. (a)1. or 2. are met, the 30-day prior notification to the department required in s. NR 440.07(1)(f) shall be waived. A rescheduled opacity observation shall be conducted, to the extent possible, under the same operating conditions that existed during the initial performance test conducted under s. NR 440.08. 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 A, 40 CFR part 60, incorporated by reference in s. NR 440.17(1). 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 emissions observer certification. Except as provided in par. (f), 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 owner or operator shall meet the burden of proving that the instrument used meets, at the time of the alleged violation indicated by visual observation, Performance Specification 1 in Appendix B, 40 CFR part 60, incorporated by reference in s. NR 440.17(1), has been properly maintained and that the resulting data collected at the time of the alleged violation have not been altered in any way.

(f) An owner or operator of an affected facility subject to an opacity standard may submit, for compliance purposes, continuous opacity monitoring system (COMS) data results produced during any performance test required under s. NR 440.08 in lieu of Method 9 of Appendix A, 40 CFR part 60, incorporated by reference in s. NR 440.17(1), observation data. If an owner or operator elects to submit COMS data for compliance with the opacity standard, he or she shall notify the department of that decision, in writing, at least 30 days before any performance test required under s. NR 440.08 is conducted. Once the owner or operator of an affected facility has notified the department to that effect, the department shall use the COMS data results to determine ~~opacity~~ compliance with the opacity standard during subsequent tests required under s. NR 440.08, until the owner or operator notifies the department, in writing, to the contrary. For the purpose of determining compliance with the opacity standard during a performance test required under s. NR 440.08 using COMS data, the minimum total time of COMS data collection shall be sufficient to include the averages of all 6-minute continuous periods within the duration of the mass emission performance test. Results of the COMS opacity determinations shall be submitted along with the results of the performance test required under s. NR 440.08. The owner or operator of an affected facility using a COMS for compliance purposes is responsible for demonstrating that the COMS meets the requirements specified in s. NR 440.13(3), that the COMS has been properly maintained and operated, and that the resulting data have not been altered in any way. If COMS data results are submitted for compliance with the opacity standard for a period of time during which Method 9 of Appendix A, 40 CFR part 60, incorporated by reference in s. NR 440.17(1), data indicate noncompliance, the Method 9 data shall be used to determine ~~opacity~~ compliance with the opacity standard.

SECTION 15. NR 440.13(4)(a) and (b) are amended to read:

NR 440.13(4)(a) Owners and operators of all continuous emission monitoring systems installed in accordance with the provisions of this chapter shall automatically check the zero (or low-level value between 0 and 20% of span value) and span (50 to 100% of span value) calibration drifts at least once daily in accordance with a written procedure. The zero and span shall, at a minimum, be adjusted whenever the 24-hour zero drift or 24-hour span drift exceeds 2 times the ~~limits~~ limit of the applicable performance ~~specifications~~ specification in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1). The system ~~must~~ shall allow the amount of excess zero and span drift ~~measured at the 24-hour interval checks~~ to be recorded and quantified~~,~~ whenever specified. Owners and operators of a continuous opacity monitoring system (COMS) installed in accordance with the provisions of this chapter, shall automatically, intrinsic to the opacity monitor, check the zero and upscale (span) calibration drifts at least once daily. For a particular COMS, the acceptable range of zero and upscale calibration materials is as defined in the applicable version of PS-1 in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1). For ~~continuous monitoring systems measuring opacity of emissions~~ COMS, the optical surfaces exposed to the emissions shall be cleaned prior to performing the zero and ~~span~~ upscale drift adjustments, except that for systems using automatic zero adjustments the optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds 4% opacity.

(b) Unless otherwise approved by the department, the following procedures shall be followed for continuous opacity monitoring systems ~~measuring opacity of emissions~~. Minimum procedures shall include ~~a~~ an automated 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~~ obstruction of the light beam. Such procedures shall provide a system check of ~~the~~ all active analyzer internal ~~optical surfaces and~~ optics with power or curvature, all active electronic circuitry including the ~~lamp~~ light source and photodetector assembly and electronic or electro-mechanical systems and hardware and software used during normal measurement operation.

SECTION 16. NR 440.13(8) is amended to read:

NR 440.13(8) Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to 6-minute averages and for continuous monitoring systems other than opacity to one-hour averages for time periods as defined under s. NR 440.02(29) and (20), respectively. Six-minute opacity averages shall be calculated from 36 or more data points equally spaced over each 6-minute period. For continuous monitoring systems other than opacity, one-hour averages shall be computed from 4 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 may not be included in the data averages computed under this subsection. For owners and operators complying with the requirements in s. NR 440.07(6)(a) or (b), data averages shall include any data recorded during periods of monitor breakdown or malfunction. An arithmetic or integrated average of all data may be used. The data may be recorded in reduced or nonreduced form (~~e.g.~~ for example, ppm pollutant and percent O_2 or ~~ng/J~~ ng of pollutant per J of heat input). All excess emissions shall be converted into units of the standard using the applicable conversion procedures specified in the standards. After conversion into units of the standard, the data may be rounded to the same number of significant digits used in the standard to specify the emission limit (~~e.g.~~ for example, rounded to the nearest one percent opacity).

SECTION 17. NR 440.13(10) is created to read:

NR 440.13(10) An alternative to the relative accuracy test specified in Performance Specification 2 of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1), may be requested as follows:

(a) An alternative to the reference method test for determining relative accuracy is available for sources with emission rates demonstrated to be less than 50% of the applicable standard. A source owner or operator may petition the administrator to waive the relative accuracy test in section 8.4 of Performance Specification 2 and substitute the procedures in section 16.0 if the results of a performance test conducted according to the requirements in s. NR 440.08 or other tests performed following the criteria in s. NR 440.08 demonstrate that the emission rate of the pollutant of interest in the units of the applicable standard is less than 50% of the applicable standard. For sources subject to standards expressed as control efficiency levels, a source owner or operator may petition the administrator to waive the relative accuracy test and substitute the procedures in section 16.0 of Performance Specification 2 if the control device exhaust emission rate is less than 50% of 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 shall include a detailed description of the procedures to be applied. Included shall 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 shall review the petition for completeness and applicability. The determination to grant a waiver will depend on the intended use of the CEMS data (for example, data collection purposes other than NSPS) and may require specifications more stringent than in Performance Specification 2 (for example, the applicable emission limit is more stringent than NSPS).

(b) The waiver of a CEMS relative accuracy test shall be reviewed and may be rescinded at the time, following successful completion of the alternative relative accuracy procedure, that the CEMS data indicate the source emissions are approaching the level of the applicable standard. The criterion for reviewing the waiver is the collection of CEMS data showing that emissions have exceeded 70% of the applicable standard for 7 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 CEMS data showing that exhaust emissions have exceeded 70% of the level needed to meet the control efficiency requirement for 7 consecutive averaging periods as specified by the applicable regulations. It is the responsibility of the source operator to maintain records and determine the level of emissions relative to the criterion on the waiver of relative accuracy testing. If this criterion is exceeded, the owner or operator shall notify the administrator within 10 days of the occurrence and include a description of the nature and cause of the increasing emissions. The administrator shall review the notification and may rescind the waiver and require the owner or operator to conduct a relative accuracy test of the CEMS as specified in section 8.4 of Performance Specification 2.

SECTION 18. NR 440.14(2)(intro.) is created to read:

NR 440.14(2)(intro.) Emission rate shall be expressed as kg/hr of any pollutant discharged into the atmosphere for which a standard is applicable. The department shall use the following to determine emission rate:

SECTION 19. NR 440.14(2)(a) is amended to read:

NR 440.14(2)(a) Emission factors as specified in Compilation of Air Pollutant Emission Factors, AP-42, Volume 1: Stationary Point and Area Sources, ~~USEPA~~ EPA-OAQPS, as amended, incorporated by reference in s. NR 440.17(2)(i)2., or other emission factors determined by the department to be superior to AP-42 emission factors, in cases where utilization of emission factors ~~demonstrate~~ demonstrates that the emission level resulting from the physical or operational change will either clearly increase or clearly not increase.

SECTION 20. NR 440.17(1) and (2)(intro.) are amended to read:

NR 440.17(1) APPENDICES. Appendices A, B, C ~~and~~, F and I of 40 CFR part 60 ~~and~~, Appendix B of 40 CFR part 61 and Appendices A, B, D, E and F of 40 CFR part 75, as in effect on ~~July 1, 1994~~ the effective date of this subsection ... [revisor inserts date], are incorporatd by reference and made a part of this chapter. Copies of these Appendices are available for inspection in the offices of the department of natural resources~~, secretary of state~~ and revisor of statutes, Madison, Wisconsin, or may be purchased for personal use from the superintendent of documents, U.S. government printing office, Washington DC 20402.

(2)(intro.) OTHER MATERIALS. The materials listed in this subsection are incorporated by reference ~~in~~ for the corresponding sections noted. Some of the materials are also incorporated ~~in~~ for Appendices A, B, C and F of 40 CFR part 60 as in effect on ~~July 1, 1988 by the administrator~~ the effective date of this subsection ...[revisor insert date]. Since these Appendices are incorporated by reference in this chapter by sub. (1), materials incorporated by reference in the Appendices are hereby also incorporated by reference and made a part of this chapter. The materials are available for inspection in the offices of the department of natural resources~~, secretary of state~~ and revisor of statutes, Madison, Wisconsin or may be purchased for personal use at the corresponding address noted.

SECTION 21. NR 440.17(2)(a) is repealed and recreated to read:

NR 440.17(2)(a) The materials listed in Table 1 are available for purchase from at least one of the following addresses: American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken PA 19428-2959; or ProQuest, 300 North Zeeb Road, PO Box 1346, Ann Arbor MI 48106-1346.

Table 1
ASTM Standard References

Standard Number	Standard Title	Incorporated by Reference For

1. ASTM A99-82 (reapproved 1987)	Standard Specification for Ferromanganese	NR 440.43(2)(v)
2. ASTM A100-93	Standard Specification for Ferrosilicon	NR 440.43(2)(k) and (t)
3. ASTM A101-93	Standard Specification for Ferrochromium	NR 440.43(2)(o)
4. ASTM A482-93	Standard Specification for Ferrochromesilicon	NR 440.43(2)(i)
5. ASTM A483-74 (reapproved 1988)	Standard Specification for Silicomanganese	NR 440.43(2)(q)
6. ASTM A495-94	Standard Specification for Calcium-Silicon and Calcium Manganese-Silicon	NR 440.43(2)(c)
7. ASTM D86-96	Distillation of Petroleum Products	NR 440.647(4)(d) NR 440.66(4)(d) NR 440.682(4)(h)
8. ASTM D129-00	Standard Test Method for Sulfur in Petroleum Products (General Bomb Method)	40 CFR part 60, Appendix A, Method 19, section 12.5.2.2.3 NR 440.26(7)(j)2. NR 440.50(6)(d)1.
9. ASTM D240-92	Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter	NR 440.19(7)(c)2. NR 440.46(7)(b)3. 40 CFR part 60, Appendix A, Method 19, section 12.5.2.2.3.
10. ASTM D270-75 [Withdrawn]	Standard Method of Sampling Petroleum and Petroleum Products	40 CFR part 60, Appendix A, Method 19, section 12.5.2.2.1.
11. ASTM D323-94	Test Method for Vapor Pressure of Petroleum Products (Reid Method)	NR 440.27(2)(i) NR 440.28(2)(h) NR 440.285(2)(i) and (7)(f)2.b.
12. ASTM D388-99 (reapproved 2004)	Standard Specification for Classification of Coals by Rank	NR 440.19(2)(a) and (6)(f)4.a., b. and f. NR 440.20(2)(b), (n) and (y) NR 440.205(2)(d) and (t) NR 440.207(2)(b) NR 440.42(2)(a) and (b)
13. ASTM D396-98	Standard Specification for Fuel Oils	NR 440.205(2)(h) and (zf) NR 440.207(2)(g) and (v) NR 440.27(2)(g) NR 440.28(2)(f)
14. ASTM D975-98a	Standard Specification for Diesel Fuel Oils	NR 440.27(2)(g) NR 440.28(2)(f)
15. ASTM D1072-90 (reapproved 1994)	Standard Method for Total Sulfur in Fuel Gases	NR 440.50(6)(d)2.
16. ASTM D1137-75	Standard Method for Analysis of Natural Gases and Related Types of Gaseous Mixtures by the Mass Spectrometer	NR 440.19(6)(f)5.a.
17. ASTM D1193-91	Standard Specification for Reagent Water	40 CFR part 60, Appendix A, Method 5, section 7.1.3; Method 5E, section 7.2.1; Method 5F, section 7.2.1; Method 6, section 7.1.1; Method 7, section 7.1.1; Method 7C, section 7.1.1; Method

		7D, section 7.1.1; Method 10A, section 7.1.1; Method 11, section 7.1.3; Method 12, section 7.1.3; Method 13A, section 7.1.2; Method 14A, section 7.1; Method 25D, section 7.2.2.4; Method 26, section 7.1.2; Method 26A, section 7.1.2; Method 29, section 7.2.2.
18. ASTM D1266-98	Standard Test Method for Sulfur in Petroleum Products (Lamp Method)	NR 440.26(7)(j)2. NR 440.50(6)(d)1.
19. ASTM D1475-90	Standard Test Method for Density of Paint, Varnish Lacquer, and Related Products	NR 440.56(6)(d)1. 40 CFR part 60, Appendix A, Method 24, section 6.1, Method 24A, sections 6.5 and 7.1.
20. ASTM D1552-01	Standard Test Method for Sulfur in Petroleum Products (High Temperature Method)	40 CFR part 60, Appendix A, Method 19, section 12.5.2.2.3 NR 440.26(7)(j)2. NR 440.50(6)(d)1.
21. ASTM D1826-94	Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter	NR 440.19(6)(f)5.b. and (7)(c)2. NR 440.46(7)(b)3. 40 CFR part 60, Appendix A, Method 19, section 12.3.2.4.
22. ASTM D1835-97	Standard Specification for Liquefied Petroleum (LP) Gases	NR 440.205(2)(y) NR 440.207(2)(q)
23. ASTM D1945-96	Standard Method for Analysis of Natural Gas by Gas Chromatography	NR 440.19(6)(f)5.a.
24. ASTM D1946-90 (reapproved 1994)	Standard Method for Analysis of Reformed Gas by Gas Chromatography	NR 440.18(6)(c) NR 440.19(6)(f)5.a. NR 440.647(6)(f) NR 440.675(5)(e)3.b. and 5. NR 440.686(5)(e)2.b. and 4. NR 440.705(5)(d)2.b. and 4.
25. ASTM D2013-86	Standard Method of Preparing Coal Samples for Analysis	40 CFR part 60, Appendix A, Method 19, section 12.5.2.1.3.
26. ASTM D2015-96	Standard Test Method for Gross Calorific Value of Solid Fuel by the Adiabatic Bomb Calorimeter	NR 440.19(6)(f)5.b. and (7)(c)2. 40 CFR part 60, Appendix A, Method 19, section 12.5.2.1.3.
27. ASTM D2016-83	Standard Test Methods for Moisture Content of Wood	40 CFR part 60, Appendix A, Method 28, section 16.1.1.
28. ASTM D2234-98	Standard Methods for Collection of a Gross Sample of Coal	40 CFR part 60, Appendix A, Method 19, section 12.5.2.1.1.
29. ASTM D2369-95	Standard Test Method for Volatile Content of Coatings	40 CFR part 60, Appendix A, Method 24, section 6.2.
30. ASTM D2382-88	Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method)	NR 440.18(6) NR 440.62(6)(g)6. NR 440.647(6)(f) NR 440.675(5)(e)5. NR 440.686(5)(e)4. NR 440.705(5)(d)4.
31. ASTM D2504-88 (reapproved 1993)	Noncondensable Gases in C3 and Lighter Hydrocarbon Products by Gas Chromatography	NR 440.62(6)(g)5.
32. ASTM D2584-94	Standard Test Method for Ignition	NR 440.69(6)(c)3.a.

	Loss of Cured Reinforced Resins	
33. ASTM D2597-94 (reapproved 1999)	Standard Test Method for Analysis of Demethanized Hydrocarbon Liquid Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography	NR 440.50(6)(c)9.a.
34. ASTM D2622-98	Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry	NR 440.26(7)(j)2. NR 440.50(6)(d)1.
35. ASTM D2879-97	Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope	NR 440.285(2)(f)3., (7)(e)3.b. and (f)2.a. NR 440.62(6)(e)1.
36. ASTM D2880-96	Standard Specification for Gas Turbine Fuel Oils	NR 440.27(2)(g) NR 440.28(2)(f) NR 440.50(6)(d)
37. ASTM D2908-91	Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography	NR 440.647(6)(j)
38. ASTM D2986-95a	Standard Method for Evaluation of Air, Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test	40 CFR part 60, Appendix A, Method 5, section 7.1.1, Method 12, section 7.1.1, and Method 13A, section 7.1.1.2.
39. ASTM D3031-81	Standard Test Method for Total Sulfur in Natural Gas by Hydrogenation	NR 440.50(6)(d)
40. ASTM D3173-87	Standard Test Method for Moisture in the Analysis Sample of Coal and Coke	40 CFR part 60, Appendix A, Method 19, section 12.5.2.1.3.
41. ASTM D3176-89	Standard Method for Ultimate Analysis of Coal and Coke	NR 440.19(6)(f)5.a. 40 CFR part 60, Appendix A, Method 19, section 12.3.2.3.
42. ASTM D3177-89	Standard Test Method for Total Sulfur in the Analysis Sample of Coal and Coke	40 CFR part 60, Appendix A, Method 19, section 12.5.2.1.3.
43. ASTM D3178-89	Standard Test Methods for Carbon and Hydrogen in the Analysis Sample of Coal and Coke	NR 440.19(6)(f)5.a.
44. ASTM D3246-96	Standard Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry	NR 440.50(6)(d)2.
45. ASTM D3270-95	Standard Test Methods for Analysis for Fluoride Content of the Atmosphere and Plant Tissues (Semiautomated Method)	40 CFR part 60, Appendix A, Method 13A, section 16.1.
46. ASTM D3286-96	Standard Test Method for Gross Calorific Value of Coal and Coke by the Isoperibol Bomb Calorimeter	40 CFR part 60, Appendix A, Method 19, section 12.5.2.1.3.
47. ASTM D3370-95a	Standard Practices for Sampling Water	NR 440.647(6)(j)
48. ASTM D3431-80 (reapproved 1987)	Test Method for Trace Nitrogen in Liquid Petroleum Hydrocarbons	NR 440.205(10)(e)
49. ASTM D3792-91	Standard Test Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas	40 CFR part 60, Appendix A, Method 24, section 6.3.

	Chromatograph	
50. ASTM D4017-96a	Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method	40 CFR part 60, Appendix A, Method 24, section 6.4.
51. ASTM D4057-95	Standard Practice for Manual Sampling of Petroleum and Petroleum Products	40 CFR part 60, Appendix A, Method 19, section 12.5.2.2.3.
52. ASTM D4084-94	Standard Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method)	NR 440.50(5)(h)1.
53. ASTM D4177-95	Standard Practice for Automatic Sampling of Petroleum and Petroleum Products	40 CFR part 60, Appendix A, Method 19, section 12.5.2.2.1.
54. ASTM D4239-97	Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods	40 CFR part 60, Appendix A, Method 19, section 12.5.2.1.3.
55. ASTM D4294-02	Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry	NR 440.50(6)(d)1.
56. ASTM D4442-92	Standard Test Methods for Direct Moisture Content Measurement in Wood and Wood-base Materials	40 CFR part 60, Appendix A, Method 28, section 16.1.1.
57. ASTM D4444-92	Standard Test Methods for Use and Calibration of Hand-Held Moisture Meters	40 CFR part 60, Appendix A, Method 28, section 16.1.1.
58. ASTM D4457-85 (reapproved 1991)	Test Method for Determination of Dichloromethane and 1,1,1-Trichloroethane in Paints and Coatings by Direct Injection into a Gas Chromatograph	40 CFR part 60, Appendix A, Method 24, section 6.5.
59. ASTM D4468-85 (reapproved 2000)	Standard Test Method for Total Sulfur in Gaseous Fuels by Hydrogenolysis and Rateometric Colorimetry	NR 440.50(6)(d)2.
60. ASTM D4629-02	Standard Test Method for Trace Nitrogen in Liquid Petroleum Hydrocarbons by Syringe/Inlet Oxidative Combustion and Chemiluminescence Detection	NR 440.50(6)(c)9.a.
61. ASTM D4809-95	Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method)	NR 440.18(6)(c) NR 440.62(6)(g)6. NR 440.647(6)(f)3. NR 440.675(5)(e)5. NR 440.686(5)(e)4. NR 440.705(5)(d)4.
63. ASTM D5403-93	Standard Test Methods for Volatile Content of Radiation Curable Materials	40 CFR part 60, Appendix A, Method 24, section 6.6.
64. ASTM D5453-00	Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Motor Fuels and Oils by Ultraviolet Fluorescence	NR 440.50(6)(d)1.

65. ASTM D5504-01	Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence	NR 440.50(5)(h)1.
66. ASTM D5762-02	Standard Test Method for Nitrogen in Petroleum and Petroleum Products by Boat-Inlet Chemiluminescence	NR 440.50(6)(c)9.a.
67. ASTM D5865-98	Standard Test Method for Gross Calorific Value of Coal and Coke	NR 440.19(6)(f)5.b. and (7)(c)2. 40 CFR part 60, Appendix A, Method 19, section 12.5.2.1.3.
68. ASTM D6216-98	Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications	40 CFR part 60, Appendix B, Performance Specification 1
69. ASTM D6228-98	Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection	NR 440.50(5)(h)1.
70. ASTM D6366-99	Standard Test Method for Total Trace Nitrogen and Its Derivatives in Liquid Aromatic Hydrocarbons by Oxidative Combustion and Electrochemical Detection	NR 440.50(6)(c)9.a.
71. ASTM D6522-00	Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers	NR 440.50(6)(a)2. and (c)4.
72. ASTM D6667-01	Standard Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence	NR 440.50(6)(d)2.
75. ASTM E168-92	General Techniques of Infrared Quantitative Analysis	NR 440.62(6)(d)1. NR 440.66(4)(b)2. NR 440.682(3)(f)
76. ASTM E169-93	General Techniques of Ultraviolet Quantitative Analysis	NR 440.62(6)(d)1. NR 440.66(4)(b) NR 440.682(3)(f)
77. ASTM E260-96	General Gas Chromatography Procedures	NR 440.62(6)(d)1. NR 440.66(4)(b)2. NR 440.682(3)(f) NR 440.684(5)(b)3.

SECTION 22. NR 440.17(2)(e) is amended to read:

NR 440.17(2)(e) The following material is available for purchase from the American Public Health Association, ~~1015 15th Street NW, Suite 300, Washington DC 20005~~ PO Box 753, Waldorf MD 20604:

1. Method 2540 B., Total Solids Dried at 103 - 105°C, in Standard Methods for the Examination of Water and Wastewater, ~~17th~~ 20th edition, ~~1989~~ 1998, for s. NR 440.69(4)(b).

2. Method 2540 G., Total, Fixed, and Volatile Solids in Solid and Semisolid Samples, in Standard Methods for the Examination of Water and Wastewater, ~~17th~~ 20th edition, ~~1989~~ 1998, for s. NR 440.32(5)(b)5.

SECTION 23. NR 440.17(2)(e)3. is created to read:

NR 440.17(2)(e)3. Method 3112 B, Cold-Vapor Atomic Absorption Spectrometric Method, in Standard Methods for the Examination of Water and Wastewater, 20th edition, 1998, for 40 CFR part 60, Appendix A, Method 29, pars. 9.2.3, 10.3 and 11.1.3.

SECTION 24. NR 440.17(2)(h)1., 2. and 3. and (i)1. and 2. are amended to read:

NR 440.17(2)(h)1. ~~ASME QRO 1 1989.~~ ASME QRO-1-1994, Standard for the Qualification and Certification of Resource Recovery Facility Operators, for ~~s.~~ ss. NR 440.215(7)(d), 440.216(8)(a) and (b) and 440.76(6)(a)1 and 3.b.

2. ASME PTC 4.1, Power Test Codes: Test Code for Steam Generating Units, 1964, for ss. NR 440.205(7)(g) ~~and~~, 440.215(9)(h)6.b., 440.216(12)(i)6.b. and 440.76(11)(b)1.c.

3. ASME Interim Supplement 19.5 on Instruments and Apparatus; Application, Part II of Fluid Meters, 6th Edition, 1971, for ~~s.~~ ss. NR 440.215(9)(h)6.b., 440.216(12)(i)6.b. and 440.76(11)(b)1.d.

(i)1. The Standard Industrial Classification Manual, 1987, NTIS order no. PB 87-100012, for ss. NR 440.205(2)(c) ~~and~~ , (zb) and (zdm), 440.46(2)(c), (d), (i) and (L) and 440.72(2)(a)1.

2. EPA AP-42, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, January 1995, as amended by Supplement ~~B in September, 1989, Supplement C in September, 1990, Supplement D in September, 1990, Supplement E in October, 1992, and Supplement F in July, 1993~~ A (February 1996), Supplement B (November 1996), Supplement C (November 1997), Supplement D (July 1998), Supplement E (November 1999), Supplement F (October 2000) and Update 2001 (December 2001), for ~~s.~~ ss. NR 440.14(2)(a) and 440.75(5)(a)3., (b)3., (c) and (d) and (6)(a)1.

SECTION 25. NR 440.17(2)(i)3. and 4. and (k) to (m) are created to read:

NR 440.17(2)(i)3. The North American Industry Classification System United States, 2002, NTIS order no. PB2002-101430, for s. NR 440.205(2)(zdm).

4. EPA document "Fabric Filter Bag Leak Detection Guidance" (EPA-454/R-98-015), for s. NR 440.445(4)(e)4.(intro.). Copies of this document may also be downloaded form the internet for personal use from http://www.epa.gov/ttn/emc/cem/tribo.pdf.

(k) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846 Third Edition (November 1986), as amended by Updates I (July, 1992), II (September 1994), IIA (August, 1993) and IIB (January, 1995) and III (December, 1996), for 40 CFR part 60, Appendix A, Method 29, pars. 7.5.34, 9.2.1, 9.2.3, 10.2, 10.3, 11.1.1, 11.1.3, 13.2.1, 13.2.2, 13.3.1, and Table 29-3. The Third Edition of SW-846 and Updates I, II, IIA, IIB and III (document number 955-001-00000-1) are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512-1800. Copies may be obtained from the Library of the U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460.

(L) The following material is available for purchase from the American Hospital Association (AHA) Service, Inc., PO Box 92683, Chicago, IL 60675-2683. You may inspect a copy at EPA’s Air and Radiation Docket and

Information Center (Docket A-91-61, Item IV-J-124), Room M-1500, 401 M Street SW, Washington, DC.

1. An Ounce of Prevention: Waste Reduction Strategies for Health Care Facilities, American Society for Health Care Environmental Services of the American Hospital Association, Chicago, IL, 1993, AHA Catalog No. 057007, ISBN 0-87258-673-5, for s. NR 440.218(6).

(m) The following material is available for purchase from either the Gas Processors Association, 6526 East 60th Street, Tulsa OK, 74145; or Information Handling Services, 15 Inverness Way East, PO Box 1154, Englewood CO 80150-1154: Gas Processors Association Method 2377-86, Test for Hydrogen Sulfide and Carbon Dioxide in Natural Gas Using Length of Stain Tubes, for s. NR 440.50(5)(h)1.

SECTION 26. NR 440.18(6)(a) and (c) are amended to read:

NR 440.18(6)(a) ~~Reference~~ Method 22 of Appendix A, 40 CFR part 60, incorporated by reference in s. NR 440.17(1), shall be used to determine the compliance of flares with the visible emission provisions of this section. The observation period is 2 hours and shall be used according to Method 22.

(c) The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

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

where:

H_T is the net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25°C and 700 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C;

K is the conversion constant, $1.740 \times 10^{-7} \left[\frac{1}{\text{ppm}}\right]\left[\frac{\text{g-mole}}{\text{scm}}\right]\left[\frac{\text{MJ}}{\text{kcal}}\right]$ where the standard temperature for (g-mole)/scm is 20ºC

C_i is the concentration of sample component i in ppm on a wet basis, as measured for organics by ~~Reference~~ Method 18 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), and measured for hydrogen and carbon monoxide by ASTM ~~D1946-77~~ D1946-90, incorporated by reference in s. NR 440.17~~; and~~ (2)(a)24.

H_i is the net heat of combustion of sample component i, kcal/(g-mole) at 25ºC and 760 mm Hg. The heats of combustion may be determined using ASTM ~~D2382-76~~ D2382-88 or D4809-95, incorporated by reference in s. NR 440.17(2)(a)30. and 61., if published values are not available or cannot be calculated.

SECTION 27. NR 440.185 is created to read:

NR 440.185 General notification and reporting requirements. (1) For the purposes of this chapter, time periods specified in days shall be measured in calendar days, even if the word 'calendar' is absent, unless otherwise specified in an applicable requirement.

(2) For the purposes of this chapter, if an explicit postmark deadline is not specified in an applicable requirement for the submittal of a notification, application, report or other written communication, the owner or operator shall postmark the submittal on or before the number of days specified in the applicable requirement. For example, if a notification is required to be submitted 15 days before a particular event is scheduled to take place, the notification shall be postmarked on or before 15 days preceding the event; likewise, if a notification is required to be submitted 15 days after a particular event takes place, the notification shall be delivered or postmarked on or before 15 days following the end of the event. The use of reliable non-government mail carriers that provide indications of

verifiable delivery of information required to be submitted, similar to the postmark provided by the U.S. Postal Service, or alternative means of delivery, including the use of electronic media, agreed to by the department, is acceptable.

(3) Notwithstanding time periods or postmark deadlines specified in this chapter for the submittal of information by an owner or operator, or the review of submitted information by the department, time periods or deadlines may be changed by mutual agreement between the owner or operator and the department according to procedures in sub. (6).

(4) If an owner or operator of an affected facility is required to submit periodic reports under this chapter, and is also subject to periodic reporting requirements having the same reporting frequency under another chapter, the owner or operator may change the dates by which periodic reports under this chapter are submitted, without changing the frequency of reporting, to coincide with the other reporting schedule by mutual agreement between the owner or operator and the department according to procedures in sub. (6). This provision applies beginning one year after the affected facility is required to be in compliance with this chapter.

(5) If an owner or operator supervises one or more stationary sources affected by standards under this chapter and standards under either 40 CFR part 61 or 63, the owner or operator may arrange by mutual agreement between the owner or operator and the department, according to procedures in sub. (6), a common schedule on which periodic reports required by each applicable standard shall be submitted throughout the year. This provision applies beginning one year after the stationary source is required to be in compliance with this chapter, or one year after the stationary source is required to be in compliance with the applicable standard in 40 CFR part 61 or 63, whichever is latest.

(6)(a) Until an adjustment of a time period or postmark deadline has been approved by the department under par. (c) or (d), the owner or operator of an affected facility remains strictly subject to the requirements of the applicable section.

(b) An owner or operator shall request the adjustment provided for in par. (c) or (d) for each change of an applicable time period or postmark deadline specified in this chapter.

(c) Notwithstanding time periods or postmark deadlines specified in this chapter for submittal of information, or the review of information by the department, time periods or postmark deadlines may be changed by mutual agreement between the owner or operator and the department. An owner or operator wishing to request a change in a time period or postmark deadline for a particular requirement shall request the adjustment in writing as soon as practicable before the subject activity is required to take place. The owner or operator shall include in the request whatever information is considered useful to convince the department that an adjustment is warranted.

(d) If, in the department's judgement, an owner or operator's request for an adjustment to a particular time period or postmark deadline is warranted, the department shall approve the adjustment. The department shall notify the owner or operator in writing of approval or disapproval of the request for an adjustment within 15 calendar days of receiving sufficient information to evaluate the request.

(e) If the department is unable to meet a specified deadline, the department shall notify the owner or operator of any significant delay and inform the owner or operator of the amended schedule.

SECTION 28. NR 440 Subchapter I (title) is amended to read:

NR 440 (title) **Subchapter ~~I~~ II - Standards of Performance**

SECTION 29. NR 440.19(2)(a), (6)(b)2., (f)4.a., b. and f., 5.a. and b., (g)(intro.), (7)(b)2.a. and b. and (c)2. are amended to read:

NR 440.19(2)(a) ''Coal" means all solid fuels classified as anthracite, bituminous, subbituminous~~,~~ or lignite by ASTM ~~D388-77~~ D388-99 (reapproved 2004), incorporated by reference in s. NR 440.17(2)(a)12.

(6)(b)2. 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 par. (d)~~.

(f)4.a. For anthracite coal as classified according to ASTM ~~D388-77~~ D388-99 (reapproved 2004), incorporated by reference in s. NR 440.17(2)(a)12., F = 2.723 x 10^{-7} dscm/J (10,140 dscf/million Btu) and F_c = 0.532 x 10^{-7} scm CO_2/J (1,980 scf CO_2/million Btu).

b. For subbituminous and bituminous coal as classified according to ASTM ~~D388-77~~ D388-99 (reapproved 2004), incorporated by reference in s. NR 440.17(2)(a)12., F = 2.637 x 10^{-7} dscm/J (9,820 dscf/million Btu) and F_c = 0.486 x 10^{-7} scm CO_2/J (1,810 scf CO_2/million Btu).

f. For lignite coal as classified according to ASTM ~~D388-77~~ D388-99 (reapproved 2004), incorporated by reference in s. NR 440.17(2)(a)12., F = 2.659 x 10^{-7} dscm/J (9900 dscf/million Btu) and F_c = 0.516 x 10^{-7} scm CO_2/J (1,920 scf CO_2/million Btu).

5.a. 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 ASTM method ~~D3178-73~~ D3178-89 or ~~D3176-74~~ D3176-89 (solid fuels), or computed from results using ASTM method ~~D1137-53(1975), D1945-64(1976) or D1946-77~~ D1137-75, D1945-96 or D1946-90 (reapproved 1994) (gaseous fuels) as applicable. These 5 ASTM methods are incorporated by reference in s. NR 440.17(2)(a)43., 41., 16., 23. and 24., respectively.

b. GCV is the gross calorific value (kJ/kg, Btu/lb) of the fuel combusted, determined by the ASTM test methods ~~D2015-77~~ D2015-96 or D5865-98 for solid fuels and

~~D1826-77~~ D1826-94 for gaseous fuels as applicable. These 2 ASTM methods are incorporated by reference in s. NR 440.17(2)(a)26. and 21., respectively.

(g)(intro.) Excess emission and monitoring system performance reports shall be submitted to the department ~~for every calendar quarter~~ semiannually for each 6-month period in the calendar year. All ~~quarterly~~ semiannual reports shall be postmarked by the 30th day following the end of each ~~calendar quarter~~ 6-month period. Each excess emission and ~~MSP~~ monitoring system performance report shall include the information required in s. NR 440.07(3). Periods of excess emissions and monitoring systems downtime that shall be reported are defined as follows:

(7)(b)2.a. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf). The probe and filter holder heating systems in the sampling train ~~may~~ shall be set to provide ~~a~~ an average gas temperature ~~no greater than~~ of 160 ± 14°C (320 ± 25°F).

b. The emission rate correction factor, integrated or grab sampling and analysis procedure of Method 3B shall be used to determine the O_2 concentration (% O_2). The O_2 sample shall be obtained simultaneously with, and at the same traverse points as, the particulate sample. If the grab sampling procedure is used, the O_2 concentration for the run shall be the arithmetic mean of ~~all~~ the ~~individual~~ sample O_2 ~~sample~~ concentrations at ~~each~~ all traverse ~~point~~ points.

(c)2. ASTM ~~Methods D2015-77~~ method D2015-96 or D5865-98 (solid fuels), ~~D240-76~~ D240-92 (liquid fuels) or ~~D1826-77~~ D1826-94 (gaseous fuels), incorporated by reference in s. NR 440.17(2)(a)26., 66., 9. and 21., respectively, shall be used to determine the gross calorific values of the fuels. The method used to determine the calorific value of wood residue shall be approved by the department.

SECTION 30. NR 440.20(1)(b) and (2)(b) are amended to read:

NR 440.20(1)(b) ~~This~~ Unless and until s. NR 440.50 extends the applicability of s. NR 440.50 to electric utility steam generators,this section applies to electric utility combined cycle gas turbines that are capable of combusting more than 73 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 section.

(2)(b) ''Anthracite'' means coal that is classified as anthracite according to the ~~American Society for Testing and Materials (~~ASTM~~)~~ Standard Specification for Classification of Coals by Rank, ~~D388-77~~ D388-99 (reapproved 2004), incorporated by reference in s. NR 440.17(2)(a)12.

SECTION 31. NR 440.20(2)(gr) is created to read:

NR 440.20(2)(gr) "Duct burner" means a device that combusts fuel and that is placed in the exhaust duct from another source, such as a stationary gas turbine, internal combustion engine or kiln, to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a heat recovery steam generating unit.

SECTION 32. NR 440.20(2)(Lm) is created to read:

NR 440.20(2)(Lm) ''Gross output'' means the gross useful work performed by the steam generated. For units generating only electricity, the gross useful work performed is the gross electrical output from the turbine or generator set. For cogeneration units, the gross useful work performed is the gross electrical output plus one half the useful thermal output (that is, steam delivered to an industrial process).

SECTION 33. NR 440.20(2)(n) is amended to read:

NR 440.20(2)(n) ''Lignite" means coal that is classified as lignite A or B according to the ~~STM~~ ASTM Standard Specification for Classification of Coals by Rank, ~~D388-77~~ D388-99 (reapproved 2004), incorporated by reference in s. NR 440.17(2)(a)12.

SECTION 34. NR 440.20(2)(q)1.b. is amended to read:

NR 440.20(2)(q)1.b. ~~75~~ 73 ng/J (0.17 lb/million Btu) heat input for liquid fuels.

SECTION 35. NR 440.20(2)(y) is amended to read:

NR 440.20(2)(y) "Subbituminous coal" means coal that is classified as subbituminous A, B or C according to the ASTM Standard Specification for Classification of Coals by Rank, ~~D388-77~~ D388-99 (reapproved 2004), incorporated by reference in s. NR 440.17(2)(a)12.

SECTION 36. NR 440.20(4)(d)2., (f), (5)(a)(intro.), (b) and (c) are amended to read:

NR 440.20(4)(d)2. Is classified as a resource recovery ~~facility~~ unit.

(f) The emission reduction requirements under this subsection do not apply to any affected facility that is operated under an SO$_2$ commercial demonstration permit issued by the administrator in accordance with the provisions of 40 CFR ~~60.45a~~ 60.47Da.

(5)(a)(intro.) On and after the date on which the initial performance test required to be conducted under s. NR 440.08 is completed, no owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any affected facility, except as provided under ~~par.~~ pars. (b) and (d), any gases which contain nitrogen oxides, expressed as NO$_2$, in excess of the following emission limits, based on a 30-day rolling average~~.~~, except as provided under sub. (6)(j)1.:

(b) The emission limitations under par. (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 in accordance with the provisions of 40 CFR ~~60.45a~~ 60.47Da.

(c) ~~When~~ Except as provided under par. (d),when 2 or more fuels are combusted simultaneously, the applicable standard is determined by proration using the following formula:

$$E_n = [86\ w + 130\ x + 210\ y + 260\ z + 340\ v]/100$$

where:

E_n is the applicable standard for nitrogen oxides when multiple fuels are combusted simultaneously (ng/J heat input)

w is the percentage of total heat input derived from the combustion of fuels subject to the 86 ng/J heat input standard

x is the percentage of total heat input derived from the combustion of fuels subject to the 130 ng/J heat input standard

y is the percentage of total heat input derived from the combustion of fuels subject to the 210 ng/J heat input standard

z is the percentage of total heat input derived from the combustion of fuels subject to the 260 ng/J heat input standard

v is the percentage of total heat input delivered from the combustion of fuels subject to the 340 ng/J heat input standard

SECTION 37. NR 440.20(5)(d) is created to read:

NR 440.20(5)(d)1. On and after the date on which the initial performance test required to be conducted under s. NR 440.08 is completed, no new source owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any affected facility for which construction commenced after July 9, 1997 any gases which contain nitrogen oxides, expressed as NO_2, in excess of 200 nanograms per joule (1.6 pounds per megawatt-hour) gross energy output, based on a 30-day rolling average, except as provided under sub. (6)(k)1.

2. On and after the date on which the initial performance test required to be conducted under s. NR 440.08 is completed, no existing source owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any affected facility for which construction commenced after July 9, 1997 any gases which contain nitrogen oxides, expressed as NO_2, in excess of 65 nanograms per joule (0.15 pounds per million Btu) heat input, based on a 30-day rolling average.

SECTION 38. NR 440.20(6)(a)(title), (b)(title), (c)(title), (d)(title), (e)(title), (f)(title), (g)(title) and (h)(title) are created to read:

NR 440.20(6)(a)(title) *Percent reduction requirement for particulate matter.*

(b)(title) *Percent reduction requirement for* NO_x.

(c)(title) *Compliance exception.*

(d)(title) *Operation with malfunctioning flue gas desulfurization.*

(e)(title) *Compliance after the initial performance test.*

(f)(title) *Initial performance test.*

(g)(title) *Compliance calculations for* SO_2 *and* NO_x.

(h)(title) *Quantity of emission data below minimum.*

SECTION 39. NR 440.20(6)(i) to (k) are created to read:

NR 440.20(6)(i) *Compliance provisions for sources subject to sub. (5)(d)1.* The owner or operator of an affected facility subject to sub. (5)(d)1. (new source constructed after July 7, 1997) shall calculate NO_x emissions by multiplying the average hourly NO_x output concentration measured according to the provisions of sub. (7)(c) by the average hourly flow rate measured according to the provisions of sub. (7)(L) and divided by the average hourly gross energy output measured according to the provisions of sub.

(7)(k).

(j) *Compliance provisions for duct burners subject to sub. (5)(a)1.* To determine compliance with the emissions limits for NO_x required by sub. (5)(a) for duct burners used in combined cycle systems, the owner or operator of an affected duct burner shall use one of the following procedures:

1. Conduct the performance test required under s. NR 440.08 using the appropriate methods in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). Compliance with the emissions limits under sub. (5)(a)1. shall be determined on the average of 3 (nominal 1-hour) runs for the initial and subsequent performance tests. During the performance test, one sampling site shall be located in the exhaust of the turbine prior to the duct burner. A second sampling site shall be located at the outlet from the heat recovery steam generating unit. Measurements shall be taken at both sampling sites during the performance test.

2. Use the continuous emission monitoring system specified under sub. (7) for measuring NO_x and oxygen and meet the requirements of sub. (7). Data from a CEMS certified or recertified according to the provisions of 40 CFR 75.20, meeting the QA and QC requirements of 40 CFR 75.21, and validated according to 40 CFR 75.23, may be used. The sampling site shall be located at the outlet from the steam generating unit. The NO_x emission rate at the outlet from the steam generating unit shall constitute the NO_x emission rate from the duct burner of the combined cycle system.

(k) *Compliance provisions for duct burners subject to sub. (5)(d)1.* To determine compliance with the emissions limits for NO_x required by sub. (5)(d)1. for duct burners used in combined cycle systems, either of the procedures described in subd. 1. or 2. shall be used.

1.a. Compute the emission rate (E) of NO_x using the following equation:

$$E = [(Csg \times Qsg) - (Cte \times Qte)] / (Osg \times h)$$

where:

E is the emission rate of NO_x from the duct burner, ng/J (lb/Mwh) gross output

Csg is the average hourly concentration of NO_x exiting the steam generating unit, ng/dscm (lb/dscf)

Cte is the average hourly concentration of NO_x in the turbine exhaust upstream from duct burner, ng/dscm (lb/dscf)

Qsg is the average hourly volumetric flow rate of exhaust gas from steam generating unit, dscm/hr (dscf/hr)

Qte is the average hourly volumetric flow rate of exhaust gas from conbustion turbine, dscm/hr (dscf/hr)

Osg is the average hourly gross energy output from steam generating unit, J (Mwh)

h is the average hourly fraction of the total heat input to the steam generating unit derived from the combustion of fuel in the affected duct burner

b. Use Method 7E in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), to determine the NO_x concentrations (Csg and Cte). Use Method 2, 2F or 2G in 40 CFR part 60, Appendix A, as appropriate, to determine the volumetric flow rates (Qsg and Qte) of the exhaust gases. The volumetric flow rate measurements shall be taken at the same time as the concentration measurements.

c. Develop, demonstrate and provide information satisfactory to the department to determine the average hourly gross energy output from the steam generating unit, and the average hourly percentage of the total heat input to the steam generating unit derived from the combustion of fuel in the affected duct burner.

d. Determine compliance with the emissions limits under sub. (5)(d)1. by the 3-run average (nominal 1-hour runs) for the initial and subsequent performance tests.

2. Use a 30-day rolling average basis by doing all of the following:

a. Compute the emission rate (E) of NO_x using the following equation:

$$E = (Csg \times Qsd)/Occ$$

where:

E is the emission rate of NO_x from the duct burner, ng/J (lb/Mwh) gross output

Csg is the average hourly concentration of NO_x exiting the steam generating unit, ng/dscm (lb/dscf)

Qsg is the average hourly volumentric flow rate of exhaust gas from steam generating unit, dscm/hr (dscf/hr)

Occ is the average hourly gross energy output from entire combined cycle unit, J (Mwh)

b. Use the continuous emissions monitoring system specified under sub. (7) for measuring NO_x and oxygen to determine the average hourly NO_x concentrations (Csg). The continuous flow monitoring system specified in sub. (7)(L) shall be used to determine the volumetric flow rate (Qsg) of the exhaust gas. The sampling site shall be located at the outlet from the steam generating unit. Data from a continuous flow monitoring system certified or recertified following procedures specifed in 40 CFR 75.20, meeting the quality assurance and quality control requirements of 40 CFR 75.21 and validated according to 40 CFR 75.23 may be used.

c. Use the continuous monitoring system specifed under sub. (7)(k) for measuring and determining gross energy output to determine the average hourly gross energy output from the entire combined cycle unit (Occ), which is the combined output from the combustion turbine and the steam generating unit.

d. The owner or operator may, in lieu of installing, operating and recording data from the continuous flow monitoring system specified in sub. (7)(L), determine the mass rate (lb/hr) of NO_x emissions by installing, operating and maintaining continuous fuel flow meters following the appropriate measurements procedures specified in 40 CFR part 75, Appendix D, incorporated by reference in s. NR 440.17(1). If this compliance option is selected, the emission rate (E) of NO_x shall be computed using the following equation:

$$E = (ERsg \times Hcc)/Occ$$

where:

E is the emission rate of NO_x from the duct burner, ng/J (lb/Mwh) gross output

ERsg is the average hourly emission rate of NO_x exiting the steam generating unit heat input calculated using appropriate F-factor as described in Method 19 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), ng/J (lb/million Btu)

Hcc is the average hourly heqt input rate of entire combined cycle unit, J/hr (million Btu/hr)

Occ is the average hourly gross energy output from entire combined cycle unit, J(Mwh)

3. When an affected duct burner steam generating unit utilizes a common steam turbine with one or more affected duct burner steam generating units, the owner or operator shall do one of the following:

a. Determine compliance with the applicable NO_x emissions limits by measuring the emissions combined with the emissions from the other units utilizing the common steam turbine.

b. Develop, demonstrate and provide information satisfactory to the department on methods for apportioning the combined gross energy output from the steam turbine for each of the affected duct burners. The department may approve a demonstrated substitute method for apportioning the combined gross energy putput measured at the steam turbine whenever the demonstration ensures accurate estimation of emissions regulated under this section.

SECTION 40. NR 440.20(7)(c) is renumbered NR 440.20(7)(c)1. and amended to read:

NR 440.20(7)(c)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 nitrogen oxides emissions discharged to the atmosphere~~.~~, except as provided in subd. 2.

SECTION 41. NR 440.20(7)(c)2. is created to read:

NR 440.20(7)(c)2. If the owner or operator has installed a nitrogen oxides emission rate continuous emission monitoring system (CEMS) to meet the requirements of 40 CFR part 75 and is continuing to meet the ongoing requirements of 40 CFR part 75, that CEMS may be used to meet the requirement of this paragraph, except that the owner or operator shall also meet the requirements of sub. (9). Data reported to meet the requirements of sub. (9) may not include data substituted using the missing data procedures in 40 CFR part 75, subpart D, nor shall the data have been bias adjusted according to the procedures of 40 CFR part 75.

SECTION 42. NR 440.20(7)(e) and (i)1. are amended to read:

NR 440.20(7)(e) The continuous monitoring systems under pars. (b), (c) and (d) shall be operated and data recorded during all periods of operation of the affected facility including ~~period~~ periods of startup, shutdown, malfunction or emergency conditions, except for continuous monitoring system breakdowns, repairs, calibration checks and zero and span adjustments.

(i)1. Methods 3B, 6~~,~~ and 7 ~~and 3B, as applicable,~~ shall be used to determine O_2, SO_2 and NO_x concentrations, respectively.

SECTION 43. NR 440.20(7)(k) to (n) are created to read:

NR 440.20(7)(k) The procedures specified in subds. 1. to 3. shall be used to determine gross output for sources demonstrating compliance with the output-based standard under sub. (5)(d)1.

1. The owner or operator of an affected facility with electricity generation shall install, calibrate, maintain and operate a wattmeter; measure gross electrical output in megawatt-hours on a continuous basis and record the output of the monitor.

2. The owner or operator of an affected facility with process steam generation shall install, calibrate, maintain and operate meters for steam flow, temperature and pressure; measure gross process steam output in joules per hour (Btu per hour) on a continuous basis and record the output of the monitor.

3. For affected facilities generating process steam in combination with electrical generation, the gross energy output is determined from the gross electrical output measured in accordance with subd. 1. plus 50% of the gross thermal output of the process steam measured in accordance with subd. 2.

(L) The owner or operator of an affected facility demonstrating compliance with the output-based standard under sub. (5)(d)1. shall do one of the following:

1. Install, certify, operate and maintain a continuous flow monitoring system meeting the requirements of Performance Specification 6 in 40 CFR part 60, Appendix B, and Procedure 1 in 40 CFR part 60, Appendix F, both incorporated by reference in s. NR 440.17(1), and record the output of the system for measuring the flow of exhaust gases discharged to the atmosphere.

2. Use data from a continuous flow monitoring system certified according to the requirements of 40 CFR 75.20, meeting the applicable quality control and quality assurance requirement of 40 CFR 75.21 and validated according to 40 CFR 75.23.

(m) The owner or operator of an affected unit that qualifies as a gas-fired or oil-fired unit, as defined in 40 CFR 72.2, may use, as an alternative to the requirements specified in either par. (L)1. or 2., a fuel flow monitoring system certified and operated according to the requirements of 40 CFR part 75, Appendix D, incorporated by reference in s. NR 440.17(1).

(n) The owner or operator of a duct burner which is subject to the NO_x standards of sub. (5)(a)1. or (d)1. is not required to install or operate a continuous emissions monitoring system to measure NO_x emissions; a wattmeter to measure gross electrical output; meters to measure steam flow, temperature and pressure; and a continuous flow monitoring system to measure the flow of exhaust gases discharged to the atmosphere.

SECTION 44. NR 440.20(8)(title) and (b)2.b. are amended to read:

NR 440.20(8)(title) COMPLIANCE DETERMINATION ~~TEST~~ PROCEDURES AND METHODS~~ AND PROCEDURES~~.

(b)2.b. For each particulate run, the emission rate correction factor, integrated or grab sampling and analysis procedures of Method 3B shall be used to determine the O_2 concentration. The O_2 sample shall be obtained simultaneously with, and at the same traverse points as, the particulate run. If the particulate run has more than 12 traverse points, the O_2 simultaneous traverse points may be reduced to 12 provided that Method 1 is used to locate the 12 O_2 traverse points. If the grab sampling procedure is used, the O_2 concentration for the run shall be the arithmetic mean of ~~all~~ the ~~individual~~ sample O_2 concentrations at ~~each~~ all traverse ~~point~~ points.

SECTION 45. NR 440.20(8)(f) is created to read:

NR 440.20(8)(f) Electric utility combined cycle gas turbines are performance tested for particulate matter, sulfur dioxide and nitrogen oxides using the procedures of Method 19 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). The sulfur dioxide and nitrogen oxides emission rates from the gas turbine used in Method 19 calculations are determined when the gas turbine is performance tested under s. NR 440.50. The potential uncontrolled particulate matter emission rate from a gas turbine is defined as 17 ng/J (0.04 lb/million Btu) heat input.

SECTION 46. NR 440.20(9)(i) is amended to read:

NR 440.20(9)(i) The owner or operator of an affected facility shall submit the written reports required under this subsection and ss. NR 440.01 to 440.15 to the department ~~for every calendar quarter~~ semiannually for each 6-month period. All ~~quarterly~~ semiannual reports shall be postmarked by the 30th day following the end of each ~~calendar quarter~~ 6-month period.

SECTION 47. NR 440.20(9)(j) is created to read:

NR 440.20(9)(j) The owner or operator of an affected facility may submit electronic quarterly reports for SO_2, NO_x and opacity in lieu of submitting the written reports required under pars. (b) and (h). The format of each quarterly electronic report shall be coordinated with the department. The electronic report shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement from the owner or operator, indicating whether compliance with the applicable emission standards and minimum data requirements of this section was achieved during the reporting period. Before submitting reports in the electronic format, the owner or operator shall coordinate with the department to obtain agreement to submit reports in this alternative format.

SECTION 48. NR 440.205(1)(g) and (h) are created to read:

NR 440.205(1)(g) Affected facilities which meet the applicability requirements under s. NR 440.216(1) are not subject to this section.

(h) Unless and until s. NR 440.50 is revised to extend the applicability of s. NR 440.50 to steam generator units subject to this section, this section will continue to apply to combined cycle gas turbines that are capable of combusting more than 29 MW (100 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 section. (The gas turbine emissions are subject to s. NR 440.50.)

SECTION 49. NR 440.205(2) (b), (d), (h), (t), (y)2. and (zf) are amended to read:

NR 440.205(2)(b) ''Byproducts/waste'' means any liquid or gaseous substance produced at chemical manufacturing plants ~~or~~ , petroleum refineries or pulp and paper mills (except natural gas, distillate oil, or residual oil) and combusted in a steam generating unit for heat recovery or for disposal. Gaseous substances with carbon dioxide levels greater than 50% or carbon monoxide levels greater than 10% are not byproduct/waste for the purposes of this section.

(d) ''Coal'' means all solid fuels classified as an anthracite, bituminous, subbituminous~~,~~ or lignite by the American Society for Testing and Materials in ASTM ~~D388-77~~ D388-99 (reapproved 2004), Standard Specification for Classification of Coals by Rank, incorporated by reference in s. NR 440.17(2)(a)12., coal refuse, and petroleum coke. Coal-derived synthetic fuels, including but not limited to solvent refined coal, gasified coal, coal-oil mixtures, and coal-water mixtures, are also included in this definition for the purposes of this section.

(h) ''Distillate oil'' means fuel oils which contain 0.05 weight ~~%~~ percent nitrogen or less and comply with the specifications for fuel oils number 1 and 2, as defined by the American Society for Testing and Materials in ASTM ~~D396-78~~ D396-98, Standard Specification for Fuel Oils, incorporated by reference in s. NR 440.17(2)(a)13.

(t) ''Lignite'' means a type of coal classified as lignite A or lignite B by the American Society for Testing and Materials in ASTM ~~D388-77~~ D388-99 (reapproved 2004), Standard Specification for Classification of Coals by Rank, incorporated by reference in s. NR 440.17(2)(a)12.

(y)2. Liquid petroleum gas, as defined by the American Society for Testing and Materials in ASTM ~~D1835-86~~ D1835-03a, Standard Specification for Liquid Petroleum Gases, incorporated by reference in s. NR 440.17(2)(a)22.

(zf) ‘‘Residual oil’’ means crude oil, fuel oil numbers 1 and 2 that have a nitrogen content greater than 0.05 weight ~~%~~ percent, and all fuel oil numbers 4, 5 and 6, as defined by the American Society for Testing and Materials in ASTM ~~D396-78~~ D396-98, Standard Specifications for Fuel Oils, incorporated by reference in s. NR 440.17(2)(a)13.

SECTION 50. NR 440.205(2)(zdm) is created to read:

NR 440.205(2)(zdm) "Pulp and paper mills" means industrial plants which are classified under code 26 of the Standard Industrial Classification Manual, 1987 or under code 322 of the North American Industry Classification System, United States 2002, incorporated by reference in s. NR 440.17(2)(i)1. and 3. respectively.

SECTION 51. NR 440.205(4)(a)1.(intro.) and (g) and (5)(a)(intro.), (b), (c) and (e) are amended to read:

NR 440.205(4)(a)1.(intro.) 22 ng/J (~~0.050~~ 0.051 lb/million Btu) heat input;

(g) The particulate matter and opacity standards apply at all times, except during ~~period~~ periods of startup, shutdown or malfunction.

(5)(a)(intro.) Except as provided under ~~par.~~ pars. (k) and (L), on and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, whichever date comes first, no owner or operator of an affected facility that is subject to the provisions of this subsection and that combusts only coal, oil~~,~~ or natural gas may cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides (expressed as NO_2) in excess of the following emission limits:

(b) Except as provided under ~~par.~~ pars. (k) and (L), on and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, whichever date comes first, no owner or operator of an affected facility that simultaneously combusts mixtures of coal, oil~~,~~ or natural gas may cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides in excess of a limit determined by use of the following formula:

$$E_n = [(EL_{go}\ H_{go}) + (EL_{ro}\ H_{ro}) + (EL_c\ H_c)]/(H_{go} + H_{ro} + H_c)$$

where:

E_n is the nitrogen oxides emission limit (expressed as NO_2), ng/J (lb/million Btu)

EL_{go} is the appropriate emission limit from the table in par. (a) for combustion of natural gas or distillate oil, ng/J (lb/million Btu)

H_{go} is the heat input from combustion of natural gas or distillate oil, J (million Btu)

EL_{ro} is the appropriate emission limit from the table in par. (a) for combustion of residual oil

H_{ro} is the heat input from combustion of residual oil, J (million Btu)

EL_c is the appropriate emission limit from the table in par. (a) for combustion of coal

H_c is the heat input from combustion of coal, J (million Btu)

(c) ~~On~~ Except as provided under par. (L), on and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, whichever comes first, no owner or operator of an affected facility that simultaneously combusts coal or oil, or a mixture of these fuels with natural gas, and wood, municipal-type solid waste~~,~~ or any other fuel may cause to be discharged into the atmosphere any gases that contain nitrogen oxides in excess of the emission limit for the coal or oil, or mixture of these fuels with natural gas, combusted in the affected facility, as determined pursuant to par. (a) or (b), unless the affected facility has an annual capacity factor for coal or oil, or mixture of these fuels with natural gas, of 10% (0.10) or less and is subject to a federally enforceable requirement that limits operation of the affected facility to an annual capacity factor of 10% (0.10) or less for coal, oil~~,~~ or a mixture of these fuels with natural gas.

(e) ~~On~~ Except as provided under par. (L), on and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, whichever date comes first, no owner or operator of an affected facility that simultaneously combusts coal, oil~~,~~ or natural gas with byproduct/waste may cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides in excess of an emission limit determined by the following formula unless the affected facility has an annual capacity factor for coal, oil~~,~~ and natural gas of 10% (0.10) or less and is subject to a federally enforceable requirement which limits operation of the affected facility to an annual capacity factor of 10% (0.10) or less:

$$E_n = [(EL_{go}\ H_{go}) + (EL_{ro}\ H_{ro}) + (EL_c\ H_c)]/(H_{go} + H_{ro} + H_c)$$

where:

E_n is the nitrogen oxides emission limit (expressed as NO_2), ng/J (lb/million Btu)

EL_{go} is the appropriate emission limit from the table in par. (a) for combustion of natural gas or distillate oil, ng/J (lb/million Btu)

H_{go} is the heat input from combustion of natural gas, distillate oil and gaseous byproduct/waste, J (million Btu)

EL_{ro} is the appropriate emission limit from the table in par. (a) for combustion of residual oil, ng/J (lb/million Btu)

H_{ro} is the heat input from combustion of residual oil ~~and/or~~ or liquid byproduct/waste, J (million Btu)

EL_c is the appropriate emission limit from the table in par. (a) for combustion of coal

H_c is the heat input from combustion of coal, J (million Btu)

SECTION 52. NR 440.205(5)(L) is created to read:

NR 440.205(5)(L) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, whichever date comes first, no owner or operator of an affected facility which commenced construction, modification or reconstruction after July 9, 1997 may cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides (expressed as NO_2) in excess of one of the following limits:

1. If the affected facility combusts coal, oil or natural gas, or a mixture of these fuels, or with any other fuels: a limit of 86 ng/J (0.20 lb/million Btu) heat input unless the affected facility has an annual capacity factor for coal, oil and natural gas of 10% (0.10) or less and is subject to a federally enforceable requirement that limits operation of the facility to an annual capacity factor of 10% (0.10) or less for coal, oil and natural gas.

2. If the affected facility has a low heat release rate and combusts natural gas or distillate oil in excess of 30% of the heat input from the combustion of all fuels, a limit determined by use of the following formula:

$$E_n = [(0.10 * H_{go}) + (0.20 * H_r)]/(H_{go} + H_r)$$

where:

E_n is the NO_x emission limit, (lb/million Btu)

H_{go} is the heat input from combustion of natural gas or distillate oil

H_r is the heat input from combustion of any other fuel

SECTION 53. NR 440.205(7)(d)4. is amended to read:

NR 440.205(7)(d)4. For Method 5, the temperature of the sample gas in the probe and filter holder is monitored and is maintained at ~~160°C (320°F)~~ 160 ± 14°C (320 ± 25°F).

SECTION 54. NR 440.205(7)(f) is renumbered NR 440.205(7)(f)(intro.) and amended to read:

NR 440.205(7)(f)(intro.) To determine compliance with the emission limit for ~~nitrogen oxides~~ NO_x required by ~~the table in~~ sub. (5)(a)4. or (L) for duct burners used in combined cycle systems, ~~the owner or operator of an affected facility shall conduct the performance test required under s. NR 440.08 using the nitrogen oxides and oxygen measurement procedures in Method 20 of Appendix A, 40 CFR part 60, incorporated by reference in s. NR 440.17. During the performance test, one sampling site shall be located as close as practicable to the exhaust of the turbine, as provided by s. 6.1.1 of Method 20. A second sampling site shall be located at the outlet to the steam generating unit. Measurements of nitrogen oxides and oxygen shall be taken at both sampling sites simultaneously during the performance test. The nitrogen oxides emission rate from the combined cycle system shall be calculated by subtracting the nitrogen oxides emission rate measured at the sampling site at the outlet from the turbine from the nitrogen oxides emission rate measured at the sampling site at the outlet from the steam generating unit.~~ either of the procedures described in subd. 1. or 2. may be used:

SECTION 55. NR 440.205(7)(f)1. and 2. are created to read:

NR 440.205(7)(f)1. The owner or operator of an affected facility shall conduct the performance test required under s. NR 440.08 as follows:

a. The emissions rate (E) of NO_x shall be computed using Equation 1 of this section:

$$E = E_{sg} + (H_g/H_b)(E_{sg} - E_g) \quad \text{Equation 1}$$

where:

E is the emissions rate of NO_x from the duct burner, ng/J (lb/million Btu) heat input

E_{sg} is the combined effluent emissions rate, in ng/J (lb/million Btu) heat input using appropriate F-Factor as described in Method 19

H_g is the heat input rate to the combustion turbine, in Joules/hour (million Btu/hour)

H_b is the heat input rate to the duct burner, in Joules/hour (million Btu/hour)

E_g is the emissions rate from the combustion turbine, in ng/J (lb/million Btu) heat input calculated using appropriate F-Factor as described in Method 19

b. Method 7E shall be used to determine the NO_x concentrations. Method 3A or 3B shall be used to determine oxygen concentration.

c. The owner or operator shall identify and demonstrate to the department's satisfaction suitable methods to determine the average hourly heat input rate to the combustion turbine and the average hourly heat input rate to the affected duct burner.

d. Compliance with the emissions limits under sub. (5)(a)4. or (L) shall be determined by the 3-run average (nominal 1-hour runs) for the initial and subsequent performance tests.

2. The owner or operator of an affected facility may elect to determine

compliance on a 30-day rolling average basis by using the continuous emission monitoring system specified under sub. (9) for measuring NO_x and oxygen and meet the requirements of sub. (9). The sampling site shall be located at the outlet from the steam generating unit. The NO_x emissions rate at the outlet from the steam generating unit shall constitute the NO_x emissions rate from the duct burner of the combined cycle system.

SECTION 56. NR 440.205(9)(b) is renumbered NR 440.205(9)(b)(intro.) and amended to read:

NR 440.205(9)(b)(intro.) Except as provided under pars. (g), (h) and (i), the owner or operator of an affected facility ~~subject to the nitrogen oxides standard of sub. (5) shall install, calibrate, maintain, and operate a continuous monitoring system for measuring nitrogen oxides emissions discharged to the atmosphere and record the output of the system.~~ shall comply with one of the following:

SECTION 57. NR 440.205(9)(b)1. and 2. are created to read:

NR 440.205(9)(b)1. 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.

2. If the owner or operator has installed a nitrogen oxides emission rate continuous emission monitoring system (CEMS) to meet the requirements of 40 CFR part 75 and is continuing to meet the ongoing requirements of 40 CFR part 75, that CEMS may be used to meet the requirements of this subsection, except that the owner or operator shall also meet the requirements of sub. (10). Data reported to meet the requirements of sub. (10) may not include data substituted using the missing data procedures in 40 CFR part 75, subpart D, nor shall the data have been bias adjusted according to the procedures of 40 CFR part 75.

SECTION 58. NR 440.205(9)(h) is amended to read:

NR 440.205(9)(h) The owner or operator of ~~an affected facility~~ a duct burner, as described in sub. (2)(j), which is subject to the ~~nitrogen oxides~~ NO_X standards ~~for duct burners in the table in~~ of sub. (5)(a)4. or (L), is not required to install or operate a continuous emissions monitoring system to measure ~~nitrogen oxides~~ NO_X emissions.

SECTION 59. NR 440.205(10)(d), (e), (h)(intro.), (i), (j), (k)2. and 3., (m)(intro.), (n)(intro.), 1., 2. and 3., (q)(intro.), 2. and 3. and (r) are amended to read:

NR 440.205(10)(d) The owner or operator of an affected facility shall record and maintain records of the amounts of ~~all fuels~~ each fuel combusted during each day and calculate the annual capacity factor individually for coal, distillate oil, residual oil, natural gas, wood, and municipal-type solid waste for ~~each calendar quarter~~ the reporting period. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.

(e) For an affected facility that combusts residual oil and meets the criteria under sub. (5)(j) or (k) or (7)(e)4., the owner or operator shall maintain records of the nitrogen content of the residual oil combusted in the affected facility and calculate the average fuel nitrogen content ~~on a per calendar quarter basis~~ for the reporting period. The nitrogen content shall be determined using ASTM ~~Method~~ method D3431-80 (reapproved 1987), Test Method for Trace Nitrogen in Liquid Petroleum Hydrocarbons, incorporated by reference in s. NR 440.17(2)(a)48., or fuel specification data obtained from fuel suppliers. If residual oil blends are being combusted, fuel nitrogen specifications may be prorated based on the ratio of residual oils of different nitrogen content in the fuel blend.

(h)(intro.) The owner or operator of any affected facility in any category listed in subd. 1. or 2. is required to submit excess emission reports to the department for any ~~calendar quarter during which there are excess emissions from the affected facility. If there are no excess emissions during the calendar quarter, the owner or operator shall submit a report semiannually stating that no excess emissions occurred during the semiannual reporting period~~ excess emissions which occurred during the reporting period.

(i) The owner or operator of any affected facility subject to the continuous monitoring requirements for nitrogen oxides under sub. (9) shall submit ~~a quarterly report~~ reports to the department containing the information recorded under par. (g). ~~All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.~~

(j) The owner or operator of any affected facility subject to the sulfur dioxide standards under sub. (3) shall submit ~~written~~ reports to the department~~ for every calendar quarter~~. ~~All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.~~

(k)2. Each 30-day average sulfur dioxide emission rate (ng/J or lb/million Btu heat input) measured during the reporting period, ending with the last 30-day period ~~in the quarter~~; reasons for noncompliance with the emission standards; and a description of corrective actions taken.

3. Each 30-day average percent reduction in sulfur dioxide emissions calculated during the reporting period, ending with the last 30-day period ~~in the quarter~~; reasons for noncompliance with the emission standards; and a description of corrective actions taken.

(m)(intro.) For each affected facility subject to the sulfur dioxide standards under sub. (3) for which the minimum amount of data required under sub. (8)(f) were not obtained during ~~a calendar quarter~~ the reporting period, the following information is reported to the department in addition to that required under par. (k).

(n)(intro.) If a percent removal efficiency by fuel pretreatment (~~i.e.,~~ $\%R_f$) is used to determine the overall percent reduction (~~i.e.,~~ $\%R_o$) under sub. (6), the owner or operator of the affected facility shall submit a signed statement with the ~~quarterly~~ report:

1. Indicating what removal efficiency by fuel pretreatment (~~i.e.,~~ $\%R_f$) was credited ~~for the calendar quarter;~~ during the reporting period.

2. Listing the quantity, heat content, and date each pretreated fuel shipment was received during the ~~previous calendar quarter~~ reporting period; 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 calendar quarter;~~ reporting period.

3. Documenting the transport of the fuel from the fuel pretreatment facility to the steam generating unit~~;~~ .

(q)(intro.) The owner or operator of an affected facility described in sub. (5)(j) or (k) shall submit to the department ~~on a quarterly basis~~ a report containing all of the following:

2. The average fuel nitrogen content during the ~~quarter~~ reporting period, if residual oil was fired~~; and~~.

3. If the affected facility meets the criteria described in sub. (5)(j), the results of any nitrogen oxides emission tests required during the ~~quarter~~ reporting period, the hours of operation during the ~~quarter~~ reporting period and the hours of operation since the last nitrogen oxides emission test.

(r) The owner or operator of an affected facility who elects to demonstrate that the affected facility combusts only very low sulfur oil under sub. (3)(j)2. shall obtain and maintain at the affected facility fuel receipts from the fuel supplier which certify that the oil meets the definition of distillate oil as defined in sub.

(2). For the purposes of this subsection, the oil need not meet the fuel nitrogen content specification in the definition of distillate oil. ~~Quarterly reports~~ Reports shall be submitted to the department certifying that only very low sulfur oil meeting this definition was combusted in the affected facility during the ~~preceding quarter~~ reporting period.

SECTION 60. NR 440.205(10)(s) and (t) are created to read:

NR 440.205(10)(s) The owner or operator of an affected facility may submit electronic quarterly reports for SO_2, NO_x and opacity in lieu of submitting the written reports required under par. (h), (i), (j), (k) or (L). The format of each quarterly electronic report shall be coordinated with the department. The electronic report shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement from the owner or operator, indicating whether compliance with the applicable emission standards and minimum data requirement of this section was achieved during the reporting period. Before submitting reports in the electronic format, the owner or operator shall coordinate with the department to obtain agreement to submit reports in this alternative format.

(t) The reporting period for the reports required under this section is each 6-month period. All reports shall be submitted to the department and shall be postmarked by the 30th day following the end of the reporting period.

SECTION 61. NR 440.207(1) is renumbered NR 440.207(1)(a) and amended to read:

NR 440.207(1)(a) ~~The~~ Except as provided in par. (d), the affected facility to which this section applies is each steam generating unit for which construction, modification or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million Btu per hour (Btu/hr)) or less, but greater than or equal to 2.9 MW (10 million Btu/hr).

SECTION 62. NR 440.207(1)(c) and (d) and (2)(em) are created to read:

NR 440.207(1)(c) Steam generating units which meet the applicability requirements in par. (a) are not subject to the sulfur dioxide (SO_2) or particulate matter (PM) emission limits, performance testing requirement, or monitoring requirements under this section during periods of combustion research.

(d) Any temporary change to an existing steam generating unit for the purpose of conducting combustion research is not considered a modification under s. NR 440.14.

(2)(em) "Combustion research" means the experimental firing of any fuel or combination of fuels in a steam generating unit for the purpose of conducting research and development of more efficient combustion or more effective prevention or control of air pollutant emissions from combustion, provided that, during these periods of research and development, the heat generated is not used for any purpose other than preheating combustion air for use by that steam generating unit (that is, the heat generated is released to the atmosphere without being used for space heating, process heating, driving pumps, preheating combustion air for other units, generating electricity or any other purpose).

SECTION 63. NR 440.207(2)(g), (q)2., (v), (4)(a)1., (b)(intro.), (5)(i) and (6)(a)1. and 3.a. and b. are amended to read:

NR 440.207(2)(g) "Distillate oil" means fuel oil that complies with the specifications for fuel oil ~~numbers~~ number 1 or 2, as defined by the American Society for Testing and Materials in ASTM ~~D396-78~~ D396-98, "Standard Specification for Fuel Oils", incorporated by reference in s. NR 440.17(2)(a)13.

(q)2. Liquified petroleum (LP) gas, as defined by the American Society for Testing and Materials in ASTM ~~D1835-86~~ D1835-03a, "Standard Specification for Liquified Petroleum Gases", incorporated by reference in s. NR 440.17(2)(a)22.

(v) "Residual oil" means crude oil, fuel oil that does not comply with the specifications under the definition of distillate oil, and all fuel oil numbers 4, 5 and 6, as defined by the American Society for Testing and Materials in ASTM ~~D396-78~~ D396-98, ~~"~~Standard Specification for Fuel Oils~~"~~, incorporated by reference in s. NR 440.17(2)(a)13.

(4)(a)1. 22 ng/J (~~0.050~~ 0.051 lb/million Btu) heat input if the affected facility combusts only coal, or combusts coal with other fuels and has an annual capacity factor for the other fuels of 10% (0.10) or less.

(b)(intro.) On and after the date on which the initial performance test is completed or required to be completed under s. NR 440.08, whichever date comes first, no owner or operator of an affected facility that combusts wood or combusts mixtures of wood with other fuels, except coal, and has a heat input capacity of 8.7 MW (30 million Btu/hr) or greater, may cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of the following emission limits:

(5)(i) The owner or operator of an affected facility seeking to demonstrate compliance with the SO_2 standards under sub. (3)(c)2. shall demonstrate the maximum design heat input capacity of the steam generating unit by operating the steam generating unit at this capacity for 24 hours. This demonstration shall be made during the initial performance test, and a subsequent demonstration may be requested at any other time. If the demonstrated 24-hour ~~averaged~~ average firing rate for the affected facility is less than the maximum design heat input capacity stated by the manufacturer of the affected facility, the demonstrated 24-hour average firing rate shall be used to determine the annual capacity factor for the affected facility; otherwise, the maximum design heat input capacity provided by the manufacturer shall be used.

(6)(a)1. Method 1 shall be used to select the sampling site and the number of traverse sampling points. ~~The sampling time for each run shall be at least 120 minutes and the minimum sampling volume shall be 1.7 dry square cubic meters (dscm) [60 dry square cubic feet (dscf)] except that smaller sampling times or volumes may be approved by the department when necessitated by process variables or other factors.~~

3.a. Method 5 may be used only at ~~the~~ affected facilities without wet scrubber systems.

b. Method 17 may be used at affected facilities with or without wet scrubber systems provided the stack gas temperature does not exceed a temperature of 160°C (320°F). The procedures of Sections ~~2.1 and 2.3~~ 8.1 and 11.1 of Method 5B may be used in Method 17 only if Method 17 is used in conjunction with a wet scrubber system. Method 17 may not be used in conjunction with a wet scrubber system if the ~~effluent is~~ emissions are saturated or laden with water droplets.

SECTION 64. NR 440.207(6)(a)4. to 7. are renumbered NR 440.207(6)(a)5. to 8., and NR 440.207(6)(a)5., as renumbered, is amended to read:

NR 440.207(6)(a)5. For Method 5 or Method 5B, the temperature of the sample gas in the probe and filter holder shall be monitored and maintained at ~~160°C (320°F)~~ 160 ± 14°C (320 ± 25°F).

SECTION 65. NR 440.207(6)(a)4. is created to read:

NR 440.207(6)(a)4. The sampling time for each run shall be at least 120 minutes and the minimum sampling volume shall be 1.7 dscm (60 dscf) except that smaller sampling times or volumes may be approved by the department when necessitated by process variables or other factors.

SECTION 66. NR 440.207(7)(b), (d)(intro.), (9)(b), (c), (d) and (e)(intro.), 2., 3. and 11. are amended to read:

NR 440.207(7)(b) The 1-hour average SO_2 emission rates measured by a ~~CEM~~ CEMS shall be expressed in ng/J or lb/million Btu heat input and shall be used to calculate the average emission rates under sub. (3). Each 1-hour average SO_2 emission rate shall be based on at least 30 minutes of operation and include at least 2 data points representing 2 15-minute periods. Hourly SO_2 emission rates are not calculated if the affected facility is operated less than 30 minutes in a 1-hour period and are not counted toward determination of a steam generating unit operating day.

(d)(intro.) As an alternative to operating a CEMS at the inlet to the SO_2 control device, or outlet of the steam generating unit if no SO_2 control device is used, as required under par. (a), an owner or operator may elect to determine the average SO_2 emission rate by sampling the fuel prior to combustion. As an alternative to operating a ~~CEM~~ CEMS at the outlet from the SO_2 control device, or outlet of the steam generating unit if no SO_2 control device is used, as required under par. (a), an owner or operator may elect to determine the average SO_2 emission rate by using Method 6B. Fuel sampling shall be conducted pursuant to either subd. 1. or 2. Method 6B shall be conducted pursuant to subd. 3.

(9)(b) The owner or operator of each affected facility subject to the SO_2 emission limits of sub. (3), or the PM or opacity limits of sub. (4), shall submit to the department the performance test data from the initial and any subsequent performance tests and, if applicable, the performance evaluation of the CEMS and COMS using the applicable performance specifications in Appendix B of 40 CFR part 60, incorporated by reference in s. NR 440.17(1).

(c) The owner or operator of each coal-fired, residual oil-fired, or wood-fired affected facility subject to the opacity limits under sub. (4)(c) shall submit excess emission reports ~~for any calendar quarter~~ for ~~which there are~~ any excess emissions from the affected facility which occur during the reporting period. ~~If there are no excess emissions during the calendar quarter, the owner or operator shall submit a report semiannually stating that no excess emissions occur during the semiannual reporting period. The initial quarterly report shall be postmarked by the 30th day of the third month following the completion of the initial performance test, unless no excess emissions occur during that quarter. The initial semiannual report shall be postmarked by the 30th day of the sixth month following the completion of the initial performance test, or following the date of the previous quarterly report, as applicable. Each subsequent quarterly or semiannual report shall be postmarked by the 30th day following the end of the reporting period.~~

(d) The owner or operator of each affected facility subject to the SO_2 emission limits, fuel oil sulfur limits or percent reduction requirements under sub. (3) shall submit ~~quarterly~~ reports to the department. ~~The initial quarterly report shall be postmarked by the 30th day of the third month following the completion of the initial performance test. Each subsequent quarterly report shall be postmarked by the 30th day following the end of the reporting period.~~

(e)(intro.) The owner or operator of each affected facility subject to the SO_2 emission limits, fuel oil sulfur limits or percent reduction requirements under sub. (3) shall keep records and submit ~~quarterly~~ reports as required under par. (d), including the following information, as applicable:

2. Each 30-day average SO_2 emission rate (ng/J or lb/million Btu), or 30-day average sulfur content (weight percent), calculated during the reporting period, ending with the last 30-day period ~~in the quarter~~; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.

3. Each 30-day average percent of potential SO_2 emission rate calculated during the reporting period, ending with the last 30-day period ~~in the quarter~~; reasons for any noncompliance with the emission standards; and a description of corrective actions

taken.

11. If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under par. (f)1., 2. or 3., as applicable. In addition to records of fuel supplier certifications, the ~~quarterly~~ report shall include a certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the ~~quarter~~ reporting period.

SECTION 67. NR 440.207(9)(j) is created to read:

NR 440.207(9)(j) The reporting period for the reports required under this section is each 6-month period. All reports shall be submitted to the department and shall be postmarked by the 30th day following the end of the reporting period.

SECTION 68. NR 440.21(3)(a) is renumbered NR 440.21(3) and as renumbered is amended to read:

NR 440.21(3) On and after the date on which the initial performance test is completed or required to be ~~conducted by~~ completed under s. NR 440.08 ~~is completed~~, whichever date comes first, no owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.18 g/dscm (0.08 gr/dscf) corrected to 12% CO_2.

SECTION 69. NR 440.21(4)(a) is renumbered NR 440.21(4).

SECTION 70. NR 440.21(5)(b)1. and 3.a. are amended to read:

NR 440.21(5)(b)1. The ~~emission rate~~ concentration (C_{12}) of particulate matter, corrected to 12% CO_2, shall be computed for each run using the following equation:

$$C_{12} = C_s\ (12/\%CO_2)$$

where:

C_{12} is the concentration of particulate matter corrected to 12% CO_2 g/dscm (gr/dscf)

C_s is the concentration of particulate matter, g/dscm (gr/dscf)

$\%CO_2$ is the CO_2 concentration, percent dry basis

3.a. The CO_2 sample shall be obtained simultaneously with, and at the same traverse points as, the particulate run. If the particulate run has more than 12 traverse points, the CO_2 traverse points may be reduced to 12 if Method 1 is used to locate the 12 CO_2 traverse points. If individual CO_2 samples are taken at each traverse point, the CO_2 concentration ($\%CO_2$) used in the correction equation shall be the arithmetic mean of ~~all~~ the ~~individual~~ sample CO_2 ~~sample~~ concentrations at ~~each~~ all traverse ~~point~~ points.

SECTION 71. NR 440.215(title) is amended to read:

NR 440.215(title) **Municipal waste combustors for which construction is commenced after December 20, 1989 and on or before September 20, 1994**.

SECTION 72. NR 440.215(1)(a) is renumbered NR 440.215(1)(a)(intro.) and as renumbered is amended to read:

NR 440.215(1)(a)(intro.) The affected facility to which this section applies is each MWC unit with an MWC unit capacity greater than 225 megagrams per day (250 tons per day) of MSW ~~or RDF~~ for which construction, modification or reconstruction is commenced ~~after December 20, 1989.~~ as follows:

SECTION 73. NR 440.215(1)(a)1. and 2. are created to read:

NR 440.215(1)(a)1. Construction is commenced after December 20, 1989 and on or before September 20, 1994.

2. Modification or reconstruction is commenced after December 20, 1989 and on or before June 19, 1996.

SECTION 74. NR 440.215(1)(c) and (d) are repealed and recreated to read:

NR 440.215(1)(c) Any unit combusting a single-item waste stream of tires is exempt from this section if the owner or operator of the unit does the following:

1. Notifies the department of an exemption claim.

2. Provides data documenting that the unit qualifies for the exemption.

(d) Any cofired combustor, as defined under sub. (2), located at a plant that meets the capacity specification in par. (a) is exempt from other requirements of this section if the owner or operator of the cofired combustor does all of the following:

1. Notifies the department of an exemption claim.

2. Provides a copy of the federally enforceable permit specified in the definition of cofired combustor under sub. (2).

3. Keeps a record on a calendar quarter basis of the weight of MSW combusted at the cofired combustor and the weight of all other fuels combusted at the cofired combustor.

SECTION 75. NR 440.215(1)(e) and (f) are amended to read:

NR 440.215(1)(e) ~~Cofired combustors~~ Any cofired combustor that ~~are~~ is subject to a federally enforceable permit limiting the operation of the combustor to no more than 225 megagrams per day (250 tons per day) of MSW ~~or RDF are~~ is exempt from this section.

(f) Physical or operational changes made to an existing MWC unit ~~solely to comply~~ primarily for the purpose of complying with emission guidelines under 40 CFR part 60 subpart ~~Ca, as in effect on July 1, 1994,~~ Cb are not considered a modification or reconstruction and do not ~~bring~~ result in an existing MWC unit ~~under~~ becoming subject to this section.

SECTION 76. NR 440.215(1)(g) is repealed and recreated to read:

NR 440.215(1)(g) A qualifying small power production facility, as defined in section 3(17)(C) of the Federal Power Act (16 USC 796(17)(C)), that burns homogeneous waste, such as automotive tires or used oil, but not including refuse-derived fuel, for the production of electric energy is exempt from this section if the owner or operator of the facility notifies the department of an exemption claim and provides data documenting that the facility qualifies for this exemption.

SECTION 77. NR 440.215(1)(h) to (k) and (2)(be) are created to read:

NR 440.215(1)(h) A qualifying cogeneration facility, as defined in section 3(18)(B) of the Federal Power Act (16 USC 796(18)(B)), that burns homogeneous waste such as automotive tires or used oil, but not including refuse-derived fuel, for the production of electric energy and steam or forms of useful energy such as heat that are used for industrial, commercial, heating or cooling purposes, is exempt from this section if the owner or operator of the facility notifies the department of an exemption claim and provides data documenting that the facility qualifies for this exemption.

(i) Any unit required to have a permit under section 3005 of the Solid Waste Disposal Act (42 USC 6925) is exempt from this section.

(j) Any materials recovery facility, including primary or secondary smelters, that combusts waste for the primary purpose of recovering metals is exempt from this section.

(k) Pyrolysis or combustion units that are an integrated part of a plastics or rubber recycling unit, as defined under sub. (2), are exempt from this section if the owner or operator of the plastics or rubber recycling unit keeps records of the weight of plastics, rubber and rubber tires processed on a calendar quarter basis; the weight of chemical plant feedstocks and petroleum refinery feedstocks produced and marketed on a calendar quarter basis; and the name and address of the purchaser of the feedstocks. The combustion of gasoline, diesel fuel, jet fuel, fuel oils, residual oil, refinery gas, petroleum coke, liquified petroleum gas, propane or butane produced by chemical plants or petroleum refineries that use feedstocks produced by plastics or rubber recycling units are exempt from this section.

(2)(be) "Calendar quarter" means a consecutive 3-month period, nonoverlapping, beginning on January 1, April 1, July 1 or October 1.

SECTION 78. NR 440.215(2)(cm) is repealed and recreated to read:

NR 440.215(2)(cm) "Clean wood" means untreated wood or untreated wood products including clean untreated lumber, tree stumps (whole or chipped) and tree limbs (whole or chipped). Clean wood does not include yard waste, construction, renovation and demolition wastes (which includes railroad ties and telephone poles), which are exempt from the definition of MSW.

SECTION 79. NR 440.215(2)(d) is amended to read:

NR 440.215(2)(d) ''Cofired combustor'' means a unit combusting MSW ~~or RDF~~ with a non-MSW fuel (for example, coal or industrial process waste) and subject to a federally enforceable permit limiting the unit to combusting a fuel feed stream, 30% or less of the weight of which is comprised, in aggregate, of MSW ~~or RDF~~ as measured on a ~~24 hour daily~~ calendar quarter basis. ~~A unit combusting a fuel feed stream, more than 30% of the weight of which is comprised, in aggregate, of MSW or RDF shall be considered an MWC unit and not a cofired combustor. Cofired combustors which fire less than 30% segregated medical waste and no other municipal solid waste are not covered by this section.~~

SECTION 80. NR 440.215(2)(ds) is created to read:

NR 440.215(2)(ds) ''Continuous monitoring system'' means the total equipment used to sample and condition (if applicable), to analyze and to provide a permanent record of emissions or process parameters.

SECTION 81. NR 440.215(2)(f), (fm), (g), (gm), (h) and (hm) are amended to read:

NR 440.215(2)(f) ''Large MWC plant'' means an MWC plant with an MWC aggregate plant capacity for affected facilities that is greater than 225 megagrams per day (250 tons per day) of MSW.

(fm) ''Mass burn refractory MWC'' means a field-erected combustor that combusts MSW in a refractory wall furnace. ~~This does not include rotary combustors without waterwalls~~ Unless otherwise specified, this includes combustors with a cylindrical rotary refractory wall furnace.

(g) ''Mass burn rotary waterwall MWC'' means a field-erected combustor that combusts MSW in a cylindrical rotary waterwall furnace. ~~This does not include rotary combustors without waterwalls.~~

(gm) ''Mass burn waterwall MWC'' means a field-erected combustor that combusts MSW in a ~~conventional~~ waterwall furnace.

(h) ''Maximum demonstrated MWC unit load'' means the ~~maximum~~ highest 4-hour ~~block~~ arithmetic average MWC unit load achieved during 4 consecutive hours during the most recent dioxin/furan performance test demonstrating compliance with the applicable ~~standard~~ limit for MWC organics specified under sub. (4).

(hm) ''Maximum demonstrated particulate matter control device temperature'' means the maximum 4-hour ~~block~~ arithmetic average flue gas temperature measured at the ~~final~~ particulate matter control device inlet during 4 consecutive hours during the most recent dioxin/furan performance test demonstrating compliance with the applicable ~~standard~~ limit for MWC organics specified under sub. (4). ~~If more than one particulate matter control device is used in series at the affected facility, the maximum 4-hour~~

~~block average temperature is measured at the final particulate matter control device.~~

SECTION 82. NR 440.215(2)(i) is repealed and recreated to read:

NR 440.215(2)(i) “Modification” or “modified MWC unit” means a MWC unit to which changes have been made if the cumulative cost of the changes, over the life of the unit, exceed 50% of the original cost of construction and installation of the unit, not including the cost of any land purchased in connection with the construction or installation, updated to current costs; or any physical change in the MWC unit or change in the method of operation of the MWC unit which increases the amount of any air pollutant emitted by the unit for which standards have been established under section 111 or 129 of the Act (42 USC 7411 or 7429). Increases in the amount of any air pollutant emitted by the MWC unit are determined at 100% physical load capability and downstream of all air pollution control devices, with no consideration given for load restrictions based on permits or other non-physical operational restrictions.

SECTION 83. NR 440.215(2)(jm), (k), (o), (p) and (q) are amended to read:

NR 440.215(2)(jm) ‘‘Municipal solid waste’’ or ‘‘municipal type solid waste’’ or ‘‘MSW’’ means household, commercial, retail or institutional waste. Household waste includes material discarded by single and multiple residential dwellings, hotels, motels and other similar permanent or temporary housing establishments or facilities. Commercial or retail waste includes material discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities and other similar establishments or facilities. Institutional waste includes material discarded by schools, nonmedical waste discarded by hospitals, material discarded by nonmanufacturing activities at prisons and government facilities and material discarded by other similar establishments or facilities. Household, commercial or retail and institutional waste do not include used oil; sewage sludge~~,~~; wood pallets~~,~~; construction, renovation and demolition wastes (which includes railroad ties and telephone poles)~~,~~; industrial process or manufacturing wastes; medical waste or motor vehicles including motor vehicle parts or vehicle fluff. ~~Municipal type solid waste does include motor vehicle maintenance materials, limited to vehicle batteries, used motor oil and tires. Municipal type solid waste does not include wastes that are solely segregated medical wastes. Any mixture of segregated medical wastes and other wastes which contains more than 30% waste medical waste discards is considered to be municipal type solid waste.~~ Household, commercial, retail and institutional wastes include yard waste, refuse-derived fuel and motor vehicle maintenance materials limited to vehicle batteries and tires except as specified in sub. (1)(c).

(k) ''Municipal waste combustor'' or ''MWC'' or ''MWC unit'' means any ~~device~~ setting or equipment that combusts solid, liquid or gasified MSW including, but not limited to, field erected incinerators with or without heat recovery; modular incinerators~~;~~, starved air or excess air; boilers or steam generating units; furnaces whether suspension fired, grate fired, mass fired, air curtain incinerators or fluidized bed fired; and ~~gasification~~ pyrolysis or combustion units. MWC does not include pyrolysis or combustion units located at plastics or rubber recycling units. ~~This~~ MWC does not include internal combustion ~~units,~~ engines, gas turbines or other combustion devices that combust landfill gases collected by landfill gas collection systems. The MWC unit includes the MSW fuel feed system, grate system, flue gas system, bottom ash system and the combustor water system. The MWC boundary starts at the MSW pit or hopper and extends through the combustor flue gas system, which ends immediately following the heat recovery equipment or, if there is no heat recovery equipment, immediately following the combustion chamber; the combustor bottom ash system, which ends at the truck loading station or similar ash handling equipment that transfers the ash to final disposal, including all ash handling systems that are connected to the bottom ash handling system; and the combustor water system, which starts at the feed water pump and ends at the piping exiting the steam drum or superheater. The MWC unit does not include air pollution control equipment, the stack, water treatment equipment or the turbine generator set.

(o) ''MWC plant'' means one or more MWC units at the same location for which construction, modification or reconstruction is commenced after December 20, 1989 and on or before September 20, 1994.

(p) "MWC plant capacity'' means the aggregate MWC unit capacity of all MWC units at an MWC plant for which construction, modification or reconstruction of the units commenced after December 20, 1989 and on or before September 20, 1994. Any MWC units for which construction, modification or reconstruction is commenced on or before December 20, 1989 or after September 20, 1994 are not included for determining applicability under this section.

(q) ''MWC unit capacity'' means the maximum design charging rate of an MWC unit expressed in megagrams per day or tons per day of MSW combusted, calculated according to the procedures under sub. (9)(j). Municipal waste combustor unit capacity is calculated using a design heating value of 10,500 kilojoules per kilogram (4,500 British thermal units per pound) for MSW ~~and 19,800 kilojoules per kilogram (8,500 British thermal units per pound) for medical waste~~. The calculational procedures under sub. (9)(j) include procedures for determining MWC unit capacity for continuous and batch feed MWCs ~~and cofired combustors and combustors firing mixtures of medical waste and other MSW~~.

SECTION 84. NR 440.215(2)(rm), (tg), (tr), (ug), (ur) and (xm) are created to read:

NR 440.215(2)(rm) ''Plastics or rubber recycling unit'' means an integrated processing unit where plastics, rubber or rubber tires are the only feed materials and the feed materials are processed into a chemical plant feedstock or petroleum refinery feedstock, where the feedstock is marketed to and used by a chemical plant or petroleum refinery as input feedstock. The combined weight of the chemical plant feedstock and petroleum refinery feedstock produced by the plastics or rubber recycling unit on a calendar quarter basis shall be more than 70% of the combined weight of the plastic, rubber and rubber tires processed by the plastics or rubber recycling unit on a calendar quarter basis. The plastics, rubber or rubber tire feed materials to the plastics or rubber recycling unit may originate from the separation or diversion of plastics, rubber or rubber tires from MSW or industrial solid waste and may include manufacturing scraps, trimmings and off-specification plastics, rubber and rubber tire discards. The plastics, rubber and rubber tire feed materials to the plastics or rubber recycling unit may contain incidental contaminants, for example, paper labels on plastic bottles, metal rings on plastic bottle caps, etc.

(tg) ''Pulverized coal and RDF mixed fuel-fired combustor'' means a combustor that fires coal and RDF simultaniously, in which pulverized coal is introduced into an air stream that carries the coal to the combustion chamber of the unit where it is fired in suspension. This includes both conventional pulverized coal and micropulverized coal.

(tr) ''Pyrolysis or combustion unit'' means a unit that produces gases, liquids or solids through the heating of MSW, and the gases, liquids or solids produced are combusted and emissions vented to the atmosphere.

(ug) ''Reconstruction'' means rebuilding an MWC unit for which the cumulative costs of the construction over the life of the unit exceed 50% of the original cost of construction and installation of the unit, not including any cost of land purchased in connection with such construction or installation, updated to current dollars.

(ur) ''Refractory unit'' or ''refractory wall furnace'' means a combustion unit having no energy recovery (for example, via a waterwall) in the furnace (that is, radiant heat transfer section) of the combustor.

(xm) ''Spreader stoker coal and RDF mixed fuel-fired combustor'' means a combustor that fires coal and RDF simultaniously, in which coal is introduced to the combustion zone by a mechanism that throws the fuel onto a grate from above. Combustion takes place both in suspension and on the grate.

SECTION 85. NR 440.215(2)(y) is amended to read:

NR 440.215(2)(y) ''Standard conditions'' means a temperature of ~~293ºK~~ 20°C (68°F) and a pressure of 101.3 kPa (29.92 in Hg).

SECTION 86. NR 440.215(2)(ze), (zm) and (zs) are created to read:

NR 440.215(2)(ze) ''Untreated lumber'' means wood or wood products that have been cut or shaped and includes wet, air-dried and kiln-dried wood products. Untreated lumber does not include wood products that have been painted, pigment-stained or pressure-treated. Pressure treating compounds include chromate copper arsenate, pentachlorophenol and creosote.

(zm) ''Waterwall furnace'' means a combustion unit having energy (heat) recovery in the furnace (that is, radiant heat transfer section) of the combustor.

(zs) ''Yard waste'' means grass, grass clippings, bushes, shrubs and clippings from bushes and shrubs that are generated by residential, commercial or retail, institutional or industrial sources as part of maintenance activities associated with yards or other private or public lands. Yard waste does not include construction, renovation and demolition wastes, which are exempt from the definition of MSW. Yard waste does not include clean wood, which is exempt from the definition of MSW.

SECTION 87. Table 1. following NR 440.215(7)(a) is amended to read:

Table 1 - MWC Operating Standards

MWC Technology	**Carbon Monoxide Emission Limit (parts per million by volume)[1]**
1. Mass burn waterwall	100
2. Mass burn refractory	100
3. Mass burn rotary waterwall	100

4.	Modular starved air	50
5.	Modular excess air	50
6.	RDF Stoker	150
7.	Bubbling fluidized bed combustor	100
8.	Circulating fluidized bed combustor	100
9.	~~Coal/RDF~~ Pulverized coal/RDF mixed fuel fired ~~combustors~~ combustor	150
10.	Spreader stoker coal/RDF mixed fuel fired combustor	150

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[1] Measured at the combustor outlet in conjunction with a measurement of oxygen concentration, corrected to 7% oxygen dry basis. The averaging times are specified in sub. (9)(h).

SECTION 88. NR 440.215(7)(d) is amended to read:

NR 440.215(7)(d) Within 24 months from the date of startup of an affected facility or before February 11, 1993, whichever is later, each chief facility operator and shift supervisor of an affected facility located within a large MWC plant shall obtain and keep current either a provisional or operator certification in accordance with ~~ASME QRO-1-1989~~ ASME QRO-1-1994, incorporated by reference in ~~s. NR 440.17~~ s. NR 440.17(2)(h)1., or an equivalent state approved certification program.

SECTION 89. NR 440.215(7)(f)9. is repealed.

SECTION 90. NR 440.215(9)(b)3. and 8., (e)14., (f)2., (h)1., 2. and 6.a. and b. are amended to read:

NR 440.215(9)(b)3. Method 5 shall be used for determining compliance with the particulate matter emission ~~standard~~ limit. The minimum sample volume shall be 1.7 cubic meters (60 cubic feet). The probe and filter holder heating systems in the sample train shall be set to provide a gas temperature ~~no greater than~~ of 160° ± 14°C (320° ± 25°F). An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 5 run.

8. The owner or operator of an affected facility shall install, calibrate, maintain and operate a ~~CEMS for measuring opacity~~ continuous opacity monitoring system (COMS) and record the output of the system on a 6-minute average basis.

(e)14. The span value of the CEMS at the inlet to the sulfur dioxide control device is 125% of the maximum estimated hourly potential sulfur dioxide emissions of the MWC unit and the span value of the CEMS at the outlet ~~to~~ of the sulfur dioxide control device is 50% of the maximum estimated hourly potential sulfur dioxide emissions of the MWC unit.

(f)2. Method 26 or 26A shall be used for determining the hydrogen chloride emission rate. The minimum sampling time for Method 26 or 26A shall be one hour.

(h)1. Compliance with the carbon monoxide emission limits in sub. (7)(a) shall be determined using a 4-hour block arithmetic average for all types of affected facilities except mass burn rotary waterwall MWCs ~~and~~, RDF stokers and spreader stoker and RDF mixed fuel-fired combustors.

2. For affected mass burn rotary waterwall MWCs ~~and~~, RDF stokers and spreader stoker and RDF mixed fuel-fired combustors, compliance with the carbon monoxide emission limits in sub. (7)(a) shall be determined using a 24-hour daily arithmetic average.

6.a. The owner or operator of an affected facility with steam generation capability ~~recovery~~ shall install, calibrate, maintain and operate a steam flow meter or a feedwater flow meter ~~and~~, measure steam or feedwater flow in kilograms per hour or pounds per hour ~~steam~~ on a continuous basis, and record the output of the monitor. Steam or feedwater flow shall be calculated in 4-hour block arithmetic averages.

b. The method contained in ASME Power Test Codes: Test Code for Steam Generating Units, PTC 4.1 (1964) section 4, incorporated by reference in s. NR 440.17(2)(h)2., shall be used for calculating the steam or feedwater flow required under subd. 6.a. The recommendations of Instruments and Apparatus:

Measurement of Quantity of Materials, ASME Interim Supplement 19.5 (1971) chapter 4, incorporated by reference in s. NR 440.17(2)(h)3., shall be followed for design, construction, installation, calibration and use of nozzles and orifices except as specified in subd. 6.c.

SECTION 91. NR 440.215(9)(h)6.c. and d. are created to read:

NR 440.215(9)(h)6.c. Measurement devices such as flow nozzles and orifices are not required to be recalibrated after they are installed.

d. All signal conversion elements associated with steam or feedwater flow measurements shall be calibrated according to the manufacturer’s instructions before each dioxin or furan compliance and performance test, and at least once per year.

SECTION 92. NR 440.215(9)(h)10. is amended to read:

NR 440.215(9)(h)10. At a minimum, valid CEMS data for carbon monoxide, steam or feedwater flow and particulate matter control device inlet temperature shall be obtained 75% of the hours per day for 75% of the days per month the affected facility is operated and combusting MSW.

SECTION 93. NR 440.215(9)(j)3. is repealed.

SECTION 94. NR 440.215(9)(j)4.(intro.) is renumbered NR 440.215(9)(j)4. and as renumbered is amended to read:

NR 440.215(9)(j)4. MWC unit capacity shall be calculated using a design heating value of 10,500 kilojoules per kilogram (4,500 Btu per pound) for all MSW ~~except medical waste and 19,800 kilojoules per kilogram (8,500 Btu per pound) for medical waste. If an affected MWC unit fires both medical waste and other MSW, either the procedure described in subd. 4.a. or b. shall be used to determine the design heating value~~.

SECTION 95. NR 440.215(9)(j)4.a. and b. are repealed.

SECTION 96. NR 440.215(10) is amended to read:

NR 440.215(10) REPORTING AND RECORDKEEPING REQUIREMENTS. The owner or operator of an affected facility located at an MWC plant with a capacity greater than 225 megagrams per day (250 tons per day) shall provide notification of intent to construct and of planned initial startup date and the type or types of fuels ~~that they plan to combust~~ planned for combustion in the affected facility. The MWC unit capacity and MWC plant capacity and supporting capacity calculations shall be provided at the time of the notification of construction. ~~At the time of notification of construction, owners or operators of cofired combustors shall provide estimates of the types and amounts of each fuel they plan to combust and the date on which they plan to start combusting MSW or RDF and shall submit a copy of a federally enforceable permit limiting the maximum amount of MSW that may be combusted in the cofired combustor in any single day (midnight to midnight), expressed in percent of the aggregate fuel feed stream by weight.~~

SECTION 97. NR 440.215(10c)(h) and (i) are repealed.

SECTION 98. NR 440.215(10i)(title) is amended to read:

NR 440.215(10i)(title) ~~QUARTERLY~~ COMPLIANCE REPORTS.

SECTION 99. NR 440.215(10i) is renumbered NR 440.215(10i)(a) and amended to read:

NR 440.215(10i)(a) The owner or operator of an affected facility located within a large MWC plant shall submit ~~quarterly~~ annual compliance reports for sulfur dioxide, nitrogen oxide if applicable, carbon monoxide, load level and particulate matter control device temperature to the department containing the information recorded under sub. (10c)(a), (b)2. and ~~(c)~~ (d) to (f) for each pollutant or parameter. The hourly average values recorded under sub. (10c)(b)1. are not required to be included in the ~~quarterly~~ annual reports. ~~Combustors firing a mixture of medical waste and other MSW shall also provide the information under sub. (10c)(i) in each quarterly report if applicable. Reports shall be postmarked no later than the 30th day following the end of each calendar quarter.~~ The owner or operator of an affected facility shall submit reports semiannually once the affected facility is subject to permitting requirements under Title V of the Act (42 USC 7661 to 7661f).

SECTION 100. NR 440.215(10i)(b) and (c) are created to read:

NR 440.215(10i)(b) The owner or operator shall submit a semiannual report for any pollutant or parameter that does not comply with the pollutant or parameter limits specified in this section. The report shall include the information recorded under sub. (10c)(c). For each of the dates reported, the sulfur dioxide, nitrogen oxide, carbon monoxide, load level and particulate matter control device temperature data, as applicable, recorded under sub. (10c)(b)2., shall be included.

(c) Reports shall be postmarked no later than the 30th day following the end of the annual or semiannual period, as applicable.

SECTION 101. NR 440.215(10k)(title) is amended to read:

NR 440.215(10k)(title) ~~QUARTERLY~~ OPACITY EXCEEDANCE REPORTS.

SECTION 102. NR 440.215(10k) is renumbered NR 440.215(10k)(a) and amended to read:

NR 440.215(10k)(a) The owner or operator of an affected facility located within a large MWC plant shall submit ~~quarterly excess emission~~ annual compliance reports, as applicable, for opacity. The ~~quarterly excess emission reports shall include all information recorded under sub. (10c)(c) which pertains to opacity and a listing of the 6 minute average opacity levels~~

~~recorded under sub. (10c)(b)1.a. for all periods when the 6 minute average levels exceeded the opacity limit under sub. (3).~~ The ~~quarterly~~ annual report shall ~~also~~ list the percent of the affected facility operating time for the ~~calendar quarter~~ reporting period that the opacity CEMS was operating and collecting valid data. ~~Excess emission reports shall be postmarked no later than the 30th day following the end of each calendar quarter.~~ Once the unit is subject to permitting requirements under Title V of the Act (42 USC 7661 to 7661f), the owner or operator of an affected facility shall submit these reports semiannually.

SECTION 103. NR 440.215(10k)(b) and (c) are created to read:

NR 440.215(10k)(b) The owner or operator shall submit a semiannual report for all periods when the 6-minute average levels exceeded the opacity limit under sub. (3). The semiannual report shall include all information recorded under sub. (10c)(c) which pertains to opacity, and a listing of the 6-minute average opacity levels recorded under sub. (10c)(b)1.a. which exceeded the opacity limit.

(c) Reports shall be postmarked no later than the 30th day following the end of the annual of semiannual period, as applicable.

SECTION 104. NR 440.215(10n) is renumbered NR 440.215(10n)(a) and amended to read:

NR 440.215(10n)(a) The owner or operator of an affected facility located within a large MWC plant shall submit reports to the department of all annual performance tests for particulate matter, dioxin/furan and hydrogen chloride as recorded under sub. (10c)(g), as applicable, from the affected facility. For each annual dioxin/furan compliance test, the maximum demonstrated MWC unit load and maximum demonstrated particulate matter control device temperature shall be reported. Reports shall be submitted when available and in no case later than the date of required submittal of the ~~quarterly~~ annual report specified under ~~sub. (10i) covering the calendar quarter following the quarter during which the test was conducted~~ subs. (10i) and (10k), or within 6 months of the date the test was conducted, whichever is earlier.

SECTION 105. NR 440.215(10n)(b) is created to read:

NR 440.215(10n)(b) The owner or operator shall submit a report of test results which documents any particulate matter, dioxin/furan and hydrogen chloride levels that were above the applicable pollutant limit. The report shall include a copy of the test report documenting the emission levels and shall include the corrective action taken. Reports shall be submitted when available and in no case later than the date required for submittal of any semi-annual report required in subs. (10i) and (10k), or within 6 months of the date the test was conducted, whichever is earlier.

SECTION 106. NR 440.215(10u) is repealed.

SECTION 107. NR 440.216 is created to read:

NR 440.216 Large municipal waste combustors for which construction is commenced after September 20, 1994 or for which modification or reconstruction is commenced after June 19, 1996. (1) APPLICABILITY. (a) The affected facility to which this section applies is each municipal waste combustor unit with a combustion capacity greater than 250 tons per day of municipal solid waste for which construction is commenced after September 20, 1994 or for which modification or reconstruction is commenced after June 19, 1996.

(b) Any waste combustion unit that is capable of combusting more than 250 tons per day of municipal solid waste and is subject to a federally enforceable permit limiting the maximum amount of municipal solid waste that may be combusted in the unit to less than or equal to 11 tons per day is not subject to this section if the owner or operator of the unit does all of the following:

1. Notifies the department of an exemption claim.

2. Provides a copy of the federally enforceable permit that limits the firing of municipal solid waste to less than 11 tons per day.

3. Keeps records of the amount of municipal solid waste fired on a daily basis.

(c) An affected facility to which this section applies is not subject to s. NR 440.21 or 440.215.

(d) Physical or operational changes made to an existing municipal waste combustor unit primarily for the purpose of complying with emission guidelines under 40 CFR part 60, subpart Cb are not considered a modification or reconstruction and do not result in an existing municipal waste combustor unit becoming subject to this section.

(e) A qualifying small power production facility, as defined in section 3(17)(C) of the Federal Power Act (16 USC 796(17)(C)), that burns homogeneous waste, such as automotive tires or used oil, but not including refuse-derived fuel, for the production of electric energy is not subject to this section if the owner or operator of the facility notifies the department of this exemption and provides data documenting that the facility qualifies for this exemption.

(f) A qualifying cogeneration facility, as defined in section 3(18)(B) of the Federal Power Act (16 USC 796(18)(B)), that burns homogeneous waste, such as automotive tires or used oil, but not including refuse-derived fuel, for the production of electric energy and steam or forms of useful energy such as heat that are used for industrial, commercial, heating or cooling purposes, is not subject to this section if the owner or operator of the facility notifies the department of this exemption and provides data documenting that the facility qualifies for this exemption.

(g) Any unit combusting a single-item waste stream of tires is not subject to this section if the owner or operator of the unit does both of the following:

1. Notifies the department of an exemption claim.

3. Provides data documenting that the unit qualifies for this exemption.

(h) Any unit required to have a permit under section 3005 of the Solid Waste Disposal Act (42 USC 6925), or a license under s. 291.25, Stats., is not subject to this section.

(i) Any materials recovery facility, including primary or secondary smelters, that combusts waste for the primary purpose of recovering metals is not subject to this section.

(j) Any cofired combustor, as defined under sub. (2), that meets the capacity specifications in par. (a) is not subject to this section if the owner or operator of the cofired combustor does all of the following:

1. Notifies the department of an exemption claim.

2. Provides a copy of the federally enforceable permit specified in the definition of cofired combustor in sub. (2).

3. Keeps a record on a calendar quarter basis of the weight of municipal solid waste combusted at the cofired combustor and the weight of all other fuels combusted at the cofired combustor.

(k) Air curtain incinerators, as defined under sub. (2), located at a plant that meet the capacity specifications in par. (a) and that combust a fuel stream composed of 100% yard waste are exempt from all provisions of this section except the opacity limit under sub. (10), the testing procedures under sub. (12)(a)1. and the reporting and recordkeeping provisions under sub. (13)(e) and (i).

(L) Air curtain incinerators located at plants that meet the capacity specifications in par. (a) combusting municipal solid waste other than yard waste are subject to all provisions of this section.

(m) Pyrolysis or combustion units that are an integrated part of a plastics or rubber recycling unit, as defined in sub. (2), are not subject to this section if the owner or operator of the plastics or rubber recycling unit keeps records of the weight of plastics, rubber and rubber tires processed on a calendar quarter basis; the weight of chemical plant feedstocks and petroleum refinery feedstocks produced and marketed on a calendar quarter basis; and the name and address of the purchaser of the feedstocks. The combustion of gasoline, diesel fuel, jet fuel, fuel oils, residual oil, refinery gas, petroleum coke, liquified petroleum gas, propane or butane produced by chemical plants or petroleum refineries that use feedstocks produced by plastics or rubber recycling units are not subject to this section.

(p) Cement kilns firing municipal solid waste are not subject to this section.

(2) DEFINITIONS. As used in this section, all terms not defined in this subsection have the meanings given in s. NR 440.02 or, for terms not defined in s. NR 440.02, the meanings given in s. NR 400.02. In this section:

(a) "Air curtain incinerator" means an incinerator that operates by forcefully projecting a curtain of air across an open chamber or pit in which burning occurs. Incinerators of this type can be constructed above or below ground and with or without refractory walls and floor.

(am) "Batch municipal waste combustor" means a municipal waste combustor unit designed so that it cannot combust municipal solid waste continuously 24 hours per day because the design does not allow waste to be fed to the unit or ash to be removed while combustion is occurring.

(b) "Bubbling fluidized bed combustor" means a fluidized bed combustor in which the majority of the bed material remains in a fluidized state in the primary combustion zone.

(bm) "Calendar quarter" means a consecutive 3-month period, nonoverlapping, beginning on January 1, April 1, July 1, and October 1.

(c) "Chief facility operator" means the person in direct charge and control of the operation of a municipal waste combustor and who is responsible for daily onsite supervision, technical direction, management and overall performance of the facility.

(d) "Circulating fluidized bed combustor" means a fluidized bed combustor in which the majority of the fluidized bed material is carried out of the primary combustion zone and is transported back to the primary zone through a recirculation loop.

(dm) "Clean wood" means untreated wood or untreated wood products including clean untreated lumber, whole or chipped tree stumps and whole or chipped tree limbs. Clean wood does not include yard waste, construction, renovation and demolition wastes, including railroad ties and telephone poles, which are exempt from the definition of municipal solid waste.

(e) "Cofired combustor" means a unit combusting municipal solid waste with nonmunicipal solid waste fuel, for example, coal or industrial process waste, and subject to a federally enforceable permit limiting the unit to combusting a fuel feed stream, 30% or less of the weight of which is comprised, in aggregate, of municipal solid waste as measured on a calendar quarter basis.

(em) "Continuous emission monitoring system" means a monitoring system for continuously measuring the emissions of a pollutant from an affected facility.

(f) "Dioxin/furan" means tetra- through octa- chlorinated dibenzo-p-dioxins and dibenzofurans.

(fm) "First calendar half" means the period starting on January 1 and ending on June 30 in any year.

(g) "Four-hour block average" or "4-hour block average" means the average of all hourly emission concentrations when the affected facility is operating and combusting municipal solid waste measured over 4-hour periods of time from 12:00 midnight to 4 a.m., 4 a.m. to 8 a.m., 8 a.m. to 12:00 noon, 12:00 noon to 4 p.m., 4 p.m. to 8 p.m. and 8 p.m. to 12:00 midnight.

(gm) "Mass burn refractory municipal waste combustor" means a field-erected combustor that combusts municipal solid waste in a refractory wall furnace. Unless otherwise specified, this includes combustors with a cylindrical rotary refractory wall furnace.

(h) "Mass burn rotary waterwall municipal waste combustor" means a field-erected combustor that combusts municipal solid waste in a cylindrical rotary waterwall furnace or on a tumbling-tile grate.

(hm) "Mass burn waterwall municipal waste combustor" means a field-erected combustor that combusts municipal solid waste in a waterwall furnace.

(i) "Materials separation plan" means a plan that identifies both a goal and an approach to separate certain components of municipal solid waste for a given service area in order to make the separated materials available for recycling. A materials separation plan may include elements such as dropoff facilities, buy-back or deposit-return incentives, curbside pickup programs or centralized mechanical separation systems. A materials separation plan may include different goals or approaches for different subareas in the service area, and may include no materials separation activities for certain subareas or, if warranted, an entire service area.

(im) "Maximum demonstrated municipal waste combustor unit load" means the highest 4-hour arithmetic average municipal waste combustor unit load achieved during 4 consecutive hours during the most recent dioxin/furan performance test demonstrating compliance with the applicable limit for municipal waste combustor organics specified under sub. (5).

(j) "Maximum demonstrated particulate matter control device temperature" means the highest 4-hour arithmetic average flue gas temperature measured at the particulate matter control device inlet during 4 consecutive hours during the most recent dioxin/furan performance test demonstrating compliance with the applicable limit for municipal waste combustor organics specified under sub. (5).

(jm) "Modification" or "modified municipal waste combustor unit" means a municipal waste combustor unit to which changes have been made after June 19, 1996 if the cumulative cost of the changes, over the life of the unit, exceed 50% of the original cost of construction and installation of the unit, not including the cost of any land purchased in connection with the construction or installation, updated to current costs; or any physical change in the municipal waste combustor unit or change in the method of operation of the municipal waste combustor unit which increases the amount of any air pollutant emitted by the unit for which standards have been established under section 129 or section 111 of the Act (42 USC 7429 or 7411). Increases in the amount of any air pollutant emitted by the municipal waste combustor unit are determined at 100% physical load capability and downstream of all air pollution control devices, with no consideration given for load restrictions based on permits or other nonphysical operational restrictions.

(k) "Modular excess-air municipal waste combustor" means a combustor that combusts municipal solid waste and that is not field-erected and has multiple combustion chambers, all of which are designed to operate at conditions with combustion air amounts in excess of theoretical air requirements.

(km) "Modular starved-air municipal waste combustor" means a combustor that combusts municipal solid waste and that is not field-erected and has multiple combustion chambers in which the primary combustion chamber is designed to operate at substoichiometric conditions.

(L) "Municipal solid waste" or "municipal-type solid waste" or "MSW" means household, commercial or retail, and institutional waste. Household waste includes material discarded by single and multiple residential dwellings, hotels, motels and other similar permanent or temporary housing establishments or facilities. Commercial or retail waste includes material discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities, and other similar establishments or facilities. Institutional waste includes material discarded by schools, nonmedical waste discarded by hospitals, material discarded by nonmanufacturing activities at prisons and government facilities and material discarded by other similar establishments or facilities. Household, commercial or retail and institutional waste does not include used oil; sewage sludge; wood pallets; construction, renovation and demolition wastes, which includes but is not limited to railroad ties and telephone poles; clean wood; industrial process or manufacturing wastes; medical waste; or motor vehicles, including motor vehicle parts or vehicle fluff. Household, commercial or retail and institutional wastes include yard waste, refuse-derived fuel and motor vehicle maintenance materials limited to vehicle batteries and tires except as specified in sub. (1)(g).

(Lm) "Municipal waste combustor", "MWC" or "municipal waste combustor unit" means any setting or equipment that combusts solid, liquid or gasified municipal solid waste including field-erected incinerators, with or without heat recovery; modular incinerators, starved-air or excess-air; boilers, that is, steam generating units; furnaces, whether suspension-fired, grate-fired, mass-fired, air curtain incinerators or fluidized bed-fired; and pyrolysis or combustion units. Municipal waste combustors do not include pyrolysis or combustion units located at a plastics or rubber recycling unit as specified in sub. (1)(m). Municipal waste combustors do not include cement kilns firing municipal solid waste. Municipal waste combustors do not include internal combustion engines, gas turbines or other combustion devices that combust landfill gases collected by landfill gas collection systems. The boundaries of a municipal solid waste combustor are defined as follows:

1. The municipal waste combustor unit includes, but is not limited to, the municipal solid waste fuel feed system, grate system, flue gas system, bottom ash system and the combustor water system. The municipal waste combustor boundary starts at the municipal solid waste pit or hopper and extends through the combustor flue gas system, which ends immediately following the heat recovery equipment or, if there is

no heat recovery equipment, immediately following the combustion chamber; the combustor bottom ash system, which ends at the truck loading station or similar ash handling equipment that transfers the ash to final disposal, including all ash handling systems that are connected to the bottom ash handling system; and the combustor water system, which starts at the feed water pump and ends at the piping exiting the steam drum or superheater.

2. The municipal waste combustor unit does not include air pollution control equipment, the stack, water treatment equipment or the turbine-generator set.

(m) "Municipal waste combustor acid gases" means all acid gases emitted in the exhaust gases from municipal waste combustor units including sulfur dioxide and hydrogen chloride gases.

(mm) "Municipal waste combustor metals" means metals and metal compounds emitted in the exhaust gases from municipal waste combustor units.

(n) "Municipal waste combustor organics" means organic compounds emitted in the exhaust gases from municipal waste combustor units and includes tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans.

(nm) "Municipal waste combustor plant" means one or more affected facilities, as specified in sub. (1), at the same location.

(o) "Municipal waste combustor unit capacity" means the maximum charging rate of a municipal waste combustor unit expressed in tons per day of municipal solid waste combusted, calculated according to the procedures under sub. (12)(j). Subsection (12)(j) includes procedures for determining municipal waste combustor unit capacity for continuous and batch feed municipal waste combustors.

(om) "Municipal waste combustor unit load" means the steam load of the municipal waste combustor unit measured as specified in sub. (12)(i)6.

(p) "Particulate matter" means total particulate matter emitted from municipal waste combustor units as measured by Method 5 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1).

(pm) "Plastics or rubber recycling unit" means an integrated processing unit where plastics, rubber or rubber tires are the only feed materials, except that incidental contaminants may be included in the feed materials, and the feed materials are processed into a chemical plant feedstock or petroleum refinery feedstock, where the feedstock is marketed to and used by a chemical plant or petroleum refinery as input feedstock. The combined weight of the chemical plant feedstock and petroleum refinery feedstock produced by the plastics or rubber recycling unit on a calendar quarter basis shall be more than 70% of the combined weight of the plastics, rubber and rubber tires processed by the plastics or rubber recycling unit on a calendar quarter basis. The plastics, rubber or rubber tire feed materials to the plastics or rubber recycling unit may originate from the separation or diversion of plastics, rubber or rubber tires from MSW or industrial solid waste, and may include manufacturing scraps, trimmings, and off-specification plastics, rubber and rubber tire discards. The plastics, rubber and rubber tire feed materials to the plastics or rubber recycling unit may contain incidental contaminants, for example, paper labels on plastic bottles or metal rings on plastic bottle caps, etc.

(q) "Potential hydrogen chloride emission concentration" means the hydrogen chloride emission concentration that would occur from combustion of municipal solid waste in the absence of any emission controls for municipal waste combustor acid gases.

(qm) "Potential mercury emission concentration" means the mercury emission concentration that would occur from combustion of municipal solid waste in the absence of any mercury emissions control.

(r) "Potential sulfur dioxide emissions" means the sulfur dioxide emission concentration that would occur from combustion of municipal solid waste in the absence of any emission controls for municipal waste combustor acid gases.

(rm) "Pulverized coal and refuse-derived fuel mixed fuel-fired combustor" means a combustor that fires coal and refuse-derived fuel simultaneously, in which pulverized coal is introduced into an air stream that carries the coal to the combustion chamber of the unit where it is fired in suspension. This includes both conventional pulverized coal and micropulverized coal.

(s) "Pyrolysis or combustion unit" means a unit that produces gases, liquids or solids through the heating of municipal solid waste, and the gases, liquids or solids produced are combusted and emissions vented to the atmosphere.

(sm) "Reconstruction" means rebuilding a municipal waste combustor unit for which the reconstruction commenced after June 19, 1996, and the cumulative costs of the construction over the life of the unit exceed 50% of the original cost of construction and installation of the unit, not including any cost of land purchased in connection with the construction or installation, updated to current costs in dollars.

(t) "Refractory unit" or "refractory wall furnace" means a combustion unit having no energy recovery, for example, via a waterwall, in the furnace, that is, radiant heat transfer section, of the combustor.

(tm) "Refuse-derived fuel" means a type of municipal solid waste produced by processing municipal solid waste through shredding and size classification. This includes all classes of refuse-derived fuel including low-density fluff refuse-derived fuel through densified refuse-derived fuel and pelletized refuse-derived fuel.

(u) "Refuse-derived fuel stoker" means a steam generating unit that combusts refuse-derived fuel in a semisuspension firing mode using air-fed distributors.

(um) "Same location" means the same or contiguous property that is under common ownership or control including properties that are separated only by a street, road, highway or other public right-of-way. Common ownership or control includes properties that are owned, leased or operated by the same entity, parent entity, subsidiary, subdivision or any combination thereof including any municipality or other governmental unit or any quasi-governmental authority, for example, a public utility district or regional waste disposal authority.

(v) "Second calendar half" means the period starting July 1 and ending on December 31 in any year.

(vm) "Shift supervisor" means the person who is in direct charge and control of the operation of a municipal waste combustor and who is responsible for onsite supervision, technical direction, management and overall performance of the facility during an assigned shift.

(w) "Spreader stoker coal and refuse-derived fuel mixed fuel-fired combustor" means a combustor that fires coal and refuse-derived fuel simultaneously, in which coal is introduced to the combustion zone by a mechanism that throws the fuel onto a grate from above. Combustion takes place both in suspension and on the grate.

(wm) "Standard conditions" means a temperature of 20°C (60°F) and a pressure of 101.3 kilopascals (29.92 in Hg).

(x) "Total mass dioxin/furan" or "total mass" means the total mass of tetra- through octa- chlorinated dibenzo-p-dioxins and dibenzofurans, as determined using Method 23 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), and the procedures specified under sub. (12)(g).

(xm) "Tumbling-tile" means a grate tile hinged at one end and attached to a ram at the other end. When the ram extends, the grate tile rotates around the hinged end.

(y) "Twenty-four hour daily average" or "24-hour daily average" means either the arithmetic mean or geometric mean, as specified, of all hourly emission concentrations when the affected facility is operating and combusting municipal solid waste measured over a 24-hour period between 12:00 midnight and the following midnight.

(ym) "Untreated lumber" means wood or wood products that have been cut or shaped and include wet, air-dried and kiln-dried wood products. Untreated lumber does not include wood products that have been painted, pigment-stained or pressure-treated.

Pressure-treating compounds include, but are not limited to, chromated copper arsenate, pentachlorophenol and creosote.

(z) “Waterwall furnace” means a combustion unit having energy (heat) recovery in the furnace (radiant heat transfer section) of the combustor.

(zm) “Yard waste” means grass, grass clippings, bushes, shrubs and clippings from bushes and shrubs that are generated by residential, commercial or retail, institutional or industrial sources as part of maintenance activities associated with yards or other private or public lands. Yard waste does not include construction, renovation and demolition wastes, which are exempt from the definition of municipal solid waste in this section. Yard waste does not include clean wood, which is exempt from the definition of municipal solid waste.

(3) STANDARDS FOR MUNICIPAL WASTE COMBUSTOR METALS. (a) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility may cause to be discharged into the atmosphere from that affected facility any gases that contain particulate matter in excess of 24 milligrams per dry standard cubic meter, corrected to 7% oxygen.

(b) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility may cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 10% opacity (6-minute average).

(c) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility may cause to be discharged into the atmosphere from that affected facility any gases that contain cadmium in excess of 0.020 milligrams per dry standard cubic meter, corrected to 7% oxygen.

(d) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility may cause to be discharged into the atmosphere from the affected facility any gases that contain lead in excess of 0.20 milligrams per dry standard cubic meter, corrected to 7% oxygen.

(f) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility may cause to be discharged into the atmosphere from the affected facility any gases that contain mercury in excess of 0.080 milligrams per dry standard cubic meter or 15% of the potential mercury emission concentration (85% reduction by weight), corrected to 7% oxygen, whichever is less stringent.

(4) STANDARD FOR MUNICIPAL WASTE COMBUSTOR ACID GASES. (a) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility may cause to be discharged into the atmosphere from that affected facility any gases that contain sulfur dioxide in excess of 30 parts per million by volume or 20% of the potential sulfur dioxide emission concentration (80% reduction by weight or volume), corrected to 7% oxygen, dry basis, whichever is less stringent. The averaging time is specified under sub. (12)(e).

(b) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility may cause to be discharged into the atmosphere from that affected facility any gases that contain hydrogen chloride in excess of 25 parts per million by volume or 5% of the potential hydrogen chloride emission concentration (95% reduction by weight or volume), corrected to 7% oxygen, dry basis, whichever is less stringent.

(5) STANDARDS FOR MUNICIPAL WASTE COMBUSTOR ORGANICS. (a) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility for which

construction, modification or reconstruction commences on or before November 20, 1997 may cause to be discharged into the atmosphere from that affected facility any gases that contain dioxin/furan emissions that exceed 30 nanograms per dry standard cubic meter, total mass, corrected to 7% oxygen, for the first 3 years following the date of initial startup. After the first 3 years following the date of initial startup, no owner or operator may cause to be discharged into the atmosphere from that affected facility any gases that contain dioxin/furan total mass emissions that exceed 13 nanograms per dry standard cubic meter, total mass, corrected to 7% oxygen.

(b) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility for which construction, modification or reconstruction commences after November 20, 1997 may cause to be discharged into the atmosphere from that affected facility any gases that contain dioxin/furan total mass emissions that exceed 13 nanograms per dry standard cubic meter, total mass, corrected to 7% oxygen.

(6) STANDARDS FOR MUNICIPAL WASTE COMBUSTOR NITROGEN OXIDES. (a) During the first year of operation after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility may cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides in excess of 180 parts per million by volume, corrected to 7% oxygen, dry basis. The averaging time is specified under sub. (12)(h).

(b) After the first year of operation following the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility may cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides in excess of 150 parts per million by volume, corrected to 7% oxygen, dry basis. The averaging time is specified under sub. (12)(h).

(7) STANDARDS FOR MUNICIPAL WASTE COMBUSTOR OPERATING PRACTICES. (a) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility may cause to be discharged into the atmosphere from that affected facility any gases that contain carbon monoxide in excess of the emission limits specified in Table 1.

Table 1. Municipal Waste Combustor Operating Standards

Municipal waste combustor technology	**Carbon monoxide emission limit (parts per million by volume)**[a]	**Averaging time (hours)**[b]
1. Mass burn waterwall	100	4
2. Mass burn refractory	100	4
3. Mass burn rotary waterwall	100	24
4. Modular starved air	50	4
5. Modular excess air	50	4
6. RDF stoker	150	24
7. Bubbling fluidized bed combustor	100	4
8. Circulating fluidized bed combustor	100	4
9. Pulverized coal and RDF mixed fuel-fired combustor	150	4
10. Spreader stoker coal and RDF mixed fuel-fired combustor	150	24

[a] Measured at the combustor outlet in conjunction with a measurement of oxygen concentration, corrected to 7% oxygen, dry basis. The averaging times are specified in greater detail in sub. (12)(i).

[b] Averaging times are 4-hour or 24-hour block averages.

(b) No owner or operator of an affected facility may cause the facility to operate at a load level greater than 110% of the maximum demonstrated municipal waste combustor unit load as defined in sub. (2), except as specified in subds. 1. and 2. The averaging time is specified under sub. (12)(i).

1. During the annual dioxin/furan performance test and the 2 weeks preceding the annual dioxin/furan performance test, no municipal waste combustor unit load limit is applicable.

2. The municipal waste combustor unit load limit may be waived in accordance with permission granted by the department for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions.

(c) No owner or operator of an affected facility may cause the facility to operate at a temperature, measured at the particulate matter control device inlet, exceeding 17°C above the maximum demonstrated particulate matter control device temperature as defined in sub. (2), except as specified in subds. 1. and 2. The averaging time is specified under sub. (12)(i). The requirements specified in this paragraph apply to each particulate matter control device utilized at the affected facility.

1. During the annual dioxin/furan performance test and the 2 weeks preceding the annual dioxin/furan performance test, no particulate matter control device temperature limitations are applicable.

2. The particulate matter control device temperature limits may be waived in accordance with permission granted by the department for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions.

(8) STANDARDS FOR MUNICIPAL WASTE COMBUSTOR OPERATOR TRAINING AND CERTIFICATION. (a) No later than the date 6 months after the date of startup of an affected facility or on December 19, 1996, whichever is later, each chief facility operator and shift supervisor shall obtain and maintain a current provisional operator certification from the American Society of Mechanical Engineers in accordance with ASME QRO-1-1994, incorporated by reference in s. NR 440.17(2)(h)1., or obtain and maintain an operator certification in accordance with ch. NR 499.

(b) Not later than the date 6 months after the date of startup of an affected facility or on December 19, 1996, whichever is later, each chief facility operator and shift supervisor shall have completed full certification or shall have scheduled a full certification exam in accordance with ASME QRO-1-1994, incorporated by reference in s. NR 440.17(2)(h)1., or shall have obtained an operator certification in accordance with ch. NR 499.

(c)1. No owner or operator of an affected facility may allow the facility to be operated at any time unless one of the following persons is on duty and at the affected facility:

a. A fully certified chief facility operator.

b. A provisionally certified chief facility operator who is scheduled to take the full certification exam according to the schedule specified in par. (b).

c. A fully certified shift supervisor.

d. A provisionally certified shift supervisor who is scheduled to take the full certification exam according to the schedule specified in par. (b).

2. The requirement specified in subd. 1. shall take effect 6 months after the date of startup of the affected facility or on December 19, 1996, whichever is later.

3. If one of the persons listed in subd. 1. must leave the affected facility during his or her operating shift, a provisionally certified control room operator who is onsite at the affected facility may fulfill the requirement in subd. 1.

(d) All chief facility operators, shift supervisors, and control room operators at affected facilities shall complete the EPA or department approved municipal waste combustor operator training course no later than the date 6 months after the date of startup of the affected facility or by December 19, 1996, whichever is later.

(e) The owner or operator of an affected facility shall develop and update on a yearly basis a site-specific operating manual that shall, at a minimum, address the following elements of municipal waste combustor unit operation:

1. A summary of the applicable standards under this section.

2. A description of basic combustion theory applicable to a municipal waste combustor unit.

3. Procedures for receiving, handling and feeding municipal solid waste.

4. Municipal waste combustor unit startup, shutdown and malfunction procedures.

5. Procedures for maintaining proper combustion air supply levels.

6. Procedures for operating the municipal waste combustor unit within the standards established under this section.

7. Procedures for responding to periodic upset or off-specification conditions.

8. Procedures for minimizing particulate matter carryover.

9. Procedures for handling ash.

10. Procedures for monitoring municipal waste combustor unit emissions.

11. Reporting and recordkeeping procedures.

(f) The owner or operator of an affected facility shall establish a training program to review the operating manual according to the schedule specified in subds. 1. and 2. with each person who has responsibilities affecting the operation of an affected facility including chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel and crane and load handlers. Each person specified in this paragraph shall do both of the following:

1. Undergo initial training no later than the latest of the following dates:

a. The date 6 months after the date of startup of the affected facility.

b. The date prior to the day the person assumes responsibilities affecting municipal waste combustor unit operation.

c. December 19, 1996.

2. Review the operating manual annually, following the initial review required by subd. 1.

(g) The operating manual required by par. (e) shall be kept in a readily accessible location for all persons required to undergo training under par. (f). The operating manual and records of training shall be available for inspection by the department upon request.

(9) STANDARDS FOR MUNICIPAL WASTE COMBUSTOR FUGITIVE ASH EMISSIONS. (a) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, no owner or operator of an affected facility may cause to be discharged to the atmosphere visible emissions of combustion ash from an ash conveying system, including conveyor transfer points, in excess of 5% of the observation period, that is, 9 minutes per 3-hour period, as determined by observations according to Method 22 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), as specified in sub. (12)(k), except as provided in pars. (b) and (c).

(b) The emission limit specified in par. (a) does not cover visible emissions discharged inside buildings or enclosures of ash conveying systems. However, the emission limit specified in par. (a) does cover visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems.

(c) The provisions specified in par. (a) do not apply during maintenance and repair of ash conveying systems.

(10) STANDARDS FOR AIR CURTAIN INCINERATORS. On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, the owner or operator of an air curtain incinerator with the capacity to combust greater than 250 tons per day of municipal solid waste and that combusts a fuel feed stream composed of 100% yard waste and no other municipal solid waste materials may at no time cause to be discharged into the atmosphere from that incinerator any gases that exhibit greater than 10% opacity, 6-minute average, except that an opacity level of up to 35%, 6-minute average, is permitted during startup periods during the first 30 minutes of operation of the unit.

(11) SITING REQUIREMENTS. (a) The owner or operator of an affected facility for which the initial application for a construction permit under ch. NR 405 or 408, as applicable, is submitted after December 19, 1995, shall prepare a materials separation plan, as defined in sub. (2), for the affected facility and its service area, and shall comply with the requirements specified in subds. 1. to 10. The initial application is defined as representing a good faith submittal for complying with the requirements under ch. NR 405 or 408, as determined by the department.

1. The owner or operator shall prepare a preliminary draft materials separation plan and shall make the plan available to the public as follows:

a. The owner or operator shall distribute the preliminary draft materials separation plan to the principal public libraries in the area where the affected facility is to be constructed.

b. The owner or operator shall publish a notification of a public meeting in the principal newspapers serving the area where the affected facility is to be constructed and where the waste treated by the affected facility will primarily be collected. As a minimum, the notification shall include the following information:

1) The date, time, and location of the public meeting.

2) The location of the public libraries where the preliminary draft materials separation plan may be found, including normal business hours of the libraries.

3) An agenda of the issues to be discussed at the public meeting.

4) The dates that the public comment period on the preliminary draft materials separation plan begins and ends.

2. The owner or operator shall conduct a public meeting, accept comments on the preliminary draft materials separation plan and comply with the following requirements:

a. The public meeting shall be conducted in the county where the affected facility is to be located.

b. The public meeting shall be scheduled to occur 30 days or more after making the preliminary draft materials separation plan available to the public as specified under subd. 1.

c. Suggested issues to be addressed at the public meeting are as follows:

1) The expected size of the service area for the affected facility.

2) The amount of waste generation anticipated for the service area.

3) The types and estimated amounts of materials proposed for separation.

4) The methods proposed for materials separation.

5) The amount of residual waste to be disposed.

6) Alternate disposal methods for handling the residual waste.

7) Identification of the locations where responses to public comment on the preliminary draft materials separation plan will be available for inspection, as specified in subds. 3. and 4.

8) Identification of the locations where the final draft materials separation plan will be available for inspection, as specified in subd. 7.

d. Nothing in this section shall preclude an owner or operator from combining this public meeting with any other public meeting required as part of any other federal, department or local permit review process except the public meeting required under par. (b)4.

3. Following the public meeting required by subd. 2., the owner or operator shall prepare responses to the comments received at the public meeting.

4. The owner or operator shall make the document summarizing responses to public comments available to the public, including distribution to the principal public libraries used to announce the meeting, in the service area where the affected facility is to be located.

5. The owner or operator shall prepare a final draft materials separation plan for the affected facility considering the public comments received at the public

meeting.

6. As required under sub. (13)(a), the owner or operator shall submit to the department a copy of the notification of the public meeting, a transcript of the public meeting, the document summarizing responses to public comments and copies of both the preliminary and final draft materials separation plans at or before the time the facility's application for a construction permit is submitted under ch. NR 405 or 408, as applicable.

7. As part of the distribution of the siting analysis required under par. (b)3., the owner or operator shall make the final draft materials separation plan required under subd. 5. available to the public, as specified in par. (b)3.

8. As part of the public meeting for review of the siting analysis required under par. (b)4., the owner or operator shall address questions concerning the final draft materials separation plan required by subd. 5., including discussion of how the final draft materials separation plan has changed from the preliminary draft materials separation plan that was discussed at the first public meeting required by subd. 2.

9. If the owner or operator receives any comments on the final draft materials separation plan during the public meeting required in par. (b)4., the owner or operator shall respond to those comments in the document prepared in accordance with par. (b)5.

10. The owner or operator shall prepare a final materials separation plan and shall submit, as required under sub. (13)(b)5.b., the final materials separation plan as part of the initial notification of construction.

(b) The owner or operator of an affected facility for which the initial application for a construction permit under ch. NR 405 or 408, as applicable, is submitted after December 19, 1995 shall prepare a siting analysis in accordance subds. 1. and 2. and shall comply with the requirements specified in subds. 3. to 7.

1. The siting analysis shall be an analysis of the impact of the affected

facility on ambient air quality, visibility, soils and vegetation.

2. The analysis shall consider air pollution control alternatives that minimize, on a site-specific basis, to the maximum extent practicable, potential risks to the public health or the environment.

3. The owner or operator shall make the siting analysis and final draft materials separation plan required by par. (a)5. available to the public as follows:

a. The owner or operator shall distribute the siting analysis and final draft materials separation plan to the principal public libraries in the area where the affected facility is to be constructed.

b. The owner or operator shall publish a notification of a public meeting in the principal newspapers serving the area where the affected facility is to be constructed and where the waste treated by the affected facility will primarily be collected. As a minimum, the notification shall include the following information:

1) The date, time and location of the public meeting.

2) The location of the public libraries where the siting analyses and final draft materials separation plan may be found, including normal business hours.

3) An agenda of the issues to be discussed at the public meeting.

4) The dates that the public comment period on the siting analyses and final draft materials separation plan begins and ends.

4. The owner or operator shall conduct a public meeting and accept comments on the siting analysis and the final draft materials separation plan required under par. (a)5. The public meeting shall be conducted in the county where the affected facility is to be located and shall be scheduled to occur 30 days or more after making the siting analysis available to the public as specified under subd. 3.

5. The owner or operator shall prepare responses to the comments on the siting analysis and the final draft materials separation plan that are received at the public meeting.

6. The owner or operator shall make the document summarizing responses to public comments available to the public, including distribution to all public libraries, in the service area where the affected facility is to be located.

7. As required under sub. (13)(b)5., the owner or operator shall submit a copy of the notification of the public meeting, a transcript of the public meeting, the document summarizing responses to public comments, and the siting analysis as part of the initial notification of construction.

(c) The owner or operator of an affected facility for which construction is commenced after September 20, 1994 shall prepare a siting analysis in accordance with ch. NR 405 or 408, as applicable, and shall submit the siting analysis as part of the initial notification of construction. Affected facilities subject to pars. (a) and (b) are not subject to this paragraph.

(12) COMPLIANCE AND PERFORMANCE TESTING. (a)1. Except as provided by sub. (10), the standards under this section apply at all times except during periods of startup, shutdown and malfunction. Duration of startup, shutdown or malfunction periods are limited to 3 hours per occurrence, except as provided in subd. 1.c.

a. The startup period commences when the affected facility begins the continuous burning of municipal solid waste and does not include any warmup period when the affected facility is combusting fossil fuel or other nonmunicipal solid waste fuel and no municipal solid waste is being fed to the combustor.

b. Continuous burning is the continuous, semicontinuous or batch feeding of municipal solid waste for purposes of waste disposal, energy production or providing heat to the combustion system in preparation for waste disposal or energy production. The use of municipal solid waste solely to provide thermal protection of the grate or hearth during the startup period when municipal solid waste is not being fed to the grate is not considered to be continuous burning.

c. For the purpose of compliance with the carbon monoxide emission limits in sub. (7)(a), if a loss of boiler water level control, for example, boiler waterwall tube failure, or a loss of combustion air control, for example, loss of combustion air fan, induced draft fan or combustion grate bar failure, is determined to be a malfunction, the duration of the malfunction period is limited to 15 hours per occurrence.

2. The opacity limits for air curtain incinerators specified in sub. (10) apply at all times as specified under sub. (10) except during periods of malfunction. Duration of malfunction periods are limited to 3 hours per occurrence.

(b) The owner or operator of an affected facility shall install, calibrate, maintain and operate a continuous emission monitoring system and record the output of the system for measuring the oxygen or carbon dioxide content of the flue gas at each location where carbon monoxide, sulfur dioxide or nitrogen oxides emissions are monitored and shall comply with the following test procedures and test methods:

1. The span value of the oxygen, or 20% carbon dioxide, monitor shall be 25% oxygen or 20% carbon dioxide.

2. The monitor shall be installed, evaluated and operated in accordance with s. NR 440.13.

3. The initial performance evaluation shall be completed no later than 180 days after the date of initial startup of the affected facility, as specified under s. NR 440.08.

4. The monitor shall conform to Performance Specification 3 in Appendix B of 40 CFR part 60, incorporated by reference in s. NR 440.17(1), except for section 2.3, relative accuracy requirement.

5. The quality assurance procedures of Appendix F of 40 CFR part 60, incorporated by reference in s. NR 440.17(1), except for section 5.1.1, relative accuracy test audit, shall apply to the monitor.

6. If carbon dioxide is selected for use in diluent corrections, the

relationship between oxygen and carbon dioxide levels shall be established during the initial performance test according to the procedures and methods specified in subd. 6.a. to d. This relationship may be reestablished during performance compliance tests.

a. The fuel factor equation in Method 3B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine the relationship between oxygen and carbon dioxide at a sampling location. Method 3, 3A or 3B of 40 CFR part 60, Appendix A, as applicable, shall be used to determine the oxygen concentration at the same location as the carbon dioxide monitor.

b. Samples shall be taken for at least 30 minutes in each hour.

c. Each sample shall represent a 1-hour average.

d. A minimum of 3 runs shall be performed.

7. The relationship between carbon dioxide and oxygen concentrations that is established in accordance with subd. 6. shall be submitted to the department as part of the initial performance test report and, if applicable, as part of the annual test report if the relationship is reestablished during the annual performance test.

(c) The procedures and test methods specified in subds. 1. to 11. shall be used to determine compliance with the emission limits for particulate matter and opacity under sub. (3)(a) and (b).

1. Method 1 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to select sampling site and number of traverse points.

2. Method 3, 3A or 3B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), as applicable, shall be used for gas analysis.

3. Method 5 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for determining compliance with the particulate matter emission limit. The minimum sample volume shall be 1.7 cubic meters. The probe and filter holder heating systems in the sample train shall be set to provide a gas

temperature no greater than 160 ± 14°C (320 ± 25°F). An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 5 run.

4. The owner or operator of an affected facility may request that compliance with the particulate matter emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7% oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in par. (b)6.

5. As specified under s. NR 440.08, all performance tests shall consist of 3 test runs. The average of the particulate matter emission concentrations from the 3 test runs shall be used to determine compliance.

6. In accordance with subds. 7. and 11., Method 9 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for determining compliance with the opacity limit except as provided under s. NR 440.11(5).

7. The owner or operator of an affected facility shall conduct an initial performance test for particulate matter emissions and opacity as required under s. NR 440.08.

8. The owner or operator of an affected facility shall install, calibrate, maintain and operate a continuous opacity monitoring system for measuring opacity and shall comply with the following methods and procedures:

a. The output of the continuous opacity monitoring system shall be recorded on a 6-minute average basis.

b. The continuous opacity monitoring system shall be installed, evaluated and operated in accordance with s. NR 440.13.

c. The continuous opacity monitoring system shall conform to Performance Specification 1 in Appendix B of 40 CFR part 60, incorporated by reference in s. NR 440.17(1).

d. The initial performance evaluation shall be completed no later than 180 days after the date of the initial startup of the municipal waste combustor unit, as specified under s. NR 440.08.

9. Following the date that the initial performance test for particulate matter is completed or is required to be completed under s. NR 440.08 for an affected facility, the owner or operator shall conduct a performance test for particulate matter on an annual basis, no more than 12 calendar months following the previous performance test.

11. Following the date that the initial performance test for opacity is completed or is required to be completed under s. NR 440.08 for an affected facility, the owner or operator shall conduct a performance test for opacity on an annual basis, no more than 12 calendar months following the previous performance test, using the test method specified in subd. 6.

(d) The procedures and test methods specified in this paragraph shall be used to determine compliance with the emission limits for cadmium, lead and mercury under sub. (3)(c) to (e):

1. The following procedures and test methods shall be used to determine compliance with the emission limits for cadmium and lead under sub. (3)(c) and (d):

a. Method 1 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for determining the location and number of sampling points.

b. Method 3, 3A or 3B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), as applicable, shall be used for flue gas analysis.

c. Method 29 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for determining compliance with the cadmium and lead emission limits.

d. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 29 test run for cadmium and lead required under subd. 1.c.

e. The owner or operator of an affected facility may request that compliance with the cadmium or lead emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7% oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in par. (b)6.

f. All performance tests shall consist of a minimum of 3 test runs conducted under representative full load operating conditions. The average of the cadmium or lead emission concentrations from 3 test runs or more shall be used to determine compliance.

g. Following the date of the initial performance test or the date on which the initial performance test is required to be completed under s. NR 440.08, the owner or operator of an affected facility shall conduct a performance test for compliance with the emission limits for cadmium and lead on an annual basis, no more than 12 calendar months following the previous performance test.

2. The following procedures and test methods shall be used to determine compliance with the mercury emission limit under sub. (3)(e):

a. Method 1 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for determining the location and number of sampling points.

b. Method 3, 3A or 3B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), as applicable, shall be used for flue gas analysis.

c. Method 29 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine the mercury emission concentration. The minimum sample volume when using Method 29 for mercury shall be 1.7 cubic meters.

d. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 29 test run for mercury required under subd. 2.c.

e. The percent reduction in the potential mercury emissions ($\%P_{Hg}$) shall be computed using the following equation:

$$\%P_{Hg} = \left(\frac{E_i - E_o}{E_i}\right) \times 100$$

where:

$\%P_{Hg}$ is the percent reduction of the potential mercury emissions achieved

E_i is the potential mercury emission concentration measured at the control device inlet, corrected to 7% oxygen, dry basis

E_o is the controlled mercury emission concentration measured at the mercury control device outlet, corrected to 7% oxygen, dry basis

f. All performance tests shall consist of a minimum of 3 test runs conducted under representative full load operating conditions. The average of the mercury emission concentrations or percent reductions from 3 test runs or more shall be used to determine compliance.

g. The owner or operator of an affected facility may request that compliance with the mercury emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7% oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in par. (b)6.

h. The owner or operator of an affected facility shall conduct an initial performance test for mercury emissions as required under s. NR 440.08.

i. Following the date that the initial performance test for mercury is completed or is required to be completed under s. NR 440.08, the owner or operator of an affected facility shall conduct a performance test for mercury emissions on a annual basis, no more than 12 calendar months following the previous performance test.

k. The owner or operator of an affected facility where activated carbon injection is used to comply with the mercury emission limit shall follow the procedures specified in par. (m) for measuring and calculating carbon usage.

(e) The following procedures and test methods shall be used for determining compliance with the sulfur dioxide emission limit under sub. (4)(a):

1. Section 4.3 of Method 19 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to calculate the daily geometric average sulfur dioxide emission concentration.

2. Section 5.4 of Method 19 shall be used to determine the daily geometric average percent reduction in the potential sulfur dioxide emission concentration.

3. The owner or operator of an affected facility may request that compliance with the sulfur dioxide emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7% oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in par. (b)6.

4. The owner or operator of an affected facility shall conduct an initial performance test for sulfur dioxide emissions as required under s. NR 440.08. Compliance with the sulfur dioxide emission limit, concentration or percent reduction, shall be determined by using the continuous emission monitoring system specified in subd. 5. to measure sulfur dioxide and calculating a 24-hour daily geometric average emission concentration or a 24-hour daily geometric average percent reduction using Method 19, sections 4.3 and 5.4, as applicable.

5. The owner or operator of an affected facility shall install, calibrate, maintain and operate a continuous emission monitoring system for measuring sulfur dioxide emissions discharged to the atmosphere and record the output of the system.

6. Following the date that the initial performance test for sulfur dioxide is completed or is required to be completed under s. NR 440.08, compliance with the sulfur dioxide emission limit shall be determined based on the 24-hour daily geometric average of the hourly arithmetic average emission concentrations using continuous emission monitoring system outlet data if compliance is based on an emission concentration, or continuous emission monitoring system inlet and outlet data if

compliance is based on a percent reduction.

7. At a minimum, valid continuous monitoring system hourly averages shall be obtained as follows for 75% of the operating hours per day for 90% of the operating days per calendar quarter that the affected facility is combusting municipal solid waste:

a. At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average.

b. Each sulfur dioxide 1-hour arithmetic average shall be corrected to 7% oxygen on an hourly basis using the 1-hour arithmetic average of the oxygen or carbon dioxide continuous emission monitoring system data.

8. The 1-hour arithmetic averages required under subd. 6. shall be expressed in parts per million corrected to 7% oxygen, dry basis, and used to calculate the 24-hour daily geometric average emission concentrations and daily geometric average emission percent reductions. The 1-hour arithmetic averages shall be calculated using the data points required under s. NR 440.13(5)(b).

9. All valid continuous emission monitoring system data shall be used in calculating average emission concentrations and percent reductions even if the minimum continuous emission monitoring system data requirements of subd. 7. are not met.

10. The procedures under s. NR 440.13 shall be followed for installation, evaluation and operation of the continuous emission monitoring system.

11. The initial performance evaluation shall be completed no later than 180 days after the date of initial startup of the municipal waste combustor as specified under s. NR 440.08.

12. The continuous emission monitoring system shall be operated according to Performance Specification 2 of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1).

a. During each relative accuracy test run of the continuous emission monitoring system required by Performance Specification 2, sulfur dioxide and oxygen or carbon dioxide data shall be collected concurrently, or within a 30 to 60 minute period, by both the continuous emission monitors and the following test methods:

1) For sulfur dioxide, Method 6, 6A or 6C of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used.

2) For oxygen or carbon dioxide, Method 3, 3A or 3B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), as applicable, shall be used.

b. The span value of the continuous emissions monitoring system at the inlet to the sulfur dioxide control device shall be 125% of the maximum estimated hourly potential sulfur dioxide emissions of the municipal waste combustor unit. The span value of the continuous emission monitoring system at the outlet of the sulfur dioxide control device shall be 50% of the maximum estimated hourly potential sulfur dioxide emissions of the municipal waste combustor unit.

13. Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with Procedure 1 in 40 CFR part 60, Appendix F, incorporated by reference in s. NR 440.17(1).

14. When sulfur dioxide emissions data are not obtained because of continuous emission monitoring system breakdowns, repairs, calibration checks and zero and span adjustments, emissions data shall be obtained by using other monitoring systems as approved by the department or Method 19 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), to provide, as necessary, valid emissions data for a minimum of 75% of the hours per day that the affected facility is operated and combusting municipal solid waste for 90% of the days per calendar quarter that the affected facility is operated and combusting municipal solid waste.

(f) The following procedures and test methods shall be used for determining compliance with the hydrogen chloride emission limit under sub. (4)(b):

1. Method 26 or 26A of 40 CFR part 60, Appendix A, incorporated by reference in

s. NR 440.17(1), as applicable, shall be used to determine the hydrogen chloride emission concentration. The minimum sampling time shall be one hour.

2. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each test run for hydrogen chloride required by subd. 1.

3. The percent reduction in potential hydrogen chloride emissions ($\%P_{HCl}$) shall be computed using the following equation:

$$\%P_{HCl} = \left(\frac{E_i - E_o}{E_i} \right) \times 100$$

where:

$\%P_{HCl}$ is the percent reduction of the potential hydrogen chloride emissions achieved

E_i is the potential hydrogen chloride emission concentration measured at the control device inlet, corrected to 7% oxygen, dry basis

E_o is the controlled hydrogen chloride emission concentration measured at the control device outlet, corrected to 7% oxygen, dry basis

4. The owner or operator of an affected facility may request that compliance with the hydrogen chloride emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7% oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in par. (b)6.

5. As specified under s. NR 440.08, all performance tests shall consist of 3 test runs. The average of the hydrogen chloride emission concentrations or percent reductions from the 3 test runs shall be used to determine compliance.

6. The owner or operator of an affected facility shall conduct an initial performance test for hydrogen chloride as required under s. NR 440.08.

7. Following the date that the initial performance test for hydrogen chloride is completed or is required to be completed under s. NR 440.08, the owner or operator of

an affected facility shall conduct a performance test for hydrogen chloride emissions on an annual basis, no more than 12 calendar months following the previous performance test.

(g) The following procedures and test methods shall be used to determine compliance with the limits for dioxin/furan emissions under sub. (5):

1. Method 1 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for determining the location and number of sampling points.

2. Method 3, 3A or 3B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), as applicable, shall be used for flue gas analysis.

3. Method 23 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for determining the dioxin/furan emission concentration.

a. The minimum sample time shall be 4 hours per test run.

b. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 23 test run for dioxins/furans.

4. The owner or operator of an affected facility shall conduct an initial performance test for dioxin/furan emissions in accordance with subd. 3., as required under s. NR 440.08.

5. Following the date that the initial performance test for dioxins/furans is completed or is required to be completed under s. NR 440.08, the owner or operator of an affected facility shall conduct performance tests for dioxin/furan emissions in accordance with subd. 3. and according to one of the following schedules:

a. For affected facilities, performance tests shall be conducted on an annual basis, no more than 12 calendar months following the previous performance test.

c. Where all performance tests over a 2-year period indicate that dioxin/furan emissions are less than or equal to 7 nanograms per dry standard cubic meter, total mass, for all affected facilities located within a municipal waste combustor plant, the owner or operator of the municipal waste combustor plant may elect to conduct annual performance tests for one affected facility, that is, unit, per year at the municipal waste combustor plant. At a minimum, a performance test for dioxin/furan emissions shall be conducted annually, no more than 12 months following the previous performance test, for one affected facility at the municipal waste combustor plant. Each year a different affected facility at the municipal waste combustor plant shall be tested, and the affected facilities at the plant shall be tested in sequence, for example, unit 1, unit 2, unit 3, as applicable. If each annual performance test continues to indicate a dioxin/furan emission level less than or equal to 7 nanograms per dry standard cubic meter, total mass, the owner or operator may continue conducting a performance test on only one affected facility per year. If any annual performance test indicates a dioxin/furan emission level greater than 7 nanograms per dry standard cubic meter, total mass, performance tests thereafter shall be conducted annually on all affected facilities at the plant until and unless all annual performance tests for all affected facilities at the plant over a 2-year period indicate a dioxin/furan emission level less than or equal to 7 nanograms per dry standard cubic meter, total mass.

6. The owner or operator of an affected facility that selects to follow the performance testing schedule specified in subd. 5.c. shall follow the procedures specified in sub. (13)(g)4. for reporting the selection of this schedule.

7. The owner or operator of an affected facility where activated carbon is used to comply with the dioxin/furan emission limits specified in sub. (5) or the dioxin/furan emission level specified in subd. 5.c. shall follow the procedures specified in par. (m) for measuring and calculating the carbon usage rate.

8. The owner or operator of an affected facility may request that compliance with the dioxin/furan emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7% oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in par.

(b)6.

9. As specified under s. NR 440.08, all performance tests shall consist of 3 test runs. The average of the dioxin/furan emission concentrations from the 3 test runs shall be used to determine compliance.

(h) The following procedures and test methods shall be used to determine compliance with the nitrogen oxides emission limit for affected facilities under sub. (6):

1. Section 4.1 of Method 19 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for determining the daily arithmetic average nitrogen oxides emission concentration.

2. The owner or operator of an affected facility may request that compliance with the nitrogen oxides emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7% oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in par. (b)6.

3. The owner or operator of an affected facility subject to the nitrogen oxides limit under sub. (6) shall conduct an initial performance test for nitrogen oxides as required under s. NR 440.08. Compliance with the nitrogen oxides emission limit shall be determined by using the continuous emission monitoring system specified in subd. 4. for measuring nitrogen oxides and calculating a 24-hour daily arithmetic average emission concentration using section 4.1 of Method 19.

4. The owner or operator of an affected facility subject to the nitrogen oxides emission limit under sub. (6) shall install, calibrate, maintain and operate a continuous emission monitoring system for measuring nitrogen oxides discharged to the atmosphere, and record the output of the system.

5. Following the date that the initial performance test for nitrogen oxides is completed or is required to be completed under s. NR 440.08, compliance with the

emission limit for nitrogen oxides required under sub. (6) shall be determined based on the 24-hour daily arithmetic average of the hourly emission concentrations using continuous emission monitoring system outlet data.

6. At a minimum, valid continuous emission monitoring system hourly averages shall be obtained as follows for 75% of the operating hours per day for 90% of the operating days per calendar quarter that the affected facility is combusting municipal solid waste:

a. At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average.

b. Each nitrogen oxides 1-hour arithmetic average shall be corrected to 7% oxygen on an hourly basis using the 1-hour arithmetic average of the oxygen or carbon dioxide continuous emission monitoring system data.

7. The 1-hour arithmetic averages required by subd. 5. shall be expressed in parts per million by volume, dry basis, and used to calculate the 24-hour daily arithmetic average concentrations. The 1-hour arithmetic averages shall be calculated using the data points required under s. NR 440.13(5)(b).

8. All valid continuous emission monitoring system data shall be used in calculating emission averages even if the minimum continuous emission monitoring system data requirements of subd. 6. are not met.

9. The procedures under s. NR 440.13 shall be followed for installation, evaluation and operation of the continuous emission monitoring system. The initial performance evaluation shall be completed no later than 180 days after the date of initial startup of the municipal waste combustor unit, as specified under s. NR 440.08.

10. The owner or operator of an affected facility shall operate the continuous emission monitoring system according to Performance Specification 2 in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1), and shall comply with the

following procedures and methods:

a. During each relative accuracy test run of the continuous emission monitoring system required by Performance Specification 2, nitrogen oxides and oxygen or carbon dioxide data shall be collected concurrently, or within a 30 to 60-minute period, by both the continuous emission monitors and the following test methods:

1) For nitrogen oxides, Method 7, 7A, 7C, 7D or 7E of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used.

2) For oxygen or carbon dioxide, Method 3, 3A or 3B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), as applicable, shall be used.

b. The span value of the continuous emission monitoring system shall be 125% of the maximum estimated hourly potential nitrogen oxide emissions of the municipal waste combustor unit.

11. Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with Procedure 1 of 40 CFR part 60, Appendix F, incorporated by reference in s. NR 440.17(1).

12. When nitrogen oxides continuous emissions data are not obtained because of continuous emission monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained using other monitoring systems as approved by the department or Method 19 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), to provide, as necessary, valid emissions data for a minimum of 75% of the hours per day for 90% of the days per calendar quarter the unit is operated and combusting municipal solid waste.

(i) The following procedures shall be used for determining compliance with the operating requirements under sub. (7):

1. Compliance with the carbon monoxide emission limits in sub. (7) shall be determined using a 4-hour block arithmetic average for all types of affected facilities except mass burn rotary waterwall municipal waste combustors and refuse-

derived fuel stokers.

2. For affected mass burn rotary waterwall municipal waste combustors and refuse-derived fuel stokers, compliance with the carbon monoxide emission limits in sub. (7)(a) shall be determined using a 24-hour daily arithmetic average.

3. The owner or operator of an affected facility shall install, calibrate, maintain and operate a continuous emission monitoring system for measuring carbon monoxide at the combustor outlet and record the output of the system and shall comply with the following procedures and methods:

a. The continuous emission monitoring system shall be operated according to Performance Specification 4A of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1).

b. During each relative accuracy test run of the continuous emission monitoring system required by Performance Specification 4A, carbon monoxide and oxygen or carbon dioxide data shall be collected concurrently, or within a 30- to 60-minute period, by both the continuous emission monitors and the following test methods:

1) For carbon monoxide, Method 10, 10A or 10B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used.

2) For oxygen or carbon dioxide, Method 3, 3A or 3B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), as applicable, shall be used.

c. The span value of the continuous emission monitoring system shall be 125% of the maximum estimated hourly potential carbon monoxide emissions of the municipal waste combustor unit.

4. The 4-hour block and 24-hour daily arithmetic averages specified in subds. 1. and 2. shall be calculated from 1-hour arithmetic averages expressed in parts per million by volume corrected to 7% oxygen, dry basis. The 1-hour arithmetic averages shall be calculated using the data points generated by the continuous emission monitoring system. At least 2 data points shall be used to calculate each 1-hour

arithmetic average.

5. The owner or operator of an affected facility may request that compliance with the carbon monoxide emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7% oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in par. (b)6.

6. The following procedures shall be used to determine compliance with load level requirements under sub. (7)(b):

a. The owner or operator of an affected facility with steam generation capability shall install, calibrate, maintain and operate a steam flow meter or a feedwater flow meter; measure steam or feedwater flow in kilograms per hour or pounds per hour on a continuous basis; and record the output of the monitor. Steam or feedwater flow shall be calculated in 4-hour block arithmetic averages.

b. The method included in ASME Power Test Codes: Test Code for Steam Generating Units, PTC 4.1-1964 (R1991) section 4, incorporated by reference in s. NR 440.17(2)(h)2., shall be used for calculating the steam or feedwater flow required under subd. 6.a. The recommendations in ASME Interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters, 6th edition, 1971, chapter 4, incorporated by reference in s. NR 440.17(2)(h)3., shall be followed for design, construction, installation, calibration and use of nozzles and orifices except as specified in subd. 6.c.

c. Measurement devices such as flow nozzles and orifices are not required to be recalibrated after they are installed.

d. All signal conversion elements associated with steam or feedwater flow measurements shall be calibrated according to the manufacturer's instructions before each dioxin/furan performance test, and at least once per year.

7. To determine compliance with the maximum particulate matter control device

temperature requirements under sub. (7)(c), the owner or operator of an affected facility shall install, calibrate, maintain and operate a device for measuring on a continuous basis the temperature of the flue gas stream at the inlet to each particulate matter control device utilized by the affected facility. Temperature shall be calculated in 4-hour block arithmetic averages.

8. The maximum demonstrated municipal waste combustor unit load shall be determined during the initial performance test for dioxins/furans and each subsequent performance test during which compliance with the dioxin/furan emission limit specified in sub. (5) is achieved. The maximum demonstrated municipal waste combustor unit load shall be the highest 4-hour arithmetic average load achieved during 4 consecutive hours during the most recent test during which compliance with the dioxin/furan emission limit was achieved.

9. For each particulate matter control device employed at the affected facility, the maximum demonstrated particulate matter control device temperature shall be determined during the initial performance test for dioxins/furans and each subsequent performance test during which compliance with the dioxin/furan emission limit specified in sub. (5) is achieved. The maximum demonstrated particulate matter control device temperature shall be the highest 4-hour arithmetic average temperature achieved at the particulate matter control device inlet during 4 consecutive hours during the most recent test during which compliance with the dioxin/furan limit was achieved.

10. At a minimum, valid continuous emission monitoring system hourly averages shall be obtained as follows for 75% of the operating hours per day for 90% of the operating days per calendar quarter that the affected facility is combusting municipal solid waste:

a. At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average.

b. At a minimum, each carbon monoxide 1-hour arithmetic average shall be corrected to 7% oxygen on an hourly basis using the 1-hour arithmetic average of the oxygen or carbon dioxide continuous emission monitoring system data.

11. All valid continuous emission monitoring system data shall be used in calculating the parameters specified under this paragraph even if the minimum data requirements of subd. 10. are not met. When carbon monoxide continuous emission data are not obtained because of continuous emission monitoring system breakdowns, repairs, calibration checks or zero and span adjustments, emissions data shall be obtained using other monitoring systems as approved by the department or Method 10 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), to provide, as necessary, the minimum valid emission data.

12. Quarterly accuracy determinations and daily calibration drift tests for the carbon monoxide continuous emission monitoring system shall be performed in accordance with Procedure 1 of 40 CFR part 60, Appendix F, incorporated by reference in s. NR 440.17(1).

(j) The following procedures shall be used for calculating municipal waste combustor unit capacity as defined under sub. (2):

1. For municipal waste combustor units capable of combusting municipal solid waste continuously for a 24-hour period, municipal waste combustor unit capacity shall be calculated based on 24 hours of operation at the maximum charging rate. The maximum charging rate shall be determined using one of the following as applicable:

a. For combustors that are designed based on heat capacity, the maximum charging rate shall be calculated based on the maximum design heat input capacity of the unit and a heating value of 12,800 kilojoules per kilogram for combustors firing refuse-derived fuel and a heating value of 10,500 kilojoules per kilogram for combustors firing municipal solid waste that is not refuse-derived fuel.

b. For combustors that are not designed based on heat capacity, the maximum charging rate shall be the maximum design charging rate.

2. For batch feed municipal waste combustor units, municipal waste combustor unit capacity shall be calculated as the maximum design amount of municipal solid waste that can be charged per batch multiplied by the maximum number of batches that could be processed in a 24-hour period. The maximum number of batches that could be processed in a 24-hour period is calculated as 24 hours divided by the design number of hours required to process one batch of municipal solid waste, and may include fractional batches, for example, if one batch requires 16 hours, then 24 divided by 16, or 1.5 batches, could be combusted in a 24-hour period. For batch combustors that are designed based on heat capacity, the design heating value of 12,800 kilojoules per kilogram for combustors firing refuse-derived fuel and a heating value of 10,500 kilojoules per kilogram for combustors firing municipal solid waste that is not refuse-derived fuel shall be used in calculating the municipal waste combustor unit capacity in megagrams per day of municipal solid waste.

(k) The following procedures shall be used for determining compliance with the fugitive ash emission limit under sub. (9):

1. Method 22 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for determining compliance with the fugitive ash emission limit under sub. (9). The minimum observation time shall be a series of 3 1-hour observations. The observation period shall include times when the facility is transferring ash from the municipal waste combustor unit to the area where ash is stored or loaded into containers or trucks.

2. The average duration of visible emissions per hour shall be calculated from the 3 1-hour observations. The average shall be used to determine compliance with sub. (9).

3. The owner or operator of an affected facility shall conduct an initial performance test for fugitive ash emissions as required under s. NR 440.08.

4. Following the date that the initial performance test for fugitive ash emissions is completed or is required to be completed under s. NR 440.08 for an affected facility, the owner or operator shall conduct a performance test for fugitive ash emissions on an annual basis, no more than 12 calendar months following the previous performance test.

(L) The following procedures shall be used to determine compliance with the opacity limit for air curtain incinerators under sub. (10):

1. Method 9 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for determining compliance with the opacity limit.

2. The owner or operator of the air curtain incinerator shall conduct an initial performance test for opacity as required under s. NR 440.08.

3. Following the date that the initial performance test is completed or is required to be completed under s. NR 440.08, the owner or operator of the air curtain incinerator shall conduct a performance test for opacity on an annual basis, no more than 12 calendar months following the previous performance test.

(m) The owner or operator of an affected facility where activated carbon injection is used to comply with the mercury emission limit under sub. (3)(e), or the dioxin/furan emission limits under sub. (5), or the dioxin/furan emission level specified in sub. (12)(g)5.c., shall comply with the following procedures:

1. During the performance tests for dioxins/furans and mercury, as applicable, the owner or operator shall estimate an average carbon mass feed rate based on carbon injection system operating parameters such as the screw feeder speed, hopper volume, hopper refill frequency or other parameters appropriate to the feed system being employed, as follows:

a. An average carbon mass feed rate in kilograms per hour or pounds per hour shall be estimated during the initial performance test for mercury emissions and each subsequent performance test for mercury emissions.

b. An average carbon mass feed rate in kilograms per hour or pounds per hour shall be estimated during the initial performance test for dioxin/furan emissions and each subsequent performance test for dioxin/furan emissions.

2. During operation of the affected facility, the carbon injection system operating parameters that are the primary indicators of the carbon mass feed rate, for example, screw feeder setting, shall equal or exceed the levels documented during the performance tests specified under subd. 1.a. and b.

3. The owner or operator of an affected facility shall estimate the total carbon usage of the plant, kilograms or pounds, for each calendar quarter by 2 independent methods, according to the following procedures:

a. The weight of carbon delivered to the plant.

b. Estimate the average carbon mass feed rate in kilograms per hour or pounds per hour for each hour of operation for each affected facility based on the parameters specified under subd. 1., and sum the results for all affected facilities at the plant for the total number of hours of operation during the calendar quarter.

(13) REPORTING AND RECORDKEEPING REQUIREMENTS. (a) The owner or operator of an affected facility with a capacity to combust greater than 250 tons per day shall submit, on or before the date the application for a construction permit is submitted under ch. NR 405 or 408, the following items:

1. The preliminary and final draft materials separation plans required by sub. (11)(a)1. and 5.

2. A copy of the notification of the public meeting required by sub. (11)(a)1.b.

3. A transcript of the public meeting required by sub. (11)(a)2.

4. A copy of the document summarizing responses to public comments required by sub. (11)(a)3.

(b) The owner or operator of an affected facility with a capacity to combust greater than 250 tons per day shall submit a notification of construction, which includes the following information:

1. Intent to construct.

2. Planned initial startup date.

3. The types of fuels that the owner or operator plans to combust in the affected facility.

4. The municipal waste combustor unit capacity, and supporting capacity calculations prepared in accordance with sub. (12)(j).

5. All of the following documents associated with the siting requirements under sub. (11)(a) and (b):

a. The siting analysis required by sub. (11)(b)1. and 2.

b. The final materials separation plan for the affected facility required by sub. (11)(a)10.

c. A copy of the notification of the public meeting required by sub. (11)(b)3.b.

d. A transcript of the public meeting required by sub. (11)(b)4.

e. A copy of the document summarizing responses to public comments required by sub. (11)(a)9. and (b)5.

(c) The owner or operator of an air curtain incinerator subject to the opacity limit under sub. (10) shall provide a notification of construction that includes the information specified in par. (b)1. to 4.

(d) The owner or operator of an affected facility subject to the standards under subs. (3) to (9) and (11) shall maintain records of the following information, as applicable, for each affected facility for a period of at least 5 years:

1. The calendar date of each record.

2. The emission concentrations and parameters measured using continuous monitoring systems as follows:

a. The following measurements shall be recorded and be available for submittal to the department or review onsite by an inspector:

1) All 6-minute average opacity levels as specified under sub. (12)(c).

2) All 1-hour average sulfur dioxide emission concentrations as specified under sub. (12)(e).

3) All 1-hour average nitrogen oxides emission concentrations as specified under sub. (12)(h).

4) All 1-hour average carbon monoxide emission concentrations, municipal waste combustor unit load measurements and particulate matter control device inlet temperatures as specified under sub. (12)(i).

b. The following average concentrations and percent reductions, as applicable, shall be computed and recorded, and shall be available for submittal to the department or review on-site by an inspector.

1) All 24-hour daily geometric average sulfur dioxide emission concentrations and all 24-hour daily geometric average percent reductions in sulfur dioxide emissions as specified under sub. (12)(e).

2) All 24-hour daily arithmetic average nitrogen oxides emission concentrations as specified under sub. (12)(h).

3) All 4-hour block or 24-hour daily arithmetic average carbon monoxide emission concentrations, as applicable, as specified under sub. (12)(i).

4) All 4-hour block arithmetic average municipal waste combustor unit load levels and particulate matter control device inlet temperatures as specified under sub. (12)(i).

3. Identification of the calendar dates when any of the average emission concentrations, percent reductions or operating parameters recorded under subd. 2.b., or the opacity levels recorded under subd. 2.a.1), are above the applicable limits, with reasons for such exceedances and a description of corrective actions taken.

4. For affected facilities that apply activated carbon for mercury or dioxin/furan control, the followings records:

a. The average carbon mass feed rate, in kilograms per hour or pounds per hour, estimated as required under sub. (12)(m)1.a. during the initial mercury performance test and all subsequent annual performance tests, with supporting calculations.

b. The average carbon mass feed rate, in kilograms per hour or pounds per hour, estimated as required under sub. (12)(m)1.b. during the initial dioxin/furan performance test and all subsequent annual performance tests, with supporting calculations.

c. The average carbon mass feed rate, in kilograms per hour or pounds per hour estimated for each hour of operation as required under sub. (12)(m)3.b., with supporting calculations.

d. The total carbon usage for each calendar quarter estimated as specified by sub. (12)(m)3., with supporting calculations.

e. Carbon injection system operating parameter data for the parameters that are the primary indicators of carbon feed rate, for example, screw feeder speed.

6. Identification of the calendar dates for which the minimum number of hours of any of the following have not been obtained including reasons for not obtaining sufficient data and a description of corrective actions taken:

a. Sulfur dioxide emissions data.

b. Nitrogen oxides emissions data.

c. Carbon monoxide emissions data.

d. Municipal waste combustor unit load data.

e. Particulate matter control device temperature data.

7. Identification of each occurrence that sulfur dioxide emissions data, nitrogen oxides emissions data for large municipal waste combustors or operational data, that is, carbon monoxide emissions, unit load, and particulate matter control device temperature, have been excluded from the calculation of average emission concentrations or parameters, and the reasons for excluding the data.

8. The results of daily drift tests and quarterly accuracy determinations for sulfur dioxide, nitrogen oxides and carbon monoxide continuous emission monitoring systems, as required under Procedure 1 of 40 CFR part 60, Appendix F, incorporated by reference in s. NR 440.17(1).

9. The test reports documenting the results of all of the following tests along with supporting calculations:

a. The results of the initial performance test and all annual performance tests conducted to determine compliance with the particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride and fugitive ash emission limits.

b. For the initial dioxin/furan performance test and all subsequent dioxin/furan performance tests recorded under subd. 9.a., the maximum demonstrated municipal waste combustor unit load and maximum demonstrated particulate matter control device temperature for each particulate matter control device.

11. For each affected facility subject to the siting provisions under sub. (11), the siting analysis, the final materials separation plan, a record of the location and date of the public meetings, and the documentation of the responses to public comments received at the public meetings.

12. The following records:

a. Records showing the names of the municipal waste combustor chief facility operator, shift supervisors and control room operators who have been provisionally certified by the American Society of Mechanical Engineers as required by sub. (8)(a), including the dates of initial and renewal certifications and documentation of current certification.

b. Records showing the names of the municipal waste combustor chief facility operator, shift supervisors and control room operators who have been fully certified by the American Society of Mechanical Engineers or the department as required by sub. (8)(b), including the dates of initial and renewal certifications and documentation of current certification.

c. Records showing the names of the municipal waste combustor chief facility operator, shift supervisors and control room operators who have completed the EPA or department approved municipal waste combustor operator training course as required by sub. (8)(d), including documentation of training completion.

13. Records showing the names of persons who have completed a review of the operating manual as required by sub. (8)(f), including the date of the initial review and subsequent annual reviews.

14. For affected facilities that apply activated carbon for mercury or dioxin/furan control, identification of the calendar dates when the average carbon mass feed rates recorded under subd. 4.c. were less than either of the hourly carbon feed rates estimated during performance tests for mercury or dioxin/furan emissions and recorded under subd. 4.a. and b., respectively, with reasons for the feed rates and a description of corrective actions taken.

15. For affected facilities that apply activated carbon for mercury or dioxin/furan control, identification of the calendar dates when the carbon injection system operating parameters that are the primary indicators of carbon mass feed rate, for example, screw feeder speed, recorded under subd. 4.e. are below the levels estimated during the performance tests as specified in sub. (12)(m)1.a. and 6., with reasons for the occurrences and a description of corrective actions taken.

(e) The owner or operator of an air curtain incinerator subject to the opacity limit under sub. (10) shall maintain records of results of the initial opacity performance test and subsequent performance tests required by sub. (12)(L) for a period of at least 5 years.

(f) The owner or operator of an affected facility shall submit all of the following information in the initial performance test report:

1. The initial performance test data as recorded under par. (d)2.b. for the

initial performance test for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level, and particulate matter control device inlet temperature.

2. The test report documenting the initial performance test recorded under par. (d)9. for particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride and fugitive ash emissions.

3. The performance evaluation of the continuous emission monitoring system using the applicable performance specifications in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1).

4. The maximum demonstrated municipal waste combustor unit load and maximum demonstrated particulate matter control device inlet temperatures established during the initial dioxin/furan performance test as recorded under par. (d)9.

5. For affected facilities that apply activated carbon injection for mercury control, the average carbon mass feed rate recorded under par. (d)4.a.

6. For those affected facilities that apply activated carbon injection for dioxin/furan control, the average carbon mass feed rate recorded under par. (d)4.b.

(g) Following the first year of municipal combustor operation, the owner or operator of an affected facility shall submit an annual report including the following information, as applicable, no later than February 1 of each year following the calendar year in which the data were collected, except that once the unit is subject to permitting requirements under ch. NR 407, the owner or operator of an affected facility shall submit the reports semiannually:

1. A summary of data collected for all pollutants and parameters regulated under this section, which includes all of the following information:

a. A list of the particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride and fugitive ash emission levels achieved during the performance tests recorded under par. (d)9.

b. A list of the highest emission level recorded for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level and particulate matter control device inlet temperature based on the data recorded under par. (d)2.b.

c. The highest opacity level measured, based on the data recorded under par. (d)2.a.1).

d. The total number of days that the minimum number of hours of data for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load and particulate matter control device temperature data were not obtained based on the data recorded under par. (d)6.

e. The total number of hours that data for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load and particulate matter control device temperature were excluded from the calculation of average emission concentrations or parameters based on the data recorded under par. (d)7.

f. The types of data specified in subd. 1.a. to d. for the calendar year preceding the year being reported, in order to provide the department with a summary of the performance of the affected facility over a 2-year period.

g. Highlights of any emission or parameter levels that did not achieve the emission or parameter limits specified under this section.

2. A notification of intent to begin the reduced dioxin/furan performance testing schedule specified in sub. (12)(g)5.c. during the following calendar year.

(h)1. The owner or operator of an affected facility shall submit a semiannual report that includes all of the following information for any recorded pollutant or parameter that does not comply with the pollutant or parameter limit specified under this section, according to the schedule specified under subd. 2.:

a. The semiannual report shall include information recorded under par. (d)3. for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level, particulate matter control device inlet temperature and opacity.

b. For each date recorded as required by par. (d)3. and reported as required by subd. 1.a., the semiannual report shall include the sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level, particulate matter control device inlet temperature and opacity data, as applicable, recorded under par. (d)2.a.1) and b., as applicable.

c. If the test reports recorded under par. (d)9. document any particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride or fugitive ash emission levels that were above the applicable pollutant limits, the semiannual report shall include a copy of the test report documenting the emission levels and the corrective actions taken.

d. The semiannual report shall include the information recorded under par. (d)15. for the carbon injection system operating parameters that are the primary indicators of carbon mass feed rate.

e. For each operating date reported as required by subd. 1.d., the semiannual report shall include the carbon feed rate data recorded under par. (d)4.c.

2. Semiannual reports required by subd. 1. shall be submitted according to one of the following schedules:

a. If the data reported in accordance with subd. 1. were collected during the first calendar half, then the report shall be submitted by August 1 following the first calendar half.

b. If the data reported in accordance with subd. 1. were collected during the second calendar half, then the report shall be submitted by February 1 following the second calendar half.

(i) The owner or operator of an air curtain incinerator subject to the opacity limit under sub. (10) shall submit the results of the initial opacity performance test and all subsequent annual performance tests recorded under par. (e). Annual performance tests shall be submitted by February 1 of the year following the year of the performance test.

(j) All reports specified under pars. (a) to (c) and (f) to (i) shall be submitted as a paper copy, postmarked on or before the submittal dates specified and maintained onsite as a paper copy for a period of 5 years.

(k) All records specified under pars. (d) and (e) shall be maintained onsite in either paper copy or computer-readable format, unless an alternative format is approved by the department.

(L) If the owner or operator of an affected facility would prefer a different annual or semiannual date for submitting the periodic reports required by pars. (g), (h) and (i), the dates may be changed by mutual agreement between the owner or operator and the department according to the procedures specified in s. NR 440.185(3).

SECTION 108. NR 440.218 is created to read:

NR 440.218 Hospital/medical/infectious waste incinerators for which construction is commenced after June 20, 1996. (1) APPLICABILITY. (a) Except as provided in pars. (b) to (h), the affected facility to which this section applies is each individual hospital/medical/infectious waste incinerator (HMIWI) for which construction is commenced after June 20, 1996 or for which modification is commenced after March 16, 1998.

(b) A combustor is not subject to this section during periods when only pathological waste, low-level radioactive waste or chemotherapeutic waste is burned alone or in any combination, provided the owner or operator of the combustor does all of the following:

1. Notifies the department of an exemption claim.

2. Keeps records on a calendar quarter basis of the periods of time when only pathological waste, low-level radioactive waste or chemotherapeutic waste is burned alone or in any combination.

(c) Any co-fired combustor is not subject to this section if the owner or operator of the co-fired combustor does all of the following:

1. Notifies the department of an exemption claim.

2. Provides an estimate of the relative amounts of hospital waste, medical/infectious waste and other fuels and wastes to be combusted.

3. Keeps records on a calendar quarter basis of the weight of hospital waste and medical/infectious waste combusted and the weight of all other fuels and wastes combusted at the co-fired combustor.

(d) Any combustor required to have a permit under section 3005 of the Solid Waste Disposal Act (42 USC 6925), or a license under s. 291.25, Stats., is not subject to this section.

(e) Any combustor which meets the applicability requirements under 40 CFR part 60, subpart Cb, or s. NR 440.215 or 440.216 is not subject to this section.

(f) Any pyrolysis unit is not subject to this section.

(g) Cement kilns firing hospital waste or medical/infectious waste are not subject to this section.

(h) Physical or operational changes made to an existing HMIWI solely for the purpose of complying with emission guidelines under 40 CFR part 60, subpart Ce, are not considered a modification and do not result in an existing HMIWI becoming subject to this section.

(j) Affected facilities subject to this section are not subject to the requirements of 40 CFR part 64.

(L) Beginning September 15, 2000, affected facilities subject to this section shall operate pursuant to a permit issued under ch. NR 407.

Note: The federal rule, 40 CFR 60.50c(l), requires that an affected facility operate pursuant to an operating permint issued no later than the later of September 15, 2000 or the effective date of an EPA approved operating permit program under Title V of the Act (42 USC 7661 to 7661f) and 40 CFR part 70. The department received final interim approval of its operating permit program on April 5, 1995 and full approval on November 30, 2001. Any permit issued to an affected facility prior to the effective date of this rule ...[revisor insert date] will contain references to the appropriate federal rule provisions of 40 CFR part 60 subpart Ec.

(2) DEFINITIONS. As used in this section, all terms not defined in this subsection have the meanings given in s. NR 440.02 or, for terms not defined in s. NR 440.02, the meanings given in s. NR 400.02. In this section:

(a) "Batch HMIWI" means an HMIWI that is designed such that neither waste charging nor ash removal can occur during combustion.

(am) "Biologicals" means preparations made from living organisms and their products, including vaccines, cultures, etc., intended for use in diagnosing, immunizing or treating humans or animals or in research pertaining thereto.

(b) "Blood products" means any product derived from human blood, including blood plasma, platelets, red or white blood corpuscles and other derived licensed products, such as interferon, etc.

(bm) "Body fluids" means liquid emanating or derived from humans and limited to blood; dialysate; amniotic, cerebrospinal, synovial, pleural, peritoneal and pericardial fluids; and semen and vaginal secretions.

(c) "Bypass stack" means a device used for discharging combustion gases to avoid severe damage to the air pollution control device or other equipment.

(cm) "Chemotherapeutic waste" means waste material resulting from the production or use of antineoplastic agents used for the purpose of stopping or reversing the growth of malignant cells.

(d) "Co-fired combustor" means a unit combusting hospital waste or medical/infectious waste or both with other fuels or wastes, for example, coal or municipal solid waste, and subject to an enforceable requirement limiting the unit to combusting a fuel feed stream, 10% or less of the weight of which is comprised, in aggregate, of hospital waste and medical/infectious waste as measured on a calendar quarter basis. For purposes of this definition, pathological waste, chemotherapeutic waste and low-level radioactive waste are considered "other" wastes when calculating the percentage of hospital waste and medical/infectious waste combusted.

(dm) “Continuous emission monitoring system” or “CEMS” means a monitoring system for continuously measuring and recording the emissions of a pollutant from an affected facility.

(e) “Continuous HMIWI” means an HMIWI that is designed to allow waste charging and ash removal during combustion.

(em) “Dioxin/furan” means the combined emissions of tetra- through octa-chlorinated dibenzo-para-dioxins and dibenzofurans, as measured by Method 23 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1).

(f) “Dry scrubber” means an add-on air pollution control system that injects dry alkaline sorbent (dry injection) or sprays an alkaline sorbent (spray dryer) to react with and neutralize acid gases in the HMIWI exhaust stream forming a dry powder material.

(fm) “Fabric filter” or “baghouse” means an add-on air pollution control system that removes particulate matter and nonvaporous metals emissions by passing flue gas through filter bags.

(g) “Facilities manager” means the individual in charge of purchasing, maintaining and operating the HMIWI or the owner's or operator's representative responsible for the management of the HMIWI. Alternative titles may include director of facilities or vice president of support services.

(gm) “High-air phase” means the stage of the batch operating cycle when the primary chamber reaches and maintains maximum operating temperatures.

(h) “Hospital” means any facility which has an organized medical staff, maintains at least 6 inpatient beds, and where the primary function of the institution is to provide diagnostic and therapeutic patient services and continuous nursing care primarily to human inpatients who are not related and who stay on average in excess of

24 hours per admission. This definition does not include facilities maintained for the sole purpose of providing nursing or convalescent care to human patients who generally are not acutely ill but who require continuing medical supervision.

(hm) "Hospital/medical/infectious waste incinerator" or "HMIWI" or "HMIWI unit" means any device that combusts any amount of hospital waste or medical/infectious waste.

(i) "Hospital/medical/infectious waste incinerator operator" or "HMIWI operator" means any person who operates, controls or supervises the day-to-day operation of an HMIWI.

(im) "Hospital waste" means discards generated at a hospital, except unused items returned to the manufacturer. The definition of hospital waste does not include human corpses, remains and anatomical parts that are intended for interment or cremation.

(j) "Infectious agent" means any organism, such as a virus or bacteria, that is capable of being communicated by invasion and multiplication in body tissues and capable of causing disease or adverse health impacts in humans.

(jm) "Intermittent HMIWI" means an HMIWI that is designed to allow waste charging, but not ash removal, during combustion.

(k) "Large HMIWI" means an HMIWI whose maximum design waste burning capacity is more than 500 pounds per hour, a continuous or intermittent HMIWI whose maximum charge rate is more than 500 pounds per hour or a batch HMIWI whose maximum charge rate is more than 4,000 pounds per day. A continuous or intermittent HMIWI whose maximum charge rate is less than or equal to 500 pounds per hour, or a batch HMIWI whose maximum charge rate is less than or equal to 4,000 pounds per day, is not a large HMIWI.

(km) "Low-level radioactive waste" means waste material which contains radioactive nuclides emitting primarily beta or gamma radiation, or both, in concentrations or quantities that exceed applicable federal or state standards for unrestricted release. Low-level radioactive waste is not high-level radioactive waste, spent nuclear fuel or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC 2014(e)(2)).

(L) "Malfunction" means any sudden, infrequent and not reasonably preventable failure of air pollution control equipment, process equipment or a process to operate in a normal or usual manner. Failures that are caused, in part, by poor maintenance or careless operation are not malfunctions. During periods of malfunction the operator shall operate within established parameters as much as possible, and monitoring of all applicable operating parameters shall continue until all waste has been combusted or until the malfunction ceases, whichever comes first.

(Lm) "Maximum charge rate" means the following:

1. For continuous and intermittent HMIWI, 110% of the lowest 3-hour average charge rate measured during the most recent performance test demonstrating compliance with all applicable emission limits.

2. For batch HMIWI, 110% of the lowest daily charge rate measured during the most recent performance test demonstrating compliance with all applicable emission limits.

(m) "Maximum design waste burning capacity" means the following:

1. For intermittent and continuous HMIWI,

$$C = P_V \times 15,000/8,500$$

where:

C is the HMIWI capacity, lb/hr

P_V is the primary chamber volume, ft^3

15,000 is the primary chamber heat release rate factor, $Btu/ft^3/hr$

8,500 is the standard waste heating value, Btu/lb

2. For batch HMIWI,

$$C = P_V \times 4.5/8$$

where:

C is the HMIWI capacity, lb/hr

P_V is the primary chamber volume, ft^3

4.5 is the waste density, lb/ft^3

8 is the typical hours of operation of a batch HMIWI, hours

(mm) "Maximum fabric filter inlet temperature" means 110% of the lowest 3-hour average temperature at the inlet to the fabric filter, taken at a minimum once every minute, measured during the most recent performance test demonstrating compliance with the dioxin/furan emission limit.

(n) "Maximum flue gas temperature" means 110% of the lowest 3-hour average temperature at the outlet from the wet scrubber, taken at a minimum once every minute, measured during the most recent performance test demonstrating compliance with the mercury emission limit.

(nm) "Medical/infectious waste" means any waste generated in the diagnosis, treatment or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals that are listed in subds. 1. to 7. Medical/infectious waste does not include hazardous waste identified or listed under the regulations in 40 CFR part 261; household waste as defined in 40 CFR 261.4(b)(1); ash from incineration of medical/infectious waste, once the incineration process has been completed; human corpses, remains, and anatomical parts that are intended for internment or cremation; and domestic sewage materials identified in 40 CFR 261.4(a)(1).

1. Cultures and stocks of infectious agents and associated biologicals, including cultures from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines; and culture dishes

and devices used to transfer, inoculate and mix cultures.

2. Human pathological waste, including tissues, organs, and body parts and body fluids that are removed during surgery or autopsy, or other medical procedures, and specimens of body fluids and their containers.

3. Human blood and blood products including all of the following:

a. Liquid waste human blood.

b. Products of blood.

c. Items saturated or dripping with human blood.

d. Items that were saturated or dripping with human blood that are now caked with dried human blood; including serum, plasma, and other blood components, and their containers, which were used or intended for use in either patient care, testing and laboratory analysis or the development of pharmaceuticals. Intravenous bags are also include in this category.

4. Sharps that have been used in animal or human patient care or treatment or in medical, research or industrial laboratories, including hypodermic needles, syringes with or without the attached needle, pasteur pipettes, scalpel blades, blood vials, needles with attached tubing and culture dishes regardless of presence of infectious agents. Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slides and cover slips.

5. Animal waste including contaminated animal carcasses, body parts and bedding of animals that were known to have been exposed to infectious agents during research, including research in veterinary hospitals, production of biologicals or testing of pharmaceuticals.

6. Isolation wastes including biological waste and discarded materials contaminated with blood, excretions, exudates or secretions from humans who are isolated to protect others from certain highly communicable diseases, or isolated animals known to be infected with highly communicable diseases.

7. Unused sharps including the following unused, discarded sharps: hypodermic needles, suture needles, syringes and scalpel blades.

(o) “Medium HMIWI” means an HMIWI whose maximum design waste burning capacity is more than 200 pounds per hour but less than or equal to 500 pounds per hour, a continuous or intermittent HMIWI whose maximum charge rate is more than 200 pounds per hour but less than or equal to 500 pounds per hour, or a batch HMIWI whose maximum charge rate is more than 1,600 pounds per day but less than or equal to 4,000 pounds per day. A continuous or intermittent HMIWI whose maximum charge rate is less than or equal to 200 pounds per hour or more than 500 pounds per hour or a batch HMIWI whose maximum charge rate is more than 4,000 pounds per day or less than or equal to 1,600 pounds per day is not a medium HMIWI.

(om) “Minimum dioxin/furan sorbent flow rate” means 90% of the highest 3-hour average dioxin/furan sorbent flow rate, taken at a minimum once every hour, measured during the most recent performance test demonstrating compliance with the dioxin/furan emission limit.

(p) “Minimum mercury sorbent flow rate” means 90% of the highest 3-hour average mercury sorbent flow rate, taken at a minimum once every hour, measured during the most recent performance test demonstrating compliance with the mercury emission limit.

(pm) “Minimum hydrogen chloride sorbent flow rate” means 90% of the highest 3-hour average hydrogen chloride (HCl) sorbent flow rate, taken at a minimum once every hour, measured during the most recent performance test demonstrating compliance with the HCl emission limit.

(q) “Minimum horsepower or amperage” means 90% of the highest 3-hour average horsepower or amperage to the wet scrubber, taken at a minimum once every minute, measured during the most recent performance test demonstrating compliance with the applicable emission limits.

(qm) “Minimum pressure drop across the wet scrubber” means 90% of the highest 3-

hour average pressure drop across the wet scrubber PM control device, taken at a minimum once every minute, measured during the most recent performance test demonstrating compliance with the PM emission limit.

(r) "Minimum scrubber liquor flow rate" means 90% of the highest 3-hour average liquor flow rate at the inlet to the wet scrubber, taken at a minimum once every minute, measured during the most recent performance test demonstrating compliance with all applicable emission limits.

(rm) "Minimum scrubber liquor pH" means 90% of the highest 3-hour average liquor pH at the inlet to the wet scrubber, taken at a minimum once every minute, measured during the most recent performance test demonstrating compliance with the HCl emission limit.

(s) "Minimum secondary chamber temperature" means 90% of the highest 3-hour average secondary chamber temperature, taken at a minimum once every minute, measured during the most recent performance test demonstrating compliance with the PM, CO or dioxin/furan emission limits.

(sm) "Modification" or "modified HMIWI" means any changes to an HMIWI unit after September 15, 1997 if the cumulative costs of the changes, over the life of the unit, exceed 50% of the original cost of the construction and installation of the unit, not including the cost of any land purchased in connection with the construction or installation, updated to current costs; or any physical change in, or change in the method of operation of the unit which increases the amount of any air pollutant emitted by the unit for which standards have been established under section 111 or 129 of the Act (42 USC 7411 or 7429).

(t) "Operating day" means a 24-hour period between 12:00 midnight and the following midnight during which any amount of hospital waste or medical/infectious waste is combusted at any time in the HMIWI.

(tm) "Operation" means the period during which waste is combusted in the incinerator excluding periods of startup or shutdown.

(u) "Particulate matter" or "PM" means the total particulate matter emitted from an HMIWI as measured by Method 5 or Method 29 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1).

(um) "Pathological waste" means waste material consisting of only human or animal remains, anatomical parts or tissue; the bags or containers used to collect and transport the waste material; and animal bedding if applicable.

(v) "Primary chamber" means the chamber in an HMIWI that receives waste material, in which the waste is ignited, and from which ash is removed.

(vm) "Pyrolysis" means the endothermic gasification of hospital waste or medical/infectious waste using external energy.

(w) "Secondary chamber" means a component of the HMIWI that receives combustion gases from the primary chamber and in which the combustion process is completed.

(wm) "Shutdown" means the period of time after all waste has been combusted in the primary chamber. For continuous HMIWI, shutdown shall commence no less than 2 hours after the last charge to the incinerator. For intermittent HMIWI, shutdown shall commence no less than 4 hours after the last charge to the incinerator. For batch HMIWI, shutdown shall commence no less than 5 hours after the high-air phase of combustion has been completed.

(x) "Small HMIWI" means an HMIWI whose maximum design waste burning capacity is less than or equal to 200 pounds per hour, a continuous or intermittent HMIWI whose maximum charge rate is less than or equal to 200 pounds per hour, or a batch HMIWI whose maximum charge rate is less than or equal to 1,600 pounds per day. A continuous or intermittent HMIWI whose maximum charge rate is more than 200 pounds per hour or a batch HMIWI whose maximum charge rate is more than 1,600 pounds per day is not a small HMIWI.

(xm) "Standard conditions" means a temperature of 20°C and a pressure of 101.3

kilopascals.

(y) “Startup” means the period of time between the activation of the system and the first charge to the unit. For batch HMIWI, startup means the period of time between activation of the system and ignition of the waste.

(ym) “Wet scrubber” means an add-on air pollution control device that utilizes an alkaline scrubbing liquor to collect particulate matter, including nonvaporous metals and condensed organics, or to absorb and neutralize acid gases.

(3) EMISSION LIMITS. (a) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, whichever date comes first, no owner or operator of an affected facility may cause to be discharged into the atmosphere from that affected facility any gases that contain stack emissions in excess of the limits presented in Table 1.

(b) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, whichever date comes first, no owner or operator of an affected facility may cause to be discharged into the atmosphere from the stack of that affected facility any gases that exhibit greater than 10% opacity, 6-minute block average.

(c) On and after the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, whichever date comes first, no owner or operator of an affected facility utilizing a large HMIWI may cause to be discharged into the atmosphere visible emissions of combustion ash from an ash conveying system, including conveyor transfer points, in excess of 5% of the observation period, that is, 9 minutes per 3-hour period, as determined by Method 22 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), except as provided in pars. (d) and (e).

(d) The emission limit specified in par. (c) does not cover visible emissions discharged inside buildings or enclosures of ash conveying systems; however, the emission limit does cover visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems.

(e) The provisions specified in par. (c) do not apply during maintenance and repair of ash conveying systems. Maintenance or repair or both may not exceed 10 operating days per calendar quarter unless the owner or operator obtains written approval from the department establishing a date whereby all necessary maintenance and repairs of ash conveying systems shall be completed.

(4) OPERATOR TRAINING AND QUALIFICATION REQUIREMENTS. (a) No owner or operator of an affected facility may allow the affected facility to operate at any time unless a fully trained and qualified HMIWI operator is accessible, either at the facility or available within one hour. The trained and qualified HMIWI operator may operate the HMIWI directly or be the direct supervisor of one or more HMIWI operators.

(b) Operator training and qualification shall be obtained through ch. NR 499 or by completing all of the requirements included in pars. (c) to (g).

(c) Training shall be obtained by completing an HMIWI operator training course that includes, at a minimum, all of the following provisions:

1. Twenty four hours of training on the following subjects:

a. Environmental concerns, including pathogen destruction and types of emissions.

b. Basic combustion principles, including products of combustion.

c. Operation of the type of incinerator to be used by the operator, including proper startup, waste charging and shutdown procedures.

d. Combustion controls and monitoring.

e. Operation of air pollution control equipment and factors affecting performance, if applicable.

f. Methods to monitor pollutants (continuous emission monitoring systems and monitoring of HMIWI and air pollution control device operating parameters) and equipment calibration procedures, where applicable.

g. Inspection and maintenance of the HMIWI, air pollution control devices and continuous emission monitoring systems.

h. Actions to correct malfunctions or conditions that may lead to malfunction.

i. Bottom and fly ash characteristics and handling procedures.

j. Applicable federal, state and local regulations.

k. Work safety procedures.

L. Pre-startup inspections.

m. Recordkeeping requirements.

2. An examination designed and administered by the instructor.

3. Reference material distributed to the attendees covering the course topics.

(d) Qualification shall be obtained by satisfying all of the following:

1. Completion of a training course that satisfies the criteria under par. (c).

2. Either 6 months experience as an HMIWI operator, 6 months experience as a direct supervisor of an HMIWI operator, or completion of at least 2 burn cycles under the observation of 2 qualified HMIWI operators.

(e) Qualification is valid from the date on which the examination is passed or the completion of the required experience, whichever is later.

(f) To maintain qualification, the trained and qualified HMIWI operator shall complete and pass an annual review or refresher course of at least 4 hours covering, at a minimum, all of the following:

1. Update of regulations.

2. Incinerator operation, including startup and shutdown procedures.

3. Inspection and maintenance.

4. Responses to malfunctions or conditions that may lead to malfunction.

5. Discussion of operating problems encountered by attendees.

(g) A lapsed qualification shall be renewed by one of the following methods:

1. For a lapse of less than 3 years, the HMIWI operator shall complete and pass a standard annual refresher course described in par. (f).

2. For a lapse of 3 years or more, the HMIWI operator shall complete and pass a training course with the minimum criteria described in par. (c).

(h) The owner or operator of an affected facility shall maintain documentation at the facility that addresses all of the following:

1. Summary of the applicable standards under this section.

2. Description of basic combustion theory applicable to an HMIWI.

3. Procedures for receiving, handling and charging waste.

4. HMIWI startup, shutdown and malfunction procedures.

5. Procedures for maintaining proper combustion air supply levels.

6. Procedures for operating the HMIWI and associated air pollution control systems within the standards established under this section.

7. Procedures for responding to periodic malfunction or conditions that may lead to malfunction.

8. Procedures for monitoring HMIWI emissions.

9. Reporting and recordkeeping procedures.

10. Procedures for handling ash.

(i) The owner or operator of an affected facility shall establish a program for reviewing the information listed in par. (h) annually with each HMIWI operator as follows:

1. The initial review of the information listed in par. (h) shall be conducted within 6 months after the effective date of this section or prior to assumption of responsibilities affecting HMIWI operation, whichever date is later.

2. Subsequent reviews of the information listed in par. (h) shall be conducted annually.

(j) The information listed in par. (h) shall be kept in a readily accessible location for all HMIWI operators. This information, along with records of training, shall be available for inspection by the EPA or department upon request.

(5) SITING REQUIREMENTS. (a) The owner or operator of an affected facility for which construction is commenced after September 15, 1997 shall prepare an analysis of the impacts of the affected facility. The analysis shall consider air pollution control alternatives that minimize, on a site-specific basis, to the maximum extent practicable, potential risks to public health or the environment. In considering the alternatives, the analysis may consider costs, energy impacts, non-air environmental impacts or any other factors related to the practicability of the alternatives.

(b) Analyses of facility impacts prepared to comply with state, local or other federal regulatory requirements may be used to satisfy the requirements of this subsection, as long as they include the consideration of air pollution control alternatives specified in par. (a).

(c) The owner or operator of the affected facility shall complete and submit the siting requirements of this section as required under sub. (9)(a)1.c.

(6) WASTE MANAGEMENT PLAN. The owner or operator of an affected facility shall prepare a waste management plan. The waste management plan shall identify both the feasibility and the approach to separate certain components of solid waste from the health care waste stream in order to reduce the amount of toxic emissions from incinerated waste. A waste management plan may include, but is not limited to, elements such as paper, cardboard, plastics, glass, battery or metal recycling; or purchasing recycled or recyclable products. A waste management plan may include different goals or approaches for different areas or departments of the facility and need not include new waste management goals for every waste stream. It should identify, where possible, reasonably available additional waste management measures, taking into account the effectiveness of waste management measures already in place, the costs of additional measures, the emission reductions expected to be achieved and

any other environmental or energy impacts they might have. The American Hospital Association publication entitled “An Ounce of Prevention: Waste Reduction Strategies for Health Care Facilities”, incorporated by reference in s. NR 440.17(2)(L)1., shall be considered in the development of the waste management plan.

(7) COMPLIANCE AND PERFORMANCE TESTING. (a) The emission limits under this section apply at all times except during periods of startup, shutdown or malfunction, provided that no hospital waste or medical/infectious waste is charged to the affected facility during startup, shutdown or malfunction.

(b) The owner or operator of an affected facility shall conduct an initial performance test as required under s. NR 440.08 to determine compliance with the emission limits using the procedures and test methods listed in subds. 1. to 12. The use of the bypass stack during a performance test shall invalidate the performance test. The procedures and test methods are as follows:

1. All performance tests shall consist of a minimum of 3 test runs conducted under representative operating conditions.

2. The minimum sample time shall be one hour per test run unless otherwise indicated.

3. Method 1 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to select the sampling location and number of traverse points.

4. Method 3, 3A or 3B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for gas composition analysis, including measurement of oxygen concentration. Method 3, 3A or 3B shall be used simultaneously with each reference method.

5. The pollutant concentrations shall be adjusted to 7% oxygen using the following equation:

$$C_{adj} = C_{meas}\left(20.9 - 7\right)/\left(20.9 - \%O_2\right)$$

where:

C_{adj} is the pollutant concentration adjusted to 7% oxygen.

C_{meas} is the pollutant concentration measured on a dry basis

(20.9 - 7) is 20.9% oxygen - 7% oxygen, the defined oxygen correction basis

20.9 is the oxygen concentration in air, percent

$\%O_2$ is the oxygen concentration measured on a dry basis, percent

6. Method 5 or 29 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to measure the particulate matter emissions.

7. Method 9 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to measure stack opacity.

8. Method 10 or 10B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to measure the carbon monoxide emissions.

9. Method 23 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to measure total dioxin/furan emissions. The minimum sample time shall be 4 hours per test run. If the affected facility has selected the toxic equivalency standards for dioxin/furan, under sub. (3), the following procedures shall be used to determine compliance:

a. Measure the concentration of each dioxin/furan tetra- through octa- congener emitted using Method 23.

b. For each dioxin/furan congener measured in accordance with subd. 9.a., multiply the congener concentration by its corresponding toxic equivalency factor specified in Table 2.

c. Sum the products calculated in accordance with subd. 9.b. to obtain the total concentration of dioxin/furan emitted in terms of toxic equivalency.

10. Method 26 or 26A of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to measure hydrogen chloride emissions. If the

$$\left(\%R_{HCl}\right) = \left(\frac{E_i - E_o}{E_i}\right) \times 100$$

affected facility has selected the percentage reduction standards for hydrogen chloride under sub. (3), the percentage reduction in hydrogen chloride emissions ($\%R_{HCl}$) shall be computed using the following formula:

where:

$\%R_{HCl}$ is the percentage reduction of hydrogen chloride emissions achieved

E_i is the hydrogen chloride emission concentration measured at the control device inlet, corrected to 7% oxygen, dry basis

E_o is the hydrogen chloride emission concentration measured at the control device outlet, corrected to 7% oxygen, dry basis

11. Method 29 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to measure lead, cadmium and mercury emissions. If the affected facility has selected the percentage reduction standards for metals under sub. (3), the percentage reduction in emissions ($\%R_{metal}$) shall be computed using the following formula:

$$(\%R_{metal}) = \left(\frac{E_i - E_o}{E_i}\right) \times 100$$

where:

$\%R_{metal}$ is the percentage reduction of metal emission of lead, cadmium or mercury achieved

E_i is the metal emission concentration of lead, cadmium or mercury, measured at the control device inlet, corrected to 7% oxygen, dry basis

E_o is the metal emission concentration of lead, cadmium or mercury, measured at the control device outlet, corrected to 7% oxygen, dry basis

12. Method 22 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine compliance with the fugitive ash emission limit

under sub. (3)(c). The minimum observation time shall be a series of 3 1-hour observations.

(c) Following the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, whichever date comes first, the owner or operator of an affected facility shall do the following, as applicable:

1. Determine compliance with the opacity limit by conducting an annual performance test, no more than 12 months following the previous performance test, using the applicable procedures and test methods listed in par. (b).

2. Determine compliance with the particulate matter, carbon monoxide and hydrogen chloride emission limits by conducting an annual performance test, no more than 12 months following the previous performance test, using the applicable procedures and test methods listed in par. (b). If all 3 performance tests over a 3-year period indicate compliance with the emission limit for a pollutant (particulate matter, carbon monoxide or hydrogen chloride), the owner or operator may forego a performance test for that pollutant for the subsequent 2 years. At a minimum, a performance test for particulate matter, carbon monoxide and hydrogen chloride shall be conducted every third year, no more than 36 months following the previous performance test. If a performance test conducted every third year indicates compliance with the emission limit for a pollutant (particulate matter, carbon monoxide or hydrogen chloride), the owner or operator may forego a performance test for that pollutant for an additional 2 years. If any performance test indicates noncompliance with the respective emission limit, a performance test for that pollutant shall be conducted annually until all annual performance tests over a 3-year period indicate compliance with the emission limit. The use of the bypass stack during a performance test shall invalidate the performance test.

3. For large HMIWI, determine compliance with the visible emission limits for fugitive emissions from flyash/bottom ash storage and handling by conducting a

performance test using Method 22 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), on an annual basis, no more than 12 months following the previous performance test.

4. Facilities using a CEMS to demonstrate compliance with any of the emission limits under sub. (3) shall do both of the following:

a. Determine compliance with the appropriate emission limits using a 12-hour rolling average, calculated each hour as the average of the previous 12 operating hours, not including startup, shutdown or malfunction.

b. Operate all CEMS in accordance with the applicable procedures under 40 CFR part 60, Appendices B and F, incorporated by reference in s. NR 440.17(1).

(d) The owner or operator of an affected facility equipped with a dry scrubber followed by a fabric filter, a wet scrubber, or a dry scrubber followed by a fabric filter and wet scrubber shall do both of the following:

1. Establish the appropriate maximum and minimum operating parameters, indicated in Table 3 for each control system, as site specific operating parameters during the initial performance test to determine compliance with the emission limits.

2. Following the date on which the initial performance test is completed or is required to be completed under s. NR 440.08, whichever date comes first, ensure that the affected facility does not operate above any of the applicable maximum operating parameters or below any of the applicable minimum operating parameters listed in Table 3 and measured as 3-hour rolling averages, calculated each hour as the average of the previous 3 operating hours, at all times except during periods of startup, shutdown and malfunction. Operating parameter limits do not apply during performance tests. Operation above the established maximum or below the established minimum operating parameters shall constitute a violation of established operating parameters.

(e) Except as provided in par. (h), the following shall constitute a violation of the emission limit indicated for affected facilities equipped with a dry scrubber followed by a fabric filter:

1. Operation of the affected facility above the maximum charge rate and below the minimum secondary chamber temperature, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the carbon monoxide emission limit.

2. Operation of the affected facility above the maximum fabric filter inlet temperature, above the maximum charge rate, and below the minimum dioxin/furan sorbent flow rate, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the dioxin/furan emission limit.

3. Operation of the affected facility above the maximum charge rate and below the minimum hydrogen chloride sorbent flow rate, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the hydrogen chloride emission limit.

4. Operation of the affected facility above the maximum charge rate and below the minimum mercury sorbent flow rate, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the mercury emission limit.

5. Use of the bypass stack, except during startup, shutdown or malfunction, shall constitute a violation of the particulate matter, dioxin/furan, hydrogen chloride, lead, cadmium and mercury emission limits.

(f) Except as provided in par. (h), the following shall constitute a violation of the emission limit indicated for affected facilities equipped with a wet scrubber:

1. Operation of the affected facility above the maximum charge rate and below the minimum pressure drop across the wet scrubber or below the minimum horsepower or amperage to the system, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the particulate matter emission limit.

2. Operation of the affected facility above the maximum charge rate and below the minimum secondary chamber temperature, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the carbon monoxide emission limit.

3. Operation of the affected facility above the maximum charge rate, below the minimum secondary chamber temperature, and below the minimum scrubber liquor flow rate, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the dioxin/furan emission limit.

4. Operation of the affected facility above the maximum charge rate and below the minimum scrubber liquor pH, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the hydrogen chloride emission limit.

5. Operation of the affected facility above the maximum flue gas temperature and above the maximum charge rate, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the mercury emission limit.

6. Use of the bypass stack, except during startup, shutdown or malfunction, shall constitute a violation of the particulate matter, dioxin/furan, hydrogen chloride, lead, cadmium and mercury emission limits.

(g) Except as provided in par. (h), the following shall constitute a violation of the emission limit indicated for affected facilities equipped with a dry scrubber followed by a fabric filter and a wet scrubber:

1. Operation of the affected facility above the maximum charge rate and below the minimum secondary chamber temperature, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the carbon monoxide emission limit.

2. Operation of the affected facility above the maximum fabric filter inlet temperature, above the maximum charge rate, and below the minimum dioxin/furan sorbent flow rate, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the dioxin/furan emission limit.

3. Operation of the affected facility above the maximum charge rate and below the minimum scrubber liquor pH, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the hydrogen chloride emission limit.

4. Operation of the affected facility above the maximum charge rate and below

the minimum mercury sorbent flow rate, each measured on a 3-hour rolling average, simultaneously shall constitute a violation of the mercury emission limit.

5. Use of the bypass stack, except during startup, shutdown or malfunction, shall constitute a violation of the particulate matter, dioxin/furan, hydrogen chloride, lead, cadmium and mercury emission limits.

(h) The owner or operator of an affected facility may conduct a repeat performance test within 30 days of violation of an applicable operating parameter to demonstrate that the affected facility is not in violation of the applicable emission limits. Repeat performance tests conducted pursuant to this paragraph shall be conducted using the identical operating parameters that indicated a violation under par. (e), (f) or (g).

(i) The owner or operator of an affected facility using an air pollution control device other than a dry scrubber followed by a fabric filter, a wet scrubber, or a dry scrubber followed by a fabric filter and a wet scrubber to comply with the emission limits under sub. (3) shall petition the administrator for other site-specific operating parameters to be established during the initial performance test and continuously monitored thereafter. The owner or operator may not conduct the initial performance test until after the petition has been approved by the administrator.

(j) The owner or operator of an affected facility may conduct a repeat performance test at any time to establish new values for the operating parameters. The department may request a repeat performance test at any time.

(8) MONITORING REQUIREMENTS. (a) The owner or operator of an affected facility shall install, calibrate to manufacturers' specifications, maintain and operate devices, or establish methods, for monitoring the applicable maximum and minimum operating parameters listed in Table 3 such that these devices or methods measure and record values for these operating parameters at the frequencies indicated in Table 3 at all times except during periods of startup and shutdown.

(b) The owner or operator of an affected facility shall install, calibrate to manufacturers' specifications, maintain and operate a device, or establish a method, for measuring the use of the bypass stack including date, time and duration.

(c) The owner or operator of an affected facility using something other than a dry scrubber followed by a fabric filter, a wet scrubber, or a dry scrubber followed by a fabric filter and a wet scrubber to comply with the emission limits under sub. (3) shall install, calibrate to the manufacturers' specifications, maintain and operate the equipment necessary to monitor the site-specific operating parameters developed pursuant to sub. (7)(i).

(d) The owner or operator of an affected facility shall obtain monitoring data at all times during HMIWI operation except during periods of monitoring equipment malfunction, calibration or repair. At a minimum, valid monitoring data shall be obtained for 75% of the operating hours per day and for 90% of the operating days per calendar quarter that the affected facility is combusting hospital waste, medical/infectious waste or both.

(9) REPORTING AND RECORDKEEPING REQUIREMENTS. (a) The owner or operator of an affected facility shall submit notifications, as provided by s. NR 440.07. In addition, the owner or operator shall submit the following information:

1. Prior to commencement of construction, all of the following:

a. A statement of intent to construct.

b. The anticipated date of commencement of construction.

c. All documentation produced as a result of the siting requirements of sub. (5).

2. Prior to initial startup, all of the following:

a. The types of waste to be combusted.

b. The maximum design waste burning capacity.

c. The anticipated maximum charge rate.

d. If applicable, the petition for site-specific operating parameters under sub. (7)(i).

(b) The owner or operator of an affected facility shall maintain the following information, as applicable, for a period of at least 5 years:

1. Calendar date of each record.

2. Records of the following data:

a. Concentrations of any pollutant listed in sub. (3) or measurements of opacity as determined by the continuous emission monitoring system, if applicable.

b. Results of fugitive emissions tests by Method 22 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), if applicable.

c. HMIWI charge dates, times, and weights and hourly charge rates.

d. Fabric filter inlet temperatures during each minute of operation, as applicable.

e. Amount and type of dioxin/furan sorbent used during each hour of operation, as applicable.

f. Amount and type of mercury sorbent used during each hour of operation, as applicable.

g. Amount and type of hydrogen chloride sorbent used during each hour of operation, as applicable.

h. Secondary chamber temperatures recorded during each minute of operation.

i. Liquor flow rate to the wet scrubber inlet during each minute of operation, as applicable.

j. Horsepower or amperage to the wet scrubber during each minute of operation, as applicable.

k. Pressure drop across the wet scrubber system during each minute of operation, as applicable.

L. Temperature at the outlet from the wet scrubber during each minute of operation, as applicable.

m. pH at the inlet to the wet scrubber during each minute of operation, as applicable.

n. Records indicating use of the bypass stack, including dates, times and durations.

o. For affected facilities complying with subs. (7)(i) and (8)(c), records of all operating parameter data collected.

3. Identification of calendar days for which data on emission rates or operating parameters specified under subd. 2. have not been obtained, with an identification of the emission rates or operating parameters not measured, reasons for not obtaining the data and a description of corrective actions taken.

4. Identification of calendar days, times and durations of malfunctions, a description of the malfunction and the corrective action taken.

5. Identification of calendar days for which data on emission rates or operating parameters specified under subd. 2. exceeded the applicable limits, with a description of the exceedances, reasons for the exceedances, and a description of corrective actions taken.

6. The results of the initial, annual and any subsequent performance tests conducted to determine compliance with the emission limits or to establish operating parameters, as applicable.

7. All documentation produced as a result of the siting requirements of sub. (5).

8. Records showing the names of HMIWI operators who have completed review of the information in sub. (4)(h) as required by sub. (4)(i), including the date of the initial review and all subsequent annual reviews.

9. Records showing the names of the HMIWI operators who have completed the operator training requirements, including documentation of training and the dates of

the training.

10. Records showing the names of the HMIWI operators who have met the criteria for qualification under sub. (4) and the dates of their qualification.

11. Records of calibration of any monitoring devices as required under sub. (8)(a), (b) and (c).

(c) The owner or operator of an affected facility shall submit the information specified in subds. 1. to 3. no later than 60 days following the initial performance test. All reports shall be signed by the facility's manager. The information to be submitted is as follows:

1. The initial performance test data as recorded under sub. (7)(b)1. to 12., as applicable.

2. The values for the site-specific operating parameters established pursuant to sub. (7)(d) or (i), as applicable.

3. The waste management plan as specified in sub. (6).

(d) An annual report shall be submitted one year following the submission of the information in par. (c) and subsequent reports shall be submitted no more than 12 months following the previous report, except that once the unit is subject to permitting requirements under ch. NR 407, the owner or operator of an affected facility shall submit these reports semiannually. The annual report shall be signed by the facility’s manager and shall include all of the following information:

1. The values for the site-specific operating parameters established pursuant to sub. (7)(d) or (i), as applicable.

2. The highest maximum operating parameter and the lowest minimum operating parameter, as applicable, for each operating parameter recorded for the calendar year being reported, pursuant to sub. (7)(d) or (i), as applicable.

3. The highest maximum operating parameter and the lowest minimum operating parameter, as applicable, for each operating parameter recorded pursuant to sub.

(7)(d) or (i) for the calendar year preceding the year being reported, in order to provide the department with a summary of the performance of the affected facility over a 2-year period.

4. Any information recorded under par. (b)3. to 5. for the calendar year being reported.

5. Any information recorded under par. (b)3. to 5. for the calendar year preceding the year being reported, in order to provide the department with a summary of the performance of the affected facility over a 2-year period.

6. If a performance test was conducted during the reporting period, the results of that test.

7. If no exceedances or malfunctions were reported under par. (b)3. to 5. for the calendar year being reported, a statement that no exceedances occurred during the reporting period.

8. Any use of the bypass stack, the duration, reason for malfunction and corrective action taken.

(e) The owner or operator of an affected facility shall submit semiannual reports containing any information recorded under par. (b)3. to 5. no later than 60 days following the reporting period. The first semiannual reporting period ends 6 months following the submission of information in par. (c). Subsequent reports shall be submitted no later than 6 calendar months following the previous report. All reports shall be signed by the facilities manager.

(f) All records specified under par. (b) shall be maintained onsite in either paper copy or computer-readable format, unless an alternative format is approved by the department.

Table 1
Emission Limits For Small, Medium and Large HMIWI

Pollutant	Units (7% oxygen, dry basis)	Emission Limits
		HMIWI Size

		Small	**Medium**	**Large**
1. Particulate matter	Milligrams per dry standard cubic meter (grains per dry standard cubic foot)	69 (0.03)	34 (0.015)	34 (0.015)
2. Carbon monoxide	Parts per million by volume	40	40	40
3. Dioxins/furans	Nanograms per dry standard cubic meter total dioxins/furans (grains per billion dry standard cubic feet) or nanograms per dry standard cubic meter total dioxins/furans TEQ (grains per billion dry standard cubic feet)	125 (55) or 2.3 (1.0)	25 (11) or 0.6 (0.26)	25 (11) or 0.6 (0.26)
4. Hydrogen chloride	Parts per million or percent reduction	15 or 99%	15 or 99%	15 or 99%
5. Sulfur dioxide	Parts per million by volume	55	55	55
6. Nitrogen oxides	Parts per million by volume	250	250	250
7. Lead	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction	1.2 (0.52) or 70%	0.07 (0.03) or 98%	0.07 (0.03) or 98%
8. Cadmium	Milligrams per dry standard cubic (grains per thousand dry standard cubic feet) or percent reduction	0.16 (0.07) or 65%	0.04 (0.02) or 90%	0.04 (0.02) or 90%
9. Mercury	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction	0.55 (0.24) or 85%	0.55 (0.24) or 85%	0.55 (0.24) or 85%

Table 2
Toxic Equivalency Factors

Dioxin/furan Congener	**Toxic Equivalency Factor**
1. 2,3,7,8-tetrachlorinated dibenzo-p-dioxin	1
2. 1,2,3,7,8-pentachlorinated dibenzo-p-dioxin	0.5
3. 1,2,3,4,7,8-hexachlorinated dibenzo-p-dioxin	0.1
4. 1,2,3,7,8,9-hexachlorinated dibenzo-p-dioxin	0.1
5. 1,2,3,6,7,8-hexachlorinated dibenzo-p-dioxin	0.1
6. 1,2,3,4,6,7,8-heptachlorinated dibenzo-p-dioxin	0.01
7. octachlorinated dibenzo-p-dioxin	0.001
8. 2,3,7,8-tetrachlorinated dibenzofuran	0.1
9. 2,3,4,7,8-pentachlorinated dibenzofuran	0.5
10. 1,2,3,7,8-pentachlorinated dibenzofuran	0.05
11. 1,2,3,4,7,8-hexachlorinated dibenzofuran	0.1
12. 1,2,3,6,7,8-hexachlorinated dibenzofuran	0.1
13. 1,2,3,7,8,9-hexachlorinated dibenzofuran	0.1
14. 2,3,4,6,7,8-hexachlorinated dibenzofuran	0.1
15. 1,2,3,4,6,7,8-heptachlorinated dibenzofuran	0.01
16. 1,2,3,4,7,8,9-heptachlorinated dibenzofuran	0.01
17. Octachlorinated dibenzofuran	0.001

Table 3

Operating Parameters To Be Monitored And Minimum Measurement And Recording Frequencies

Operating Parameters To Be Monitored	**Minimum Frequency**		**Control System**		
	Data Measurement	**Data Recording**	**Dry Scrubber Followed By Fabric Filter**	**Wet Scrubber**	**Dry Scrubber Followed By Fabric Filter And Wet Scrubber**
1. Maximum operating parameters:					
a. Maximum charge rate	Continuous	1 x hour	√	√	√
b. Maximum fabric filter inlet temperature	Continuous	1 x minute	√		√
c. Maximum flue gas temperature	Continuous	1 x minute	√	√	
2. Minimum operating parameters:					
a. Minimum secondary chamber temperature	Continuous	1 x minute	√	√	√
b. Minimum dioxin/furan sorbent flow rate	Hourly	1 x hour	√		√
c. Minimum HCl sorbent flow rate	Hourly	1 x hour	√		√
d. Minimum mercury (Hg) sorbent flow rate	Hourly	1 x hour	√		√
e. Minimum pressure drop across the wet scrubber or minimum horsepower or amperage to wet scrubber	Continuous	1 x minute		√	√
f. Minimum scrubber liquor flow rate	Continuous	1 x minute		√	√
g. Minimum scrubber liquor pH	Continuous	1 x minute		√	√

SECTION 109. NR 440.22(5)(b)1. is amended to read:

NR 440.22(5)(b)1. The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$$E = (c_s\ Q_{sd})/(PK)$$

where:

E is the emission rate of particulate matter, kg/metric ton (lb/ton) of kiln feed

c_s is the concentration of particulate matter, g/dscm (~~g/dscf~~ gr/dscf)

Q_{sd} is the volumetric flow rate of exhaust gas, dscm/hr (dscf/hr)

P is the total kiln feed (dry basis) rate, metric ton/hr (ton/hr)

K is the conversion factor, 1000 g/kg (~~453.6 g/lb~~ 7000 gr/lb)

SECTION 110. NR 440.24(5)(d) is amended to read:

NR 440.24(5)(d) Alternatively, a source that processes elemental sulfur or an area that contains elemental sulfur and uses air to supply oxygen may use the following continuous emission monitoring approach and calculation procedures in determining SO_2 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~~ systems for measuring SO_2, O_2 and CO_2, if required, shall be installed, calibrated, maintained and operated by the owner or operator and subjected to the certification procedures in Performance Specifications 2 and 3 in Appendix B, 40 CFR part 60, incorporated by reference in s. NR 440.17(1). The calibration procedure and span value for ~~this~~ the SO_2 monitor shall be as specified in par. (b). The span value for CO_2, if required, shall be 10% and for O_2 shall be 20.9% (air). A conversion factor based on process rate data is not necessary. Calculate the SO_2 emission rate as follows:

$$E_s = (C_s S)/[0.265 - (0.0126\ \%O_2) - (A\ \%CO_2)]$$

where:

E_s is the SO_2 emission rate in kg/metric ton (lb/ton) of 100% of H_2SO_4 produced

C_s is the concentration of SO_2, kg/dscm (lb/dscf) (see the table in the note following this paragraph)

S is the acid production rate factor, 368 dscm/metric ton (11,800 dscf/ton) of 100% H_2SO_4 produced

$\%O_2$ is the oxygen concentration, percent dry basis

A is the auxiliary fuel factor,

= 0.00 for no fuel

= 0.0226 for methane

= 0.0217 for natural gas

= 0.0196 for propane

= 0.0172 for #2 oil

= 0.0161 for #6 oil

= 0.0148 for coal

= 0.0126 for coke

$\%CO_2$ is the carbon dioxide concentration, percent dry basis

SECTION 111. NR 440.26(3)(a)1., (5)(b)1. and 2., (6)(a)3.a. and c., 4.c., 5.a. and b., 6.a. and b. and 7.a. are amended to read:

NR 440.26(3)(a)1. Particulate matter in excess of ~~1.0 kg/1000 kg (1.0 lb/1000 lb)~~ 1.0 kg/Mg (2.0 lb/ton) of coke burn-off in the catalyst regenerator.

(5)(b)1. With an add-on control device, reduce sulfur dioxide emissions to the atmosphere by 90% or maintain sulfur dioxide emissions to the atmosphere less than or equal to 50 ppm by volume (ppmv), whichever is less stringent~~; or~~.

2. Without the use of an add-on control device, maintain sulfur oxides emissions calculated as sulfur dioxide to the atmosphere less than or equal to ~~9.8 kg/1,000 kg~~ 9.8 kg/Mg (20 lb/ton) coke burn-off~~; or~~.

(6)(a)3.a. The span values for this monitor are 50 ppm SO_2 and ~~10~~ 25% oxygen (O_2).

c. The performance evaluations for this SO_2 monitor under s. NR 440.13(3) shall use Performance Specification 2 of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1). Methods 6 or 6C and 3 or 3A of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for conducting the relative accuracy evaluations. Method 6 samples shall be taken at a flow rate of approximately 2 liters/min for at least 30 minutes. The relative accuracy limit shall be 20% or 4 ppm, whichever is greater, and the calibration drift limit shall be 5% of the established span value.

4.c. The performance evaluations for this H_2S monitor under s. NR 440.13(3) shall use Performance Specification 7 of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1). Method 11, 15, 15A or 16 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for conducting the relative accuracy evaluations.

5.a. The span values for this monitor are 500 ppm SO_2 and ~~10~~ 25% O_2.

b. The performance evaluations for the SO_2 monitor under s. NR 440.13(3) shall use Performance Specification 2 of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1). Methods 6 or 6C and 3 or 3A of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for conducting the relative accuracy evaluations.

6.a. The span values for this monitor are 450 ppm reduced sulfur and ~~10~~ 25% O_2.

b. The performance evaluations for this reduced sulfur (and O_2) monitor under s. NR 440.13(3) shall use Performance Specification 5 ~~of Appendix B, except the calibration drift specification is 2.5% of the span value rather than 5%~~ (and Performance Specification 3 for the O_2 analyzer) of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1). Methods 15 or 15A and Method 3 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for conducting the relative accuracy evaluations. If Method 3 yields O_2 concentrations below 0.25% during the performance specification test, the O_2 concentration may be assumed to be zero and the reduced sulfur CEMS need not include an O_2 monitor.

7.a. The span values for this monitor are 375 ppm SO_2 and ~~10~~ 25% O_2.

SECTION 112. NR 440.26(6)(a)8. is renumbered NR 440.26(6)(a)8.(intro.) and amended to read:

NR 440.26(6)(a)8.(intro.) An instrument for continuously monitoring and recording concentrations of sulfur dioxide in the gases at both the inlet and outlet of the sulfur dioxide control device from any fluid catalytic cracking unit catalyst regenerator for which the owner or operator seeks to comply with sub. (5)(b)1. ~~The span value of the inlet monitor shall be set at 125% of the maximum estimated hourly potential sulfur dioxide emission concentration entering the control device, and the span value of the outlet monitor shall be set at 50% of the maximum estimated hourly potential sulfur dioxide emission concentration entering the control device.~~

SECTION 113. NR 440.26(6)(a)8.a. and b. are created to read:

NR 440.26(6)(a)8.a. The span value of the inlet monitor shall be set at 125% of the maximum estimated hourly potential sulfur dioxide emission concentration entering the control device, and the span value of the outlet monitor shall be set at 50% of the maximum estimated hourly potential sulfur dioxide emission concentration entering the control device.

b. The performance evaluations for these sulfur dioxide monitors under s. NR 440.13(3) shall use Performance Specification 2 of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1). Methods 6 or 6C and 3 or 3A of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for conducting the relative accuracy evaluations.

SECTION 114. NR 440.26(6)(a)9. is renumbered NR 440.26(6)(a)9.(intro.) and amended to read:

NR 440.26(6)(a)9.(intro.) An instrument for continuously monitoring and recording concentrations of sulfur dioxide in the gases discharged into the atmosphere from any fluid catalytic cracking unit catalyst regenerator for which the owner or operator seeks to comply specifically with the 50 ppmv emission limit under sub. (5)(b)1. ~~The span value of the monitor shall be set at 50% of the maximum hourly potential sulfur dioxide emission concentration entering the control device.~~

SECTION 115. NR 440.26(6)(a)9.a. and b. are created to read:

NR 440.26(6)(a)9.a. The span value of the monitor shall be set at 50% of the maximum hourly potential sulfur dioxide emission concentration of the control device.

b. The performance evaluation for this sulfur dioxide monitor under s. NR 440.13(3) shall use Performance Specification 2 of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1). Methods 6 or 6C and 3 or 3A of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for conducting the relative accuracy evaluations.

SECTION 116. NR 440.26(6)(a)12. is renumbered NR 440.26(6)(a)12.(intro.) and amended to read:

NR 440.26(6)(a)12.(intro.) The owner or operator shall ~~follow Appendix F, Procedure 1, of 40 CFR part 60, incorporated by reference in s. NR 440.17, including quarterly accuracy determinations and daily calibration drift tests, for~~ use the following procedures to evaluate the continuous monitoring systems under subds. 8., 9. and 10~~.~~ :

SECTION 117. NR 440.26(6)(a)12.a. and b. are created to read:

NR 440.26(6)(a)12.a. Method 3 or 3A and Method 6 or 6C of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), for the relative accuracy evaluations under the s. NR 440.13(5) performance evaluation.

b. Procedure 1 of 40 CFR part 60, Appendix F, incorporated by reference in s. NR 440.17(1), including quarterly accuracy determinations and daily calibration drift tests.

SECTION 118. NR 440.26(6)(c) and (d) are amended to read:

NR 440.26(6)(c) The average coke burn-off rate (~~thousands of kilograms~~ Mg (tons) per hour) and hours of operation shall be recorded daily for any fluid catalytic cracking unit catalyst regenerator subject to sub. (3), (4) or (5)(b)2.

(d) For any fluid catalytic cracking unit catalyst regenerator under sub. (3) that uses 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/hr or kilograms/hr)~~ and the hours of operation during which liquid or solid fossil-fuels are combusted in the incinerator-waste heater boiler.

SECTION 119. NR 440.26(7)(b)1. is repealed and recreated to read:

NR 440.26(7)(b)1. The emission rate (E) of PM shall be computed for each run using the following equation:

$$E = \frac{c_s Q_{sd}}{K R_c}$$

where:

E is the emission rate of PM, kg/Mg (lb/ton) of coke burn-off

c_s is the concentration of PM, g/dscm (gr/dscf)

Q_{sd} is the volumetric flow rate of exhaust gas, dscm/hr (dscf/hr)

R_c is the coke burn-off rate, Mg/hr (ton/hr) coke

K is a conversion factor, 1,000 g/kg (7000 gr/lb)

SECTION 120. NR 440.26(7)(b)2. is amended to read:

NR 440.26(7)(b)2. Method 5B or 5F ~~is to~~ shall be used to determine particulate matter emissions and associated moisture content from affected facilities without wet FGD systems; only Method 5B ~~is to~~ shall be used after wet FGD systems. The sampling time for each run shall be at least 60 minutes and the sampling time for each run shall be at least 0.015 dscm/min (0.53 dscf/min) except that shorter sampling times may be approved by the department when process variables or other factors preclude sampling for at least 60 minutes.

SECTION 121. NR 440.26(7)(b)3.(intro.) is repealed and recreated to read:

NR 440.26(7)(b)3.(intro.) The coke burn-off rate (R_c) shall be computed for each run using the following equation:

$$R_c = K_1Q_r(\%CO_2 + \%CO) - (K_2Q_a - K_3Q_r)((\%CO/2) + (\%CO_2 + \%O_2))$$

where:

R_c is the coke burn-off rate, Mg/hr (ton/hr)

Q_r is the volumetric flow rate of exhaust gas from catalyst regenerator before entering the emission control system, dscm/min (dscf/min)

Q_a is the volumetric flow rate of air to FCCU regenerator, as determined from the fluid catalytic cracking unit control room instrumentation, dscm/min (dscf/min)

$\%CO_2$ is the carbon dioxide concentration, percent by volume (dry basis)

%CO is the carbon monoxide concentration, percent by volume (dry basis)

$\%O_2$ is the oxygen concentration, percent by volume (dry basis)

K_1 is the material balance and conversion factor, 2.982×10^{-4} (Mg-min)/hr-dscm-%) [9.31×10^{-6} (ton-min)/(hr-dscf-%)]

K_2 is the material balance and conversion factor, 2.088×10^{-3} (Mg-min)/(hr-dscm-%) [6.52×10^{-5} (ton-min)/(hr-dscf-%)]

K_3 is the material balance and conversion factor, 9.94×10^{-5} (Mg-min)/(hr-dscm-%) [3.1×10^{-6} (ton-min)/(hr-dscf-%)]

SECTION 122. NR 440.26(7)(b)3.a. and b. and 4. are amended to read:

NR 440.26(7)(b)3.a. Method 2 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine the volumetric flow rate (Q_r).

b. The emission correction factor, integrated sampling and analysis procedure of Method ~~3~~ 3B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine CO_2, CO and O_2 concentrations.

4. Method 9 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), and the procedures of s. NR 440.11 shall be used to determine opacity.

SECTION 123. NR 440.26(7)(c)1. is repealed and recreated to read:

NR 440.26(7)(c)1. The allowable emission rate (E_s) of PM shall be computed for each run using the following equation:

$$E_s = F + A(H/R_c)$$

where:

E_s is the emission rate of PM allowed, kg/Mg (lb/ton) of coke burn-off in catalyst regenerator

F is the emission standard, 1.0 kg/Mg (2.0 lb/ton) of coke burn-off in catalyst regenerator

A is the allowable incremental rate of PM emission, 7.5×10^{-4} kg/million J (0.10 lb/million Btu)

H is the heat input rate from solid or liquid fossil fuel, million J/hr (million Btu/hr)

R_c is the coke burn-off rate, Mg coke/hr (ton coke/hr)

SECTION 124. NR 440.26(7)(e) is renumbered NR 440.26(7)(e)1.(intro.) and amended to read:

NR 440.26(7)(e)1.(intro.) The owner or operator shall determine compliance with the H_2S standard in sub. (5)(a)1. as follows: Method 11, 15, 15A or 16 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine the H_2S concentration. The gases entering the sampling train should be at about atmospheric pressure. If the pressure in the refinery fuel gas lines is relatively high, a flow control valve may be used to reduce the pressure. 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 be drawn from a point near the centroid of the fuel gas line. ~~The sampling time and sample volume shall be at least 10 minutes and 0.010 dscm (0.35 dscf). Two samples of equal sampling time shall be taken at about 1 hour intervals. The arithmetic average of these 2 samples shall constitute a run For most fuel gas, sampling time exceeding 20 minutes may result in depletion of the collection solution, although fuel gases containing low concentrations of H_2S may necessitate sampling for longer periods of time.~~

SECTION 125. NR 440.26(7)(e)1.a., b. and c. and 2. are created to read:

NR 440.26(7)(e)1.a. For Method 11, the sampling time and sample volume shall be at least 10 minutes and 0.010 dscm (0.35 dscf). Two samples of equal sampling time shall be taken at about 1-hour intervals. The arithmetic average of these 2 samples shall constitute a run.

Note: For most fuel gas, sampling time exceeding 20 minutes may result in depletion of the collection solution, although fuel gases containing low concentrations of H_2S may necessitate sampling for longer periods of time.

b. For Method 15 or 16, at least 3 injects over a 1-hour period shall constitute a run.

c. For Method 15A, a 1-hour sample shall constitute a run.

2. Where emissions are monitored by sub. (6)(a)3., compliance with sub. (6)(a)1. shall be determined using Method 6 or 6C and Method 3 or 3A of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). A 1-hour sample shall constitute a run. Method 6 samples shall be taken at a rate of approximately 2 liters/min. The ppm correction factor (Method 6) and the sampling location in par. (f)1. apply. Method 4 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine the moisture content of the gases. The sampling point for Method 4 shall be adjacent to the sampling point for Method 6 or 6C.

SECTION 126. NR 440.26(7)(f)1. and 3., (g) and (i)2.a., b. and c. are amended to read:

NR 440.26(7)(f)1. Method 6 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine the SO_2 concentration. The concentration in mg/dscm ~~(lb/dscf)~~ obtained by Method 6 or 6C is multiplied by 0.3754 to obtain the concentration in ppm. The sampling point in the duct shall be the centroid of the cross section if the cross-sectional area is less than 5.00 m^2 (~~54~~ 53.8 ft^2) or at a point no closer to the walls than 1.00 m (~~39~~ 39.4 in.) if the cross-sectional area is 5.00 m^2 or more and the centroid is more than 1 m from the wall. The sampling time and sample volume shall be at least 10 minutes and 0.010 dscm (0.35 dscf) for each sample. Eight samples of equal sampling times shall be taken at about 30-minute intervals. The arithmetic average of these 8 samples shall constitute a run. For Method 6C, a run shall consist of the arithmetic average of 4 1-hour samples. Method 4 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine the moisture content of the gases. The sampling point for Method 4 shall be adjacent to the sampling point for Method 6 or 6C. The sampling time for each sample shall be equal to the time it takes for 2 Method 6 samples. The moisture content from this sample shall be used to correct the corresponding Method 6 samples for moisture. For documenting the oxidation efficiency of the control device for reduced sulfur ~~compound~~ compounds, Method 15 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used following the procedures of subd. 2.

3. The oxygen concentration used to correct the emission rate for excess air shall be obtained by the integrated sampling and analysis procedure of Method 3 or 3A of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). The samples shall be taken simultaneously with the SO_2 reduced sulfur and H_2S, or moisture samples. The SO_2, reduced sulfur and H_2S samples shall be corrected to zero percent excess air using the equation in par. ~~(h)3~~ (h)6.

(g) Each performance test conducted for the purpose of determining compliance under sub. (5)(b) shall consist of all testing performed over a 7-day period using ~~the applicable test methods and procedures specified in this subsection~~ Method 6 or 6C and Method 3 or 3A of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). To determine compliance, the arithmetic mean of the results of all the tests shall be compared with the applicable standard.

(i)2.a. Method 8 as modified in subd. 3. ~~for the concentration of sulfur oxides calculated as sulfur dioxide and moisture content,~~ for moisture content and for the concentration of sulfur oxides calculated as sulfur dioxide.

b. Method 1 for sample and velocity traverses~~,~~.

c. Method 2 calculation procedures, data obtained from Methods 3 and 8, for velocity and volumetric flow rate~~, and~~.

SECTION 127. NR 440.26(7)(i)9. is repealed and recreated to read:

NR 440.26(7)(i)9. Sulfur oxides emission rate calculated as sulfur dioxide shall be determined for each test run by the following equation:

$$E_{SO_x} = C_{SO_x} Q_{sd} / K$$

where:

E_{SO_x} is the sulfur oxides emission rate calculated as sulfur dioxide, kg/hr (lb/hr)

C_{SO_x} is the sulfur oxides emission concentration calculated as sulfur dioxide, g/dscm (gr/dscf)

Q_{sd} is the dry volumetric stack gas flow rate corrected to standard conditions, dscm/hr (dscf/hr)

K is a conversion factor, 1,000 g/kg (7,000 gr/lb)

SECTION 128. NR 440.26(7)(i)10. and 11., (j)2., (8)(a), (c)(intro.) and 5. and 6. are amended to read:

NR 440.26(7)(i)10. Sulfur oxides emissions calculated as sulfur dioxide ~~per 1,000 kg coke burn off in the fluid catalytic cracking unit catalyst regenerator~~ shall be determined for each test run by the following equation:

$$R_{SO_x} = \left(E_{SO_x} / R_c \right)$$

where:

R_{SO_x} is the sulfur oxides emissions calculated as kg sulfur dioxide~~,~~ ~~kg/1000 kg~~ per Mg (lb/ton) coke burn-off

E_{SO_x} is the sulfur oxides emission rate calculated as sulfur dioxide, kg/hr (lb/hr)

R_c is the coke burn-off rate, ~~1,000 kg/hr~~ Mg/hr (ton/hr)

11. Calculate the 7-day average sulfur oxides emission rate as sulfur dioxide per ~~1,000 kg~~ Mg (ton) of coke burn-off by dividing the sum of the individual daily rates by the number of daily rates summed.

(j)2. Fresh feed samples shall be analyzed separately by using any one of the following applicable analytical test methods: ASTM ~~D129-64 (reapproved 1978)~~ D129-00, ASTM ~~D1552-83~~ D1552-01, ASTM ~~D2622-87~~ D2622-98 or ASTM ~~D1266-87~~

D1266-98. These methods are incorporated by reference in s. NR 440.17(2)(a)8., 20., 34. and 18., respectively. The applicable range of some of these ASTM methods is not adequate to measure the levels of sulfur in some fresh feed samples. Dilution of samples prior to analysis with verification of the dilution ratio is acceptable upon prior approval of the department.

(8)(a) Each owner or operator subject to sub. (5)(b) shall notify the department of the specific provisions of sub. (5)(b) with which the owner or operator seeks to comply. Notification shall be submitted with the notification of initial startup required by s. NR 440.07(1)(c). If an owner or operator elects at a later date to comply with an alternative provision of sub. (5)(b), then the department shall be notified by the owner or operator in the ~~quarterly, or semiannual,~~ report described in ~~pars.~~ par. (c) ~~and (d) for the quarter during which the change occurred~~.

(c)(intro.) Each owner or operator subject to sub. (5)(b) shall submit a report ~~each quarter~~ except as provided by par. (d). The following information shall be contained in ~~each quarterly~~ the report:

5. If subject to sub. (5)(b)2., for each day in which a Method 8 sample result required by sub. (7)(i) was not obtained, the date for which and brief explanation as to why a Method 8 sample result was not obtained, for approval by the department.

6. If subject to sub. (5)(b)3., for each 8-hour ~~shift~~ period in which a feed sulfur measurement required by sub. (7)(j) was not obtained, the date for which and brief explanation as to why a feed sulfur measurement was not obtained, for approval by the department.

SECTION 129. NR 440.26(8)(d) is repealed.

SECTION 130. NR 440.26(8)(e) is renumbered NR 440.26(8)(d).

SECTION 131. NR 440.26(8)(e) is created to read:

NR 440.26(8)(e) The owner or operator of an affected facility shall submit the reports required under this subsection to the department semiannually for each 6-month period. All semiannual reports shall be postmarked by the 30th day following the end of each 6-month period.

SECTION 132. NR 440.26(9)(e) is amended to read:

NR 440.26(9)(e) Each owner or operator subject to sub. (5)(b) who has demonstrated compliance with one of the provisions of sub. (5)(b) but at a later date seeks to comply with another of the provisions of sub. (5)(b) shall begin conducting daily performance tests as a specified under par. (d) immediately upon electing to become subject to one of the other provisions of sub. (5)(b). The owner or operator shall furnish the department with a written notification of the change in ~~a quarterly~~ the semiannual report ~~that shall be submitted for the quarter in which the change occurred~~ required by sub. (8)(e).

SECTION 133. NR 440.27(2)(g) and (i) are amended to read:

NR 440.27(2)(g) ''Petroleum liquids'' means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean Nos. 2 through 6 fuel oils as specified in ASTM ~~D396-78~~ D396-98, gas turbine fuel oils Nos. 2-GT through 4-GT as specified in ASTM ~~D2880-78~~ D2880-96, or diesel fuel oils Nos. 2-D and 4-D as specified in ASTM ~~D975-78~~ D975-98a. These 3 ASTM methods are incorporated by reference in s. NR 440.17(2)(a)13., 36. and 14., respectively.

(i) ''Reid vapor pressure'' is the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids, except liquified petroleum gases, as determined by ASTM ~~D323-82~~ D323-94, incorporated by reference in s. NR 440.17(2)(a)11.

SECTION 134. NR 440.28(1)(a) is amended to read:

NR 440.28(1)(a) Except as provided in par. (b), the affected facility to which this section applies is each storage vessel ~~for petroleum liquids which has~~ with a storage capacity greater than 151,416 liters (40,000 gallons) ~~and~~ that is used to store petroleum liquids for which construction is commenced after May 18, 1978.

SECTION 135. NR 440.28(1)(c) is created to read:

NR 440.28(1)(c)1. Owners or operators may choose to comply with 40 CFR part 65, subpart C, as in effect on December 14, 2000, to satisfy the requirements of subs. (3) to (5) for storage vessels that are subject to this section that store petroleum liquies that, as stored, have a maximum true vapor pressure equal to or greater than 10.3 kPa (1.5 psia). Other provisions applying to owners or operators who choose to comply with 40 CFR part 65 are provided in 40 CFR 65.1.

2. Owners or operators who choose to comply with 40 CFR part 65, subpart C, as in effect on December 14, 2000, shall also comply with ss. NR 440.01, 440.02, 440.05, 440.06, 440.07(1)(a) and (d), 440.14, 440.15 and 440.16 for those storage vessels. Any section or subsection from ss. NR 440.01 to 440.19 not specified in this subdivision does not apply to owners or operators of storage vessels complying with 40 CFR part 65, subpart C, except that provisions required to be met prior to implementing 40 CFR part 65 still apply. Owners and operators who choose to comply with 40 CFR part 65, subpart C, shall comply with 40 CFR part 65, subpart A, as in effect on December 14, 2000.

SECTION 136. NR 440.28(2)(f) and (h) and (6)(d)2. are amended to read:

NR 440.28(2)(f) ‘‘Petroleum liquids’’ means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean Nos. 2 through 6 fuel oils as specified in ASTM ~~D396-78~~ D396-98, gas turbine fuel oils Nos. 2-GT through 4-GT as specified in ASTM ~~D2880-78~~ D2880-96, or diesel fuel oils Nos. 2-D and 4-D as specified in ASTM ~~D975-78~~

D975-98a. These 3 ASTM methods are incorporated by reference in s. NR 440.17(2)(a)13., 36. and 14., respectively.

(h) "Reid vapor pressure" is the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids, except liquified petroleum gases, as determined by ASTM ~~D323-82~~ D323-94, incorporated by reference in s. NR 440.17(2)(a)11.

(6)(d)2. Each owner or operator of each storage vessel equipped with a vapor recovery and return or disposal system in accordance with the requirements of sub. (3)(a)3. and (b), or a closed vent system and control device meeting the specifications of 40 CFR 65.42(b)(4), (5) or (c), as in effect on December 14, 2000.

SECTION 137. NR 440.285(1)(a) and (b) are amended to read:

NR 440.285(1)(a) Except as provided in pars. (b) to (d), the affected facility to which this section applies is each storage vessel with a capacity greater than or equal to ~~40~~ 75 cubic meters (m^3) that is used to store volatile organic liquids ~~(VOLs)~~ (VOL) for which construction, reconstruction~~,~~ or modification is commenced after July 23, 1984.

(b) ~~Except as specified in sub. (7)(a) and (b),~~ This section does not apply to storage vessels with ~~design~~ a capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity ~~less~~ greater than or equal to 75 m^3 ~~are exempt from ss. NR 440.01 to 440.18, and from the provisions of this section~~ but less than 151 m^3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa.

SECTION 138. NR 440.285(1)(c) is repealed.

SECTION 139. NR 440.285(1)(d)8. and (e) are created to read:

NR 440.285(1)(d)8. Vessels subject to subpart GGGG of 40 CFR part 63.

(e)1. Owners or operators may choose to comply with 40 CFR part 65, subpart C, as in effect on December 14, 2000, to satisfy the requirement of subs. (3) to (7) for storage vessels that are subject to this section and meet either of the specifications in this subdivision. When choosing to comply with 40 CFR part 65, subpart C, the monitoring requirements of sub. (7)(c), (e), (f)1. and (g) shall apply. Other provisions applying to owners or operators who choose to comply with 40 CFR part 65 are provided in 40 CFR 65.1. The specifications are that the storage vessel has either of the following:

a. A design capacity greater than or equal to 151 m^3 and containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kPa.

b. A design capacity greater than 75 m^3 but less than 151 m^3 and containing a VOL that, as stored, has a maximum true vapor pressure equal to greater than 27.6 kPa.

2. Owners or operators who choose to comply with 40 CFR part 65, subpart C, as in effect on December 14, 2000, shall also comply with ss. NR 440.01, 440.02, 440.05, 440.06, 440.07(1)(a) and (d), 440.14, 440.15 and 440.16 for those storage vessels. Any section or subsection from ss. NR 440.01 to 440.19 not specified in this subdivision does not apply to owners or operators of storage vessels complying with 40 CFR part 65, subpart C, except that provisions required to be met prior to implementing 40 CFR part 65 still apply. Owners and operators who choose to comply with 40 CFR part 65, subpart C, shall comply with 40 CFR part 65, subpart A, as in effect on December 14, 2000.

3. If an owner or operator installs an internal floating roof and, at initial startup, chooses to comply with 40 CFR part 65, subpart C, as in effect on December 14, 2000, a report shall be furnished to the department stating that the control equipment meets the specifications of 40 CFR 65.43 as in effect on December 14, 2000. This report shall be an attachment to the notification required by 40 CFR 65.5(b) as in effect on December 14, 2000.

4. If an owner or operator installs an external floating roof and, at initial startup, chooses to comply with 40 CFR part 65, subpart C, as in effect on December 14, 2000, a report shall be furnished to the department stating that the control equipment meets the specifications of 40 CFR 65.44 as in effect on December 14, 2000. This report shall be an attachment to the notification required by 40 CFR 65.5(b) as in effect on December 14, 2000.

SECTION 140. NR 440.285(2)(f) is amended to read:

NR 440.285(2)(f) "Maximum true vapor pressure" means the equilibrium partial pressure exerted by the volatile organic compounds (as defined in 40 CFR 51.100) in the stored VOL at the temperature equal to the highest calendar-month average of the VOL storage temperature for VOLs stored above or below the ambient temperature or at the local maximum monthly average temperature as reported by the national weather service for VOLs stored at the ambient temperature, as determined in one of the following ways:

1. In accordance with the method described in American Petroleum Institute Publication 2517, Evaporation Loss From External Floating Roof Tanks, incorporated by reference in s. NR 440.17~~; or~~(2)(c)1.

2. As obtained from standard reference texts~~; or~~.

3. As determined by ASTM ~~Method D2879-83~~ D2879-97, incorporated by reference in s. NR 440.17~~; or~~(2)(a)34.

4. ~~Any~~As determined by any other method approved by the administrator.

SECTION 141. NR 440.285(2)(hm) is created to read:

NR 440.285(2)(hm) "Process tank" means a tank that is used within a process, including a solvent or raw material recovery process, to collect material discharged from a feedstock storage vessel or equipment within the process before the material is transferred to other equipment within the process, to a product or by-product storage vessel, or to a vessel used to store recovered solvent or raw material. In many process tanks, unit operations such as reactions and blending are conducted. Other process tanks, such as surge control vessels and bottoms receivers, however, may not involve unit operations.

SECTION 142. NR 440.285(2)(i) and (j)(intro.) and 1. are amended to read:

NR 440.285(2)(i) ''Reid vapor pressure'' means the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids except liquified petroleum gases, as determined by ASTM ~~D323-82~~ D323-94, incorporated by reference in s. NR 440.17(2)(a)11.

(j)(intro.) "Storage vessel" means each tank, reservoir, or container used for the storage of volatile organic liquids but does not include any of the following:

1. Frames, housing, auxiliary supports, or other components that are not directly involved in the containment of liquids or vapors~~; or~~.

SECTION 143. NR 440.285(2)(j)3. is created to read:

NR 440.285(2)(j)3. Process tanks.

SECTION 144. NR 440.285(2)(k) is amended to read:

NR 440.285(2)(k) "Volatile organic liquid" or "VOL" means any organic liquid which can emit volatile organic compounds ~~except those VOLs that emit only those compounds which are excluded by name from the definition of volatile organic compound in s. NR 400.02(162)~~ ,as defined in 40 CFR 51.100, into the atmosphere.

SECTION 145. NR 440.285(7)(b), (e)3., (f)2. and (g) are amended to read:

NR 440.285(7)(b) The owner or operator of each storage vessel as specified in sub. (1)(a) shall keep readily accessible records showing the ~~dimension~~ dimensions of the storage vessel and an analysis showing the capacity of the storage vessel. ~~Each storage vessel with a design capacity less than 75 m^3 is subject to no provisions of this section other than those~~

~~required by this paragraph.~~

(e)3. For other liquids, the vapor pressure may be obtained from one of the following:

a. ~~May be obtained from standard~~ Standard reference texts~~, or~~.

b. ~~Determined by~~ Use of ASTM ~~Method D2879-83~~ D2879-97, incorporated by reference in s. NR 440.17~~, or~~(2)(a)34.

c. ~~Measured~~ Measurement by an appropriate method approved by the administrator~~, or~~.

d. ~~Calculated by~~ Calculation using an appropriate method approved by the administrator.

(f)2. For vessels in which the vapor pressure of the anticipated liquid composition is above the cutoff for monitoring but below the cutoff for controls as defined in sub. (3)(a), an initial physical test of the vapor pressure is required; and a physical test at least once every 6 months thereafter is required as determined by one of the following methods:

a. ASTM ~~Method D2879-83~~ D2879-97, incorporated by reference in s. NR 440.17~~; or~~(2)(a).

b. ASTM ~~Method D323-82~~ D323-94, incorporated by reference in s. NR 440.17~~; or~~(2)(a)11.

c. ~~As measured~~ Measurement by an appropriate method as approved by the administrator.

(g) The owner or operator of each vessel equipped with a closed vent system and control device meeting the specifications of sub. (3) or with emissions reductions equipment as specified in 40 CFR 65.42(b)(4), (b)(5), (b)(6) or (c) as in effect on December 14, 2000 is exempt from the requirements of pars. (c) and (d).

SECTION 146. NR 440.29(2)(a), (b) and (c) are renumbered NR 440.29(2)(b), (c) and (d) respectively.

SECTION 147. NR 440.29(2)(a) is created to read:

NR 440.29(2)(a) ''Blast furnace'' means any furnace used to recover metal from slag.

SECTION 148. NR 440.30(4)(b)1. is amended to read:

NR 440.30(4)(b)1. Method 5 shall be used to determine the particulate matter concentration during representative periods of charging and refining, but not during the pouring ~~of the heat~~ part of the production cycle. The sampling time and sample volume for each run shall be at least 120 minutes and 1.80 dscm (63.6 dscf).

SECTION 149. NR 440.31(5)(c) is amended to read:

NR 440.31(5)(c) ~~To comply with sub. (4)(c), the~~ The owner or operator shall use the monitoring devices of sub. (4)(b)1. and 2. ~~during~~ for the duration of the particulate matter runs ~~to determine the 3 hour averages of the required measurements~~. The arithmetic average of all measurements taken during these runs shall be used to determine compliance with sub. (4)(c).

SECTION 150. NR 440.315(4)(c), (5)(d) and (6)(e) to (g) are amended to read:

NR 440.315(4)(c) All monitoring devices ~~are to~~ required by par. (a) shall be certified by the manufacturer to be accurate to within ± 10% compared to ~~Reference~~ Method 2~~,~~ of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). The owner or operator shall recalibrate and check the devices annually and at other times as the department may require, in accordance with the written instructions of the manufacturer and by comparing the device against ~~Reference~~ Method 2~~, 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17~~.

(5)(d) To comply with sub. (4)(d) or (e), the owner or operator shall use the monitoring device of sub. (4)(a) to determine the exhaust ventilation rates or levels during the particulate matter runs ~~and to determine a 3 hour average~~. Each owner or operator shall then use these rates or levels to determine the 3-hour averages required by sub. (4)(d) and (e).

(6)(e) To determine compliance with sub. (3)(a)1., the owner or operator shall select the data sets yielding the highest and second highest 3-minute average opacitites for each steel production cycle. Compliance is achieved if the highest 3-minute average for each cycle observed is less than 20% and the second highest 3-minute average is 10% or less.

(f) To determine compliance with sub. (3)(a)2., the owner or operator shall determine the concentration of particulate matter in exhaust gases exiting the secondary emission collection device with ~~Reference~~ Method 5 of Appendix A, 40 CFR part 60, incorporated by reference in s. NR 440.17(1). Compliance is achieved if the concentration of particulate matter does not exceed 23 mg/dscm (0.010 gr/dscf).

(g) To determine compliance with sub. (3)(a)3., the owner or operator shall construct consecutive 3-minute averages for each steel production cycle. Compliance is achieved if no 3-minute average is more than 5%.

SECTION 151. NR 440.32(4)(b)3. is amended to read:

NR 440.32(4)(b)3. Install, calibrate, maintain and operate temperature measuring devices at every hearth in multiple hearth furnaces; in the bed and outlet of fluidized bed incinerators; and in the drying, combustion and cooling zones of electric incinerators. For multiple hearth furnaces, a minimum of one ~~thermocouple~~ temperature measuring device shall be installed in each hearth in the cooling and drying zones, and a minimum of 2 ~~thermocouples~~ temperature measuring devices shall be installed in each hearth in the combustion zone. For electric incinerators, a minimum of one ~~thermocouple~~ temperature measuring device shall be installed in the drying zone and one in the cooling zone, and a minimum of 2 ~~thermocouples~~ temperature measuring devices shall be installed in the combustion zone. Each temperature measuring device shall be certified by the manufacturer to have an accuracy of ± 5% over its operating range. Except as provided in par. (d), the temperature monitoring devices shall be operated continuously and data recorded during all periods of operation of the incinerator.

SECTION 152. NR 440.32(5)(b)1. and 3. are repealed and recreated to read:

NR 440.32(5)(b)1. The emission rate (E) of particulate matter for each run shall be computed using the following equation:

$$E = \frac{c_s Q_{sd}}{KS}$$

where:

E is the emission rate of particulate matter, g/kg (lb/ton) of dry sludge input

c_s is the concentration of particulate matter, g/dscm (gr/dscf)

Q_{sd} is the volumetric flow rate of exhaust gas, dscm/hr (dscf/hr)

S is the charging rate of dry sludge during the run, kg/hr (ton/hr)

K is the conversion factor, 1.0 g/g (7000 gr/lb)

3. The dry sludge charging rate (S) for each run shall be computed using either of the following equations:

$$S = S_m R_{dm} / \Theta$$

$$S = S_v R_{dv} / K_v \Theta$$

where:

S is the charging rate of dry sludge, kg/hr (ton/hr)

S_m is the total mass of sludge charge, kg (ton)

R_{dm} is the average mass of dry sludge per unit mass of sludge charged, kg/kg (ton/ton)

Θ is the duration of run, hr

S_v is the total volume of sludge charged, m^3 (gal)

R_{dv} is the average mass of dry sludge per unit volume of sludge charged, kg/m^3 (lb/gal)

K_v is the conversion factor, 1 g/g (2000 lb/ton)

SECTION 153. NR 440.32(5)(b)4. and 5.(intro.) and c. are amended to read:

NR 440.32(5)(b)4. The flow measuring device described in sub. (4)(a)1. shall be used to determine the total mass (S_m) or volume (S_v) of sludge charged to the incinerator during each run. If the flow measuring device is on a time rate basis, readings shall be taken and recorded at 5-minute intervals during the run and the total charge of sludge shall be computed using the following equations, as applicable:

$$S_m = \sum_{i=1}^{n} Q_{mi}/\Theta_i$$

$$S_v = \sum_{i=1}^{n} Q_{vi}/\Theta_i$$

where:

S_m is the total mass of sludge charged to the incinerator during the test run

S_v is the total volume of sludge charged to the incinerator during the test run

Q_{mi} is the average mass flow rate calculated by averaging the flow rates at the beginning and end of each interval "i", ~~kg/min (lb/min)~~ kg/hr (ton/hr)

Q_{vi} is the average volume flow rate calculated by averaging the flow rates at the beginning and end of each interval "i", ~~m^3/min (gal/min)~~ m^3/hr (gal/hr)

Θ_i is the duration of interval "i", ~~min~~ hr

5.(intro.) Samples of the sludge charged to the incinerator shall be collected in nonporous jars at the beginning of each run and at approximately 1-hour intervals thereafter until the test ends, and Method 2540 G., ''Total, Fixed, and Volatile Solids in Solid and Semisolid Samples'', in Standard Methods for the Examination of Water and Wastewater, ~~17th~~ 20th edition, ~~1989~~ 1998, incorporated by reference in s. NR 440.17(2)(e)2., shall be used to determine dry sludge content of each sample (total solids residue), except that:

c. The quantity of dry sludge per unit sludge charged shall be determined in terms of ~~mg/liter (lb/ft^3) or mg/mg (lb/lb)~~ kg/m^3 (lb/gal) or kg/kg (ton/ton).

SECTION 154. NR 440.33(6)(d)2. is amended to read:

NR 440.33(6)(d)2. 'Sulfur dioxide'. All 6-hour periods during which the average emissions of sulfur dioxide, as measured by the continuous monitoring system installed under ~~sub. (4)~~ par. (b), exceed the level of the standard. The department may not consider emissions in excess of the level of the standard for less than or equal to 1.5% of the 6-hour periods during the quarter as indicative of a potential violation of s. NR 440.11(4), provided the affected facility, including air pollution control equipment, is maintained and operated in a manner consistent with good air pollution control practice for minimizing emissions during these periods. Emissions in excess of the level of the standard during periods of startup, shutdown and malfunction may not be included within the 1.5%.

SECTION 155. NR 440.36(1)(b) is amended to read:

NR 440.36(1)(b) ~~Any~~ Except as provided in par. (c), any affected facility under par. (a) that commences construction or modification after October 23, 1974, is subject to the requirements of this section.

SECTION 156. NR 440.36(1)(c) is created to read:

NR 440.36(1)(c) An owner or operator of an affected facility under par. (a) may elect to comply with the requirements of this section or the requirements of 40 CFR part 63.

SECTION 157. NR 440.36(3)(a)(intro.) and (6)(b)1. and 2. are amended to read:

NR 440.36(3)(a)(intro.) On and after the date on which the initial performance test required to be conducted by s. NR 440.08 is completed, no owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any affected facility any gases containing total fluorides, as measured according to ~~s. NR 440.08~~ sub. (6), in excess of:

(6)(b)1. The emission rate (E_p) of total fluorides from potroom groups shall be computed for each run using the following equation:

$$E_p = \left[\left(C_s Q_{sd}\right)_1 + \left(C_s Q_{sd}\right)_2\right] / \left(PK\right)$$

where:

E_p is the emission rate of total fluorides from a potroom group, kg/Mg (lb/ton)

C_s is the concentration of total fluorides, mg/dscm (~~mg/dscf~~ gr/dscf)

Q_{sd} is the volumetric flow rate of effluent gas, dscm/hr (dscf/hr)

P is the aluminum production rate, Mg/hr (ton/hr)

K is the conversion factor, 10^6 mg/kg (~~453,600 mg/lb~~ 7000 gr/lb)

1 is the subscript for primary control system exhaust gas

2 is the subscript for secondary control system or roof monitor exhaust gas

2. The emission rate (E_b) of total fluorides from anode bake plants shall be computed for each run using the following equation:

$$E_b = \left(C_s Q_{sd}\right) / P_e K$$

where:

E_b is the emission rate of total fluorides, kg/Mg (lb/ton) of aluminum equivalent

C_s is the concentration of total fluorides, mg/dscm (~~mg/dscf~~ gr/dscf)

Q_{sd} is the volumetric flow rate of effluent gas, dscm/hr (dscf/hr)

P_e is the aluminum equivalent for anode production rate, Mg/hr (ton/hr)

K is the conversion factor, 10^6 mg/kg (~~453,600 mg/lb~~ 7000 gr/lb)

SECTION 158. NR 440.37(3)(a) is renumbered NR 440.37(3) and amended to read:

NR 440.37(3) On and after the date on which the performance test required to be conducted by s. NR 440.08 is completed, no owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of 10.0 ~~g/metric ton~~ g/Mg of equivalent P_2O_5 feed (0.020 lb/ton).

SECTION 159. NR 440.37(4)(b) and (5)(b)1. and 3.(intro.) are amended to read:

NR 440.37(4)(b) 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/hr~~ Mg/hr of phosphorus bearing feed using a monitoring device for measuring mass flow rate which meets the requirements of par. (a) and then by proceeding according to sub. (5)(b)3.

(5)(b)1. The emission rate (E) of total fluorides shall be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^{N} C_{si} Q_{sdi} \right) \Big/ (PK)$$

where:

E is the emission rate of total fluorides, ~~g/metric ton~~ g/Mg (lb/ton) of equivalent P_2O_5 feed

C_{si} is the concentration of total fluorides from emission point "i", mg/dscm (~~mg/dscf~~ gr/dscf)

Q_{sdi} is the volumetric flow rate of effluent gas from emission point "i", dscm/hr (dscf/hr)

N is the number of emission points associated with the affected facility

P is the equivalent P_2O_5 feed rate, ~~metric ton/hr~~ Mg/hr (ton/hr)

K is the conversion factor, 1000 mg/g (~~453,600 mg/lb~~ 7000 gr/lb)

3.(intro.) The equivalent P_2O_5 feed rate (P) shall be computed for each run using the following equation:

$$P = M_p R_p$$

where:

M_p is the total mass flow rate of phosphorus-bearing feed, ~~metric ton/hr~~ Mg/hr (ton/hr)

R_p is the P_2O_5 content, decimal fraction

SECTION 160. NR 440.38(3)(a) is renumbered NR 440.38(3) and amended to read:

NR 440.38(3) On and after the date on which the performance test required to be conducted by s. NR 440.08 is completed, no owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of 5.0 ~~g/metric ton~~ Mg/ton of equivalent P_2O_5 feed (0.010 lb/ton).

SECTION 161. NR 440.38(4)(b) and (5)(b)1. and 3.(intro.) are amended to read:

NR 440.38(4)(b) 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/hr~~ Mg/hr of phosphorus-bearing feed using a flow monitoring device meeting the requirements of par. (a) and then proceeding according to sub. (5)(b)3.

(5)(b)1. The emission rate (E) of total fluorides shall be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^{N} C_{si} Q_{sdi} \right) \Big/ (PK)$$

where:

E is the emission rate of total fluorides, ~~g/metric ton~~ g/Mg (lb/ton) of equivalent P_2O_5 feed

C_{si} is the concentration of total fluorides from emission point "i", mg/dscm (~~mg/dscf~~ gr/dscf)

Q_{sdi} is the volumetric flow rate of effluent gas from emission point "i", dscm/hr (dscf/hr)

N is the number of emission points associated with the affected facility

P is the equivalent P_2O_5 feed rate, ~~metric ton/hr~~ Mg/hr (ton/hr)

K is the conversion factor, 1000 mg/g (~~453,600 mg/lb~~ 7000 gr/lb)

3.(intro.) The equivalent P_2O_5 feed rate (P) shall be computed for each run using the following equation:

$$P = M_p R_p$$

where:

M_p is the total mass flow rate of phosphorus-bearing feed, ~~metric ton/hr~~ Mg/hr (ton/hr)

R_p is the P_2O_5 content, decimal fraction

SECTION 162. NR 440.39(3)(a) is renumbered NR 440.39(3) and as renumbered is amended to read:

NR 440.39(3) On and after the date on which the performance test required to be conducted by s. NR 440.08 is completed, no owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of 30 ~~g/metric ton~~ g/Mg of equivalent P_2O_5 feed (0.060 lb/ton).

SECTION 163. NR 440.39(4)(b), (5)(b)1. and 3.(intro.) are amended to read:

NR 440.39(4)(b) 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/hr~~ Mg/hr of phosphorus-bearing feed using a flow monitoring device meeting the requirements of par. (a) and then proceeding according to sub. (5)(b)3.

(5)(b)1. The emission rate (E) of total fluorides shall be computed for each

$$E = \left(\sum_{i=1}^{N} C_{si} Q_{sdi} \right) \Big/ (PK)$$

run using the following equation:

where:

E is the emission rate of total fluorides, ~~g/metric ton~~ g/Mg (lb/ton) of equivalent P_2O_5 feed

C_{si} is the concentration of total fluorides from emission point "i", mg/dscm (~~mg/dscf~~ gr/dscf)

Q_{sdi} is the volumetric flow rate of effluent gas from emission point "i", dscm/hr (dscf/hr)

N is the number of emission points associated with the affected facility

P is the equivalent P_2O_5 feed rate, ~~metric ton/hr~~ Mg/hr (ton/hr)

K is the conversion factor, 1000 mg/g (~~453,600 mg/lb~~ 7000 gr/lb)

3.(intro.) The equivalent P_2O_5 feed rate (P) shall be computed for each run using the following equation:

$$P = M_p R_p$$

where:

M_p is the total mass flow rate of phosphorus-bearing feed, ~~metric ton/hr~~ Mg/hr (ton/hr)

R_p is the P_2O_5 content, decimal fraction

SECTION 164. NR 440.40(3)(a) is renumbered NR 440.40(3) and amended to read:

NR 440.40(3) On and after the date on which the performance test required to be conducted by s. NR 440.08 is completed, no owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of 100 ~~g/metric ton~~ g/Mg of equivalent P_2O_5 feed (0.20 lb/ton).

SECTION 165. NR 440.40(4)(b), (5)(b)1. and 3.(intro.) are amended to read:

NR 440.40(4)(b) 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/hr~~ Mg/hr of phosphorus-bearing feed using a flow monitoring device meeting the requirements of par. (a) and then proceeding according to sub. (5)(b)3.

(5)(b)1. The emission rate (E) of total fluorides shall be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^{N} C_{si} Q_{sdi} \right) \Big/ (PK)$$

where:

E is the emission rate of total fluorides, ~~g/metric ton~~ g/Mg (lb/ton) of equivalent P_2O_5 feed

C_{si} is the concentration of total fluorides from emission point ''i'', mg/dscm (~~mg/dscf~~ gr/dscf)

Q_{sdi} is the volumetric flow rate of effluent gas from emission point ''i'', dscm/hr (dscf/hr)

N is the number of emission points associated with the affected facility

P is the equivalent P_2O_5 feed rate, ~~metric ton/hr~~ Mg/hr (ton/hr)

K is the conversion factor, 1000 mg/g (~~453,600 mg/lb~~ 7000 gr/lb)

3.(intro.) The equivalent P_2O_5 feed rate (P) shall be computed for each run using the following equation:

$$P = M_p R_p$$

where:

M_p is the total mass flow rate of phosphorus-bearing feed, ~~metric ton/hr~~ Mg/hr (ton/hr)

R_p is the P_2O_5 content, decimal fraction

SECTION 166. NR 440.41(2)(b) and (c) and (3)(a) are amended to read:

NR 440.41(2)(b) ''Fresh granular triple superphosphate'' means granular triple superphosphate produced ~~no more than 10 days prior to the date of the performance test~~ within the preceding 72 hours.

(c) ''Granular triple superphosphate storage facility'' means any facility curing or storing fresh granular triple superphosphate.

(3)(a) On and after the date on which the performance test required to be conducted by s. NR 440.08 is completed, no owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of 0.25 ~~g/hr/metric ton~~ g/hr/Mg of equivalent P_2O_5 stored (5.0 x 10^{-4} lb/hr/ton of equivalent P_2O_5 stored).

SECTION 167. NR 440.41(3)(b) is created to read:

NR 440.41(3)(b) No owner or operator subject to the provisions of this section shall ship fresh granular triple superphospate from an affected facility.

SECTION 168. NR 440.41(4)(b) and (c) are amended to read:

NR 440.41(b) The owner or operator of any granular triple superphosphate storage facility subject to the provisions of this section shall maintain a daily record of total equivalent P_2O_5 ~~store~~ stored by multiplying the percentage P_2O_5 content, as determined by sub. (5)(c)3., times the total mass of granular triple superphosphate stored.

(c) The owner or operator of any granular triple superphosphate storage facility subject to the provisions of this section shall install, calibrate, maintain and operate a monitoring device which continuously measures and permanently records the total pressure drop across ~~the~~ any process scrubbing system. The monitoring device shall have an accuracy of ±5% over its operating range.

SECTION 169. NR 440.41(4)(d) is created to read:

NR 440.41(4)(d) The owner or operator of any granular triple superphosphate storage facility subject to the provisions of this section shall develop for approval by the department a site-specific methodology including sufficient recordkeeping for the purposes of demonstrating compliance with sub. (3)(b).

SECTION 170. NR 440.41(5)(a)2., (c)1. and 3.(intro.) are amended to read:

NR 440.41(5)(a)2. Fresh granular triple superphosphate is at least ~~20%~~ 6% of the total amount of triple superphosphate, or

(c)1. The emission rate (E) of total fluorides shall be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^{N} C_{si} Q_{sdi}\right) \Big/ (PK)$$

where:

E is the emission rate of total fluorides, ~~g/metric ton~~ g/Mg (lb/ton) of equivalent P_2O_5 stored

C_{si} is the concentration of total fluorides from emission point “i”, mg/dscm (~~mg/dscf~~ gr/dscf)

Q_{sdi} is the volumetric flow rate of effluent gas from emission point “i”, dscm/hr

(dscf/hr)

N is the number of emission points associated with the affected facility

P is the equivalent P_2O_5 stored, ~~metric ton/hr~~ Mg/hr (ton/hr)

K is the conversion factor, 1000 mg/g (~~453,600 mg/lb~~ 7000 gr/lb)

3.(intro.) The equivalent P_2O_5 feed rate (P) shall be computed for each run using the following equation:

$$P = M_p R_p$$

where:

M_p is the amount of product in storage, ~~metric ton~~ Mg (ton)

R_p is the P_2O_5 content of product in storage, weight fraction

SECTION 171. NR 440.42(1)(a), (2)(a) and (b), (3)(b)1., (4)(a)1. and (5)(b)(intro.) are amended to read:

NR 440.42(1)(a) The provisions of this section are applicable to any of the following affected facilities in coal preparation plants which process more than ~~200 tons~~ 181 Mg (200 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.

(2)(a) ''Bituminous coal'' means solid fossil fuel classified as bituminous coal by ASTM ~~Designation D388-77~~ D388-99 (reapproved 2004), incorporated by reference in s. NR 440.17(2)(a)12.

(b) ''Coal'' means all solid fossil fuels classified as anthracite, bituminous, subbituminous or lignite by ASTM ~~Designation D388-77~~ D388-99 (reapproved 2004), incorporated by reference in s. NR 440.17(2)(a)12.

(3)(b)1. Contain particulate matter in excess of 0.040 g/dscm (~~0.018~~ 0.017 gr/dscf).

(4)(a)1. 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 shall be certified by the manufacturer to be accurate within ~~± 3°F~~ ± 1.7°C (± 3°F).

(5)(b)(intro.) The owner or operator shall determine compliance with the ~~total fluorides standard~~ particulate matter standards in sub. (3) as follows:

SECTION 172. NR 440.43(2)(c), (i), (k), (o), (q), (t) and (v) and (7)(c)1. and 2.b. are amended to read:

NR 440.43(2)(c) “Calcium silicon’’ means that alloy as defined by ASTM ~~Designation A495-76~~ A495-94, incorporated by reference in s. NR 440.17(2)(a)6.

(i) ``Ferrochrome silicon'' means that alloy as defined by ASTM ~~Designation A482-76~~ A482-93, incorporated by reference in s. NR 440.17(2)(a)4.

(k) ``Ferrosilicon'' means that alloy as defined by ASTM ~~Designation A100-69 (reapproved 1974)~~ A100-93, incorporated by reference in s. NR 440.17(2)(a)2., grades A, B, C, D and E which contains 50 or more percent by weight silicon.

(o) ``High-carbon ferrochrome'' means that alloy as defined by ASTM ~~Designation A101-73~~ A101-93, incorporated by reference in s. NR 440.17(2)(a)3., grades HC1 through HC6.

(q) ``Silicomanganese'' means that alloy as defined by ASTM ~~Designation A483-64~~ A483-74 (reapproved ~~1974~~ 1988), incorporated by reference in s. NR 440.17(2)(a)5.

(t) ``Silvery iron'' means any ferrosilicon, as defined by ASTM ~~Designation A100-69 (reapproved 1974)~~ A100-93, incorporated by reference in s. NR 440.17(2)(a)2., which contains less than 30% silicon.

(v) ``Standard ferromanganese'' means that alloy as defined by ASTM ~~Designation A99-76~~ A99-82 (reapproved 1987), incorporated by reference in s. NR 440.17(2)(a)1.

(7)(c)1. The emission rate (E) of particulate matter shall be computed for each

$$E = \left(\sum_{i=1}^{N} C_{si} Q_{sdi} \right) \Big/ (PK)$$

run using the following equation:

where:

E is the emission rate of particulate matter, kg/MW-hr (lb/MW-hr)

N is the total number of exhaust streams at which emissions ~~is~~ are quantified

C_{si} is the concentration of particulate matter from exhaust stream "i", g/dscm (~~g/dscf~~ gr/dscf)

Q_{sdi} is the volumetric flow rate of effluent gas from exhaust stream "i", dscm/hr (dscf/hr)

P is the average furnace power input, MW

K is the conversion factor, 1000 g/kg (~~453.6 g/lb~~ 7000 gr/lb)

2.b. When sampling emissions from other types of installations, the sampling time and sample volume for each run shall be at least 200 minutes and ~~5.70~~ 5.66 dscm (200 dscf).

SECTION 173. NR 440.44(2)(a) is renumbered NR 440.44(2)(am).

SECTION 174. NR 440.44(2)(a) is created to read.

NR 440.44(2)(a) "Bag leak detection system" means a system that is capable of continuously monitoring relative particulate matter (dust) loadings in the exhaust of a baghouse to detect bag leaks and other conditions that result in increases in particulate loadings. A bag leak detection system includes an instrument that operates on triboelectric, electrodynamic, light scattering, light transmittance, or other effect to continuously monitor relative particulate matter loadings.

SECTION 175. NR 440.44(2)(e), (j) and (n), (3)(a)3.c. and (4)(b) are amended to read:

NR 440.44(2)(e) ‘‘Direct shell evacuation control system” or “DEC system” means any system that maintains a negative pressure within the EAF above the slag or metal and ducts these emissions to the control device.

(j) “Meltdown and refining period” means the time period commencing at the termination of the initial charging period and ending at the initiation of the tapping period, excluding any intermediate charging periods and times when power to the EAF is off.

(n) “Tapping period” means the time period commencing at the moment an EAF begins ~~to tilt~~ to pour molten steel and ending either 3 minutes after steel ceases to flow from an EAF ~~returns to an upright position~~, or 6 minutes after ~~commencing to tilt~~ steel begins to flow, whichever is longer.

(3)(a)3.c. ~~Opacity~~ The shop opacity standards of this subdivision shall apply only during periods when ~~pressures and either control system fan motor amperes and damper positions or flow rate are being established under sub. (5)(c) and (g)~~ the monitoring parameter limits specified in sub. (5)(b) are being established according to sub. (5)(c) and (g), unless the owner or operator elects to perform daily shop opacity observations in lieu of furnace static pressure monitoring as provided for under sub. (4)(d).

(4)(b) For the purpose of reports under s. NR 440.07(3), ~~periods of excess emissions that shall be reported are defined as~~ all 6-minute periods during which the average opacity is 3% or greater shall indicate a period of excess emission, and shall be reported to the department semi-annually.

SECTION 176. NR 440.44(4)(c) is amended to read:

NR 440.44(4)(c) A continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the control device is not required on any modular, multiple-stack, negative-pressure or positive-pressure fabric filter if observations of the opacity of the visible emissions from the control device are performed by a certified visible emissions observer ~~as follows:~~; or on any single-stack fabric filter if visible emissions from the control device are performed by a certified visible emission observer and the owner installs and continuously operates a bag leak detection system according to par. (e). Visible emission observations shall be conducted at least once per day for at least 3 6-minute periods when the furnace is operating in the melting and refining period. ~~These~~ All visible emissions observations shall be ~~taken~~ conducted in accordance with Method 9~~, and, for at least 3 6-minute periods,~~. If visible emissions occur from more than one point, the opacity shall be recorded for any point where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of the visible emission, only one set of 3 6-minute observations will be required. In ~~this~~ that case, Method 9 observations shall be made for the site of highest opacity that directly relates to the cause, or location, of visible emissions observed during a single incident. Records shall be maintained of any 6-minute average that is in excess of the emission limit specified in sub. (3)(a).

SECTION 177. NR 440.44(4)(d) to (g) are created to read:

NR 440.44(4)(d) A furnace static pressure monitoring device is not required on any EAF equipped with a DEC system if observations of shop opacity are performed by a certified visible emission observer as follows: Shop opacity observations shall be conducted at least once per day when the furnace is operating in the meltdown and refining period. Shop opacity shall be determined as the arithmetic average of 24 or more consecutive 15-second opacity observations of emissions from the shop taken in accordance with Method 9. Shop opacity shall be recorded for any points where visible emissions are observed in proximity to an affected EAF. Where it is possible to determine that a number of visible emission sites relate to only one incident of visible emissions, only one observation of shop opacity shall be required. In this case, the shop opacity observations shall be made for the site of highest opacity that directly relates to the cause or location of visible emissions observed during a single incident.

(e) A bag leak detection system shall be installed and continuously operated on all single-stack fabric filters if the owner or operator elects not to install and operate a continuous opacity monitoring system as provided for under par. (c). In addition, the owner or operator shall meet the visible emissions observation requirements in par. (c). The bag leak detection system shall meet the specifications and requirements of subds. 1. to 8.

1. The bag leak detection system shall be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of one milligram per actual cubic meter (0.00044 grains per actual cubic foot) or less.

2. The bag leak detection system sensor shall provide output of relative particulate matter loadings and the owner or operator shall continuously record the output from the bag leak detection system using electronic or other means such as a strip chart recorder or a data logger.

3. The bag leak detection system shall be equipped with an alarm system that will sound when an increase in relative particulate loading is detected over the alarm set point established according to subd. 4., and the alarm shall be located such that it can be heard by the appropriate plant personnel.

4. For each bag leak detection system required by this paragraph, the owner or operator shall develop and submit to the department, for approval, a site-specific monitoring plan that addresses the items identified in subd. 4.a. to e. For each bag leak detection system that operates based on the triboelectric effect, the monitoring plan shall be consistent with the recommendations contained in the EPA guidance document "Fabric Filter Bag Leak Detection Guidance" (EPA-454/R-98-015). The owner or operator shall operate and maintain the bag leak detection system according to the site-specific

monitoring plan at all times. The plan shall describe all of the following:

a. Installation of the bag leak detection system.

b. Initial and periodic adjustment of the bag leak detection system including how the alarm set-point will be established.

c. Operation of the bag leak detection system including quality assurance procedures.

d. How the bag leak detection system will be maintained including a routine maintenance schedule and spare parts inventory list.

e. How the bag leak detection system output will be recorded and stored.

5. The initial adjustment of the system shall, at a minimum, consist of establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device, and establishing the alarm set points and the alarm delay time, if applicable.

6. Following initial adjustment, the owner or operator may not adjust the averaging period, alarm set point, or alarm delay time without approval from the department except as provided for in subd. 6.a. and b.

a. Once per quarter, the owner or operator may adjust the sensitivity of the bag leak detection system to account for seasonal effects including temperature and humidity according to the procedures identified in the site-specific monitoring plan required under subd. 4.

b. If opacities greater than zero percent are observed over 4 consecutive 15-second observations during the daily opacity observations required under par. (c) and the alarm on the bag leak detection system does not sound, the owner or operator shall lower the alarm set point on the bag leak detection system to a point where the alarm would have sounded during the period when the opacity observations were made.

7. For negative pressure, induced air baghouses, and positive pressure baghouses that are discharged to the atmosphere through a stack, the bag leak detection sensor shall be installed downstream of the baghouse and upstream of any wet scrubber.

8. Where multiple detectors are required, the system's instrumentation

and alarm may be shared among detectors.

(f) For each bag leak detection system installed according to par. (e), the owner or operator shall initiate procedures to determine the cause of all alarms within one hour of an alarm. Except as provided for in par. (g), the cause of the alarm shall be alleviated within 3 hours of the time the alarm occurred by taking whatever corrective actions are necessary. Corrective actions may include the following:

1. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in particulate emissions.

2. Sealing off defective bags or filter media.

3. Replacing defective bags or filter media or otherwise repairing the control device.

4. Sealing off a defective baghouse compartment.

5. Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system.

6. Shutting down the process producing the particulate emissions.

(g) In approving the site-specific monitoring plan required in par. (e)4., the department may allow owners or operators more than 3 hours to alleviate specific conditions that cause an alarm if the owner or operator identifies the condition that could lead to an alarm in the monitoring plan, adequately explains why it is not feasible to alleviate the condition within 3 hours of the time the alarm occurred, and demonstrates that the requested additional time will ensure alleviation of the condition as expeditiously as practicable.

SECTION 178. NR 440.44(5)(a)4.,(b), (c), (f), (g), (i)(intro.), (6)(e)4. and (i) and (7)(a) and (b) are amended to read:

NR 440.44(5)(a)4. All pressure data obtained under par. ~~(e)~~ (f).

(b) Except as provided under 40 CFR 60.274(d), the owner or operator subject to the provisions of this section shall check and record on a once-per-shift basis the furnace static pressure (if a ~~direct shell evacuation or~~ DEC system is in use, and a furnace static pressure gauge is installed according to par. (f)) and either: check and record the control system fan motor amperes and damper positions on a once-per-shift basis; ~~or~~ install, calibrate and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood; or install, calibrate and maintain a monitoring device that continuously records the volumetric flow rate at the control device inlet and check and record damper positions on a once-per-shift basis. The monitoring devices may be installed in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. Flow rate monitoring devices shall have an accuracy of ± 10% over their normal operating range and shall be calibrated according to the manufacturer's instructions. The department may require the owner or operator to demonstrate the accuracy of the monitoring devices relative to Methods 1 and 2 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1).

(c) When the owner or operator of an ~~EAF~~ affected facility is required to demonstrate compliance with the standard under sub. (3)(a)3., and at any other time, the department may require that either: the control system fan motor amperes and all damper positions ~~or~~, the volumetric flow rate through each separately ducted hood, or the volumetric flow rate at the control device inlet and all damper positions shall be determined during all periods in which the hood is operated for the purpose of capturing emissions from the ~~EAF~~ affected facility subject to par. (b). The owner or operator may petition the department for reestablishment of these parameters whenever the owner or operator can demonstrate to the department's satisfaction that the EAF operating conditions upon which the parameters were previously established are no longer applicable. The values of these parameters as determined during the most recent demonstration of compliance shall be maintained at the appropriate level for each applicable period. Operation at other than baseline values may be subject to the requirements of sub. (7)(a).

(f) ~~Where~~ Except as provided for under sub. (4)(d), where emissions during any phase of the heat time are controlled by use of a ~~direct shell evacuation~~ DEC system, the owner or operator shall install, calibrate and maintain a monitoring device that continuously records the pressure in the free space inside the EAF. The pressure shall be recorded as 15-minute integrated averages. The monitoring device may be installed in any appropriate location in the EAF or DEC system duct prior to the introduction of ambient air such that reproducible results will be obtained. The pressure monitoring device shall have an accuracy of ± 5 mm of water gauge over its normal operating range and shall be calibrated according to the manufacturer's instructions.

(g) ~~When~~ Except as provided for under sub. (4)(d), when the owner or operator of an EAF is required to demonstrate compliance with the standard under sub. (3)(a)3. and at any other time the department may require, the pressure in the free space inside the furnace shall be determined during the meltdown and refining periods using the monitoring device under par. ~~(e)~~ (f). The owner or operator may petition the department for reestablishment of the 15-minute integrated average pressure whenever the owner or operator can demonstrate to the department's satisfaction that the EAF operating conditions upon which the pressures were previously established are no longer applicable. The pressure determined during the most recent demonstration of compliance shall be maintained at all times the EAF is operating in a meltdown and refining period. Operation at higher pressures may be considered by the department to be unacceptable operation and maintenance of the affected facility.

(i)(intro.) During any performance test required under s. NR 440.08 and for any report thereof required under sub. ~~(6)(c)~~ (7)(c) or to determine compliance with sub. (3)(a)3., the owner or operator shall monitor the following information for all heats covered by the test:

(6)(e)4. To demonstrate compliance with sub. (3)(a)1. to 3., the Method 9 test runs shall be conducted concurrently with the particulate matter test runs, unless inclement weather interferes.

(i) ~~Visible~~ If visible emissions observations are made in lieu of using a continuous opacity monitoring system, as allowed for by sub. (4)(c), visible emissions observations ~~of modular, multiple stack, negative pressure or positive pressure fabric filters~~ shall ~~occur~~ be conducted at least once per day ~~of operation. The observations shall occur when the furnace is operating in the melting and refining period~~ for at least 3 6-minute periods when the furnace is operating in the melting and refining period. ~~These~~ All visible emissions observations shall be ~~taken~~ conducted in accordance with Method 9 ~~and, for at least three 6 minute periods,~~. If visible emissions occur from more than one point, the opacity shall be recorded for any ~~point(s)~~ points where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of the visible emissions, only one set of ~~three~~ 3 6-minute observations ~~will~~ shall be required. In ~~this~~ that case ~~Reference~~ the Method 9 observations ~~must~~ shall be made for the site of highest opacity that directly relates to the cause ~~(~~, or location~~)~~, of visible emissions observed during a single incident. Records shall be maintained of any 6-minute average that is in excess of the emission limit specified in sub. (3)(a).

(7)(a) Operation at a furnace static pressure that exceeds the value established under sub. ~~(5)(f)~~ (5)(g) and either operation of control system fan motor amperes at values exceeding ± 15% of the value established under sub. (5)(c) or operation at flow rates lower than those established under sub. (5)(c) may be considered by the department to be unacceptable operation and maintenance of the affected facility. Operation at such values shall be reported to the department semiannually.

(b) When the owner or operator of an EAF is required to demonstrate compliance with the standard under sub. (6)(b)2. or a combination of sub.

(6)(b)1. and 2., the owner or operator shall obtain approval from the department of the ~~procedure(s)~~ procedure that will be used to determine compliance. Notification of the procedure to be used shall be postmarked at least 30 days prior to the performance test.

SECTION 179. NR 440.44(7)(c) to (e) are created to read:

NR 440.44(7)(c) For the purpose of this section, the owner or operator shall conduct the demonstration of compliance with sub. (3)(a) and furnish the department a written report of the results of the test. The report shall include the following information:

1. Facility name and address.

2. Plant representative.

3. Make and model of process, control device and continuous monitoring equipment.

4. Flow diagram of process and emissions capture equipment including other equipment or processes ducted to the same control device.

5. Rated design capacity of process equipment.

6. The following data required under sub. (5)(i):

a. List of charge and tap weights and materials.

b. Heat times and process log.

c. Control device operation log.

d. Continuous opacity monitor or Method 9 data.

7. Test dates and test times.

8. Test company.

9. Test company representative.

10. Test observers from outside the department.

11. Description of test methodology used, including any deviation from standard reference methods.

12. Schematic of sampling location.

13. Number of sampling points.

14. Description of sampling equipment.

15. Listing of sampling equipment calibrations and procedures.

16. Field and laboratory data sheets.

17. Description of sample recovery procedures.

18. Sampling equipment leak check results.

19. Description of quality assurance procedures.

20. Description of analytical procedures.

21. Notation of sample blank corrections.

22. Sample emission calculations.

(d) The owner or operator shall maintain records of all shop opacity observations made in accordance with sub. (4)(d). All shop opacity observations in excess of the emission limit specified in sub. (3)(a)3. shall indicate a period of excess emission, and shall be reported to the department semi-annually, according to s. NR 440.07(3).

(e) The owner or operator shall maintain all the following records for each bag leak detection system required under sub. (4)(e):

1. Records of the bag leak detection system output.

2. Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings.

3. An identification of the date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, if procedures were initiated within one hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 3 hours of the alarm.

SECTION 180. NR 440.445(2)(a) is amended to read:

NR 440.445(2)(a) “Argon-oxygen decarburization vessel” or ~~(~~“AOD vessel~~)~~” means any closed-bottom, refractory-lined converter vessel with submerged tuyeres through which gaseous mixtures containing argon and oxygen or nitrogen may be blown into molten steel for further refining.

SECTION 181. NR 440.445(2)(am) is created to read:

NR 440.445(2)(am) "Bag leak detection system" means a system that is capable of continuously monitoring relative particulate matter (dust) loadings in the exhaust of a baghouse to detect bag leaks and other conditions that result in increases in particulate loadings. A bag leak detection system includes an instrument that operates on triboelectric, electrodynamic, light scattering, light transmittance, or other effect to continuously monitor relative particulate matter loadings.

SECTION 182. NR 440.445(2)(e) and (g) are amended to read:

NR 440.445(2)(e) “Direct-shell evacuation control system” or ~~(DEC system)~~ “DEC system” means a system that maintains a negative pressure within the electric arc furnace above the slag or metal and ducts emissions to the control device.

(g) “Electric arc furnace” or ~~(~~“EAF~~)~~” means a furnace that produces molten steel and heats the charge materials with electric arcs from carbon electrodes. For the purposes of this section an EAF shall consist of the furnace shell and roof and the transformer. Furnaces that continuously feed direct-reduced iron ore pellets as the primary source of iron are not affected facilities within the scope of this definition.

SECTION 183. NR 440.445(2)(hm) and (om) are created to read:

NR 440.445(2)(hm) “Meltdown and refining period” means the time period commencing at the termination of the initial charging period and ending at the initiation of the tapping period, excluding any intermediate charging periods and times when power to the EAF is off.

(om) “Tapping period” means the time period commencing at the moment an EAF begins to pour molten steel and ending either 3 minutes after steel ceases to flow from an EAF, or 6 minutes after steel begins to flow, whichever is longer.

SECTION 184. NR 440.445(4)(c) is amended to read:

NR 440.445(4)(c) A continuous monitoring system for the measurement of opacity of emissions discharged into the atmosphere from the control device is not required on modular, multiple-stack, negative-pressure or positive-pressure fabric filter if observations of the opacity of the visible emissions from the control device are performed by a certified visible emissions observer ~~as follows:~~; or on any single-stack fabric filter if visible emissions from the control device are performed by a certified visible emission observer and the owner installs and continuously operates a bag leak detection system according to par. (e). Visible emission observations ~~are~~ shall be conducted at least once per day for at least 3 6-minute periods when the furnace is operating in the melting and refining period. ~~These~~ All visible emissions observations shall be ~~taken~~ conducted in accordance with Method 9~~, and, for at least 3 6-minute periods,~~. If visible emissions occur from more than one point, the opacity shall be recorded for any point where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of the visible ~~emissions~~ emission, only one set of 3 6-minute observations will be required. In ~~this~~ that case, the Method 9 observations shall be made for the site of highest opacity that directly relates to the cause, or location, of visible emissions observed during a single incident. Records shall be maintained of any 6-minute average that is in excess of the emission limit specified in sub. (3)(a).

SECTION 185. NR 440.445(4)(d) to (f) are created to read:

NR 440.445(4)(d) A furnace static pressure monitoring device is not required on any EAF equipped with a DEC system if observations of shop opacity are performed by a certified visible emission observer as follows: Shop opacity observations shall be conducted at least once per day when the furnace is operating in the meltdown and refining period. Shop opacity shall be determined as the arithmetic average of 24 or more consecutive 15-second opacity observations of emissions from the shop taken in accordance with Method 9. Shop opacity shall be recorded for any points where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of visible emissions, only one observation of shop opacity shall be required. In this case, the shop opacity observations shall be made for the site of highest opacity that directly relates to the cause or location of visible emissions observed during a single incident.

(e) A bag leak detection system shall be installed and continuously operated on all single-stack fabric filters if the owner or operator elects not to install and operate a continuous opacity monitoring system as provided for under par. (c). In addition, the owner or operator shall meet the visible emissions observation requirements in par. (c). The bag leak detection system shall meet the specifications and requirements of subds. 1. to 8.

1. The bag leak detection system shall be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of one milligram per actual cubic meter (0.00044 grains per actual cubic foot) or less.

2. The bag leak detection system sensor shall provide output of relative particulate matter loadings and the owner or operator shall continuously record the output from the bag leak detection system using electronic or other

mean such as a strip chart recorder or a data logger.

3. The bag leak detection system shall be equipped with an alarm system that will sound when an increase in relative particulate loading is detected over the alarm set point established according to subd. 4., and the alarm shall be located such that it can be heard by the appropriate plant personnel.

4. For each bag leak detection system required by this paragraph, the owner or operator shall develop and submit to the department, for approval, a site-specific monitoring plan that addresses the items identified in subd. 4.a. to e. For each bag leak detection system that operates based on the triboelectric effect, the monitoring plan shall be consistent with the recommendations contained in the EPA guidance document "Fabric Filter Bag Leak Detection Guidance" (EPA-454/R-98-015), incorporated by reference in s. NR 440.17(2)(i)4. The owner or operator shall operate and maintain the bag leak detection system according to the site-specific monitoring plan at all times. The plan shall describe all the following:

a. Installation of the bag leak detection system.

b. Initial and periodic adjustment of the bag leak detection system including how the alarm set-point will be established.

c. Operation of the bag leak detection system including quality assurance procedures.

d. How the bag leak detection system will be maintained including a routine maintenance schedule and spare parts inventory list.

e. How the bag leak detection system output will be recorded and stored.

5. The initial adjustment of the system shall, at a minimum, consist of establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device, and establishing the alarm set points and the alarm delay time, if applicable.

6. Following initial adjustment, the owner or operator may not adjust the averaging period, alarm set point, or alarm delay time without approval from the department except as provided for in subd. 6.a. and b.

a. Once per quarter, the owner or operator may adjust the sensitivity of the bag leak detection system to account for seasonal effects including temperature and humidity according to the procedures identified in the site-specific monitoring plan required under subd. 4.

b. If opacities greater than zero percent are observed over 4 consecutive 15-second observations during the daily opacity observations required under par. (c) and the alarm on the bag leak detection system does not sound, the owner or operator shall lower the alarm set point on the bag leak detection system to a point where the alarm would have sounded during the period when the opacity observations were made.

7. For negative pressure, induced air baghouses, and positive pressure baghouses that are discharged to the atmosphere through a stack, the bag leak detection sensor shall be installed downstream of the baghouse and upstream of any wet scrubber.

8. Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(f) For each bag leak detection system installed according to par. (e), the owner or operator shall initiate procedures to determine the cause of all alarms within one hour of an alarm. Except as provided for under par. (g), the cause of the alarm shall be alleviated within 3 hours of the time the alarm occurred by taking whatever corrective actions are necessary. Corrective actions may include the following:

1. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in particulate emissions.

2. Sealing off defective bags or filter media.

3. Replacing defective bags or filter media or otherwise repairing the control device.

4. Sealing off a defective baghouse compartment.

5. Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system.

6. Shutting down the process producing the particulate emissions.

(g) In approving the site-specific monitoring plan required in par. (e)4., the department may allow owners or operators more than 3 hours to alleviate specific conditions that cause an alarm if the owner or operator identifies the condition that could lead to an alarm in the monitoring plan, adequately explains why it is not feasible to alleviate the condition within 3 hours of the time the alarm occurred, and demonstrates that the requested additional time will ensure alleviation of the condition as expeditiously as practicable.

SECTION 186. NR 440.445(5)(b), (c), (d), (f), (g) and (h)(intro.) and 4., (6)(e)4. and (7)(e) and (f)6.d. are amended to read:

NR 440.445(5)(b) Except as provided under ~~par. (d)~~ 40 CFR 60.274a(e), the owner or operator subject to the provisions of this section shall check and record on a once-per-shift basis the furnace static pressure (if a DEC system is in use, and a furnace static pressure gauge is installed according to par. (f)) and either: check and record the control system fan motor amperes and damper position ~~and~~ on a once-per-shift basis~~, or~~; install, calibrate and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood, or install, calibrate and maintain a monitoring device that continuously records the volumetric flow rate at the control device inlet and check and record damper positions on a once-per-shift basis. The monitoring device may be installed in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring device shall have an accuracy of ± 10% over its normal operating range and shall be calibrated according to the manufacturer's instructions. The department may require the owner or operator to demonstrate the accuracy of the monitoring device relative to Methods 1 and 2 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1).

(c) When the owner or operator of an affected facility is required to demonstrate compliance with the standards under sub. (3)(a)3., and at any other time~~,~~ that the department may require ~~that~~, either: the control system fan motor amperes and all damper positions ~~or~~, the volumetric flow rate through each separately ducted hood, or the volumetric flow rate at the control device inlet and all damper positions shall be determined during all periods in which a hood is operated for the purpose of capturing emissions from the affected facility subject to par. (b). The owner or operator may petition the department for reestablishment of these parameters whenever the owner or operator can demonstrate to the department's satisfaction that the affected facility operating conditions upon which the parameters were previously established are no longer applicable. The values of these parameters as determined during the most recent demonstration of compliance shall be maintained at the appropriate level for each applicable period. Operation at other than baseline values may be subject to the requirements of sub. (7)(c).

(d) ~~The~~ Except as provided under 40 CFR 60.274a(e), the owner or operator shall perform monthly operational status inspections of the equipment that is important to the performance of the total capture system ~~(i.e.~~, that is, pressure sensors, dampers and damper switches~~)~~. This inspection shall include observations of the physical appearance of the equipment ~~(e.g.,~~ such as presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork and fan erosion~~)~~. Any deficiencies shall be noted and proper maintenance performed.

(f) ~~If~~ Except as provided for under 40 CFR 60.274a(e), if emissions during any phase of the heat time are controlled by the use of a DEC system, the owner or operator shall install, calibrate and maintain a monitoring device that allows the pressure in the free space inside the EAF to be monitored. The pressure shall be recorded as 15-minute integrated averages. The monitoring device may be installed in any appropriate location in the EAF or DEC duct prior to the introduction of ambient air such that reproducible results will be obtained. The pressure monitoring device shall have an accuracy of ± 5 mm of water gauge over its normal operating range and shall be calibrated according to the manufacturer's instructions.

(g) ~~When~~ Except as provided in 40 CFR 60.274a(e), when the owner or operator of an EAF controlled by a DEC is required to demonstrate compliance with the standard under sub. (3)(a)3., and at any other time the department may require, the pressure in the free space inside the furnace shall be determined during the melting and refining ~~period(s)~~ periods using the monitoring device required under par. (f). The owner or operator may petition the department for reestablishment of the 15-minute integrated average of the pressure whenever the owner or operator can demonstrate to the department's satisfaction that the EAF operating conditions upon which the pressures were previously established ~~over~~ are no longer applicable. The pressure determined during the most recent demonstration of compliance shall be maintained at all times when the EAF is operating in a meltdown and refining period. Operation at higher pressures may be considered by the department to be unacceptable operation and maintenance of the affected facility.

(h)(intro.) During any performance test required under s. NR 440.08 and for any report thereof required by sub. ~~(6)(d)~~ (6)(f), or to determine compliance with sub. (3)(a)3., the owner or operator shall monitor the following information for all heats covered by the test:

4. Continuous opacity monitor or ~~Reference~~ Method 9 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), data.

(6)(e)4. To demonstrate compliance with sub. (3)(a)1. to 3., the Method 9 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), test runs shall be conducted concurrently with the particulate matter test runs, unless inclement weather interferes.

(7)(e) When the owner or operator of an EAF or AOD is required to demonstrate compliance with the standard under sub. (6)(b)2. or a combination of sub. (6)(b)1. and 2., the owner or operator shall obtain approval from the department of the procedure that will be used to determine compliance.

Notification of the procedure to be used shall be postmarked at least 30 days prior to the performance test.

(f)6.d. Continuous opacity monitor or ~~Reference Method~~ reference method data.

SECTION 187. NR 440.445(7)(g) and (h) are created to read:

NR 440.445(7)(g) The owner or operator shall maintain records of all shop opacity observations in accordance with sub. (4)(d). All shop opacity observations in excess of the emission limit specified in sub. (3)(a)3. shall indicate a period of excess emission, and shall be reported to the department semi-annually, according to s. NR 440.07(3).

(h) The owner or operator shall maintain all the following records for each bag leak detection system required under sub. (4)(e):

1. Records of the bag leak detection system output.

2. Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings.

3. An identification of the date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, if procedures were initiated within one hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 3 hours of the alarm.

SECTION 188. NR 440.45(2)(f) and (o), (3)(a)3.a., (4)(a)1.(intro.), a., b., c. and e., (5)(a)2.b., (c)(intro.) and 3. and (d)3.b. are amended to read:

NR 440.45(2)(f) "Digester system'' means each continuous digester or each batch digester used for the cooking of wood in white liquor, and associated flash tanks, ~~below~~ blow tanks, chip steamers and condensers.

(o) ''Total reduced sulfur'' or ''TRS'' means the sum of the sulfur compounds hydrogen sulfide, methyl mercaptan, dimethyl sulfide, and dimethyl disulfide that are released during the kraft pulping operation and measured by ~~Reference~~ Method 16 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1).

(3)(a)3.a. 0.15 g/dscm (~~0.067~~ 0.066 gr/dscf) corrected to 10% oxygen, when gaseous fossil fuel is burned.

(4)(a)1. From any digester system, brown stock washer system, multiple-effect evaporator system or condensate stripper system, any gases which contain TRS in excess of 5.0 ppm by volume on a dry basis, corrected to 10% oxygen, unless one of the following conditions ~~are~~ is met:

a. The gases are combusted in a lime kiln subject to the provisions of subd. 5.~~; or~~

b. The gases are combusted in a recovery furnace subject to the provisions of subd. 2. or 3.~~; or~~

c. The gases are combusted with other waste gases in an incinerator or other device, or combusted in a lime kiln or recovery furnace not subject to the provisions of this section, and are subjected to a minimum temperature of ~~1200°F~~ 650°C (1200°F) for at least 0.5 second~~; or~~.

e. The gases from the digester system, brown stock washer system or condensate stripper system are controlled by a means other than combustion. In this case, these systems may not discharge any gases to the atmosphere which contain TRS in excess of 5.0 ppm by volume on a dry basis, ~~corrected to the actual~~ uncorrected for oxygen content ~~of the untreated gas stream~~.

(5)(a)2.b. At ~~20%~~ 25% oxygen for the continuous oxygen monitoring system.

(c)(intro.) Any owner or operator subject to the provisions of this section shall, except where the provisions of sub. (4)(a)1.d. or 4. apply, perform the following:

3. ~~Correct~~ Using the following equation, correct all 12-hour average TRS

$$C_{corr} = C_{meas} \text{ x } (21 - X)/(21 - Y)$$

concentrations to 10 volume percent oxygen, except that all 12-hour average TRS ~~concentration~~ concentrations from a recovery furnace shall be corrected to 8 volume percent ~~using the following equation~~ oxygen instead of 10%, and all 12-hour average TRS concentrations from a facility to which the provisions of sub. (4)(a)1.e. apply may not be corrected for oxygen content:

where:

C_{corr} is the concentration corrected for oxygen

C_{meas} is the concentration uncorrected for oxygen

X is the volumetric oxygen concentration in percentage to be corrected to (8% for recovery furnaces and 10% for lime kilns, incinerators, or other devices)

Y is the measured 12-hour average volumetric oxygen concentration

(d)3.b. All periods in excess of 5 minutes and their duration during which the combustion temperature at the point of incineration is less than ~~1200°F~~ 650°C (1200°F) where the provisions of sub. (4)(a)1.c. apply.

SECTION 189. NR 440.45(5)(f) is created to read:

NR 440.45(5)(f) The procedures under s. NR 440.13 shall be followed for installation, evaluation and operation of the continuous monitoring systems required under this subsection.

1. All continuous monitoring systems shall be operated in accordance with the applicable procedures under Performance Specifications 1, 3 and 5 of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1).

2. Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with Procedure 1 of 40 CFR part 60, Appendix F, incorporated by reference in s. NR 440.17(1).

SECTION 190. NR 440.45(6)(c)1., (e)1. and (f)1. and 2. are amended to read:

NR 440.45(6)(c)1. The emission rate (E) of particulate matter shall be computed

$$E = c_s Q_{sd} / BLS$$

for each run using the following equation:

where:

E is the emission rate of particulate matter, g/kg (lb/ton) of BLS

c_s is the concentration of particulate matter, ~~g/dsm~~ g/dscm (lb/dscf)

Q_{sd} is the volumetric flow rate of effluent gas, dscm/hr (dscf/hr)

BLS is the black liquor solids (dry weight) feed rate, kg/hr (ton/hr)

(e)1. The emission rate (E) of TRS shall be computed for each run using the following equation:

$$E = C_{TRS} F Q_{sd} / P$$

where:

E is the emission rate of TRS, g/kg (lb/ton) of BLS or ADP

C_{TRS} is the average combined concentration of TRS, ppm

F is the conversion factor, 0.001417 ~~g H_2S/m^3 ppm~~ g H_2S/m^3-ppm (~~0.0844 x 10^{-6} lb H_2S/ft^3 ppm~~ 8.846 x 10^{-8} lb H_2S/ft^3-ppm)

Q_{sd} is the volumetric flow rate of stack gas, dscm/hr (dscf/hr)

P is the black liquor solids feed or pulp production rate, kg/hr (ton/hr)

(f)1. For Method 5, Method 17 may be used if a constant value of 0.009 g/dscm (0.004 gr/dscf) is added to the results of Method 17 and the stack temperature is no greater than ~~205°C~~ 204°C (400°F).

2. ~~For~~ In place of Method 16, Method 16A or 16B may be used ~~if the sampling time is 60 minutes~~.

SECTION 191. NR 440.46(1)(c), (3)(a)2., (4)(c)4. and 5. and (d)1.(intro.) are amended to read:

NR 440.46(1)(c) This section does not apply to hand glass melting furnaces, glass melting furnaces designed to produce less than ~~4,550 kilograms~~ 4.55 Mg (5 tons) of glass per day and all-electric melters.

(3)(a)2. From any glass melting furnace, fired simultaneously with gaseous and liquid fuels, particulate matter at emission rates exceeding STD as specified by the following equation:

$$\mathrm{STD} = \mathrm{X}[1.3(\mathrm{Y}) + (\mathrm{Z})]$$

where:

STD is the particulate matter emission limit, g of particulate/kg (lb of particulate/ton) of glass produced

X is the emission rate specified in Table 1 for furnaces fired with gaseous fuel (Column 2)

Y is the decimal fraction of liquid fuel heating value to total (gaseous and liquid) fuel heating value fired in the glass melting furnaces as determined in sub. (7)(b) (joules/joules)

Z is equal to (1 - Y)

(4)(c)4. Determine, based on the 6-minute opacity averages, the opacity value corresponding to the ~~97.5%~~ 99% upper confidence level of a normal distribution of average opacity values.

5. For the purposes of s. NR 440.07, report to the department as excess emissions all of the 6-minute periods during which the average opacity, as measured by

the continuous monitoring system installed under par. (c)1., exceeds the opacity value corresponding to the ~~97.5%~~ 99% upper confidence level determined under par. (c)4.

(d)1.(intro.) After receipt and consideration of written application, the department may approve alternative continuous monitoring systems for the measurement of one or more process or operating parameters that is or are demonstrated to enable accurate and representative monitoring of an emission limit specified in par. (b)~~1~~.

SECTION 192. NR 440.46(4)(e) is renumbered NR 440.46(4)(f) and amended to read:

NR 440.46(4)(f) Test methods and procedures as specified under sub. (7) shall be used to determine compliance with this section except that to determine compliance for any glass melting furnace using modified processes and fired with either a gaseous fuel or a liquid fuel containing less than 0.50 weight percent sulfur, Method 5 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used with the probe and filter holder heating system in the sampling train set to provide a gas temperature of 120 ± 14°C (248 ± 25°F).

SECTION 193. NR 440.46(4)(d)3.(intro.), a., b. and c. are renumbered NR 440.46(4)(e)(intro.), 1., 2. and 3. and as renumbered are amended to read:

NR 440.46(4)(e)(intro.) An owner or operator may redetermine the opacity value corresponding to the ~~97.5%~~ 99% upper confidence level as described in par. (c)4. if the owner or operator does all of the following:

1. Conducts continuous opacity monitoring during each test run of a performance test that demonstrates compliance with an emission limit of par. (b)~~,~~.

2. Recalculates the 6-minute opacity averages as described in par. (c)3.~~, and~~

3. Uses the redetermined opacity value corresponding to the ~~97.5%~~ 99% upper confidence level for the purposes of par. (c)5.

SECTION 194. NR 440.46(7)(b)3. is amended to read:

NR 440.46(7)(b)3. ~~American Society of Testing and Materials (ASTM) Method D240-76~~ ASTM methods D240-92 (liquid fuels) and ~~D1826-77~~ D1826-94 (gaseous fuels), incorporated by reference in s. NR 440.17(2)(a)9. and 21., as applicable, shall be used to determine the gross calorific values.

SECTION 195. NR 440.48(2)(b)1. to 24., (4)(c)1.(intro.) and 2.a.(intro.) and (6)(a)2. are amended to read:

NR 440.48(2)1. ~~C_s~~ C_a = is the VOC concentration in each gas stream leaving the control device and entering the atmosphere (parts per million by volume, as carbon). [Drafter's note: The department is proposing the deletion of the equal sign (=) in subds. 1. to 24.]

2. C_b = is the VOC concentration in each gas stream entering the control device (parts per million by volume, as carbon).

3. C_f = is the VOC concentration in each gas stream emitted directly to the atmosphere (parts per million by volume, as carbon).

4. D_c = is the density of each coating, as received (kilograms per liter).

5. D_d = is the density of each diluent VOC solvent (kilograms per liter).

6. D_r = is the density of VOC solvent recovered by an emission control device (kilograms per liter).

7. E = is the VOC destruction efficiency of the control device (fraction).

8. F = is the proportion of total VOCs emitted by an affected facility that enters the control device (fraction).

9. G = is the volume-weighted average mass of VOCs in coatings consumed in a calendar month per unit volume of coating solids applied (kilograms per liter).

10. L_c = is the volume of each coating consumed, as received (liters).

11. L_d = is the volume of each diluent VOC solvent added to coatings (liters).

12. L_r = is the volume of VOC solvent recovered by an emission control device (liters).

13. ~~L_o~~ L_s = is the volume of coating solids consumed (liters).

14. M_d = is the mass of diluent VOC solvent consumed (kilograms).

15. M_o = is the mass of VOCs in coatings consumed as received (kilograms).

16. M_r = is the mass of VOCs recovered by an emission control device (kilograms).

17. N = is the volume-weighted average mass of VOC emissions to the atmosphere per unit volume of coating solids applied (kilograms per liter).

18. ~~Q_s~~ Q_a = is the volumetric flow rate of each gas stream leaving the control device and entering the atmosphere (dry standard cubic meters per hour).

19. Q_b = is the volumetric flow rate of each gas stream entering the control device (dry standard cubic meters per hour).

20. Q_f = is the volumetric flow rate of each gas stream emitted directly to the atmosphere (dry standard cubic meters per hour).

21. R = is the overall VOC emission reduction achieved for an affected facility (fraction).

22. T = is the transfer efficiency (fraction).

23. V_s = is the proportion of solids in each coating (or input stream) as received (fraction by volume).

24. W_o = is the proportion of VOCs in each coating (or input stream) as received (fraction by weight).

(4)(c)1.(intro.) An owner or operator shall use the following procedures for any affected facility which does not use a capture system and control device to comply with the emissions limit specified under sub. (3). The owner or operator shall determine the composition of the coatings by formulation data supplied by the manufacturer of the coating or by an analysis of each coating, as received, using

~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). The department may require the owner or operator who uses formulation data supplied by the manufacturer of the coating to determine the VOC content of coating using ~~Reference~~ Method 24. The owner or operator shall determine the volume of coating and the mass of VOC solvent used for thinning purposes from company records on a monthly basis. If a common coating distribution system serves more than one affected facility or serves both affected and existing facilities, the owner or operator shall estimate the volume of coating used at each facility by using the average dry weight of coating and the surface area coated by each affected and existing facility or by other procedures acceptable to the department.

2.a.(intro.) Determine the overall reduction efficiency (R) for the capture system and control device. For the initial performance test the overall reduction efficiency (R) shall be determined as prescribed in subd. 2.a. 1), 2) and 3) ~~of this subparagraph~~. In subsequent months, the owner or operator may use the most recently determined overall reduction efficiency (R) for the performance test providing control device and capture system operating conditions have not changed. The procedure in subd.2.a. 1), 2) and 3) ~~of this subparagraph~~ shall be repeated when directed by the department or when the owner or operator elects to operate the control device or capture system at conditions different from the initial performance test.

(6)(a)2. For each affected facility where compliance is determined under the provisions of sub. (4)(c)1.d., a list of the coatings used during a period of one calendar month, the VOC content of each coating calculated from data determined using ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), or supplied by the manufacturer of the coating, and the minimum transfer efficiency of any coating application equipment used during the month.

SECTION 196. NR 440.50(1)(a) is amended to read:

NR 440.50(1)(a) The provisions of this section 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 (10 million Btu) per hour, based on the lower heating value of the fuel fired.

SECTION 197. NR 440.50(2)(bg), (br), (fm), (km) and (L) are created to read:

NR 440.50(2)(bg) "Diffusion flame stationary combustion turbine" means any stationary combustion turbine where fuel and air are injected at the combustor and are mixed only by diffusion prior to ignition. A unit which is capable of operating in both lean premix and diffusion flame modes is considered a lean premix stationary combustion turbine when it is in the lean premix mode, and it is considered a diffusion flame stationary combustion turbine when it is in the diffusion flame mode.

(br) "Duct burner" means a device that combusts fuel and that is placed in the exhaust duct from another source, such as a stationary gas turbine, internal combustion engine or kiln, to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a heat recovery steam generating unit.

(fm) "Excess emissions" means a specified averaging period over which one of the following occurs:

1. The NO_X emissions are higher than the applicable emission limit in sub. (3).

2. The total sulfur content of the fuel being combusted in the affected facility exceeds the limit specified in sub. (4).

3. The recorded value of a particular monitored parameter is outside the acceptable range specified in the parameter monitoring plan for the affected unit.

(km) "Lean premix stationary combustion turbine" means any stationary combustion turbine where the air and fuel are thoroughly mixed to form a lean mixture for combustion in the combustor. Mixing may occur before or in the combustion chamber. A unit which is capable of operating in both lean premix and diffusion flame modes is considered a lean premix stationary combustion turbine when it is in the lean premix mode, and it is considered a diffusion flame stationary combustion turbine when it is in the diffusion flame mode.

(L) "Natural gas" means a naturally occurring fluid mixture of hydrocarbons, such as methane, ethane, or propane, produced in geological formations beneath the earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions. Natural gas contains 20.0 grains or less of total sulfur per 100 standard cubic feet. Equivalents of this in other units are as follows: 0.068 weight percent total sulfur, 680 parts per million by weight (ppmw) total sulfur, and 338 parts per million by volume (ppmv) at 20 degrees Celsius total sulfur. Additionally, natural gas shall either be composed of at least 70% methane by volume or have a gross calorific value between 950 and 1100 Btu per standard cubic foot. Natural gas does not include the following gaseous fuels: landfill gas, digester gas, refinery gas, sour gas, blast furnace gas, coal-derived gas, producer gas, coke oven gas, or any gaseous fuel produced in a process which might result in highly variable sulfur content or heating value.

SECTION 198. NR 440.50(2)(p) is amended to read:

NR 440.50(2)(p) "Regenerative cycle gas turbine" means any stationary gas turbine that recovers ~~thermal energy~~ heat from the gas turbine exhaust gases ~~and utilizes the thermal energy~~ to preheat the inlet combustion air ~~prior~~ to ~~entering~~ the ~~combustor~~ gas turbine.

SECTION 199. NR 440.50(2)(t) and (u) are created to read:

NR 440.50(2)(t) "Unit operating day" means a 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time in the unit. It is not necessary for fuel to be combusted continuously for the entire 24-hour period.

(u) "Unit operating hour" means a clock hour during which any fuel is combusted in the affected unit. If the unit combusts fuel for the entire clock hour, it is considered to be a full unit operating hour. If the unit combusts fuel for only part of the clock hour, it is considered to be a partial unit operating hour.

SECTION 200. NR 440.50(3)(a)1. and 2. are amended to read:

NR 440.50(3)(a)1. No owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$\mathrm{STD} = 0.0075\ \frac{(14.4)}{\mathrm{Y}} + \mathrm{F}$$

where:

STD is the allowable ISO corrected, if required as given in sub. (6)(c), NO_x emissions (percent by volume at 15% oxygen and on a dry basis)

Y is the manufacturer's rated heat rate at 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 may not exceed 14.4 kilojoules per watt hour)

F is the NO_x emission allowance for fuel-bound nitrogen as defined in subd. ~~3.~~ 4.

2. No owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$\mathrm{STD} = 0.0150\frac{(14.4)}{\mathrm{Y}} + \mathrm{F}$$

where:

STD is the allowable ISO corrected, if required as given in sub. (6)(c), NO_x emissions (percent by volume at 15% oxygen and on a dry basis)

Y is the 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 may not exceed 14.4 kilojoules per watt hour)

F is the NO_x emission allowance for fuel-bound nitrogen as defined in subd. ~~3.~~ 4.

SECTION 201. NR 440.50(3)(a)3. and Note are renumbered NR 440.50(3)(a)4. and Note and NR 440.50(3)(a)4., as renumbered, is amended to read:

NR 440.50(3)(a)4. If the owner or operator elects to apply an NO_x emission allowance for fuel-bound nitrogen, F shall be defined according to the nitrogen content of the fuel during the most recent performance test required under s. NR 440.08 as follows:

	Fuel-Bound Nitrogen (percent by weight)	**F (NO_x percent by volume)**
1.	$N \leq 0.015$	0
2.	$0.015 < N \leq 0.1$	0.04(N)
3.	$0.1 < N \leq 0.25$	0.004 + 0.0067(N – 0.01)
4.	$N > 0.25$	0.005

where N is the nitrogen content of the fuel (percent by weight), or manufacturers may develop and submit to the department custom fuel-bound nitrogen allowances for each gas turbine model they manufacture. These fuel-bound nitrogen allowances shall be substantiated with data and shall be approved for use by the department before the initial performance test required by s. NR 440.08.

SECTION 202. NR 440.50(3)(a)3. is created to read:

NR 440.50(3)(a)3. The use of F in subds. 1. and 2. is optional. That is, the owner or operator may choose to apply an NO_x allowance for fuel-bound nitrogen and determine the appropriate F-value in accordance with subd. 4. or may accept an F-value of zero.

SECTION 203. NR 440.50(4)(b) and (5)(a) are amended to read:

NR 440.50(4)(b) No owner or operator subject to the provisions of this section may burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8% by weight (8000 ppmw).

(5)(a) ~~The~~ Except as provided in par. (b), the owner or operator of any stationary gas turbine subject to the provisions of this section and using water or steam injection to control NO_x emissions shall install, calibrate, maintain and operate a continuous monitoring system to monitor and record the fuel consumption and ratio of water or steam to fuel being fired in the turbine. ~~This system shall be accurate to within ± 5.0% and must be approved by the department.~~

SECTION 204. NR 440.50(5)(b) is repealed and recreated to read:

NR 440.50(5)(b) The owner or operator of any stationary gas turbine that commenced construction, reconstruction or modification after October 3, 1977, but before July 8, 2004, and which uses water or steam injection to control NO_x emissions may, as an alternative to operating the continuous monitoring system described in par. (a), install, certify, maintain, operate and quality-assure a continuous emission monitoring system (CEMS) consisting of NO_x and O_2 monitors. As an alternative, a CO_2 monitor may be used to adjust the measured NO_x concentrations to 15% O_2 by either converting the CO_2 hourly averages to equivalent O_2 concentrations using Equation F-14a or F-14b in Appendix F of 40 CFR part 75, incorporated by reference in s. NR 440.17(1), and making the adjustments to 15% O_2, or by using the CO_2 readings directly to make the adjustments, as described in Method 20. If the option to use a CEMS is chosen, the CEMS shall be installed, certified, maintained and operated as follows:

1. Each CEMS shall be installed and certified according to PS 2 and 3 (for diluent) of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1), except the 7-day calibration drift is based on unit operating days, not calendar days. Appendix F, Procedure 1 is not required. The relative accuracy test audit (RATA) of the NO_x and diluent monitors may be performed individually or on a combined basis, that is, the relative accuracy tests of the CEMS may be performed in one of the following ways:

a. On a ppm basis (for NO_x) and a percent O_2 basis for oxygen.

b. On a ppm at 15% O_2 basis.

c. On a ppm basis (for NO_x) and a percent CO_2 basis, for a CO_2 monitor that uses the procedures in Method 20 to correct the NO_x data to 15% O_2.

2. As specified in s. NR 440.13(5)(b), during each full unit operating hour, each monitor shall complete a minimum of one cycle of operation (sampling, analyzing and data recording) for each 15-minute quadrant of the hour, to validate the hour. For partial unit operating hours, at least one valid data point shall be obtained for each quadrant of the hour in which the unit operates. For unit operating hours in which required quality assurance and maintenance activities are performed on the CEMS, a minimum of 2 valid data points, one in each of 2 quadrants, are required to validate the hour.

3. For purposes of identifying excess emissions, CEMS data shall be reduced to

hourly averages as specified in s. NR 440.13(8).

a. For each unit operating hour in which a valid hourly average, as described in subd. 2., is obtained for both NO_x and diluent, the data acquisition and handling system shall calculate and record the hourly NO_x emissions in the units of the applicable NO_x emission standard under sub. (3)(a), that is, percent NO_x by volume, dry basis, corrected to 15% O_2 and International Organization for Standardization (ISO) standard conditions, if required as given in sub. (6)(c)1. For any hour in which the hourly average O_2 concentration exceeds 19.0% O_2, a diluent cap value of 19.0% O_2 may be used in the emission calculations.

b. A worst case ISO correction factor may be calculated and applied using historical ambient data. For the purpose of this calculation, substitute the maximum humidity of ambient air (H_o), minimum ambient temperature (T_a), and minimum combustor inlet absolute pressure (P_o) into the ISO correction equation.

c. If the owner or operator has installed a NO_x CEMS to meet the requirements of 40 CFR part 75, and is continuing to meet the ongoing requirements of 40 CFR part 75, the CEMS may be used to meet the requirements of this section, except that the missing data substitution methodology provided for at 40 CFR part 75, subpart D, is not required for purposes of identifying excess emissions. Instead, periods of missing CEMS data are to be reported as monitor downtime in the excess emissions and monitoring performance report required in s. NR 440.07(3).

SECTION 205. NR 440.50(5)(c)(intro.) is renumbered NR 440.50(5)(j)(intro.) and amended to read:

NR 440.50(5)(j)(intro.) For each affected unit that elects to continuously monitor parameters or emissions, or to periodically determine the fuel sulfur content or fuel nitrogen content under this section, the owner or operator shall submit reports of excess emissions and monitor downtime, in accordance with s. NR 440.07(3).

Excess emissions shall be reported for all periods of unit operation, including startup, shutdown and malfunction. For the purpose of reports required under s. NR 440.07(3), periods of excess emissions and monitor downtime that shall be reported are defined as follows:

SECTION 206. NR 440.50(5)(c)1. and 2. are repealed and recreated to read:

NR 440.50(5)(j)1. 'Nitrogen oxides.' a. For turbines using water or steam to fuel ratio monitoring:

1) An excess emission shall be any unit operating hour for which the average steam or water to fuel ratio, as measured by the continuous monitoring system, falls below the acceptable steam or water to fuel ratio needed to demonstrate compliance with sub. (3), as established during the performance test required in s. NR 440.08. Any unit operating hour in which no water or steam is injected into the turbine shall also be considered an excess emission.

2) A period of monitor downtime shall be any unit operating hour in which water or steam is injected into the turbine, but the essential parametric data needed to determine the steam or water to fuel ratio are unavailable or invalid.

3) Each report shall include the average steam or water to fuel ratio, average fuel consumption, ambient conditions (temperature, pressure and humidity), gas turbine load, and, if applicable, the nitrogen content of the fuel during each excess emission. You do not have to report ambient conditions if you opt to use the worst case ISO correction factor as specified in par. (b)3.b., or if you are not using the ISO correction equation under the provisions of sub. (6)(c)1.

b. If the owner or operator elects to take an emission allowance for fuel bound nitrogen, then excess emissions and periods of monitor downtime are as described in subd. 1.b.1) and 2).

1) An excess emission shall be the period of time during which the fuel-bound

nitrogen (N) is greater than the value measured during the performance test required in s. NR 440.08 and used to determine the allowance. The excess emission begins on the date and hour of the sample which shows that N is greater than the performance test value, and ends with the date and hour of a subsequent sample which shows a fuel nitrogen content less than or equal to the performance test value.

2) A period of monitor downtime begins when a required sample is not taken by its due date. A period of monitor downtime also begins on the date and hour that a required sample is taken, if invalid results are obtained. The period of monitor downtime ends on the date and hour of the next valid sample.

c. For turbines using NO_x and diluent CEMS:

1) An hour of excess emissions shall be any unit operating hour in which the 4-hour rolling average NO_x concentration exceeds the applicable emission limit in sub. (3)(a)1. or 2. For the purposes of this section, a "4-hour rolling average NO_x concentration" is the arithmetic average of the average NO_x concentration measured by the CEMS for a given hour (corrected to 15% O_2 and, if required under sub. (6)(c)1., to ISO standard conditions) and the 3 unit operating hour average NO_x concentrations immediately preceding that unit operating hour.

2) A period of monitor downtime shall be any unit operating hour in which sufficient data are not obtained to validate the hour, for either NO_x concentration or diluent, or both.

3) Each report shall include the ambient conditions (temperature, pressure and humidity) at the time of the excess emission period and, if the owner or operator has claimed an emission allowance for fuel bound nitrogen, the nitrogen content of the fuel during the period of excess emissions. You do not have to report ambient conditions if you opt to use the worst case ISO correction factor as specified in par. (b)3.b., or if you are not using the ISO correction equation under the provisions of sub. (6)(c)1.

d. For owners or operator that elect, under par. (f), to monitor combustion parameters or parameters that document proper operation of the NO_x emission controls:

1) An excess emission shall be a 4-hour rolling unit operating hour average in which any monitored parameter does not achieve the target value or is outside the acceptable range defined in the parameter monitoring plan for the unit.

2) A period of monitor downtime shall be a unit operating hour in which any of the required parametric data are either not recorded or are invalid.

2. 'Sulfur dioxide.' If the owner or operator is required to monitor the sulfur content of the fuel under par. (h):

a. For samples of gaseous fuel and for oil samples obtained using daily sampling, flow proportional sampling, or sampling from the unit's storage tank, an excess emission occurs each unit operating hour included in the period beginning on the date and hour of any sample for which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 weight percent and ending on the date and hour that a subsequent sample is taken that demonstrates compliance with the sulfur limit.

b. If the option to sample each delivery of fuel oil has been selected, the owner or operator shall immediately switch to one of the other oil sampling options, that is, daily sampling, flow proportional sampling, or sampling from the unit's storage tank, if the sulfur content of a delivery exceeds 0.8 weight percent. The owner or operator shall continue to use one of the other sampling options until all of the oil from the delivery has been combusted, and shall evaluate excess emissions according to par. (j)2.a. When all of the fuel from the delivery has been burned, the owner or operator may resume using the as-delivered sampling option.

c. A period of monitor downtime begins when a required sample is not taken by its due date. A period of monitor downtime also begins on the date and hour of a required sample, if invalid results are obtained. The period of monitor downtime shall include only unit operating hours, and ends on the date and hour of the next valid sample.

SECTION 207. NR 440.50(5)(c)3. and 4. are renumbered NR 440.50(5)(j)3. and 4.

SECTION 208. NR 440.50(5)(c) to (i) are created to read:

NR 440.50(5)(c) For any turbine that commenced construction, reconstruction or modification after October 3, 1977, but before July 8, 2004, and which does not use steam or water injection to control NO_x emissions, the owner or operator may, for purposes of determining excess emissions, use a CEMS that meets the requirements of par. (b). Also, if the owner or operator has previously submitted and received EPA, department or local permitting authority approval of a petition for an alternative procedure of continuously monitoring compliance with the applicable NO_x emission limit under sub. (3), that approved procedure may continue to be used.

(d) The owner or operator of any new turbine constructed after July 8, 2004, and which uses water or steam injection to control NO_x emissions may elect to use either the requirements in par. (a) for continuous water or steam to fuel ratio monitoring or may use a NO_x CEMS installed, certified, operated, maintained and quality-assured as described in par. (b).

(e) The owner or operator of any new turbine that commences construction after July 8, 2004, and which does not use water or steam injection to control NO_x emissions may elect to use a NO_x CEMS installed, certified, operated, maintained and quality-assured as described in par. (b). Other acceptable monitoring approaches include periodic testing approved by EPA, the department or local permiting authority or continuous parameter monitoring as described in par. (f).

(f) The owner or operator of a new turbine that commences construction after July 8, 2004, which does not use water or steam injection to control NO_x emissions may perform continuous parameter monitoring as follows:

1. For a diffusion flame turbine without add-on selective catalytic reduction controls (SCR), the owner or operator shall define at least 4 parameters indicative of the unit's NO_x formation characteristics and shall monitor these parameters continuously.

2. For any lean premix stationary combustion turbine, the owner or operator shall continuously monitor the appropriate parameters to determine whether the unit is operating in low-NO_x mode.

3. For any turbine that uses SCR to reduce NO_x emissions, the owner or operator shall continuously monitor appropriate parameters to verify the proper operation of the emission controls.

4. For affected units that are also regulated under 40 CFR part 75, if the owner or operator elects to monitor the NO_x emission rate using the methodology in Appendix E of 40 CFR part 75, incorporated by reference in s. NR 440.17(1), or the low mass emissions methodology in 40 CFR 75.19, the requirements of this paragraph may be met by performing the parametric monitoring described in section 2.3 of Appendix E of 40 CFR part 75 or in 40 CFR 75.19(c)(1)(iv)(H).

(g) The steam or water to fuel ratio or other parameters that are continuously monitored as described in par. (a), (d) or (f) shall be monitored during the performance test required under s. NR 440.08, to establish acceptable values and ranges. The owner or operator may supplement the performance test data with engineering analyses, design specifications, manufacturer's recommendations and other relevant information to define the acceptable parametric ranges more precisely. The owner or operator shall develop and keep on-site a parameter monitoring plan which explains the procedures used to document proper operation of the NO_x emission controls. The plan shall include the parameters monitored and the acceptable ranges of the parameters as well as the basis for designating the parameters and acceptable ranges. Any supplemental data such as engineering analyses, design specifications, manufacturer's recommendations and other relevant information shall be included in the monitoring plan. For affected units that are also subject to 40 CFR part 75 and that use the low mass emissions methodology in 40 CFR 75.19 or the NO_x emission measurement methodology in Appendix E of 40 CFR part 75, the owner or operator may meet the requirements of this paragraph by developing and keeping on-site (or at a central location for unmanned facilities) a quality-assurance plan, as described in 40 CFR 75.19(e)(5) or in section 2.3 of Appendix E and section 1.3.6 of Appendix B of 40 CFR part 75, both incorporated by reference in s. NR 440.17(1).

(h) The owner or operator of any stationary gas turbine subject to the provisions of this section:

1. Shall monitor the total sulfur content of the fuel being fired in the turbine, except as provided in subd. 3. The sulfur content of the fuel shall be determined using total sulfur methods described in sub. (6)(d). Alternatively, if the total sulfur content of the gaseous fuel during the most recent performance test was less than 0.4 weight percent (4000 ppmw), ASTM D4084-94, D5504-01, D6228-98, or Gas Processors Association Standard 2377-86, incorporated by reference in s. NR 440.17(2)(a)52., 64. and 68. and (m). respectively, which measure the major sulfur compounds may be used.

2. Shall monitor the nitrogen content of the fuel combusted in the turbine, if the owner or operator claims an allowance for fuel bound nitrogen, that is, if an F-value greater than zero is being or will be used by the owner or operator to calculate STD in sub. (3). The nitrogen content of the fuel shall be determined using methods described in sub. (6)(c)9. or an approved alternative.

3. Notwithstanding the provisions of subd. 1., the owner or operator may elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine, if the gaseous fuel is demonstrated to meet the definition of natural gas in sub. (2)(L), regardless of whether an existing custom schedule approved by the department

for this section requires the monitoring. The owner or operator shall use one of the following sources of information to make the required demonstration:

a. The gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less.

b. Representative fuel sampling data which show that the sulfur content of the gaseous fuel does not exceed 20 grains/100 scf. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of Appendix D to 40 CFR part 75, incorporated by reference in s. NR 440.17(1), is required.

4. For any turbine that commenced construction, reconstruction or modification after October 3, 1977, but before July 8, 2004, and for which a custom fuel monitoring schedule has previously been approved, the owner or operator may, without submitting a special petition to the department, continue monitoring on this schedule.

(i) The frequency of determining the sulfur and nitrogen content of the fuel shall be as follows:

1. 'Fuel oil.' For fuel oil, use one of the total sulfur sampling options and the associated sampling frequency described in sections 2.2.3, 2.2.4.1, 2.2.4.2, and 2.2.4.3 of Appendix D to 40 CFR part 75, incorporated by reference in s. NR 440.17(1), that is, flow proportional sampling, daily sampling, sampling from the unit's storage tank after each addition of fuel to the tank, or sampling each delivery prior to combining it with fuel oil already in the intended storage tank. If an emission allowance is being claimed for fuel-bound nitrogen, the nitrogen content of the oil shall be determined and recorded once per unit operating day.

2. 'Gaseous fuel.' Any applicable nitrogen content value of the gaseous fuel shall be determined and recorded once per unit operating day. For owners and operators that elect not to demonstrate sulfur content using options in par. (h)3., and for which the fuel is supplied without intermediate bulk storage, the sulfur content value

of the gaseous fuel shall be determined and recorded once per unit operating day.

3. 'Custom schedules.' Notwithstanding the requirements of subd. 2., operators or fuel vendors may develop custom schedules for determination of the total sulfur content of gaseous fuels, based on the design and operation of the affected facility and the characteristics of the fuel supply. Except as provided in subd. 3.a. and b., custom schedules shall be substantiated with data and shall be approved by the department before they can be used to comply with the standard in sub. (4).

a. The 2 custom sulfur monitoring schedules set forth in subd. 3.a.1) to 4) and in subd. 3.b. are acceptable, without prior department approval:

1) The owner or operator shall obtain daily total sulfur content measurements for 30 consecutive unit operating days, using the applicable methods specified in this section. Based on the results of the 30 daily samples, the required frequency for subsequent monitoring of the fuel's total sulfur content shall be as specified in subd. 3.a.2), 3) or 4), as applicable.

2) If none of the 30 daily measurements of the fuel's total sulfur content exceeds 0.4 weight percent (4000 ppmw), subsequent sulfur content monitoring may be performed at 12-month intervals. If any of the samples taken at 12-month intervals has a total sulfur content between 0.4 and 0.8 weight percent (4000 and 8000 ppmw), follow the procedures in subd. 3.a.3). If any measurement exceeds 0.8 weight percent (8000 ppmw), follow the procedures in subd. 3.a.4).

3) If at least one of the 30 daily measurements of the fuel's total sulfur content is between 0.4 and 0.8 weight percent (4000 and 8000 ppmw), but none exceeds 0.8 weight percent (8000 ppmw), then:

a) Collect and analyze a sample every 30 days for 3 months. If any sulfur content measurement exceeds 0.8 weight percent (8000 ppmw), follow the procedures in subd. 3.a.4). Otherwise, follow the procedures in subd. 3.a.3)b).

b) Begin monitoring at 6-month intervals for 12 months. If any sulfur content measurement exceeds 0.8 weight percent (8000 ppmw), follow the procedures in subd. 3.a.4). Otherwise, follow the procedures in subd. 3.a.3)c).

c) Begin monitoring at 12-month intervals. If any sulfur content measurement exceeds 0.8 weight percent (8000 ppmw), follow the procedures in subd. 3.a.4). Otherwise, continue to monitor at this frequency.

4) If a sulfur content measurement exceeds 0.8 weight percent (8000 ppmw), immediately begin daily monitoring according to subd. 3.a.1). Daily monitoring shall continue until 30 consecutive daily samples, each having a sulfur content no greater than 0.8 weight percent (8000 ppmw), are obtained. At that point, the applicable procedures of subd. 3.a.2) or 3) shall be followed.

b. The owner or operator may use the data collected from the 720-hour sulfur sampling demonstration described in section 2.3.6 of Appendix D to 40 CFR part 75, incorporated by reference in s. NR 440.17(1), to determine a custom sulfur sampling schedule, as follows:

1) If the maximum fuel sulfur content obtained from the 720 hourly samples does not exceed 20 grains/100 scf, that is, the maximum total sulfur content of natural gas as defined in sub. (2)(L), no additional monitoring of the sulfur content of the gas is required for the purposes of this section.

2) If the maximum fuel sulfur content obtained from any of the 720 hourly samples exceeds 20 grains/100 scf, but none of the sulfur content values, when converted to weight percent sulfur, exceeds 0.4 weight percent (4000 ppmw), then the minimum required sampling frequency shall be one sample at 12-month intervals.

3) If any sample result exceeds 0.4 weight percent sulfur (4000 ppmw), but none exceeds 0.8 weight percent sulfur (8000 ppmw), follow the provisions of subd. 3.a.3).

4) If the sulfur content of any of the 720 hourly samples exceeds 0.8 weight percent (8000 ppmw), follow the provisions of subd. 3.a.4).

SECTION 209. NR 440.50(5)(j)5. is created to read:

NR 440.50(5)(j)5. All reports required under s. NR 440.07(3) shall be postmarked by the 30th day following the end of each calendar quarter.

SECTION 210. NR 440.50(6)(a) and (b) are repealed and recreated to read:

NR 440.50(6)(a) The owner or operator shall conduct the performance tests required in s. NR 440.08 using one of the following:

1. EPA Method 20.

2. ASTM D6522-00, incorporated by reference in s. NR 440.17(2)(a)70.

3. EPA Method 7E and either EPA Method 3 or 3A in 40 CFR part 60 Appendix A, incorporated by reference in s. NR 440.17(1).

(b) The performance tests under par. (a) shall be conducted as follows:

1. Sampling traverse points are to be selected following Method 20 or Method 1 (non-particulate procedures) and sampled for equal time intervals. The sampling shall be performed with a traversing single-hole probe or, if feasible, with a stationary multi-hole probe that samples each of the points sequentially. Alternatively, a multi-hole probe designed and documented to sample equal volumes from each hole may be used to sample simultaneously at the required points.

2. Notwithstanding subd. 1., the owner or operator may test at fewer points than are specified in Method 1 or Method 20 if the following conditions are met:

a. You may perform a stratification test for NO_x and diluent pursuant to the procedures specified in section 6.5.6.1(a) to (e) in Appendix A of 40 CFR part 75, incorporated by reference in s. NR 440.17(1).

b. Once the stratification sampling is completed, the owner or operator may use one of the following alternative sample point selection criteria for the performance test:

1) If each of the individual traverse point NO_x concentrations, normalized to

15% O_2, is within ± 10% of the mean normalized concentration for all traverse points, then you may use 3 points located either 16.7, 50.0 and 83.3% of the way across the stack or duct, or, for circular stacks or ducts greater than 2.4 meters (7.8 feet) in diameter, at 0.4, 1.2 and 2.0 meters from the wall. The 3 points shall be located along the measurement line that exhibited the highest average normalized NO_x concentration during the stratification test.

2) If each of the individual traverse point NO_x concentrations, normalized to 15% O_2, is within ± 5% of the mean normalized concentration for all traverse points, then you may sample at a single point, located at least one meter from the stack wall or at the stack centroid.

3. Other acceptable alternative reference methods and procedures are given in par. (f).

SECTION 211. NR 440.50(6)(c)(intro.), 1. and 2. are amended to read:

NR 440.50(6)(c)(intro.) The owner or operator shall determine compliance with the applicable nitrogen oxides ~~and sulfur dioxide standards~~ emission limitation in ~~subs.~~ sub. (3) ~~and (4)(a)~~ and shall meet the performance test requirements of s.NR 440.08 as follows:

1. ~~The~~ For each run of the performance test, the mean nitrogen oxides emission ~~rate (NO_x) shall be computed for each run~~ concentration (NO_{xo}) corrected to 15% O_2 shall be corrected to ISO standard conditions using the following equation. Notwithstanding this requirement, use of the ISO correction equation is optional for: lean premix stationary combustion turbines; units used in association with heat recovery steam generators (HRSG) equipped with duct burners; and units equipped with add-on emission control devices:

$$NO_x = (NO_{xo})(P_r/P_o)^{0.5} e^{19(H_o-0.00633)} (288K/T_a)^{1.53}$$

where:

NO_x is the emission ~~rate~~ concentration of NO_x at 15% O_2 and ISO standard ambient conditions, ppm by volume ~~percent~~, dry basis

NO_{xo} is the mean observed NO_x concentration, ppm by volume, dry basis, at 15% O_2

P_r is the reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg

P_o is the observed combustor inlet absolute pressure at test, mm Hg

H_o is the observed humidity of ambient air, g H_2O/g air

e is the transcendental constant, 2.718

T_a is the ambient temperature, K

2. ~~The monitoring device of sub. (5)(a) shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with sub. (3)~~ The 3-run performance test required by s. NR 440.08 shall be performed within ± 5% at 30, 50, 75 and 90-to-100% of peak load or at 4 evenly-spaced load points in the normal operating range of the gas turbine, including the minimum point in the operating range and 90-to-100% of peak load, or at the highest achievable load point if 90-to-100% of peak load cannot be physically achieved in practice. ~~All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer.~~ If the turbine combusts both oil and gas as primary or backup fuels, separate performance testing is required for each fuel. Notwithstanding these requirements, performance testing is not required for any emergency fuel, as defined in sub. (2)(e).

SECTION 212. NR 440.50(6)(c)3. is repealed and recreated to read:

NR 440.50(6)(c)3. For a combined cycle turbine system with supplemental heat (duct burner), the owner or operator may elect to measure the turbine NO_x emissions after the duct burner rather than directly after the turbine. If the owner or operator elects to use this alternative sampling location, the applicable NO_x emission limit in sub. (3) for the combustion turbine shall still be met.

SECTION 213. NR 440.50(6)(c)4. to 11. are created to read:

NR 440.50(6)(c)4. If water or steam injection is used to control NO_x with no additional post-combustion NO_x control and the owner or operator chooses to monitor the steam or water to fuel ratio in accordance with sub. (5)(a), then that monitoring system shall be operated concurrently with each EPA Method 20, ASTM D6522-00, incorporated by reference in s. NR 440.17(2)(a)70., or Method 7E run and shall be used to determine the fuel consumption and the steam or water to fuel ratio necessary to comply with the applicable sub. (3) NO_x emission limit.

5. If the owner operator elects to claim an emission allowance for fuel bound nitrogen as described in sub. (3), then concurrently with each reference method run, a representative sample of the fuel used shall be collected and analyzed, following the applicable procedures described in subd. 9. These data shall be used to determine the maximum fuel nitrogen content for which the established water or steam to fuel ratio will be valid.

6. If the owner or operator elects to install a CEMS, the performance evaluation of the CEMS may either be conducted separately, as described in subd. 7., or as part of the initial performance test of the affected unit.

7. If the owner or operator elects to install and certify a NO_x CEMS under sub. (5)(e), then the initial performance test required under s. NR 440.08 may be done in the following alternative manner:

a. Perform a minimum of 9 reference method runs, with a minimum time per run of

21 minutes, at a single load level, between 90 and 100% of peak, or the highest physically achievable, load.

b. Use the test data both to demonstrate compliance with the applicable NO_x emission limit under sub. (3) and to provide the required reference method data for the RATA of the CEMS described under sub. (5)(b).

c. The requirement to test at 3 additional load levels is waived.

8. If the owner or operator is required under sub. (5)(f) to monitor combustion parameters or parameters indicative of proper operation of NO_x emission controls, the appropriate parameters shall be continuously monitored and recorded during each run of the initial performance test, to establish acceptable operating ranges, for purposes of the parameter monitoring plan for the affected unit, as specified in sub. (5)(g).

9. To determine the fuel bound nitrogen content of fuel being fired if an emission allowance is claimed for fuel bound nitrogen, the owner or operator may use equipment and procedures meeting the requirements of the following:

a. For liquid fuels, ASTM D2597-94 (reapproved 1999), D4629-02, D5762-02 or D6366-99, incorporated by reference in s. NR 440.17(2)(a)33., 60., 66. and 70. respectively.

b. For gaseous fuels, analytical methods and procedures that are accurate to within 5% of the instrument range and are approved by the department.

10. If the owner or operator is required under sub. (i)1. or 3 to periodically determine the sulfur content of the fuel combusted in the turbine, a minimum of 3 fuel samples shall be collected during the performance test. The samples shall be analyzed for the total sulfur content of the fuel using:

a. For liquid fuels, ASTM D129-00, D1266-98, D1552-01, D2622-98, D4294-02 or D5453-00, incorporated by reference in s. NR 440.17(2)(a)8., 18., 20., 34., 55. and 64., respectively.

b. For gaseous fuels, ASTM D1072-90 (Reapproved 1994), D3246-96, D4468-85 (Reapproved 2000) or D6667-01, incorporated by reference in s. NR 440.17(2)(a)15., 44., 59. and 72., respectively. The applicable ranges of some of the ASTM methods are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis, with verification of the dilution ratio, may be used, subject to the prior approval of the department.

11. The fuel analyses required under subds. 9. and 10. may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

SECTION 214. NR 440.50(6)(d) and (e) are repealed.

SECTION 214.A. NR 440.50(6)(f) is renumbered NR 440.50(6)(d) and as renumbered NR 440.50(6)(d)1. is amended to read:

NR 440.50(6)(d)1. Instead of using the equation in par. (c)1., manufacturers may develop ambient condition correction factors to adjust the nitrogen oxides emission level measured by the performance test as provided in s. NR 440.08 to ISO standard day conditions. ~~These factors are developed for each gas turbine model they manufacture in terms of combustion inlet pressure, ambient air pressure, ambient air humidity, and ambient air temperature. They shall be substantiated with data and shall be approved for use by the administrator before the initial performance test required by s. NR 440.08. Notices of approval of custom ambient condition correction factors will be published in the federal register by the administrator.~~

SECTION 215. NR 440.51(5)(b)1. is repealed and recreated to read:

NR 440.51(5)(b)1. The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$$E = \left(c_s Q_{sd}\right)/PK$$

where:

E is the emission rate of particulate matter, kg/Mg (lb/ton) of stone feed

c_s is the concentration of particulate matter, g/dscm (gr/dscf)

Q_{sd} is the volumetric flow rate of effluent gas, dscm/hr (dscf/hr)

P is the stone feed rate, Mg/hr (ton/hr)

K is the conversion factor, 1000 g/kg (7000 gr/lb)

SECTION 216. NR 440.51(5)(b)2. is amended to read:

NR 440.51(5)(b)2. Method 5 shall be used at negative-pressure fabric filters and other types of control devices and Method 5D shall be used ~~as~~ at positive-pressure fabric filters to determine the particulate matter concentration (c_s) and the volumetric flow rate (Q_{sd}) of the effluent gas. The sampling time and sample volume for each run shall be at least 60 minutes and 0.90 dscm (31.8 dscf).

SECTION 217. NR 440.52(3)(a)1., 2., 3., 5. and 6. and (5)(c)1. are amended to read:

NR 440.52(3)(a)1. From any grid casting facility any gases that contain lead in excess of 0.40 milligram of lead per dry standard cubic meter of exhaust (~~0.000176~~ 0.000175 gr/dscf).

2. From any paste mixing facility any gases that contain in excess of 1.00 milligram of lead per dry standard cubic meter of exhaust (~~0.00044~~ 0.000437 gr/dscf).

3. From any 3-process operation facility any gases that contain in excess of 1.00 milligram of lead per dry standard cubic meter of exhaust (~~0.00044~~ 0.000437 gr/dscf).

5. From any lead reclamation facility any gases that contain in excess of 4.50 milligrams of lead per dry standard cubic meter of exhaust (~~0.00198~~ 0.00197 gr/dscf).

6. From any other lead-emitting operation any gases that contain in excess of 1.00 milligram of lead per dry standard cubic meter of exhaust (~~0.00044~~ 0.000437 gr/dscf).

(5)(c)1. The emission rate (E) from a lead oxide manufacturing facility shall be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^{M} \left(C_{Pbi} Q_{sdi} \right) \right) \Big/ \left(PK \right)$$

where:

E is the emission rate of lead, mg/kg (lb/ton) of lead charged

C_{Pbi} is the concentration of lead from emission point "i", mg/dscm (gr/dscf)

Q_{sdi} is the volumetric flow rate of effluent gas from emission point "i", dscm/hr (~~sdcf/hr~~ dscf/hr)

M is the number of emission points in the affected facility

P is the lead feed rate to the facility, kg/hr (ton/hr)

K is the conversion factor, 1.0 mg/mg (~~453,600 mg/lb~~ 7000 gr/lb)

SECTION 218. NR 440.525(2)(o), (3)(a)1. and (6)(c) are amended to read:

NR 440.525(2)(o) "Storage bin'' means a facility for storage (including surge bins and hoppers) ~~or~~ of metallic minerals prior to further processing or loading.

(3)(a)1. Contain particulate matter in excess of 0.050 grams per dry standard cubic meter (0.022 gr/dscf).

(6)(c) 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~~ or liquid flow rate differ by more than ± 30% from the average obtained during the most recent performance test.

SECTION 219. NR 440.53(2)(b)7., (4)(c)1.a.(intro.), (6)(d) and (7)(a)1. and 2. and (b) and (c) are amended to read:

NR 440.53(2)(b)7. E = VOC destruction or removal efficiency of the control device.

(4)(c)1.a.(intro.) Calculate the volume weighted average mass of VOC per volume of applied coating solids for each calendar month for each affected facility. The owner or operator shall determine the composition of the coatings by formulation data supplied by the manufacturer of the coating or from data determined by an analysis of each coating, as received, by ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). The department may require the owner or operator who uses formulation data supplied by the manufacturer of the coating to determine data used in the calculation of the VOC content of coatings by ~~Reference~~ Method 24 or an equivalent or alternative method. The owner or operator shall determine from company records on a monthly basis the volume of coating consumed, as received, and the mass of solvent used for thinning purposes. The volume weighted average of the total mass of VOC per volume of coating solids used each calendar month shall be determined by the following procedures~~.~~:

(6)(d) The owner or operator shall notify the department 30 days in advance of any test by ~~Reference~~ Method 25 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1).

(7)(a)1. ~~Reference~~ Method 24 or an equivalent or alternative method approved by the administrator shall be used for the determination of the data used in the calculation of the VOC content of the coatings used for each affected facility. Manufacturer's formulation data is approved by the administrator as an alternative method to Method 24. In the event of dispute, ~~Reference~~ Method 24 shall be the referee method.

2. ~~Reference~~ Method 25 or an equivalent or alternative method approved by the administrator shall be used for the determination of the VOC

concentration in the effluent gas entering and leaving the emission control device for each stack equipped with an emission control device and in the effluent gas leaving each stack not equipped with a control device.

(b) For ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), the coating sample ~~must~~ shall be a one-liter sample taken in a one-liter container.

(c) For ~~Reference~~ Method 25 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), the sampling time for each of 3 runs shall be at least one hour. The minimum sample volume shall be 0.003 dscm except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department. The department shall approve the sampling of representative stacks on a case-by-case basis if the owner or operator can demonstrate to the satisfaction of the department that the testing of representative stacks would yield results comparable to those that would be obtained by testing all stacks.

SECTION 220. NR 440.54(4)(f) is amended to read:

NR 440.54(4)(f) Any owner or operator subject to the requirements under par. (c) shall report ~~for each calendar quarter~~ on a frequency specified in s. NR 440.07(3) all measurement results that are less than 90% of the average levels maintained during the most recent performance test conducted under s. NR 440.08 in which the affected facility demonstrated compliance with the standard under sub. (3).

SECTION 221. NR 440.55(5)(b)3.(intro.) is amended to read:

NR 440.55(5)(b)3.(intro.) Direct measurement using product weigh scales, or ~~computed from~~ the results of computations using a material balance, shall be used to determine the rate (P) of the ammonium sulfate production. If production rate is determined by material balance, the following equations shall be used:

SECTION 222. NR 440.56(4)(a)5.(intro.), a., c. and d., (6)(a)1. and 2., (b) and (d)(intro.) and 1. are amended to read:

NR 440.56(4)(a)5.(intro.) Records of the measured amounts used at the affected facility and the liquid temperature at which the amounts were measured shall be maintained for each shipment of all purchased material ~~or~~ on at least a weekly basis for all of the following:

a. The raw inks and related coatings used~~;~~.

c. The VOC solvent and water added to the inks used~~;~~.

d. The VOC solvent used as a cleaning agent~~; and~~.

(6)(a)1. Analysis using ~~Reference~~ Method 24A of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), of routine weekly samples of raw ink and related coatings in each respective storage tank~~; or~~.

2. Analysis using ~~Reference~~ Method 24A of Appendix A of samples of each shipment of all purchased raw inks and related coatings~~; or~~.

(b) The owner or operator of any affected facility using solventborne ink systems shall use the results of verification analyses by ~~Reference~~ Method 24A of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), to determine compliance when discrepancies with ink manufacturers' formulation data occur.

(d) The owner or operator of any affected facility shall determine the density of raw inks, related coatings and VOC solvents by ~~either~~ one of the following:

1. Making a total of 3 determinations for each liquid sample at specified temperatures using the procedure outlined in ASTM ~~D1475-60 (reapproved 1980)~~ D1475-90, incorporated by reference in s. NR 440.17(2)(a)19. The temperature and density shall be recorded as the arithmetic average of the 3 determinations~~; or~~.

SECTION 223. NR 440.565(1)(b), (2)(a)3. and (b)14. and 15., (3)(a)2.a., (4)(e), and (7)(a) and (b) are amended to read:

NR 440.565(1)(b) Any affected facility which inputs to the coating process 45 Mg (50 tons) of VOC or less per 12-month period is not subject to the emission limits of sub. (3)(a), however, the affected facility is subject to the requirements of all other applicable subsections of this section. If the amount of VOC input exceeds 45 Mg (50 tons) per 12-month period, the coating line will become subject to sub. (3)(a) and all other subsections of this section.

(2)(a)3. ''Coating solids applied'' means the solids content of the coated adhesive, release, or precoat as measured by ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1).

(b)14. ''W_{oi}'' means the weight fraction of organics applied of each coating (i) applied during a calendar month as determined from ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), or coating manufacturer's formulation data.

15. ''W_{si}'' means the weight fraction of solids applied of each coating (i) applied during a calendar month as determined from ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), or coating manufacturer's formulation data.

(3)(a)2.a. A 90% overall VOC emission reduction as calculated over a calendar ~~months~~ month; or

(4)(e) Where compliance with sub. (3)(a)2. is achieved through the use of a solvent destruction device, the owner or operator shall continuously record the destruction device combustion temperature during coating operations for thermal incineration destruction devices or the gas temperature upstream and downstream of the incinerator catalyst bed during coating operations for catalytic incineration destruction devices. For thermal incineration destruction devices, the owner or operator shall record all 3-hour periods (during actual coating operations) during which the average temperature of the device is more than 28°C (50°F) below the average temperature of the device during the most recent performance test complying with sub. (3)(a)2. For catalytic incineration destruction devices, the owner or operator shall record all 3-hour periods (during actual coating operations) during which the average temperature of the device immediately before the catalyst bed is more than ~~38°C (100°F)~~ 28°C (50°F) below the average temperature of the device during the most recent performance test complying with sub. (3)(a)2. and all 3-hour periods (during actual coating operations) during which the average temperature difference across the catalyst bed is less than 80% of the average temperature difference of the device during the most recent test complying with sub. (3)(a)2.

(7)(a) The VOC contents per unit of coating solids applied and compliance with sub. (3)(a)1. shall be determined by either ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), and the equations specified in sub. (4) or by manufacturer's formulation data. In the event of any inconsistency between a Method 24 test and manufacturers' formulation data, the Method 24 test will govern. The department may require an owner or operator to perform Method 24 tests during such months as it deems appropriate. For ~~Reference~~ Method 24, the coating sample ~~must~~ shall be a one liter sample taken into a one liter container at a point where the sample will be representative of the coating applied to the web substrate.

(b) ~~Reference~~ Method 25 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine the VOC concentration, in parts per million by volume, of each effluent gas stream entering and exiting the solvent destruction device or its equivalent and each effluent gas stream emitted directly to the atmosphere. ~~Reference~~ Methods 1, 2, 3, and 4 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine the sampling location, volumetric flow rate, molecular weight and moisture of all sampled gas streams. For

~~Reference~~ Method 25, the sampling time for each of ~~three~~ 3 runs ~~must~~ shall be at least ~~1~~ one hour. The minimum sampling volume ~~must~~ shall be 0.003 dscm except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.

SECTION 224. NR 440.57(4)(b)1.(intro.) and 3.a., (6)(c)1. and 2. and (7)(a)1. and 2. to 5. and (c) are amended to read:

NR 440.57(4)(b)1.(intro.) An owner or operator shall use the following procedures for an affected facility that does not use a capture system and control device to comply with the emissions limit specified under sub. (3). The owner or operator shall determine the composition of the coatings by formulation data supplied by the coating manufacturer or by analysis of each coating, as received, using ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). The department may require the owner or operator who uses formulation data supplied by the coating manufacturer to determine the VOC content of coatings using ~~Reference~~ Method 24. The owner or operator shall determine the volume of coating and the mass of VOC-solvent used for thinning purposes from company records on a monthly basis. If a common coating distribution system serves more than one affected facility or serves both affected and existing facilities, the owner or operator shall estimate the volume of coatings used at each facility by using the average dry weight of coating and the surface area coated by each affected and existing facility or by other procedures acceptable to the department.

3.a. Calculate the total mass of VOCs ~~assumed~~ consumed ($M_o + M_d$) and the volume-weighted average of the total mass of VOCs per unit volume of applied coating solids (G) during each calendar month for each affected facility using the equations in subd. 1. a. 1), 2), 3) if applicable, and 4).

(6)(c)1. Where compliance with sub. (3) is achieved through use of thermal incineration, each 3-hour period of coating operation during which the average temperature of the device was more than 28°C (50°F) below the average temperature of the device during the most recent performance test at which destruction efficiency was determined as specified under sub. (4).

2. Where compliance with sub. (3) is achieved through the use of catalytic incineration, each 3-hour period of coating operation during which the average temperature recorded immediately before the catalyst bed is more than 28°C (50°F) below the average temperature at the same location during the most recent performance test at which destruction efficiency was determined as specified under sub. (4). Additionally, all 3-hour periods of coating operation during which the average temperature difference across the catalyst bed is less than 80% of the average temperature difference across the catalyst bed during the most recent performance test at which destruction efficiency was determined as specified under sub. (4) shall be recorded.

(7)(a)1. Method 24 or formulation data supplied by the coating manufacturer to determine the VOC content of a coating. In the event of dispute, ~~Reference~~ Method 24 shall be the reference method. For determining compliance only, results of Method 24 analyses of waterborne coatings shall be adjusted as described in ~~Subsection 4.4~~ section 12.6 of Method 24.

2. Method 25 for the measurement of the VOC concentration in the gas stream vent~~,~~.

3. Method 1 for sample and velocity traverses~~,~~.

4. Method 2 for velocity and volumetric flow rate~~,~~.

5. Method 3 for gas analysis~~, and~~.

(c) For Method 25 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), the sample time for each of 3 runs shall be at least 60 minutes and the minimum sample volume shall be at least 0.003 dscm (0.1 dscf) except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.

SECTION 225. NR 440.58(4)(c)1.(intro.) and (7)(a)1. to 5. and (c) are amended to read:

NR 440.58(4)(c)1.(intro.) An owner or operator shall use the following procedures for each affected facility that does not use a capture system and control device to comply with the emission limit specified under sub. (3)(a)1. The owner or operator shall determine the composition of the coatings by formulation data supplied by the manufacturer of the coating or by an analysis of each coating, as received, using ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). The department may require the owner or operator who uses formulation data supplied by the manufacturer of the coatings to determine the VOC content of coatings using ~~Reference~~ Method 24 or an equivalent or alternative method. The owner or operator shall determine the volume of coating and the mass of VOC solvent added to coatings from company records on a monthly basis. If a common coating distribution system serves more than one affected facility or serves both affected and existing facilities, the owner or operator shall estimate the volume of coating used at each affected facility by using the average dry weight of coating and the surface area coated by each affected and existing facility or by other procedures acceptable to the department.

(7)(a)1. ~~Reference~~ Method 24, or data provided by the formulator of the coating, shall be used for determining the VOC content of each coating as applied to the surface of the metal coil. In the event of a dispute, ~~Reference~~ Method 24 shall be the reference method. When VOC content of waterborne coatings, determined by ~~Reference~~ Method 24, is used to determine compliance of affected facilities, the results of the ~~Reference~~ Method 24 analysis shall be adjusted as described in ~~Section4.4~~ section 12.6 of ~~Reference~~ Method 24.

2. ~~Reference~~ Method 25, both for measuring the VOC concentration in each gas stream entering and leaving the control device on each stack equipped with

an emission control device and for measuring the VOC concentration in each gas stream emitted directly to the atmosphere~~,~~.

3. Method 1 for sample and velocity traverses~~,~~.

4. Method 2 for velocity and volumetric flow rate~~,~~.

5. Method 3 for gas analysis~~, and~~.

(c) For Method 25 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), the sampling time shall be at least 60 minutes, and the minimum sample volume shall be at least 0.003 ~~dry standard cubic meter (DSCM)~~ dscm (0.11 dscf); however, shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.

SECTION 226. NR 440.59(3)(a)1., (b), (4)(a) to (c) and (5)(c)1. are amended to read:

NR 440.59(3)(a)1. Particulate matter in excess of either of the following:

a. 0.040 ~~kilograms of particulate per megagram~~ kg/Mg (0.080 lb/ton) of asphalt shingle or mineral-surfaced roll roofing produced~~, or~~.

b. ~~0.40 kilograms per megagram~~ 0.040 kg/Mg (0.080 lb/ton) of saturated felt or smooth-surfaced roll roofing produced~~;~~.

(b) On and after the date on which s. NR 440.08(2) requires a performance test to be completed, no owner or operator subject to the provisions of this section may cause to be discharged into the atmosphere from any blowing still any of the following:

1. Particulate matter in excess of 0.67 ~~kilograms of particulate per megagram~~ kg/Mg (1.3 lb/ton) of asphalt charged to the still when a catalyst is added to the still~~; and~~.

2. Particulate matter in excess of 0.71 ~~kilograms of particulate per megagram~~ kg/Mg (1.4 lb/ton) of asphalt charged to the still when a catalyst is added to the still and when No. 6 fuel oil is fired in the afterburner~~; and~~.

3. Particulate matter in excess of 0.60 ~~kilograms of particulate per megagram~~ kg/Mg (1.2 lb/ton) of asphalt charged to the still during blowing without a catalyst~~; and~~.

4. Particulate matter in excess of 0.64 ~~kilograms of particulate per megagram~~ kg/Mg (1.3 lb/ton) of asphalt charged to the still during blowing without a catalyst and when No. 6 fuel oil is fired in the afterburner~~; and~~.

5. Exhaust gases with an opacity greater than zero percent unless an opacity limit for the blowing still when fuel oil is used to fire the afterburner has been established by the ~~department~~ administrator in accordance with the procedures in 40 CFR 60.474(g).

(4)(a) The owner or operator subject to the provisions of this section, and using either an electrostatic precipitator or a high velocity air filter to meet either the emission limit in sub. (3)(a)1. or (b)1., or both, shall continuously monitor and record the temperature of the gas at the inlet of the control device. The temperature monitoring instrument shall have an accuracy of ± 15°C (± 25°F) over its range.

(b) The owner or operator subject to the provisions of this section and using an afterburner to meet either the emission limit in sub. (3)(a)1. or (b)1., or both, shall continuously monitor and record the temperature in the combustion zone of the afterburner. The monitoring instrument shall have an accuracy of ± 10°C (± 18°F) over its range.

(c) An owner or operator subject to the provisions of this section and using a control device not mentioned in ~~pars.~~ par. (a) ~~and~~ or (b) shall provide to the department information describing the operation of the control device and the process parameter or parameters which would indicate proper operation and maintenance of the device. The department may require continuous monitoring and determine the process parameters to be monitored.

(5)(c)1. The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$$E = (c_s Q_{sd})/(PK)$$

where:

E is the emission rate of particulate matter, kg/Mg (lb/ton)

c_s is the concentration of particulate matter, g/dscm (~~g/dscf~~ gr/dscf)

Q_{sd} is the volumetric flow rate of effluent gas, dscm/hr (dscf/hr)

P is the asphalt roofing production rate or asphalt charging rate, Mg/hr (ton/hr)

K is the conversion factor, 1000 g/kg ~~[907.2/(g Mg)/(kg ton)]~~ (7000 gr/lb)

SECTION 227. NR 440.59(5)(c)4.b. is repealed and recreated to read:

NR 440.59(5)(c)4.b. The density (d) of the asphalt shall be computed using the following equation:

$$d = K_1 - K_2 T_i$$

where:

d is the density of the asphalt, kg/m^3 (lb/ft^3)

K_1 is 1056.1 kg/m^3 for metric units and 64.70 lb/ft^3 for English units

K_2 is 0.6176 kg/(m^3 °C) for metric units and 0.0694 lb/(ft^3 °F) for English units

T_i is the temperature at the start of the blow, °C (°F)

SECTION 228. NR 440.59(5)(f) is renumbered NR 440.59(5)(f)(intro.) and amended to read:

NR 440.59(5)(f)(intro.) If at a later date the owner or operator believes that the emission limits in sub. (3)(a) and (b) are being met even though ~~the temperature measured in accordance with sub. (4)(a) and (b) is exceeding that measured during the performance test~~ one of the conditions in subd. 1. or 2. exists, the owner or operator may submit a written request to the department to repeat the performance test and procedure outlined in par. (c).

SECTION 229. NR 440.59(5)(f)1. and 2. are created to read:

NR 440.59(5)(f)1. The temperature measured in accordance with sub. (4)(a) is exceeding that measured during the performance test.

2. The temperature measured in accordance with sub. (4)(b) is lower than that measured during the performance test.

SECTION 230. NR 440.62(1)(d)2. is amended to read:

NR 440.62(1)(d)2. Any affected facility that has the design capacity to produce less than 1,000 Mg/yr (1,102 ton/yr) is exempt from sub. (3).

SECTION 231. NR 440.62(1)(e) is created to read:

NR 440.62(1)(e)1. Owners or operators may choose to comply with 40 CFR part 65, subpart F, as in effect on December 14, 2000, to satisfy the requirements of subs. (3) to (8) for an affected facility. When choosing to comply with 40 CFR part 65, subpart F, the requirements of subs. (6)(d) to (f) and (7)(i) and (j) shall apply. Other provisions applying to owners or operators who choose to comply with 40 CFR part 65 are provided in 40 CFR 65.1.

2. Owners or operators who choose to comply with 40 CFR part 65, subpart F, as in effect on December 14, 2000, shall also comply with ss. NR 440.01, 440.02, 440.05, 440.06, 440.07(1)(a) and (d), 440.14, 440.15 and 440.16 for that equipment. Any section or subsection from ss. NR 440.01 to 440.19 not specified in this subdivision does not apply to owners or operators of equipment subject to this section complying with 40 CFR part 65, subpart F, except that provisions required to be met prior to implementing 40 CFR part 65 still apply. Owners and operators who choose to comply with 40 CFR part 65, subpart F, shall comply with 40 CFR part 65, subpart A, as in effect on December 14, 2000.

SECTION 232. NR 440.62(2)(a)1.a. and (b) are amended to read:

NR 440.62(2)(a)1.a. 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, divided by 100 as reflected by following equation:

$$A = Y \times \left({}^{B}\!/_{100} \right)$$

(b) "Closed vent system" means a system that is not open to the atmosphere and that is composed of ~~piping~~ hard-piping, ductwork, connections and, if necessary, flow inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device or back to a process.

SECTION 233. NR 440.62(2)(fm), (he), (hm), (hs) and (tm) are created to read:

NR 440.62(2)(fm) "Ductwork" means a conveyance system such as those commonly used for heating and ventilation systems. It is often made of sheet metal and often has sections connected by screws or crimping. Hard-piping is not ductwork.

(he) "Fuel gas" means gases that are combusted to derive useful work or heat.

(hm) "Fuel gas system" means the offsite and onsite piping and flow and pressure control system that gathers gaseous streams generated by onsite operations, may blend them with other sources of gas, and transports the gaseous stream for use as fuel gas in combustion devices or in-process combustion equipment, such as furnaces and gas turbines, either singly or in combination.

(hs) "Hard-piping" means pipe or tubing that is manufactured and properly installed using good engineering judgment and standards such as ASME B31.3, Process Piping (available from the American Society of Mechanical Engineers, PO Box 2900, Fairfield, NJ 07007-2900).

(tm) “Sampling connection system” means an assembly of equipment within a process unit used during periods of representative operation to take samples of the process fluid. Equipment used to take nonroutine grab samples is not considered a sampling connection system.

SECTION 234. NR 440.62(2)(v), (x) and (z) are renumbered NR 440.62(2)(ke), (km) and (ks), and NR 440.62(2)(ke), as renumbered, is amended to read:

NR 440.62(2)(ke) “In-vacuum service’’ means that equipment is operating at an internal pressure which is at least 5 kilopascals (kPa) (0.7 psia) below ambient pressure.

SECTION 235. NR 440.62(3)(a)1. and (b)4.a. and 6. are amended to read:

NR 440.62(3)(a)1. Each owner or operator subject to the provisions of this section shall demonstrate compliance with the requirements of pars. (a) to (j) or sub. (1)(e) for all equipment within 180 days of initial startup.

(b)4.a. Each dual mechanical seal system is one of the following:

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 routed to a process or fuel gas system or connected by a closed vent system to a control device that complies with the requirements of par. (j)~~; or~~.

3) Equipped with a system that purges the barrier fluid into a process stream with ~~a~~ zero VOC emissions to the atmosphere.

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 process or to a fuel gas system or to a control device that complies with the requirements of par. (j), it is exempt from the requirements of subds. 1. to 5.

SECTION 236. NR 440.62(3)(b) 7. and 8. are created to read:

NR 440.62(3)(b)7. Any pump that is designated, as described in sub. (7)(f)1., as an unsafe-to-monitor pump is exempt from the monitoring and inspection requirements of subds. 1. and 4.d. to f. if the owner or operator of the pump does all of the following:

a. Demonstrates that the pump is unsafe-to-monitor because monitoring personel would be exposed to an immediate danger as a consequence of complying with subd. 1.

b. Has a written plan that requires monitoring of the pump as frequently as practicable during safe-to-monitor times but not more frequently than the periodic monitoring schedule otherwise applicable, and repairs the equipment according to the procedures in subd. 3. if a leak is detected.

8. Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirement of subds. 1.b. and 4.d. and the daily requirements of subd. 4.e. provided that each pump is visually inspected as often as practicable and at least monthly.

SECTION 237. NR 440.62(3)(c)2.(intro.), a. and b. and 8. and (d)3. are amended to read:

NR 440.62(3)(c)2.(intro.) Each compressor seal system as required in subd. 1. shall be one of the following:

a. Operated with a barrier fluid at a pressure that is greater than the compressor stuffing box pressure~~; or~~.

b. Equipped with a barrier fluid system degassing reservoir that is routed to a process or fuel gas system or connected by a closed vent system to a control device that complies with the requirements of par. (j)~~; or~~.

8. A compressor is exempt from the requirements of subds. 1. and 2. if it is equipped with a closed vent system ~~capable of capturing and transporting any leakage from the seal~~ to capture and transport leakage from the compressor

drive shaft back to a process or fuel gas system or to a control device that complies with the requirements of par. (j), except as provided in subd. 9.

(d)3. Any pressure relief device that is routed to a process or fuel gas system or equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device as described in par. (j) is exempted from the requirements of ~~this paragraph~~ subds. 1. and 2.

SECTION 238. NR 440.62(3)(d)4. is created to read:

NR 440.62(3)(d)4.a. Any pressure relief device that is equipped with a rupture disk upstream of the pressure relief device is exempt from the requirements of subds. 1. and 2., provided the owner or operator complies with the requirements in subd. 4.b.

b. After each pressure release, a new rupture disk shall be installed upstream of the pressure relief device as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in par. (i).

SECTION 239. NR 440.62(3)(e)1. and 2.(intro.), a. and b. are amended to read:

NR 440.62(3)(e)1. Each sampling connection system shall be equipped with a closed purge ~~system~~, closed loop or closed vent system, except as provided in par. (a)3. Gases displaced during filling of the sample container are not required to be collected or captured.

2.(intro.) Each closed purge ~~system~~, closed loop or closed vent system as required in subd. 1. shall do one of the following:

a. Return the purged process fluid directly to the process line ~~with zero VOC emissions to the atmosphere; or~~.

b. Collect and recycle the purged process fluid ~~with zero VOC emissions to the atmosphere; or~~ to the process line.

SECTION 240. NR 440.62(3)(e)2.d. is created to read:

NR 440.62(3)(e)2.d. Collect, store and transport the purged process fluid to any of the following systems or facilities:

1) A waste management unit as defined in 40 CFR 63.111, if the waste management unit is subject to, and operated in compliance with the provisions of 40 CFR part 63, subpart G, applicable to group 1 wastewater streams.

2) A treatment, storage or disposal facility subject to regulation under 40 CFR part 262, 264, 265 or 266.

3) A facility permitted, licensed or registered by a state to manage municipal or industrial solid waste, if the process fluids are not hazardous waste as defined in 40 CFR part 261.

SECTION 241. NR 440.62(3)(e)3. and (f)3. are amended to read:

NR 440.62(3)(e)3. In situ-sampling systems and sampling systems without purges are exempt from ~~subd.~~ subds. 1. and 2.

(f)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 subd. 1. at all other times.

SECTION 242. NR 440.62(3)(f)4. and 5. are created to read:

NR 440.62(3)(f)4. Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of subds. 1. to 3.

5. Open-ended valves or lines containing materials which would autocatalytically polymerize or would present an explosion, serious overpressure or other safety hazard if capped or equipped with a double block and bleed system as specified in subds. 1. to 3. are exempt from the requirements of subds. 1. to 3.

SECTION 243. NR 440.62(3)(g)(title) and (h)(title) are amended to read:

NR 440.62(3)(g)(title) *Valves in gas/vapor service and in light liquid service.*

(h)(title) *Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service and ~~flanges and other~~ connectors.*

SECTION 244. NR 440.62(3)(h)1. is repealed and recreated to read:

NR 440.62(3)(h)1. If evidence of a potential leak is found by visual, audible, olfactory or any other detection method at pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service and connectors, the owner or operator shall follow one of the following procedures:

a. Monitor the equipment within 5 days by the method specified in sub. (6)(b) and comply with the requirements in subds. 2 to 4.

b. Eliminate the visual, audible, olfactory or other indication of a potential leak.

SECTION 245. NR 440.62(3)(i)1. and (j)2. and 3. are amended to read:

NR 440.62(3)(i)1. Delay of repair of equipment for which leaks have been detected ~~will~~ shall be allowed if ~~the~~ repair within 15 days is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.

(j)2. Vapor recovery systems (~~e.g.~~ for example, condensers and adsorbers) shall be designed and operated to recover the VOC emissions vented to them with an efficiency of 95% or greater, or to an exit concentration of 20 ppm by volume, whichever is less stringent.

3. Enclosed combustion devices shall be designed and operated to reduce the VOC emissions vented to them with an efficiency of 95% or greater, or to

an exit concentration of 20 ppm by volume, on a dry basis, corrected to 3% oxygen, whichever is less stringent, or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816°C.

SECTION 246. NR 440.62(3)(j)6. is repealed and recreated to read:

NR 440.62(3)(j)6. Except as provided in subds. 8. to 10., each closed vent system shall be inspected according to the following procedures and schedule:

a. If the vapor collection system or closed vent system is constructed of hard-piping, the owner or operator shall do the following:

1) Conduct an initial inspection according to the procedures in sub. (6)(b).

2) Conduct annual inspections for visible, audible or olfactory indications of leaks.

b. If the vapor collection system or closed vent system is constructed of ductwork, the owner or operator shall conduct an initial inspection and annual inspections according to the procedures in sub. (6)(b).

SECTION 247. NR 440.62(3)(j)7. is renumbered NR 440.62(3)(j)13.

SECTION 248. NR 440.62(3)(j)7. to 12. are created to read:

NR 440.62(3)(j)7. Leaks, as indicated by an instrument reading greater than 500 ppm by volume above background or by visual inspections, shall be repaired according to the following, except as provided in subd. 8:

a. A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.

b. Repair shall be completed no later than 15 calendar days after the leak is detected.

8. Delay of repair of a closed vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown or if

the owner or operator determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of the equipment shall be complete by the end of the next process unit shutdown.

9. If a vapor collection system or closed vent system is operated under a vacuum, it is exempt from the inspection requirements of subd. 6.a.1) and b.

10. Any parts of the closed vent system that are designated, as described in subd. 11.a., as unsafe to inspect are exempt from the inspection requirements of subd. 6.a.1) and b. if they comply with the following requirements:

a. The owner or operator determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with subd. 6.a.1) or b.

b. The owner or operator has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.

11. Any parts of the closed vent system that are designated, as described in subd. 12.b., as difficult to inspect are exempt from the inspection requirements of subd. 6.a.1) and b. if they comply with the following:

a. The owner or operator determines that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface.

b. The process unit within which the closed vent system is located becomes an affected facility through 40 CFR 60.14 or 60.15, or the owner or operator designates less than 3.0% of the total number of closed vent system equipment as difficult to inspect.

c. The owner or operator has a written plan that requires inspection of the equipment at least once every 5 years.

12. The owner or operator shall record the following information:

a. Identification of all parts of the closed vent system that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect and the plan for inspecting the equipment.

b. Identification of all parts of the closed vent system that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect and the plan for inspecting the equipment.

c. For each inspection during which a leak is detected, a record of the information specified in sub. (7)(c).

d. For each inspection conducted in accordance with sub. (6)(b) during which no leaks are detected, a record that the inspection was performed, the date of the inspection and a statement that no leaks were detected.

e. For each inspection conducted in accordance with subd. 6.a.2) during which no leaks are detected, a record that the inspection was performed, the date of the inspection and a statement that no leaks were detected.

SECTION 249. NR 440.62(6)(d)(intro.) and 1. and (e)1. and 2. are amended to read:

NR 440.62(6)(d)(intro.) The owner or operator shall test each piece of equipment unless he or she demonstrates that a process unit is not in VOC ~~series~~ service, that is, that the VOC content would never be reasonably expected to exceed 10% by weight. For purposes of this demonstration, the following methods and procedures shall be used:

1. Procedures that conform to the general methods in ASTM ~~E168 67~~ E168-92, ~~E169 63~~ E169-93 or ~~E260 73~~ E260-96, incorporated by reference in s. NR 440.17(2)(a)73., 74. and 75., respectively, shall be used to determine the percent VOC content in the process fluid that is contained in or contacts a piece of equipment.

(e)1. The vapor pressure of one or more of the components is greater than 0.3 kPa at 20°C (1.2 in H_2O at 68°F). Standard reference texts or ASTM

~~D2879-83~~ D2879-97, incorporated by reference in s. NR 440.17(2)(a)35., shall be used to determine the vapor pressures.

2. The total concentration of the pure components having a vapor pressure greater than 0.3 kPa at 20°C (1.2 in H_2O at 68°F) is equal to or greater than 20% by weight.

SECTION 250. NR 440.62(6)(g)3. and 4. are repealed and recreated to read:

NR 440.62(6)(g)3. The maximum permitted velocity for air assisted flares shall

$$V_{max} = K_1 + K_2 H_T$$

be computed using the following equation:

where:

V_{max} is the maximum permitted velocity, m/sec (ft/sec)

H_T is the net heating value of the gas being combusted, MJ/scm (Btu/scf)

K_1 is 8.706 m/sec for metric units and 28.56 ft/sec for English units

K_2 is 0.7084 m^4/(MJ-sec) for metric units and 0.087 ft^4/(Btu-sec) for English units

4. The net heating value (H_T) of the gas being combusted in a flare shall be

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

computed using the following equation:

where:

K is a conversion constant, 1.740 x 10^{-7} (g-mole)(MJ)/(ppm-scm-kcal) for metric units and 4.674 x 10^{8} (g-mole)(Btu)/(ppm-scf-kcal) for English units.

C_i is the concentration of sample component "i", ppm

H_i is the net heat of combustion of sample component “i” at 25°C and 760 mm Hg (77°F and 14.7 psi), kcal/g-mole

SECTION 251. NR 440.62(6)(g)5. and 6., (7)(a)1. and (f)(intro.) and 1., (8)(d) and Table A in (10)(a) are amended to read:

NR 440.62(6)(g)5. Method 18 and ASTM ~~D2504-67~~ D2504-88 (reapproved 1993), incorporated by reference in s. NR 440.17(2)(a)31., shall be used to determine the concentration of sample component ‘‘i’’.

6. ASTM ~~D2382-76~~ D2382-88 or D4809-95, incorporated by reference in s. NR 440.17(2)(a)30. and 61., shall be used to determine the net heat of combustion of component ‘‘i’’ if published values are not available or cannot be calculated.

(7)(a) 1. Each owner or operator subject to the provisions of this section shall comply with the recordkeeping requirements of this ~~section~~ subsection.

(f)(intro.) The following information pertaining to all valves subject to the requirements of sub. (3)(g)7. and 8. and to all pumps subject to requirements of sub. (3)(b)7. shall be recorded in a log that is kept in a readily accessible location:

1. A list of identification numbers for valves and pumps that are designated as unsafe-to-monitor, an explanation for each valve or pump stating why the valve or pump is unsafe-to-monitor and the plan for monitoring each valve or pump.

(8)(d) An owner or operator electing to comply with the provisions of sub. (4)(a) ~~and~~ or (b) shall notify the department of the alternative standard selected 90 days before implementing either of the provisions.

(10)(a)Table A

[Drafter Note: Column headings in Table A should be repeated at the top of each page.]

Table A

	CAS No.[a]	Chemical
1.	105-57-7	Acetal
2.	75-07-0	Acetaldehyde
3.	107-89-1	Acetaldol
4.	60-35-5	Acetamide
5.	103-84-4	Acetanilide
6.	64-19-7	Acetic acid
7.	108-24-7	Acetic anhydride
8.	67-64-1	Acetone
9.	75-86-5	Acetone cyanohydrin
10.	75-05-8	Acetonitrile
11.	98-86-2	Acetophenone
12.	75-36-5	Acetyl chloride
13.	74-86-2	Acetylene
14.	107-02-8	Acrolein
15.	79-06-1	Acrylamide
16.	79-10-7	Acrylic acid
17.	107-13-1	Acrylonitrile
18.	124-04-9	Adipic acid
19.	111-69-3	Adiponitrile
20.	(b)	Alkyl naphthalenes
21.	107-18-6	Allyl alcohol
22.	107-05-1	Allyl chloride
23.	1321-11-5	Aminobenzoic acid
24.	111-41-1	Aminoethylethanotamine
25.	123-30-8	p-Aminophenol
26.	628-63-7, 123-92-2	Amyl acetates
27.	71-41-0[c]	Amyl alcohols
28.	110-58-7	Amyl amine
29.	543-59-9	Amyl chloride
30.	110-66-7[c]	Amyl mercaptans
31.	1322-06-1	Amyl phenol
32.	62-53-3	Aniline
33.	142-04-1	Aniline hydrochloride
34.	29191-52-4	Anisidine
35.	100-66-3	Anisole
36.	118-92-3	Anthranilic acid
37.	84-65-1	Anthraquinone
38.	100-52-7	Benzaldehyde
39.	55-21-0	Benzamide
40.	71-43-2	Benzene
41.	98-48-6	Benzenedisulfonic acid
42.	98-11-3	Benzenesulfonic acid
43.	134-81-6	Benzil
44.	76-93-7	Benzilic acid
45.	65-85-0	Benzoic acid
46.	119-53-9	Benzoin
47.	100-47-0	Benzonitrile
48.	119-61-9	Benzophenone
49.	98-07-7	Benzotrichloride
50.	98-88-4	Benzoyl chloride
51.	100-51-6	Benzyl alcohol
52.	100-46-9	Benzylamine

	CAS No.[a]	Chemical
53.	120-51-4	Benzyl benzoate
54.	100-44-7	Benzyl chloride
55.	98-87-3	Benzyl dichloride
56.	92-52-4	Biphenyl
57.	80-05-7	Bisphenol A
58.	10-86-1	Bromobenzene
59.	27497-51-4	Bromonaphthalene
60.	106-99-0	Butadiene
61.	106-98-9	1-Butene
62.	123-86-4	n-Butyl acetate
63.	141-32-2	n-Butyl acrylate
64.	71-36-3	n-Butyl alcohol
65.	78-92-2	s-Butyl alcohol
66.	75-65-0	t-Butyl alcohol
67.	109-73-9	n-Butylamine
68.	13952-84-6	s-Butylamine
69.	75-64-9	t-Butylamine
70.	98-73-7	p-tert-Butyl benzoic acid
71.	107-88-0	1,3-Butylene glycol
72.	123-72-8	n-Butyraldehyde
73.	107-92-6	Butyric acid
74.	106-31-0	Butyric anhydride
75.	109-74-0	Butyronitrite
76.	105-60-2	Caprolactam
77.	75-1-50	Carbon disulfide
78.	558-13-4	Carbon tetrabromide
79.	56-23-5	Carbon tetrachloride
80.	9004-35-7	Cellulose acetate
81.	79-11-8	Chloroacetic acid
82.	108-42-9	m-Chloroaniline
83.	95-51-2	o-Chloroaniline
84.	106-47-8	p-Chloroaniline
85.	35913-09-8	Chlorobenzaldehyde
86.	108-90-7	Chlorobenzene
87.	118-91-2, 535-80-8, 74-11-3[c]	Chlorobenzoic acid
88.	2136-81-4, 2136-89-2, 5216-25-1[c]	Chlorobenzotrichloride
89.	1321-03-5	Chlorobenzoyl chloride
90.	25497-29-4	Chlorodifluoromethane
91.	75-45-6	Chlorodifluorethane
92.	67-66-3	Chloroform
93.	25586-43-0	Chloronaphthalene
94.	88-73-3	o-Chloronitrobenzene
95.	100-00-5	p-Chloronitrobenzene
96.	25167-80-0	Chlorophenols
97.	126-99-8	Chloroprene
98.	7790-94-5	Chlorosulfonic acid
99.	108-41-8	m-Chlorotoluene
100.	95-49-8	o-Chlorotoluene
101.	106-43-4	p-Chlorotoluene
102.	75-72-9	Chlorotrifluoromethane
103.	108-39-4	m-Cresol
104.	95-48-7	o-Cresol

	CAS No.[a]	Chemical
105.	106-44-5	p-Cresol
106.	1319-77-3	Cresols (mixed)
107.	1319-77-3	Cresylic acid
108.	4170-30-3	Crotonaldehyde
109.	3724-65-0	Crotonic acid
110.	98-82-8	Cumene
111.	80-15-9	Cumene hydroperoxide
112.	372-09-8	Cyanoacetic acid
113.	506-77-4	Cyanogen chloride
114.	108-80-5	Cyanuric acid
115.	108-77-0	Cyanuric chloride
116.	110-82-7	Cyclohexane
117.	108-93-0	Cyclohexanol
118.	108-94-1	Cyclohexanone
119.	110-83-8	Cyclohexene
120.	108-91-8	Cyclohexylamine
121.	111-78-4	Cyclooctadiene
122.	112-30-1	Decanol
123.	123-42-2	Diacetone alcohol
124.	27576-04-1	Diaminobenzoic acid
125.	95-76-1, 95-82-9, 554-00-7, 608-27-5, 608-31-1, 626-43-7, 27134-27-6, 57311-92-9[c]	Dichloroaniline
126.	541-73-1	m-Dichlorobenzene
127.	95-50-1	o-Dichlorobenzene
128.	106-46-7	p-Dichlorobenzene
129.	75-71-8	Dichlorodifluoromethane
130.	111-44-4	Dichloroethyl ether
131.	107-06-2	1,2-Dichloroethane (EDC)
132.	96-23-1	Dichlorohydrin
133.	26952-23-8	Dichloropropene
134.	101-83-7	Dicyclohexylamine
135.	109-89-7	Diethylamine
136.	111-46-6	Diethylene glycol
137.	112-36-7	Diethylene glycol diethyl ether
138.	111-96-6	Diethylene glycol dimethyl ether
139.	112-34-5	Diethylene glycol monobutyl ether
140.	~~124-17-7~~ 124-17-4	Diethylene glycol monobutyl ether acetate
141.	111-90-0	Diethylene glycol monoethyl ether
142.	112-15-2	Diethylene glycol monoethyl ether acetate
143.	111-77-3	Diethylene glycol monomethyl ether
144.	64-67-5	Diethyl sulfate
145.	75-37-6	Difluoroethane
146.	25167-70-8	Diisobutylene
147.	26761-40-0	Diisodecyl phthalate
148.	27554-26-3	Diisooctyl phthalate
149.	674-82-8	Diketene
150.	124-40-3	Dimethylamine
151.	121-69-7	N,N-Dimethylaniline
152.	115-10-6	N,N-Dimethyl ether
153.	68-12-2	N,N-Dimethylformamide
154.	57-14-7	Dimethylhydrazine

	CAS No.[a]	Chemical
155.	77-78-1	Dimethyl sulfate
156.	75-18-3	Dimethyl sulfide
157.	67-68-5	Dimethyl sulfoxide
158.	120-61-6	Dimethyl terephthalate
159.	99-34-3	3,5-Dinitrobenzoic acid
160.	51-28-5	Dinitrophenol
161.	25321-14-6	Dinitrotoluene
162.	123-91-1	Dioxane
163.	646-06-0	Dioxilane
164.	122-39-4	Diphenylamine
165.	101-84-8	Diphenyl oxide
166.	102-08-9	Diphenyl thiourea
167.	25265-71-8	Dipropylene glycol
168.	25378-22-7	Dodecene
169.	28675-17-4	Diodecylaniline
170.	27193-86-8	Dodecylphenol
171.	106-89-8	Epichlorohydrin
172.	64-17-5	Ethanol
173.	141-43-5[c]	Ethalolamines
174.	141-78-6	Ethyl acetate
175.	141-97-9	Ethyl acetoacetate
176.	140-88-5	Ethyl acrylate
177.	75-04-7	Ethylamine
178.	100-41-4	Ethylbenzene
179.	74-96-4	Ethyl bromide
180.	9004-57-3	Ethylcellulose
181.	75-00-3	Ethyl chloride
182.	105-39-5	Ethyl chloroacetate
183.	105-56-6	Ethylcyanoacetate
184.	74-85-1	Ethylene
185.	96-49-1	Ethylene carbonate
186.	107-07-3	Ethylene chlorohydrin
187.	107-15-3	Ethylenediamine
188.	106-93-4	Ethylene dibromide
189.	107-21-1	Ethylene glycol
190.	111-55-7	Ethylene glycol diacetate
191.	110-71-4	Ethylene glycol dimethyl ether
192.	111-76-2	Ethylene glycol monobutyl ether
193.	112-07-2	Ethylene glycol monobutyl ether acetate
194.	110-80-5	Ethylene glycol monoethyl ether
195.	111-15-9	Ethylene glycol monoethyl ether acetate
196.	109-86-4	Ethylene glycol monomethyl ether
197.	110-49-6	Ethylene glycol monomethyl ether acetate
198.	122-99-6	Ethylene glycol monophenyl ether
199.	2807-30-9	Ethylene glycol monopropyl ether
200.	75-21-8	Ethylene oxide
201.	60-29-7	Ethyl ether
202.	104-76-7	2-Ethylhexanol
203.	122-51-0	Ethyl orthoformate
204.	95-92-1	Ethyl oxalate
205.	41892-71-1	Ethyl sodium oxalacetate
206.	50-00-0	Formaldehyde

	CAS No.[a]	Chemical
207.	75-12-7	Formamide
208.	64-18-6	Formic acid
209.	110-17-8	Fumaric acid
210.	98-01-1	Furfural
211.	56-81-5	Glycerol
212.	26545-73-7	Glycerol dichlorohydrin
213.	25791-96-2	Glycerol triether
214.	56-40-6	Glycine
215.	107-22-2	Glyoxal
216.	118-74-1	Hexachlorobenzene
217.	67-72-1	Hexachloroethane
218.	36653-82-4	Hexadecyl alcohol
219.	124-09-4	Hexamethylenediamine
220.	629-11-8	Hexamethylene glycol
221.	100-97-0	Hexamethylenetetramine
222.	74-90-8	Hydrogen cyanide
223.	123-31-9	Hydroquinone
224.	99-96-7	p-Hydroxybenzoic acid
225.	26760-64-5	Isoamylene
226.	76-83-1	Isobutanol
227.	110-19-0	Isobutyl acetate
228.	115-11-7	Isobutylene
229.	78-84-2	Isobutyraldehyde
230.	79-31-2	Isobutyric acid
231.	25339-17-7	Isodecanol
232.	26952-21-6	Isooctyl alcohol
233.	78-78-4	Isopentane
234.	78-59-1	Isophorone
235.	121-91-5	Isophthalic acid
236.	78-79-5	Isoprene
237.	67-63-0	Isopropanol
238.	108-21-4	Isopropyl acetate
239.	75-31-0	Isopropylamine
240	75-29-6	Isopropyl chloride
241.	25168-06-3	Isopropylphenol
242.	463-51-4	Ketene
243.	(b)	Linear alkyl sulfonate
244.	123-01-3	Linear alkylbenzene (Linear dodecylbenzene)
245.	110-16-7	Maleic acid
246.	108-31-6	Maleic anhydride
247.	6915-15-7	Malic acid
248.	141-79-7	Mesityl oxide
249.	121-47-1	Metanilic acid
250.	79-41-4	Methacrylic acid
251.	563-47-3	Methallyl chloride
252.	67-56-1	Methanol
253.	79-20-9	Methyl acetate
254.	105-45-3	Methyl acetoacetate
255.	74-89-5	Methylamine
256.	100-61-8	n-Methylaniline
257.	74-83-9	Methyl bromide
258.	37365-71-2	Methyl butynol

	CAS No.[a]	Chemical
259.	74-87-3	Methyl chloride
260.	108-87-2	Methylcyclohexane
261.	1331-22-2	Methylcyclohexanone
262.	75-09-2	Methylene chloride
263.	101-77-9	Methylene dianiline
264.	101-68-8	Methylene diphenyl diisocyanate
265.	78-93-3	Methyl ethyl ketone
266.	107-31-3	Methyl formate
267.	108-11-2	Methyl isobutyl carbinol
268.	108-10-1	Methyl isobutyl ketone
269.	80-62-6	Methyl methacrylate
270.	77-75-8	Methylpentynol
271.	98-83-9	α-Methyl styrene
272.	110-91-8	Morpholine
273.	85-47-2	α-Naphthalene sulfonic acid
274.	120-18-3	β-Naphthalene sulfonic acid
275.	90-15-3	α-Naphthol
276.	135-19-3	β-Naphthol
277.	75-98-9	Neopentanoic acid
278.	88-74-4	o-Nitroaniline
279.	100-01-6	p-Nitroaniline
280.	91-23-6	o-Nitroanisole
281.	100-17-4	p-Nitroanisole
282.	98-95-3	Nitrobenzene
283.	27178-83-2[c]	Nitrobenzoic acid (o, m, and p)
284.	79-24-3	Nitroethane
285.	75-52-5	Nitromethane
286.	88-75-5	2-Nitrophenol
287.	25322-01-4	Nitropropane
288.	1321-12-6	Nitrotoluene
289.	27215-95-8	Nonene
290.	25154-52-3	Nonylphenol
291.	27193-28-8	Octylphenol
292.	123-63-7	Paraldehyde
293.	115-77-5	Pentaerythritol
294.	109-66-0	n-Pentane
295.	109-67-1	1-Pentene
296.	127-18-4	Perchloroethylene
297.	594-42-3	Perchloromethyl mercaptan
298.	94-70-2	o-Phenetidine
299.	156-43-4	p-Phenetidine
300.	108-95-2	Phenol
301.	98-67-9, 585-38-6, 609-46-1, 1333-39-7[c]	Phenolsulfonic acids
302.	91-40-7	Phenyl anthranilic acid
303.	([b])	Phenylenediamine
304.	75-44-5	Phosgene
305.	85-44-9	Phthalic anhydride
306.	85-41-6	Phthalimide
307.	108-99-6	b-Picoline
308.	110-85-0	Piperazine
309.	9003-29-6, 25036-29-7[c]	Polybutenes

	CAS No.[a]	Chemical
310.	25322-68-3	Polyethylene glycol
311.	25322-69-4	Polypropylene glycol
312.	123-38-6	Propionaldehyde
313.	79-09-4	Propionic acid
314.	71-23-8	n-Propyl alcohol
315.	107-10-8	Propylamine
316.	540-54-5	Propyl chloride
317.	115-07-1	Propylene
318.	127-00-4	Propylene chlorohydrin
319.	78-87-5	Propylene dichloride
320.	57-55-6	Propylene glycol
321.	75-56-9	Propylene oxide
322.	110-86-1	Pyridine
323.	106-51-4	Quinone
324.	108-46-3	Resorcinol
425.	27138-57-4	Resorcylic acid
326.	69-72-7	Salicylic acid
327.	127-09-3	Sodium acetate
328.	532-32-1	Sodium benzoate
329.	9004-32-4	Sodium carboxymethyl cellulose
330.	3926-62-3	Sodium chloroacetate
331.	141-53-7	Sodium formate
332.	139-02-6	Sodium phenate
333.	110-44-1	Sorbic acid
334.	100-42-5	Styrene
335.	110-15-6	Succinic acid
336.	110-61-2	Succinonitrile
337.	121-57-3	Sulfanilic acid
338.	126-33-0	Sulfolane
339.	1401-55-4	Tannic acid
340.	100-21-0	Terephthalic acid
341.	79-34-5[c]	Tetrachloroethanes
342.	117-08-8	Tetrachlorophthalic anhydride
343.	78-00-2	Tetraethyl lead
344.	119-64-2	Tetrahydronaphthalene
345.	85-43-8	Tetrahydrophthalic anhydride
346.	75-74-1	Tetramethyl lead
347.	110-60-1	Tetramethylenediamine
348.	110-18-9	Tetramethylethylenediamine
349.	108-88-3	Toluene
350.	95-80-7	Toluene-2,3-diamine
451.	584-84-9	Toluene-2,4"diisocyanate
352.	26471-62-5	Toluene diisocyanates (mixture)
353.	1333-07-9	Toluenesulfonamide
354.	104-15-4[c]	Toluenesulfonic acids
355.	98-59-9	Toluenesulfonyl chloride
356.	26915-12-8	Toluidines
357.	87-61-6, 108-70-3, 120-82-1[c]	Trichlorobenzenes
358.	71-55-6	1,1,1-Trichloroethane
359.	79-00-5	1,1,2-Trichloroethane
360.	79-01-6	Trichloroethylene
361.	75-69-4	Trichlorofluoromethane

	CAS No.[a]	Chemical
362.	96-18-4	1,2,3-Trichloropropane
363.	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane
364.	121-44-8	Triethylamine
365.	112-27-6	Triethylene glycol
366.	112-49-2	Triethylene glycol dimethyl ether
367.	7756-94-7	Triisobutylene
368.	75-50-3	Trimethylamine
369.	57-13-6	Urea
370.	108-05-4	Vinyl acetate
371.	75-01-4	Vinyl chloride
372.	75-35-4	Vinylidene chloride
373.	25013-15-4	Vinyl toluene
374.	1330-20-7	Xylenes (mixed)
375.	95-47-6	o-Xylene
376.	106-42-3	p-Xylene
377.	1300-71-6	Xylenol
378.	1300-73-8	Xylidine

[a] CAS numbers refer to the Chemical Abstracts Registry numbers assigned to specific chemicals, isomers, or mixtures of chemicals. Some isomers or mixtures that are covered by the standards do not have CAS numbers assigned to them. The standards apply to all of the chemicals listed, whether CAS numbers have been assigned or not.

[b] No CAS number(s) have been assigned to this chemical, its isomers, or mixtures containing these chemicals.

[c] CAS numbers for some of the isomers are listed; the standards apply to all of the isomers and mixtures, even if CAS numbers have not been assigned.

SECTION 252. NR 440.63(4)(b)1.(intro.) and c., (5)(b), (6)(a)1. and (7)(a)1. and 2.(intro.) and (b) and (c) are amended to read:

NR 440.63(4)(b)1.(intro.) The owner or operator shall use the following procedures for each affected facility that does not use a capture system and a control device to comply with the emission limit specified under sub. (3). The owner or operator shall determine the VOC-content of the coatings from formulation data supplied by the manufacturer of the coating or by an analysis of each coating as received, using ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). The department may require the owner or operator who uses formulation data supplied by the manufacturer of the coating to determine the VOC content of coatings using ~~Reference~~ Method 24 ~~of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17,~~ or an equivalent or alternative method. The owner or operator shall determine from company records the volume of coating and the mass of VOC-solvent added to coatings. If a common coating distribution system serves more than one affected facility or serves both affected and existing facilities, the owner or operator shall estimate the volume of coating used at each facility by using the average dry weight of coating, number of cans and size of cans being processed by each affected and existing facility or by other procedures acceptable to the department.

c. Where the value of the volume-weighted average ~~of~~ mass of VOC per volume of solids discharged to the atmosphere (N) is equal to or less than the applicable emission limit specified under sub. (3), the affected facility is in compliance.

(5)(b) Each temperature measurement device shall be installed, calibrated~~,~~ and maintained according to the manufacturer's specifications. The device shall have an accuracy ~~the greater~~ of ± 0.75% of the temperature being measured, expressed in degrees Celsius, or ± 2.5℃, whichever is greater.

(6)(a)1. Where only coatings which individually have a VOC content equal to or less than the limits specified under sub. (3) are used, and no VOC is added to the coating during the application or distribution process, the owner or operator shall provide a list of coatings used for each affected facility and the VOC content of each coating calculated from data determined using ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), or ~~supplies~~ supplied by the manufacturers of the coatings.

(7)(a)1. ~~Reference~~ Method 24, an equivalent or alternative method approved by the administrator, or manufacturer's formulation ~~for~~ data from which the VOC content of the coatings used for each affected facility can be calculated. In the event of a dispute, ~~Reference~~ Method 24 data shall ~~be the referee method~~ govern. When VOC content of waterborne coatings, determined from data generated by ~~Reference~~ Method 24, is used to determine compliance of affected facilities, the results of the Method 24 analysis shall be adjusted as described in section ~~4.4~~ 12.6 of Method 24.

2.(intro.) ~~Reference~~ Method 25 or an equivalent or alternative method for the determination of the VOC concentration in the effluent gas entering and leaving the control device for each stack equipped with an emission control device. The owner or operator shall notify the department at least 30 days in advance when performing a test using ~~Reference~~ Method 25. The following reference methods are to be used in conjunction with ~~Reference~~ Method 25:

(b) For ~~Reference~~ Method 24, the coating sample ~~must~~ shall be a 1-liter sample collected in a 1-liter container at a point where the sample will be representative of the coating material.

(c) For ~~Reference~~ Method 25, the sampling time for each of ~~three~~ 3 runs ~~must~~ shall be at least ~~1~~ one hour. The minimum sample volume ~~must~~ shall be 0.003 dscm except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department. The department will approve the sampling of representative stacks on a case-by-case basis if the owner or operator can demonstrate to the satisfaction of the department that the testing of representative stacks would yield results comparable to those that would be obtained by testing all stacks.

SECTION 253. NR 440.64(2)(d) and (hm) are created to read:

NR 440.64(2)(d) "Flare" means a thermal oxidation system using an open (without enclosure) flame.

(hm) "Thermal oxidation system" means a combustion device used to mix and ignite fuel, air pollutants and air to provide a flame to heat and oxidize hazardous air pollutants. Auxiliary fuel may be used to heat air pollutants to combustion temperatures.

SECTION 254. NR 440.64(2)(L) is amended to read:

NR 440.64(2)(L) ''Vapor-tight gasoline tank truck'' means a gasoline tank truck which has demonstrated within the 12 preceding months that its product delivery tank will sustain a pressure change of not more than 750 pascals (75 mm of water) within 5 minutes after it is pressurized to 4,500 pascals (450 mm of water). This capability is to be demonstrated using the pressure test procedure specified in ~~Reference~~ Method ~~24~~ 27 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1).

SECTION 255. NR 440.64(3)(e)3. is renumbered NR 440.64(3)(e)3.a.(intro.) and amended to read:

NR 440.64(3)(e)3.a.(intro.) The owner or operator shall cross-check each tank identification number obtained in subd. 2. with the file of tank vapor tightness documentation within 2 weeks after the corresponding tank is loaded~~.~~, unless either of the following conditions is maintained:

SECTION 256. NR 440.64(3)(e)3.a.1) and 2) and b. are created to read:

NR 440.64(3)(e)3.a.1) If less than an average of one gasoline tank truck per month over the preceding 26 weeks is loaded without vapor tightness documentation, the documentation cross-check shall be performed each quarter.

2) If less than an average of one gasoline tank truck per month over the preceding 52 weeks is loaded without vapor tightness documentation, the documentation cross-check shall be performed semiannually.

b. If either the quarterly or semiannual cross-check provided in subd. 3.a.1) or 2) reveals that the conditions in subd. 3.a.1) or 2) were not maintained, the source shall return to biweekly monitoring until such time as the conditions in subd 3.a.1) or 2) are again met.

SECTION 257. NR 440.64(3)(e)4. is amended to read:

NR 440.64(3)(e)4. The terminal owner or operator shall notify the owner or operator of each nonvapor-tight gasoline tank truck loaded at the affected facility within ~~3 weeks~~ ~~after the loading has occurred~~ one week of the documentation cross-check in subd 3.

SECTION 258. NR 440.64(4)(e) and (f) are created to read:

NR 440.64(4)(e) The performance test requirements of par. (c) do not apply to flares defined in sub. (2) and meeting the requirements in s. NR 440.18(2) to (6). The owner or operator shall demonstrate that the flare and associated vapor collection system is in compliance with the requirements in s. NR 440.18(2) to (6) and pars. (a), (b) and (d).

(f) The owner or operator shall use alternative test methods and procedures in accordance with the alternative test method provisions in s. NR 440.08(2) for flares that do not meet the requirements in s. NR 440.18(2).

SECTION 259. NR 440.64(6)(e) is created to read:

NR 440.64(6)(e) As an alternative to keeping records at the terminal of each gasoline cargo tank test result as required in pars. (a), (c) and (d), an owner or operator may comply with the requirements in either subd. 1. or 2.

1. An electronic copy of each record is instantly available at the terminal and the following conditions are met:

a. The copy of each record is an exact duplicate image of the original paper record with certifying signatures.

b. The department is notified in writing that each terminal using this alternative is in compliance with this subdivision.

2. For facilities that utilize a terminal automation system to prevent gasoline cargo tanks that do not have valid cargo tank vapor tightness documentation from loading (for example, via a card lock-out system), a copy of the documentation is made available (for example, via facsimile) for

inspection by department representatives during the course of a site visit, or within a mutually agreeable time frame and the following conditions are met:

a. The copy of each record is an exact duplicate image of the original paper record with certifying signatures.

b. The department is notified in writing that each terminal using this alternative is in compliance with this subdivision.

SECTION 260. NR 440.642(1)(c) and (d) are repealed.

SECTION 261. NR 440.642(2)(m)2., 3. and 4. are amended to read:

NR 440.642(2)(m)2. A usable firebox volume of less than 0.57 cubic meter (20 cubic feet~~,~~).

3. A minimum burn rate less than 5 kg/hr (11 lb/hr) as determined by the test procedure prescribed in sub. (5) performed at an accredited laboratory~~,~~ ~~and~~.

4. A maximum weight of 800 kg (1,760 lb). In determining the weight of an appliance for these purposes, fixtures and devices that are normally sold separately, such as flue pipe, chimney, and masonry components that are not an integral part of the appliance or heat distribution ducting, may not be included.

SECTION 262. NR 440.642(3)(a) is repealed.

SECTION 263. NR 440.642(3)(b)1.(intro.) is amended to read:

NR 440.642(3)(b)1.(intro.) An affected facility equipped with a catalytic combustor may not discharge into the atmosphere any gases which contain particulate matter in excess of a weighted average of 4.1 g/hr (0.009 lb/hr). Particulate emissions during any test run at any burn rate that is required to be used in the weighted average may not exceed the value calculated for ‘‘C’’ (rounded to 2 significant figures) calculated using the following equation:

SECTION 264. NR 440.642(3)(b)1.a. is repealed and recreated to read:

NR 440.642(3)(b)1.a. At burn rates less than or equal to 2.82 kg/hr (6.2 lb/hr),

$$C = K_1BR + K_2$$

where:

BR is the burn rate in kg/hr (lb/hr)

K_1 = 3.55g/kg (0.00355 lb/lb)

K_2 = 4.98 g/hr (0.0011 lb/hr)

SECTION 265. NR 440.642(3)(b)1.b. and 2. are amended to read:

NR 440.642(3)(b)1.b. At burn rates greater than 2.82 kg/hr (6.2 lb/hr), C = 15 g/hr (0.033 lb/hr).

2. An affected facility not equipped with a catalytic combustor may not discharge into the atmosphere any gases which contain particulate matter in excess of a weighted average of 7.5 g/hr (0.017 lb/hr). Particulate emissions may not exceed 15 g/hr (0.033 lb/hr) during any test run at a burn rate less than or equal to 1.5 kg/hr (3.3 lb/hr) that is required to be used in the weighted average, and particulate emissions may not exceed 18 g/hr (0.040 lb/hr) during any test burn at a burn rate greater than 1.5 kg/hr (3.3 lb/hr) that is required to be used in the weighted average.

SECTION 266. NR 440.642(4)(e)1. (intro.) and b. are amended to read:

NR 440.642(4)(e)1. The administrator shall issue a certificate of compliance for a model line if he or she determines, based on all information submitted by the applicant and any other relevant information available, that all of the following requirements have been met:

b. Any tolerances or materials for components listed in ~~pars.~~ par. (k) 2. or 3. that are different from those specified in those paragraphs may not reasonably be anticipated to cause wood heaters in the model line to exceed the applicable emission limits~~, and~~.

SECTION 267. NR 440.642(4)(h) is repealed.

SECTION 268. NR 440.642(4)(j)1.(intro.) is renumbered NR 440.642(4)(j)1. and amended to read:

NR 440.642(4)(j)1. Unless revoked sooner by the administrator, a certificate of compliance shall be valid~~:~~ for 5 years from the date of issuance, for a model line certified as meeting emission limits in sub. (3)(b).

SECTION 269. NR 440.642(4)(j)1.a. and b. are repealed.

SECTION 270. NR 440.642(4)(k)1. and 2.(intro.) and (L)1.b. are amended to read:

NR 440.642(4)(k)1. A model line shall be recertified whenever any change is made in the design submitted pursuant to par. (b)3. that is presumed to affect the particulate emission rate for that model line. The administrator may waive this requirement upon written request by the manufacturer, if he or she determines that the change may not reasonably be anticipated to cause wood heaters in the model line to exceed the applicable emission limits. The ~~grant~~ granting of such a waiver does not relieve the manufacturer of any compliance obligations under this section.

2. (intro.) Any change in the indicated tolerances of any of the following components (where the components are applicable) is presumed to affect particulate emissions if that change exceeds ± 0.64 cm (± 1/4 inch) for

any linear dimension and ± 5% for any cross-sectional area relating to air introduction systems and catalyst bypass gaps unless other dimensions and cross-sectional areas are previously approved by the administrator under par. (e)1. b.

(L)1.b. A finding that the certification was not valid~~,~~. The finding shall be based on problems or irregularities with the certification test or its documentation, but may be supplemented by other information.

SECTION 281. NR 440.642(4)(p)4.b.1) is renumbered NR 440.642(4)(p)4.b. and amended to read:

NR 440.642(4)(p)4.b. The administrator shall select the accredited laboratory that performed the test used to obtain certification for audit testing, until the administrator has amended this section ~~based upon a determination pursuant to subd. 4.b.2)~~ to allow testing at another laboratory. If another laboratory is selected pursuant to this subdivision, and the overall precisions of the test method and procedure is greater than ± 1 gram per hour (± 0.0022 lb per hour) of the weighted average at laboratories below 304 meters (1,000 feet) elevation (or equivalent), the interlaboratory component of the precision shall be added to the applicable emissions standard for the purposes of this subdivision.

SECTION 272. NR 440.642(4)(p)4.b.2) is repealed.

SECTION 273. NR 440.642(6)(b)9. is amended to read:

NR 440.642(6)(b)9. Agree to comply with ~~a~~ reporting and recordkeeping ~~requirement~~ requirements that affect testing laboratories~~, and~~.

SECTION 274. NR 440.642(6)(c) is repealed.

SECTION 275. NR 440.642(7)(a)3.b. and d. and (f)3. are amended to read:

NR 440.642(7)(a)3.b. Be at least 8.9 cm long and 5.1 cm wide (3 1/2 inches long and 2 inches wide~~,~~).

d. Present required information in a manner so that it is likely to remain legible for the lifetime of the wood heater~~, and~~.

(f)3. If an ~~affected facility~~ appliance is a coal-only heater as defined in sub. (1), the following statement shall appear on the permanent label:

State of Wisconsin

DEPARTMENT OF NATURAL RESOURCES

This heater is only for burning coal.

Use of any other solid fuel except for coal ignition purposes is a violation of law.

SECTION 276. NR 440.642(7)(i)4.b. is repealed and recreated to read:

NR 440.642(7)(i)4.b. If the manufacturer elects to use the estimated efficiency as provided in subd. 3., the manufacturer shall estimate the heat output of the model as follows:

$$HO_E = H_V \times \left(\text{estimated overal efficiency} \big/ 100 \right) \times BR$$

where:

HO_E is the estimated heat output in Btu/hr

H_V is the heating value of fuel, 19,140 Btu/kg (8,700 Btu/lb)

BR is the burn rate of dry test fuel, kg/hr (lb/hr)

SECTION 277. NR 440.642(7)(j)2.e. is amended to read:

NR 440.642(7)(j)2.e. Have dimensions of 12.7 centimeters by 17.8 centimeters (5 inches by 7 inches) as described in 40 CFR part 60, Appendix I, ~~Section~~ section 2.1, incorporated by reference in s. NR 440.17(1);

SECTION 278. NR 440.642(9)(e) is repealed and recreated to read:

NR 440.642(9)(e)1. In any case in which the administrator revokes a certificate of compliance either for the knowing submission of false or inaccurate information or other fraudulent acts, or based on a finding under sub. (4)(L)1.b. that the certification test was not valid, the administrator may give notice of that revocation and the grounds for it to all commercial owners.

2. From and after the date of receipt of the notice given under subd. 1., no commercial owner may sell any wood heater covered by the revoked certificate (other than to the manufacturer) unless one of the following has been met:

a. The wood heater has been tested as required by sub. (4)(n) and labeled as required by sub. (6)(g).

b. The model line has been recertified in accordance with this section.

SECTION 279. NR 440.644(2)(a)(intro.) is amended to read:

NR 440.644(2)(a)(intro.) As used in this section, terms not defined in this ~~subsection~~ paragraph have the meanings given in s. NR 440.02.

SECTION 280. NR 440.644(2)(b) is repealed and recreated to read:

NR 440.644(2)(b) As used in this section, symbols not defined in this paragraph have the meanings given in s. NR 440.03.

1. B_o is the total number of beads cemented at a particular bead cementing affected facility for a month.

2. C_a is the concentration of VOC in gas stream in vents after a control device (parts per million by volume).

3. C_b is the concentration of VOC in gas stream in vents before a control device (parts per million by volume).

4. C_f is the concentration of VOC in each gas stream vented directly to the atmosphere from an affected facility or from a temporary enclosure around an affected facility (parts per million by volume).

5. D_c is the density of cement or spray material (grams per liter (lb per gallon)).

6. D_r is the density of VOC recovered by an emission control device (grams per liter (lb per gallon)).

7. E is the emission control device efficiency, inlet versus outlet (fraction).

8. F_c is the capture efficiency, VOC captured and routed to one control device versus total VOC used for an affected facility (fraction).

9. F_o is the fraction of total mass of VOC used in a month by all facilities served by a common cement or spray material distribution system that is used by a particular affected facility served by the common distribution system.

10. G is the monthly average mass of VOC used per tire cemented or sprayed with a water-based green tire spray for a particular affected facility (grams (lb) per tire).

11. G_b is the monthly average mass of VOC used per bead cemented for a particular bead cementing affected facility (grams (lb) per bead).

12. L_c is the volume of cement or spray material used for a month (liters (gallons)).

13. L_r is the volume of VOC recovered by an emission control device for a month (liters (gallons)).

14. M is the total mass of VOC used for a month by all facilities served by a common cement or spray material distribution system (grams (lb)).

15. M_o is the total mass of VOC used at an affected facility for a month (grams (lb)).

16. M_r is the mass of VOC recovered by an emission control device for a

month (grams (lb)).

17. N is the mass of VOC emitted to the atmosphere per tire cemented or sprayed with a water-based green tire spray for an affected facility for a month (grams (lb) per tire).

18. N_b is the mass of VOC emitted per bead cemented for an affected facility for a month (grams (lb) per bead).

19. Q_a is the volumetric flow rate in vents after a control device (dry standard cubic meters (dry standard cubic feet) per hour).

20. Q_b is the volumetric flow rate in vents before a control device (dry standard cubic meters (dry standard cubic feet) per hour).

21. Q_r is the volumetric flow rate of each stream vented directly to the atmosphere from an affected facility or from a temporary enclosure around an affected facility (dry standard cubic meters (dry standard cubic feet) per hour).

22. R is the overall efficiency of an emission reduction system (fraction).

23. T_d is the total number of days in monthly compliance period (days).

24. T_o is the total number of tires cemented or sprayed with water-based green tire sprays at a particular affected facility for a month.

25. W_o is the weight fraction of VOC in a cement or spray material.

SECTION 281. NR 440.644(3)(a)1.b.1) to 5), 2.b.1) to 5), 3., 4., 5., 6.b.1) to 5) and 7.(intro.) and a. are amended to read:

NR 440.644(3)(a)1.b.1) 3,870 ~~kilograms~~ kg (8,531 lb) of VOC per 28 days~~,~~.

2) 4,010 ~~kilograms~~ kg (8,846 lb) of VOC per 29 days~~,~~.

3) 4,150 ~~kilograms~~ kg (9,149 lb) of VOC per 30 days~~,~~.

4) 4,280 ~~kilograms~~ kg (9,436 lb) of VOC per 31 days~~, or~~.

5) 4,840 ~~kilograms~~ kg (10,670 lb) of VOC per 35 days.

2.b.1) 3,220 ~~kilograms~~ kg (7,099 lb) of VOC per 28 days~~,~~.

2) 3,340 ~~kilograms~~ kg (7,363 lb) of VOC per 29 days~~,~~.

3) 3,450 ~~kilograms~~ kg (7,606 lb) of VOC per 30 days~~,~~.

4) 3,570 ~~kilograms~~ kg (7,870 lb) of VOC per 31 days~~, or~~.

5) 4,030 ~~kilograms~~ kg (8,885 lb) of VOC per 35 days.

3. For each tread end cementing operation: Discharge into the atmosphere no more than 10 grams (0.022 lb) of VOC per tire ~~(g/tire)~~ cementing for each month.

4. For each bead cementing operation: Discharge into the atmosphere no more than 5 grams (0.011 lb) of VOC per bead ~~(g/bead)~~ cemented for each month.

5. For each green tire spraying operation where only water-based sprays are used, do both of the following:

a. Discharge into the atmosphere no more than 1.2 grams (0.0026 lb) of VOC per tire sprayed with an inside green tire spray for each month~~; and~~.

b. Discharge into the atmosphere no more than 9.3 grams (0.021 lb) of VOC per tire sprayed with an outside green tire spray for each month.

6.b.1) 3,220 ~~kilograms~~ kg (7,099 lb) of VOC per 28 days~~,~~.

2) 3,340 ~~kilograms~~ kg (7,363 lb) of VOC per 29 days~~,~~.

3) 3,450 ~~kilograms~~ kg (7,606 lb) of VOC per 30 days~~,~~.

4) 3,570 ~~kilograms~~ kg (7,870 lb) of VOC per 31 days~~, or~~.

5) 4,030 ~~kilograms~~ kg (8,885 lb) of VOC per 35 days.

7. For each green tire spraying operation where both water-based and organic solvent-based sprays are used, do both of the following:

a. Discharge into the atmosphere no more than 1.2 grams (0.0026 lb) of VOC per tire sprayed with a water-based inside green tire spray for each month~~; and~~.

SECTION 282. NR 440.644(3)(a)7.b., c. and d. are renumbered NR 440.644(3)(a)7.b.(intro.), 1) and 2) respectively and as renumbered NR 440.644(3)(a)7.b.(intro.) and 1) are amended to read:

NR 440.644(3)(a)7.b.(intro.) Discharge into the atmosphere no more than 9.3 grams (0.021 lb) of VOC per tire sprayed with a water-based outside green tire spray for each month~~,~~ and ~~either~~ do one of the following:

1) Discharge into the atmosphere no more than 25% of the VOC used in the organic solvent-based green tire sprays (75% emission reduction) for each month~~; or~~.

SECTION 283. NR 440.644(3)(a)8.b.1) to 5) and 9.b.1) to 5) are amended to read:

NR 440.644(3)(a)8.b.1) 1,570 ~~kilograms~~ kg (3,461 lb) of VOC per 28 days~~,~~.

2) 1,630 ~~kilograms~~ kg (3,593 lb) of VOC per 29 days~~,~~.

3) 1,690 ~~kilograms~~ kg (3,726 lb) of VOC per 30 days~~,~~.

4) 1,740 ~~kilograms~~ kg (3,836 lb) of VOC per 31 days~~,~~.

5) 1,970 ~~kilograms~~ kg (4,343 lb) of VOC per 35 days.

9.b.1) 1,310 ~~kilograms~~ kg (2,888 lb) of VOC per 28 days~~,~~.

2) 1,360 ~~kilograms~~ kg (2,998 lb) of VOC per 29 days~~,~~.

3) 1,400 ~~kilograms~~ kg (3,086 lb) of VOC per 30 days~~,~~.

4) 1,450 ~~kilograms~~ kg (3,197 lb) of VOC per 31 days~~, or~~.

5) 1,640 ~~kilograms~~ kg (3,616 lb) of VOC per 35 days.

SECTION 284. NR 440.644(3)(b)1. is renumbered NR 440.644(3)(b) and amended to read:

NR 440.644(3)(b) On and after the date on which the initial performance test, required by s. NR 440.08, is completed, but no later than 180 days after September 19, 1989, no owner or operator subject to the provisions in sub. (1)(b) may cause to be discharged into the atmosphere more than 25 grams (0.055 lb) of VOC per tire processed for each month if the operation uses 25 grams (0.055 lb) or less of VOC per tire processed and does not employ a VOC emission reduction system.

SECTION 285. NR 440.644(4)(c)(intro.), (d)(intro.), (e)(intro.), (f)2.d.7) and 8), (j)4. and 5.b., (n)(intro.) and 5.; (6)(b)(intro.) and 2. and (d); (7)(a), (c)1. to 3. and 5., (d), (f)1. and 2., (j) and (8)(a)2., 5.(intro.) and a. are amended to read:

NR 440.644(4)(c)(intro.) For each undertread cementing operation, each sidewall cementing operation, each green tire spraying operation where organic solvent-based sprays are used, each Michelin-A operation, each Michelin-B operation, and each Michelin-C automatic operation where the owner or operator seeks to comply with the uncontrolled monthly VOC use ~~(kg/mo)~~ limits, the owner or operator shall use the following procedure to determine compliance with the applicable (depending upon duration of compliance period) uncontrolled monthly VOC use limit specified under sub. (3)(a)1. b., 2. b., 6. b., 7. d., 8. b., 9. b. and 10. b. If both undertread cementing and sidewall cementing are performed at the same affected facility during a month, then the kg/mo limit specified under sub. (3)(a)1. b. shall apply for that month.

(d)(intro.) For each tread end cementing operation and each green tire spraying operation where water-based cements or sprays containing 1.0%, by weight, of VOC or more are used (inside, outside, or both) that do not use a VOC emission reduction system, the owner or operator shall use the following procedure to determine compliance with the ~~g/tire~~ VOC emission per tire limit specified under sub. (3)(a)3., 5. a. and b.~~,~~ and 7. a. and b.

(e)(intro.) For each bead cementing operation that does not use a VOC emission reduction system, the owner or operator shall use the following procedure to determine compliance with the ~~g/bead~~ VOC emission per bead limit specified under sub. (3)(a)4.

(f)2.d.7) If Method 25A is used to determine the concentration of the single VOC in the capture system, then calculate the capture efficiency (FC_i) for each run, ''i'', as follows:

$$FC_i = \frac{C_i \frac{W}{V} Q_i}{(M_i)(10^6)}$$

where:

C_i is the average concentration of the single VOC in the capture system during run ``i'' (parts per million by volume) corrected for background VOC

Note: See sub. (8)(a)5.

W is the molecular weight of the single VOC, ~~expressed as mg per mg mole~~ mg/mg-mole (lb/lb-mole)

V is ~~2.405 H 10^{-5} m^3/mg mole,~~ the volume occupied by one ~~mg mole~~ mole of ideal gas at standard conditions (20°C, ~~1 atmosphere~~ 760 mm Hg) on a wet basis, 2.405 x 10^{-5} m^3/mg-mole (385.3 ft^3/lb-mole)

Q_i is the volumetric flow ~~in m^3~~ in the capture system during run ``i'', on a wet basis, adjusted to standard conditions ~~(20°C, 1 atmosphere) on a wet basis~~, m^3 (ft^3)

Note: See sub. (8)(a)5.

10^6 is the ppm per unity

M_i is the mass ~~in mg~~ of the single VOC used during run ``i'', mg (lb)

8) If Method 25 is used to determine the concentration of the single VOC in the capture system, then calculate the capture efficiency (FC_i) for each run, ``i'', as follows:

$$FC_i = \frac{\frac{C_i}{(NC)(10^6)}\frac{(W)}{(V)}(Q_i)}{M_i}$$

where:

C_i is the average concentration of the single VOC in the capture system during run "i" (parts per million, as carbon, by volume) corrected for background VOC

Note: See sub. (8)(a)5.

W is the molecular weight of the single VOC, ~~expressed as mg per mg mole~~ mg/mg-mole (lb/lb-mole)

V is ~~2.405 H 10^{-5} m^3/mg mole,~~ the volume occupied by one ~~mg mole~~ mole of ideal gas at standard conditions (20°C, ~~1 atmosphere~~ 760 mm Hg) on a wet basis, 2.405 x 10^{-5} m^3/mg-mole (385.3 ft^3/lb-mole)

Q_i is the volumetric flow ~~in m^3~~ in the capture system during run ''i'', on a wet basis, adjusted to standard conditions ~~(20°C, 1 atmosphere) on a dry basis~~, m^3 (ft^3)

Note: See sub. (8)(a)5.

10^6 is the ppm per unity

M_i is the mass in mg of the single VOC used during run ''i''

NC is the number of carbon atoms in one molecule of the single VOC

(j)4. A minimum face velocity of ~~100 feet~~ 30.5 meters (100 feet) per minute shall be maintained continuously through each permanent opening into the enclosure when all temporary enclosure openings are closed. The cross-sectional area of each permanent opening shall be divided into at least 12 equal areas, and a velocity measurement shall be performed at the centroid of each equal area with an anemometer or similar velocity monitoring device; the face velocity of each permanent opening is the average value of the velocity measurements taken. The monitoring device shall be calibrated and operated according to the manufacturer's instructions. Temporary enclosure openings shall remain closed at all time except when worker access is necessary.

5.b. The face velocity through each permanent opening is ~~100 feet~~ 30.5 meters (100 feet) per minute~~; and~~.

(n)(intro.) For each undertread cementing operation and each sidewall cementing operation that does not use a VOC emission reduction system, the owner or operator shall use the following procedure to determine compliance with the ~~25 g/tire~~ VOC emission per tire limit specified in sub. (3)(b):

5. Where the value of the mass of VOC emitted per tire processed (N) is less than or equal to the ~~25 g/tire~~ VOC emission per tire limit specified under sub. (3)(b), the affected facility is in compliance.

(6)(b)(intro.)Each owner or operator of an affected facility that uses a catalytic incinerator shall maintain all of the following:

2. Records of all 3-hour periods of operation of which the average temperature measured before the catalyst bed is more than 28°C (50°F) below the gas stream temperature measured before the catalyst bed during the most recent determination of destruction efficiency of the catalytic incinerator that demonstrated that the affected facility was in compliance~~, and~~.

(d) Each owner or operator of an undertread cementing operation, sidewall cementing operation, green tires spraying operation where organic solvent-based sprays are used, Michelin-A operation, Michelin-B operation, or Michelin-C-automatic operation who seeks to comply with a specified ~~kg/mo uncontrolled~~ VOC ~~use~~ monthly usage limit shall maintain records of monthly VOC use and the number of days in each compliance period.

(7)(a) Each owner or operator subject to the provisions of this section, at the time of notification of the anticipated initial startup of an affected facility pursuant to s. NR 440.07(1)(b), shall provide a written report to the department declaring for each undertread cementing operation, each sidewall cementing operation, each green tire spraying operation where organic solvent-based ~~spray~~ sprays are used, each Michelin-A operation, each Michelin-B operation, and each Michelin-C-automatic operation the emission limit the owner or operator intends to comply with and the compliance method, where sub. (4)(j) is applicable, to be employed.

(c)1. For each affected facility for which the owner or operator seeks to comply with a ~~kg/mo uncontrolled~~ VOC ~~use~~ monthly usage limit specified under sub. (3)(a): the monthly mass of VOC used (M_o) and the number of days in the compliance period (T_d).

2. For each affected facility that seeks to comply with a ~~g/tire or g/bead limit~~ VOC emission limit per tire or per bead specified under sub. (3)(a) without the use of a VOC emission reduction system: the mass of VOC used (M_o), the number of tires cemented or sprayed (T_o), the mass of VOC emitted per tire cemented or sprayed (N), the number of beads cemented (B_o), and the mass of VOC emitted per bead cemented (N_b).

3. For each affected facility that uses a VOC emission reduction system with a control device that destroys VOC (e.g., incinerator) to comply with a ~~g/tire or g/bead limit~~ VOC emission limit per tire or per bead specified under sub. (3)(a): the mass of VOC used (M_o), the number of tires cemented or sprayed (T_o), the mass of VOC emitted per tire cemented or sprayed (N), the number of beads cemented (B_o), the mass of VOC emitted per bead cemented (N_b), the mass of VOC used per tire cemented or sprayed (G), the mass of VOC per bead cemented (G_b), the emission control device efficiency (E), the capture system efficiency (F_c), the face velocity through each permanent opening for the capture system with the temporary openings closed, and the overall system emission reduction (R).

5. For each affected facility that uses a carbon adsorber to comply with a ~~g/tire or g/bead limit~~ VOC emission limit per tire or per bead specified under sub. (3)(a): the mass of VOC used (M_o), the number of tires cemented or sprayed (T_o), the mass of VOC used per tire cemented or sprayed (G), the number of beads cemented (B_o), the mass of VOC used per bead (G_b), the mass of VOC recovered (M_r), the overall system emission reduction (R), the mass of VOC emitted per tire cemented or sprayed (N), and the mass of VOC emitted per bead cemented (N_b).

(d) Each owner or operator of an undertread cementing operation, sidewall cementing operation, green tire spraying operation where organic solvent-based sprays are used, or Michelin-B operation who seeks to comply with the requirements described under sub. (4)(j) shall include in the initial compliance report a statement specifying, in detail, how each of the equipment design and performance specifications has been met. The initial compliance report also shall include the following data: the emission control device efficiency (E), the face velocity through each permanent enclosure opening with all temporary enclosure openings closed, the total area of all permanent enclosure openings, the total area of all temporary enclosure openings, the maximum solvent use rate (kg/hr or lb/hr), the types of VOC used, the lower explosive limit (LEL) for each VOC used, and the length of time each component is enclosed after application of cement or spray material.

(f)1. Each monthly average VOC emission rate that exceeds the ~~g/tire or g/bead limit~~ VOC emission limit per tire or per bead specified under sub. (3)(a), as applicable for the affected facility.

2. Each monthly average VOC use rate that exceeds the ~~kg/mo~~ monthly VOC ~~use~~ usage limit specified under sub. (3)(a) as applicable for the affected facility.

(j) The owner or operator of each tread end cementing operation and each green tire spraying (inside, outside, or both) operation using water-based sprays containing less than 1.0%, by weight, of VOC as described in sub. (4)(b)1. shall furnish the department, within 60 days initially and annually thereafter, formulation data or Method 24 results to verify the VOC content of the water-based sprays in use. If the spray formulation changes before the end of the 12-month period, formulation data or Method 24 results to verify the VOC content of the spray shall be reported within 30 days of the change.

(8)(a)2. Method 25 as the reference method for the determination of VOC concentrations in each stack, both entering and leaving an emission control device. The owner or operator shall notify the department at least 30 days in advance of any test by Method 25. For Method 25, the sampling time for each of 3 runs shall be at least one hour. Method 1 shall be used to select the sampling site, and the sampling point shall be the centroid of the duct or at a point no closer to the walls than one meter (3.3 feet). The minimum sample volume shall be 0.003 dry standard cubic meter (dscm) (0.11 dry standard cubic feet (dscf)) except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.

5.(intro.) Method 25 or Method 25A for determination of the VOC concentration in a capture system prior to a control device when only a single VOC is present, as described in sub. (4)(f)2.d.7) and 8). The owner or operator shall notify the department at least 30 days in advance of any test by either Method 25 or Method 25A. Method 1 shall be used to select the sampling site and the sampling point shall be the centroid of the duct or at a point no closer to the walls than ~~1~~ one meter (3.3 feet). Method 2, 2A, 2C or 2D, as appropriate, shall be used as the test method for the concurrent determination of gas flow rate in the capture system.

a. For Method 25, the sampling time for each run shall be at least ~~1~~ one hour. For each run, a concurrent sample shall be taken immediately upwind of the application area to determine the background VOC concentration of air drawn into the capture system. Subtract this reading from the reading obtained in the capture system for that run. The minimum sample volume shall be 0.003 dscm (0.11 dscf) except that shorter sampling times or smaller volumes, when necessitated by process variable or other factors, may be approved by the department. Use Method 3 to determine the moisture content of the stack gas.

SECTION 286. NR 440.647(1)(a)4.a. and (b)1.b. Table 1 are amended to read:

NR 440.647(1)(a)4.a. Affected facilities with a design capacity to produce less than 1,000 Mg/yr (1,102 ton/yr) shall be exempt from sub. (4).

(b)1.b. Table 1

Table 1. Polypropylene and Polyethylene Affected Facilities with September 30, 1987, Applicability Date

Polymer	Production Processs	Process Section	Emissions	
			Continuous	Intermittent
1. Polypropylene	Liquid phase	Raw Materials Preparation	X	-
		~~Material Recovery~~ Polymerization Reaction	X	-
		~~Polymerization Reaction~~ Material Recovery	X	X
		Product Finishing	X	-
		Product Storage	-	-
2. Polypropylene	Gas Phase	Raw Materials Preparation	-	-
		Polymerization Reaction	-	X
		Material Recovery	X	-
		Product Finishing	-	-
		Product Storage	-	-
3. Low Density Polyethylene	High Pressure	Raw Materials Preparation	-	X
		Polymerization Reaction	-	X
		Material Recovery	-	X
		Product Finishing	-	X
		Product Storage	-	X
4. Low Density Polyethylene	Low Pressure	Raw Materials Preparation	X	X
		~~Polymerization Reaction~~	~~-~~	~~X~~
		~~Material Recovery~~	~~-~~	~~-~~
5. High Density Polyethylene	Gas Phase	Polymerizaton Reaction	-	X
		Material Recovery	-	-
		Product Finishing	X	-
		Product Storage	-	-
6. High Density Polyethylene	Liquid Phase Slurry	Raw Materials Preparation	-	X
		Polymerization Reaction	-	-
		Material Recovery	X	-
		Product Finishing	X	-
		Product Storage	-	-
7. High Density Polyethylene	Liquid Phase Solution	Raw Materials Preparation	X	X
		Polymerization Reaction	-	X
		Material Recovery	X	X
		Product Finishing	-	-
		Product Storage	-	-

SECTION 287. NR 440.647(1)(j) is created to read:

NR 440.647(1)(j)1. Owners or operators may choose to comply with 40 CFR part 65, subpart G, as in effect on December 14, 2000, for continuous process vents that are subject to this section, that choose to comply with sub. (3)(a)1.a.1), 2) or 3) as allowed in sub. (3)(a)1. and (b)1.c. The requirements of 40 CFR part 65, subpart G, as in effect on December 14, 2000, satisfy the requirements of par. (c) and subs. (5) to (7), except for sub. (7)(g)1. Other provisions applying to owners or operators who choose to comply with 40 CFR part 65, subpart G, as in effect on December 14, 2000, are provided in 40 CFR 65.1

2. Owners or operators who choose to comply with 40 CFR part 65, subpart G, as in effect on December 14, 2000, shall also comply with ss. NR440.01, 440.02, 440.05, 440.06, 440.07(1)(a) and (d), 440.14, 440.15 and 440.16 for those process vents. All sections or subsections from ss. NR 440.01 to 440.19 not specified in this subdivision do not apply to owners or operators of process vents complying with 40 CFR part 65, subpart G, except that provisions required to be met prior to implementing 40 CFR part 65 still apply. Owners or operators who choose to comply with 40 CFR part 65, subpart G, as in effect on December 14, 2000, shall comply with 40 CFR part 65, subpart A.

3. Each owner or operator subject to the provisions of this section that chooses to comply with 40 CFR part 65, subpart G, as in effect on December 14, 2000, at initial startup shall notify the administrator of the specific provisions of 40 CFR part 65, subpart G, as in effect on December 14, 2000, with which the owner or operator has elected to comply. Notification shall be submitted with the notification of initial startup required by 40 CFR 65.5(b).

SECTION 288. NR 440.647(2)(a)12., 21., 22., 30. and 31.; (3)(a)1.c.(intro.), (b)1.a. and b., (c)1.a.1) and b.1) to 3), 2.a. and b.1) to 3); (4)(d) and (6)(c)1. are amended to read:

NR 440.647(2)(a)12. “End finisher’’ means a polymerization reaction vessel operated under very low pressures, typically at pressures of ~~2 torr~~ 2 mm Hg (1 in H_2O) or less, in order to produce high viscosity poly(ethylene terephthalate). An end finisher is preceded in a high viscosity poly(ethylene terephthalate) process line by one or more polymerization vessels operated under less severe vacuums, typically between ~~5 and 10 torr~~ 5 and 10 mm Hg (3 and 5 in H_2O). A high viscosity poly(ethylene terephthalate) process line may have one or more end finishers.

21. ‘‘High density polyethylene’’ or ‘‘HDPE’’ means a thermoplastic polymer or copolymer comprised of at least 50% ethylene by weight and having a density of greater than 0.940 g/cm^3 (58.7 lb/ft^3).

22. ‘‘High pressure process’’ means the conventional production process for the manufacture of low density polyethylene in which a reaction pressure of about 15,000 psig (103,000 kPa gauge) or greater is used.

30. ‘‘Low density polyethylene’’ or ‘‘LDPE’’ means a thermoplastic polymer or copolymer comprised of at least 50% ethylene by weight and having a density of 0.940 g/cm^3 (58.7 lb/ft^3) or less.

31. ‘‘Low pressure process’’ means a production process for the manufacture of low density polyethylene in which a reaction pressure markedly below that used in a high pressure process is used. Reaction pressure of current low pressure processes typically go up to about 300 psig (2,070 kPa gauge).

(3)(a)1.c.(intro.) Controlled continuous emissions. For each vent stream that emits continuous emissions from an affected facility as defined in sub. (1)(a)1. and that is controlled in an existing control device, each owner or operator shall determine whether the emissions entering the control device are greater than or equal to the calculated threshold emissions (CTE) level, which is to be calculated using the TOC concentration of the inlet vent stream and the equations in footnote b of Table 3. If the inlet stream's TOC concentration is equal to or greater than 20 weight percent, the calculated threshold emissions level is 18.2 Mg/yr (20.1 ton/yr). If multiple emission streams are vented to the control device, the individual streams are not to be separated into individual weight percent ranges for calculation purposes as would be done for uncontrolled emission streams. Emissions vented to an existing control device are required to be controlled as described in subd. 1. c.1) and 2). Figure 2 illustrates the control determination procedure for controlled continuous emissions.

(b)1.a. Not allow continuous TOC emissions to be greater than 0.0036 kg TOC/Mg 0.0072 lb TOC/ton) product~~; or~~.

b. Not allow the outlet gas stream temperature from each final condenser in the material recovery section to exceed -25°C (-13°F). For purposes of this standard, temperature excursions above this limit ~~will~~ may not be considered a violation when the excursions occur during periods of startup, shutdown or malfunction~~; or~~.

(c)1.a.1) Not allow the continuous TOC emissions to be greater than 0.018 kg TOC/Mg (0.040 lb TOC/ton) product~~; or~~.

b.1) Not allow continuous TOC emissions from the polymerization reaction section, including emissions from any equipment used to further recover the ethylene glycol, but excluding those emissions from the cooling tower, to be greater than 0.020 kg TOC/Mg (0.044 lb TOC/ton) product~~; and~~.

2) If steam-jet ejectors are used as vacuum producers and a low viscosity product is being produced using single or multiple end finishers or a high viscosity product is being produced using a single end finisher, maintain the concentration of ethylene glycol in the liquid effluent exiting the vacuum system servicing the polymerization reaction section at or below 0.35% by weight, averaged on a daily basis over a rolling 14-day period of operating days~~; or~~.

3) If steam-jet ejectors are used as vacuum producers and a high viscosity product is being produced using multiple end finishers, maintain an ethylene glycol concentration in the cooling tower at or below 6.0% by weight, averaged on a daily basis over a rolling 14-day period of operating days.

2.a. Not allow the continuous TOC emissions from the esterification vessels in the raw materials preparation section to be greater than 0.040 kg TOC/Mg (0.088 lb TOC/ton) product.

b.1) Not allow continuous TOC emissions from the polymerization reaction section, including emissions from any equipment used to further recover the ethylene glycol, but excluding those emissions from the cooling tower, to be greater than 0.020 kg TOC/Mg (0.044 lb TOC/ton) product~~; and~~.

2) If steam-jet ejectors are used as vacuum producers and a low viscosity product is being produced using single or multiple end finishers or a high viscosity product is being produced using a single end finisher, maintain the concentration of ethylene glycol in the liquid effluent exiting the vacuum system servicing the polymerization reaction section at or below 0.35% by weight, averaged on a daily basis over a rolling 14-day period of operating days~~; or~~.

3) If steam-jet ejectors are used as vacuum producers and a high viscosity product is being produced using multiple end finishers, maintain an ethylene glycol concentration in the cooling tower at or below 6.0% by weight, averaged on a daily basis over a rolling 14-day period of operating days.

(4)(d) Each owner or operator subject to the provisions of this section shall comply with the provisions specified in s. NR 440.62(6) except an owner or operator may use the following provision in addition to s. NR 440.62(6)(e). Equipment is in light liquid service if the percent evaporated is greater than 10% at 150°C (302°F) as determined by ASTM ~~Method D86 78~~ D86-96, incorporated by reference in s. NR 440.17(2)(a)7.

(6)(c)1. The emission reduction of TOC (minus methane and ethane) shall be determined using the following equation:

$$P = \frac{E_{inlet} - E_{outlet}}{E_{inlet}} \times 100$$

where:

P is the percent emission reduction, by weight

E_{inlet} is the mass rate of TOC entering the control device, kg TOC/hr (lb TOC/hr)

E_{outlet} is the mass rate of TOC, discharged to the atmosphere, kg TOC/hr (lb TOC/hr)

SECTION 289. NR 440.647(6)(d)1.(intro.) and (f)(intro.) are repealed and recreated to read:

NR 440.647(6)(d)1.(intro.) The uncontrolled annual emissions of the individual vent stream shall be determined using the following equation:

$$E_{unc} = K_2\left(\sum_{j=1}^{n} C_j M_j\right) Q \text{ x } 8{,}600$$

where:

E_{unc} is the uncontrolled annual emissions, Mg/yr (ton/yr)

C_j is the concentration of sample component j of the gas stream, dry basis, ppmv

M_j is the molecular weight of sample component j of the gas stream, g/g-mole (lb/lb-mole)

Q is the flow rate of the gas stream, dscm/hr (dscf/hr)

K_2 is 4.157 x 10^{-11} [(Mg)(g-mole)]/[(g)(ppm)(dscm)] for metric units and 1.298 x 10^{-12} [(ton)(lb-mole)]/[(lb)(ppm)(dscf)] for English units

8,600 is the operating hours per year

(f)(intro.) The owner or operator shall determine compliance with the net heating value provisions in s. NR 440.18 as referenced by sub. (3)(a)1.a.3). The net heating value of the process vent stream being combusted in a flare shall be computed

$$H_T = K_3\left(\sum_{j=1}^{n} C_j H_j\right)$$

as follows:

where:

H_T is the vent stream net heating value, MJ/scm (Btu/scf), where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg (77°F and 30 in Hg), but the standard temperature for determining the volume corresponding to one mole is 20°C (68°F)

K_3 is 1.74 x 10^{-7} (1/ppm)(g-mole/scm)(MJ/kcal) for metric units where standard temperature for (g-mole/scm) is 20°C and 4.67 x 10^{-6} (1/ppm)(lb-mole/scf)(Btu/kcal) for English units where standard temperature for (lb-mole/scf) is 68°F

C_j is the concentration on a wet basis of compound j in ppm

H_j is the net heat of combustion of compound j, kcal/g-mole (kcal/lb-mole), based on combustion at 25°C and 760 mm Hg (77°F and 30 in Hg)

SECTION 290. NR 440.647(6)(f)1. and 3. are amended to read:

NR 440.647(6)(f)1. Method 18 shall be used to determine the concentration of each individual organic component (C_j) in the gas stream. Method 1 or 1A, as appropriate, shall be used to determine the sampling site to the inlet of the flare. Using this same sample, ASTM ~~D1946-77~~ D1946-90 (reapproved 1994), incorporated by reference in s. NR 440.17(2)(a)24., shall be used to determine the hydrogen and carbon monoxide content.

3. Published or calculated values shall be used for the net heats of combustion of the sample components. If values are not published or cannot be calculated, ASTM ~~D2382-76~~ D2382-88 or D4809-95, incorporated by reference in s. NR 440.17(2)(a)30. and 61., may be used to determine the net heat of combustion of component ``j''.

SECTION 291. NR 440.647(6)(g)2. and 3. and (h)(intro.) are repealed and recreated to read:

NR 440.647(6)(g)2. If applicable, the maximum permitted velocity (V_{max}) for steam-assisted and nonassisted flares shall be computed using the following equation:

$$\mathrm{Log}_{10}(V_{max}) = (H_T + K_4)/K_5$$

where:

V_{max} is the maximum permitted velocity, m/sec (ft/sec)

K_4 is 28.8 for metric units and 1212 for English units

K_5 is 31.7 for metric units and 850.8 for English units

H_T is the net heating value as determined in par. (f), MJ/scm (Btu/scf)

3. The maximum permitted velocity, V_{max}, for air-assisted flares shall be determined by the following equation:

$$V_{max} = K_6 + K_7 H_T$$

where:

V_{max} is the maximum permitted velocity, m/sec (ft/sec)

K_6 is 8.706 m/sec for metric units and 28.56 ft/sec for English units

K_7 is 0.7084 [(m/sec)/(MJ/scm)] for metric units and 0.00245 [(ft/sec)/(Btu/scf)] for English units

H_T is the net heating value as determined in par. (f), MJ/scm (Btu/scf)

(h)(intro.) The owner or operator shall determine compliance with the mass emission per mass product standards in sub. (1)(d) and (e) and in sub. (3)(b)1.a., (c)1.a.1), b.1), 2.a. and b.1).

SECTION 292. NR 440.647(6)(h)1. and 2. are renumbered NR 440.647(6)(h)2. and 3. and NR 440.647(6)(h)3. as renumbered is amended to read:

NR 440.647(6)(h)3. The rate of polymer ~~produced~~ production, P_p ~~(kg/hr)~~, shall be determined by dividing the weight of polymer pulled ~~in kilograms (kg)~~ (in kg (lb)) from the process line during the performance test by the number of hours ~~(hr)~~ taken to perform the performance test. The weight of polymer pulled~~, in kilograms,~~ shall be determined by direct measurement or, subject to prior approval by the department, computed from materials balance by good engineering practice.

SECTION 293. NR 440.647(6)(h)1. is created to read:

NR 440.647(6)(h)1. The emission rate of TOC shall be computed using the following equation:

$$ER_{TOC} = K_5 \frac{E_{TOC}}{P_p}$$

where:

ER_{TOC} is the emission rate of total organic compounds, minus methane and ethane, kg TOC/Mg product (lb TOC/ton)

E_{TOC} is the emission rate of total organic compounds, minus methane and ethane, in the sample, kg/hr (lb/hr)

P_p is the rate of polymer production, kg/hr (lb/hr)

K_5 is 1,000 kg/Mg for metric units and 2,000 lb/ton for English units

SECTION 294. NR 440.647(6)(j)1.(intro.) and a. are amended to read:

NR 440.647(6)(j)1.(intro.) Using procedures that conform to the methods described in ASTM ~~D2908-74~~ D2908-91, Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, incorporated by reference in s. NR 440.17(2)(a)37., except as provided in ~~par. (j)~~ subd. 2.:

a. At least one sample per operating day shall be collected using the grab sampling procedures of ASTM ~~D3370-76~~ D3370-95a, Standard Practices for Sampling Water, incorporated by reference in s. NR 440.17(2)(a)47. An average ethylene glycol concentration by weight shall be calculated on a daily basis over a rolling 14-day period of operating days, except as provided in ~~par. (j)~~ subd. 1.b. and c. Each daily average ethylene glycol concentration so calculated constitutes a performance test. Exceedance of the standard during the reduced testing program specified in ~~par. (j)~~ subd. 1.b. and c. is a violation of these standards.

SECTION 295. NR 440.647(6)(j)1.d. is repealed and recreated to read:

NR 440.647(6)(j)1.d. The upper 95% confidence interval shall be calculated using the following equation:

$$CI_{95} = \frac{\sum_{i=1}^{n} X_i}{n} + 2\sqrt{\frac{n\sum_{i=1}^{n} X_i^{\,2} - \left(\sum_{i=1}^{n} X_i\right)^2}{n(n-1)}}$$

where:

X_i is the daily ethylene glycol concentration for each day used to calculate the 14-day rolling average used in test results to justify implementing the reduced testing program

n is the number of ethylene glycol concentrations

SECTION 296. NR 440.647(6)(j)2. is amended to read:

NR 440.647(6)(j)2. Measuring an alternative parameter, such as carbon oxygen demand or biological oxygen demand, that is demonstrated to be directly proportional to the ethylene glycol concentration. ~~Such~~ The parameter shall be measured during the initial 14-day performance test during which the facility is shown to be in compliance with the ethylene glycol concentration standard whereby the ethylene glycol concentration is determined using the procedures described in ~~par. (j)~~ subd. 1. The alternative parameter shall be measured on a daily basis and the average value of the alternative parameter shall be calculated on a daily basis over a rolling 14-day period of operating days. Each daily average value of the alternative parameter constitutes a performance test.

SECTION 297. NR 440.647(7)(a)1.b., (f)1.(intro.) and a. and (g)(intro.) and 1. are amended to read:

NR 440.647(7)(a)1.b. The percent reduction of TOC (minus methane and ethane) achieved by the incinerator, the concentration of TOC (minus methane and ethane) (ppmv, by compound) at the outlet of the control device on a dry basis or the emission rate in terms of ~~kilograms~~ kg TOC (minus methane and ethane) per ~~megagram~~ Mg of product (lb TOC/ton) at the outlet of the control device, whichever is appropriate. If supplemental combustion air is used, the TOC concentration corrected to 3% oxygen shall be recorded and reported.

(f)1.(intro.) Where an absorber is the final unit in a system, both of the following:

a. All 3-hour periods of operation during which the average absorbing liquid temperature was more than 11°C (20°F) above the average absorbing liquid temperature during the most recent performance test at which compliance was demonstrated ~~are exceeded, and~~.

(g)(intro.) Each owner or operator of an affected facility subject to the provisions of this section and seeking to demonstrate compliance with sub. (1)(j) or (3) shall keep up-to-date, readily accessible records of both of the following:

1. Any changes in production capacity, feedstock type or catalyst type or of any replacement, removal or addition of product recovery equipment~~; and~~.

SECTION 298. NR 440.65(2)(a)6. and (b)15. to 17, (4)(a)(intro.) and 1., (b)4. and 5. and (c)2. to 4. and (5)(b)1. and 2. and (c)1. are amended to read:

NR 440.65(2)(a)6. "Ink solids'' means the solids content of an ink as determined ~~by Reference~~ from Method 24, ink manufacturer's formulation data, or plant blending records.

(b)15. ''W_{oi}'' means the weight fraction of VOC in each ink (i) used in the time period as determined ~~by~~ ~~Reference~~ from Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), manufacturer's formulation data, or plant blending records, in kilograms per kilogram.

16. ''W_{xi}'' means the weight fraction of solids in each ink (i) used in the time period as determined from ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), manufacturer's formulation data, or plant blending records, in kilograms per kilogram.

17. ''W_{oj}'' means the weight fraction of VOC in each dilution solvent (j) added at the print line in the time period determined from ~~Reference~~ Method 24 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), manufacturer's formulation data, or plant blending records, in kilograms per kilogram.

(4)(a)(intro.) ~~Reference~~ Methods in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), ~~except as provided under s. NR 440.17,~~ except as provided under s. NR 440.08(2), shall be used to determine compliance with sub. (3), as follows:

1. Method 24 for analysis of inks. If nonphotochemically reactive solvents are used in the inks standard gas chromatographic techniques may be used to identify and quantify these solvents. The results of ~~Reference method~~ Method 24 may be adjusted to subtract these solvents from the measured VOC content.

(b)4. Each determination of the weighted average VOC content shall constitute a performance test for any period when VOC emission control equipment is not used. Results of the initial performance test ~~must~~ shall be reported to the department. ~~Reference~~ Method 24 or ink manufacturers' formulation data along with plant blending records (if plant blending is done) may be used to determine VOC content. The department may require the use of ~~Reference~~ Method 24 if there is a question concerning the accuracy of the ink manufacturer's data or plant blending records.

5. If, during the time ~~period~~ periods when emission control equipment is not used, all inks used contain less than 1.0 kilogram VOC per kilogram ink solids, the owner or operator is not required to calculate the weighted average VOC content but ~~must~~ shall verify and record the VOC content of each ink (including any added dilution solvent) used as determined by ~~Reference~~ Method 24, ink manufacturers' formulation data or plant blending records.

(c)2. To determine VOC content of inks and dilution solvent used or recycled, ~~Reference~~ Method 24 or ink manufacturers' formulation data ~~must~~ shall be used in combination with plant blending records (if plant blending is done) or inventory records or purchase records for new inks or dilution solvent.

3. For inks to be discarded only ~~Reference~~ Method 24 shall be used to determine the VOC content. Inks to be discarded may be combined prior to measurement of volume or weight and tested by ~~Reference~~ Method 24.

4. The department may require the use of ~~Reference~~ Method 24 if there is a question concerning the accuracy of the ink manufacturer's data or plant records.

(5)(b)1. The continuous monitoring device shall be calibrated annually and have an accuracy of ± 0.75% of the temperature being measured, expressed in degrees Celsius, or ± 2.5°C, whichever is greater.

2. During the performance test, the owner or operator shall determine and record the average temperature of the control device exhaust gases. After the performance test, the owner or operator shall determine and record, in addition to the record made by the continuous monitoring device, the average temperature for each 3-hour clock period of printing operation when the average temperature of the exhaust gases is more than 28°C (50°F) below the average temperature demonstrated during the most recent performance test.

(c)1. Each continuous monitoring device shall be calibrated annually and have an accuracy of ± 0.75% of the temperature being measured, expressed in degrees Celsius, or ± 2.5°C, whichever is greater.

SECTION 299. NR 440.66(title) and (4)(b)2. and (d) are amended to read:

NR 440.66(title) **~~Equivalent~~ Equipment leaks of VOC in petroleum refineries.**

(4)(b)2. 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~~ shall be determined that the percent hydrogen content can be reasonably expected always to exceed 50% 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 ASTM ~~E260-73~~ E260-96, ~~E168-67~~ E168-92, or ~~E169-63~~ E169-93, incorporated by reference in s. NR 440.17(2)(a)75., 73. and 74., respectively, shall be used.

(d) An owner or operator may use the following provision in addition to s. NR 440.62(6)(e): Equipment is in light liquid service if the percent evaporated is greater than 10% at 150°C as determined by ASTM ~~Method D86-78~~ method D86-96, incorporated by reference in s. NR 440.17(2)(a)7.

SECTION 300. NR 440.67(1)(a) is amended to read:

NR 440.67(1)(a) Except as provided in par. (b), the affected facility to which the provisions of this section apply is each solvent-spun synthetic fiber process that produces more than 500 ~~megagrams~~ Mg (551 ton) of fiber per year.

SECTION 301. NR 440.67(3)(a) is renumbered NR 440.67(3) and amended to read:

NR 440.67(3) STANDARD FOR VOLATILE ORGANIC COMPOUNDS. On and after the date on which the initial performance test required to be conducted by s. NR 440.08 is completed, no owner or operator subject to the provisions of this section may cause the discharge into the atmosphere from any affected facility that produces acrylic fibers VOC emissions that exceed 10 ~~kilograms (kg) VOC per megagram (Mg)~~ kg/Mg (20 lb/ton) solvent feed to the spinning solution preparation system or precipitation bath. VOC emissions from affected facilities that produce both acrylic and nonacrylic fiber types may not exceed 10 ~~kg VOC per Mg~~ kg/Mg (20 lb/ton) solvent feed. VOC emissions from affected facilities that produce only nonacrylic fiber types may not exceed 17 ~~kg VOC per Mg~~ kg/Mg (34 lb/ton) solvent feed. Compliance with the emission limitations is determined on a 6-month rolling average basis as described in sub. (4).

SECTION 302. NR 440.67(4)(b)(intro.) is amended to read:

NR 440.67(4)(b)(intro.) Each owner or operator of an affected facility shall determine compliance with the applicable standard in sub. (3)~~(a)~~ by determining and recording monthly the VOC emissions per ~~Mg~~ unit mass solvent feed from each affected facility for the current and preceding 5 consecutive calendar months and using these values to calculate the 6-month average emissions. Each calculation is considered a performance test. The owner or operator of an affected facility shall use the following procedure to determine VOC emissions for each calendar month~~;~~:

SECTION 303. NR 440.67(4)(b)2. is repealed and recreated to read:

NR 440.67(4)(b)2. VOC emissions shall be determined each calendar month by use of the following equations:

$$E = \frac{M_W}{S_W} - N - I \text{ where } M_W = M_V S_P D$$

$$S_W = \frac{S_V S_P D}{K}$$

$$I = \frac{I_E - I_S}{S_W}$$

where all values are for the calendar month only and where:

E is the VOC emissions in kg/Mg (lb/ton) solvent

S_V is the measured or calculated volume of solvent feed in liters (gallons)

S_W is the weight of solvent feed in Mg (ton)

M_V is the measured volume of makeup solvent in liters (gallons)

M_W is the weight of makeup in kg (lb)

N is the allowance for nongaseous losses, 13 kg/Mg (26 lb/ton) solvent feed to the spinning solution preparation system and precipitation bath. This value shall be used in all cases unless an owner or operator demonstrates to the satisfaction of the department that greater nongaseous losses occur at the affected facility. In this case, the greater value may be substituted in the equation.

S_P is the fraction of measured volume that is actual solvent (excludes water)

D is the density of the solvent in kg/liter (lb/gallon)

K is a conversion factor, 1000 kg/Mg (2,000 lb/ton)

I is the allowance for solvent inventory variation or changes in the amount of solvent contained in the affected facility, kg/Mg (lb/ton) solvent feed (may be positive or negative)

I_S is the amount of solvent contained in the affected facility at the beginning of test period, as determined by the owner or operator, in kg (lb)

I_E is the amount of solvent contained in the affected facility at the close of the test period, as determined by the owner or operator, in kg (lb)

SECTION 304. NR 440.67(5)(b) is amended to read:

NR 440.67(5)(b) Solvent-spun synthetic fiber producing facilities exempted from these standards in sub. (1)(a) (those producing less than 500 ~~megagrams~~ Mg (551 tons) annually) shall report to the department within 30 days whenever extruded fiber for the preceding 12 calendar months exceeds 500 ~~megagrams~~ Mg (551 tons).

SECTION 305. NR 440.675(1)(d) is created to read:

NR 440.675(1)(d)1. Owners or operators of process vents that are subject to this section may choose to comply with the provisions of 40 CFR part 65, subpart D, as in effect on December 14, 2000, to satisfy the requirements of subs. (3) to (6). The provisions of 40 CFR part 65, subpart D, as in effect on December 14, 2000, also satisfy the criteria of par. (c). Other provisions applying to an owner or operator who chooses to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, are provided in 40 CFR 65.1.

2. Owners or operators who choose to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, shall also comply with ss. NR 440.01, 440.02, 440.05, 440.06, 440.07(1)(a) and (d), 440.14, 440.15 and 440.16 for those process vents. All sections or subsections from ss. NR 440.01 to 440.19 not specified in this subdivision do not apply to owners or operators of process vents complying with 40 CFR part 65, subpart D, as in effect on December 14, 2000, except that provisions required to be met prior to implementing 40 CFR part 65 still apply. Owners or operators who choose to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, shall comply with 40 CFR part 65, subpart A.

3. Owners or operators who choose to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, at initial startup shall comply with subds. 1. and 2. for each vent stream on and after the date on which the initial performance test is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after the initial startup, whichever date comes first.

4. Each owner or operator subject to the provisions of this section that chooses to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, at initial startup shall notify the administrator of the specific provisions of 40 CFR 65.63(a)(1), (2) or (3) with which the owner or operator

has elected to comply. Notificaton shall be submitted with the notification of initial startup required by 40 CFR 65.5(b).

SECTION 306. NR 440.675(4)(c)3. is renumbered NR 440.675(4)(d) and amended to read:

NR 440.675(4)(d) ~~Monitor~~ The owner or operator of an affected facility that uses a boiler or process heater to comply with sub. (3)(a) shall monitor and record the periods of operation of the boiler or process heater if the design input capacity of the boiler is 44 MW (150 million Btu/hr) or greater. The records shall be readily available for inspection.

SECTION 307. NR 440.675(4)(d) and (e) are renumbered NR 440.675(4)(e) and (f).

SECTION 308. NR 440.675(5)(b)4.b. and c. are amended to read:

NR 440.675(5)(b)4.b. The emission reduction (R) of TOC (minus methane and ethane) shall be determined using the following equation:

$$R = \frac{E_i - E_o}{E_i} \times 100$$

where:

R is the emission reduction, percent by weight

E_i is the mass rate of TOC entering the control device, ~~kg TOC/hr~~ kg/hr (lb/hr)

E_o is the mass rate of TOC discharged to the atmosphere, ~~kg TOC/hr~~ kg/hr (lb/hr)

c. The mass rates of TOC (E_i, E_o) shall be computed using the following equations:

$$E_i = K_2 \left(\sum_{j=1}^{n} C_{ij} M_{ij} \right) Q_i$$

where:

$$E_o = K_2\left(\sum_{j=1}^{n} C_{oj} M_{oj}\right) Q_o$$

C_{ij} and C_{oj} are the concentration of sample component ''j'' of the gas stream at the inlet and outlet of the control device, respectively, dry basis, ppm by volume

M_{ij} and M_{oj} are the molecular weight of sample component ''j'' of the gas stream at the inlet and outlet of the control device, respectively, g/g-mole (lb/lb-mole)

Q_i and Q_o are the flow rate of gas stream at the inlet and outlet of the control device, respectively, dscm/min (~~dscf/hr~~ dscf/min)

K_2 is a constant, 2.494×10^{-6} (1/ppm)(g-mole/scm)(kg/g)(min/hr) for metric units, where standard temperature for (g-mole/scm) is 20°C, and 1.557×10^{-7} (1/ppm)(lb-mole/scf)(min/hr) for English units, where standard temperature for (lb-mole/scf) is 68°F

SECTION 309. NR 440.675(5)(b)5., (c), (d), (e) and (f) are renumbered NR 440.675(5)(c), (d), (e), (f) and (g) respectively and as renumbered NR 440.675(5)(e)1., 3.b., 5. and 6. and (f)1.a., including Table 1, and b. and 2., including Table 2, are amended to read:

NR 440.675(5)(e)1. Method 1 or 1A, as appropriate, for selection of the sampling site. The sampling site for the vent stream flow rate and molar composition determination prescribed in subds. 3. and 4. shall be, except for the situations outlined in subd. 2., prior to the inlet of any control device, prior to any post-reactor dilution of the stream with air and prior to any post-reactor introduction of halogenated compounds into the vent stream. No transverse site selection method is needed for vents smaller than ~~4 inches~~ 10 centimeters (4 inches) in diameter.

3.b. ASTM ~~D1946-77~~ D1946-90 (reapproved 1994), incorporated by reference in s. NR 440.17(2)(a)24., to measure the concentration of carbon monoxide and hydrogen.

5. The net heating value of the vent stream shall be calculated using the following equation:

$$H_T = K_1\left(\sum_{j=1}^{n} C_j H_j\right)$$

where:

H_T is the net heating value of the sample, MJ/scm (Btu/scf), where the net enthalpy per mole of ~~offgas~~ vent stream is based on combustion at 25°C and 760 mm Hg (77°F and 30 in Hg), but the standard temperature for determining the volume corresponding to one mole is 20°C (68°F)~~, as in the definition of Q_s (offgas flow rate)~~

~~K_1 is a constant, 1.740 x 10^{-7}~~

~~$\frac{(1)}{(ppm)} \quad \frac{(g\ mole)}{(scm)} \quad \frac{(MJ)}{(kcal)}$~~

~~where standard temperature for~~

~~$\frac{(g\ mole)}{(scm)}$ is 20°C~~

K_1 is a constant, 1.740 x 10^{-7} (1/ppm)(g-mole/scm)(MJ/kcal) for metric units where standard temperature for (g-mole/scm) is 20°C, and 1.03 x 10^{-11} (1/ppm)(lb-mole/scf)(Btu/kcal) for English units where standard temperature for (lb-mole/scf) is 68°F

C_j is the concentration on a wet basis of compound j in ppm, as measured for organics by Method 18 and measured for hydrogen and carbon monoxide by ASTM ~~D1946-77~~ D1946-90 (reapproved 1994), incorporated by reference in s. NR

440.17(2)(a)24., as indicated in subd 3.

H_j is the net heat of combustion of compound j, kcal/g-mole (kcal/lb-mole), based on combustion at 25°C and 760 mm Hg (77°F and 30 in Hg). The heats of combustion of vent stream components would be required to be determined using ASTM ~~D2382-76~~ D2382-88 or D4809-95, incorporated by reference as specified in s. NR 440.17(2)(a)30. and 61., if published values are not available or cannot be calculated

6. The emission rate of TOC in the process vent stream shall be calculated using the following equation:

$$E_{TOC} = K_2 \left(\sum_{j=1}^{n} C_j M_j \right) Q_s$$

where:

E_{TOC} is the emission rate of TOC in the sample, kg/hr (lb/hr)

K_2 is the constant, 2.494×10^{-6} (1/ppm)(g-mole/scm)(kg/g)(min/hr) for metric units, where standard temperature for (g-mole/scm) is 20°C, and 1.557×10^{-7} (1/ppm)(lb-mole/scf)(min/hr) for English units, where standard temperature for (lb-mole/scf) is 68°F

C_j is the concentration on a wet basis of compound j in ppm as measured by Method 18 as indicated in subd. 3.

M_j is the molecular weight of sample j, g/g-mole (lb/lb-mole)

Q_s is the vent stream flow rate (scm/min) (scf/hr) at a standard temperature of 20°C (68°F)

(f)1.a. Where for a vent stream flow rate ~~(scm/min) at a standard temperature of 20°C~~ that is greater than or equal to 14.2 scm/min (501 scf/min) at a standard temperature of 20°C (68°F):

TRE is the TRE index value

Q_s is the vent stream flow rate ~~(scm/min)~~, scm/min (scf/min), at a standard temperature of 20°C (68°F)

H_T is the vent stream net heating value ~~(MJ/scm)~~, MJ/scm (Btu/scf), where the net enthalpy ~~of combustion~~ per mole of vent stream is based on combustion at 25°C and 760 mm Hg (68°F and 30 in Hg), but the standard temperature for determining the volume corresponding to one mole is 20°C (68°F), as in the definition of Q_s

Y_s ~~is the~~ = Q_s for all vent stream categories listed in Table 1 except for Category E vent streams where $Y_s = (Q_s)(H_T)/3.6$ for metric units and $Y_s = (Q_s)(H_T)/97$ for English units

E_{TOC} is the hourly emissions of TOC ~~reported in~~, kg/hr (lb/hr)

a, b, c, d, e and f are coefficients

The set of coefficients which apply to a vent stream shall be obtained from Table 1.

Table 1.
Air Oxidation NSPS TRE Coefficients For Vent Streams Controlled By an Incinerator

Design Category A1. For Halogenated Process Vent Streams,
If $0 \le$ Net Heating Value (MJ/scm) ≤ 3.5 Or If $0 \le$ Net Heating Value (Btu/scf) ≤ 94:

	Q_s = Vent Stream Flow Rate ~~(~~scm/min~~)~~ (scf/min)	a	b	c	d	e	f
1.	$14.2 \le Q_s \le 18.8$ $(501 \le Q_s \le 664)$	19.18370 (42.29238)	0.27580 (0.017220)	0.75762 (0.072549)	−0.13064 (-0.00030361)	0 (0)	0.01025 (0.003803)
2.	$18.8 < Q_s \le 699$ $(664 < Q_s \le 24{,}700)$	20.00563 (44.10441)	0.27580 (0.017220)	0.30387 (0.029098)	−0.13064 (-0.00030361)	0 (0)	0.01025 (0.003803)
3.	$699 < Q_s \le 1400$ $(24{,}700 < Q_s \le 49{,}000)$	39.87022 (87.89789)	0.29973 (0.018714)	0.30387 (0.029098)	−0.13064 (-0.00030361	0 (0)	0.01449 (0.005376)
4.	$1400 < Q_s \le 2100$ $(49{,}000 < Q_s \le 74000)$	59.73481 (131.6914)	0.31467 (0.019647)	0.30387 (0.029098)	−0.13064 (-0.00030361)	0 (0)	0.01775 (0.006585)
5.	$2100 < Q_s \le 2800$ $(74{,}000 < Q_s \le 99{,}000)$	79.59941 (175.4849)	0.32572 (0.020337)	0.30387 (0.029098)	−0.13064 (-0.00030361)	0 (0)	0.02049 (0.007602)
6.	$2800 < Q_s \le 3500$ $(99{,}000 < Q_s \le 120{,}000)$	99.46400 (219.2783)	0.33456 (0.020888)	0.30387 (0.029098)	−0.13064 (-0.00030361)	0 (0)	0.02291 (0.008500)

Design Category A2. For Halogenated Process Vent Streams,
If Net Heating Value > 3.5 MJ/scm Or If Net Heating Value > 94 (Btu/scf):

	Q_s = Vent Stream Flow Rate ~~(scm/min)~~ (scf/min)	a	b	c	d	e	f
1.	$14.2 \le Q_s \le 18.8$	18.84466	0.26742	−0.20044	0	0	0.01025
	$(501 \le Q_s \le 664)$	(41.54494)	(0.016696)	(-0.019194)	(0)	(0)	(0.003803)
2.	$18.8 < Q_s \le 699$	19.66658	0.26742	−0.25332	0	0	0.01025
	$(664 < Q_s \le 24{,}700)$	(43.35694)	(0.016696)	(-0.024258)	(0)	(0)	(0.003803)
3.	$699 < Q_s \le 1400$	39.19213	0.29062	−0.25332	0	0	0.01449
	$(24{,}700 < Q_s \le 49{,}000)$	(86.40297)	(0.018145)	(-0.024258)	(0)	(0)	(0.005376)
4.	$1400 < Q_s \le 2100$	58.71768	0.30511	−0.25332	0	0	0.01775
	$(49{,}000 < Q_s \le 74000)$	(129.4490)	(0.019050)	(-0.024258)	(0)	(0)	(0.006585)
5.	$2100 < Q_s \le 2800$	78.24323	0.31582	−0.25332	0	0	0.02049
	$(74{,}000 < Q_s \le 99{,}000)$	(172.4950)	(0.019718)	(-0.024258)	(0)	(0)	(0.007602)
6.	$2800 < Q_s \le 3500$	97.76879	0.32439	−0.25332	0	0	0.02291
	$(99{,}000 < Q_s \le 120{,}000)$	(215.5411)	(0.020253)	(-0.024258)	(0)	(0)	(0.008500)

Design Category B. For Nonhalogenated Process Vent Streams,
If 0 ≤ Net Heating Value (MJ/scm) ≤ 0.48 Or If 0 ≤ Net Heating Value (Btu/scf) ≤ 13:

	Q_s = Vent Stream Flow Rate ~~(scm/min)~~ (scf/min)	a	b	c	d	e	f
1.	$14.2 \le Q_s \le 1340$	8.54245	0.10555	0.09030	−0.17109	0	0.01025
	$(501 \le Q_s \le 47{,}300)$	(18.83268)	(0.0065901)	(0.008647)	(-0.00039762)	(0)	(0.003803)
2.	$1340 < Q_s \le 2690$	16.94386	0.11470	0.09030	−0.17109	0	0.01449
	$(47{,}300 < Q_s \le 95{,}000)$	(37.35443)	(0.0071614)	(0.008647)	(-0.00039762)	(0)	(0.005376)
3.	$2690 < Q_s \le 4040$	25.34528	0.12042	0.09030	−0.17109	0	0.01775
	$(95{,}000 < Q_s \le 143{,}000)$	(55.87620)	(0.0075185)	(0.008647)	(-0.00039762)	(0)	(0.00658)

Design Category C. For Nonhalogenated Process Vent Streams,
If 0.48 < Net Heating Value (MJ/scm) ≤ 1.9 Or If 13 < Net Heating Value (Btu/scf) ≤ 51:

	Q_s = Vent Stream Flow Rate ~~(scm/min)~~ (scf/min)	a	b	c	d	e	f
1.	$14.2 \le Q_s \le 1340$	9.25233	0.06105	0.31937	−0.16181	0	0.01025
	$(501 \le Q_s \le 47{,}300)$	(20.39769)	(0.003812)	(0.030582)	(-0.00037605)	(0)	(0.003803)
2.	$1340 < Q_s \le 2690$	18.36353	0.06635	0.31937	−0.16181	0	0.01449
	$(47{,}300 < Q_s \le 95{,}000)$	(40.48446)	(0.004143)	(0.030582)	(-0.00037605)	(0)	(0.005376)
3.	$2690 < Q_s \le 4040$	27.47492	0.06965	0.31937	−0.16181	0	0.01775

(95,000 < Q_s ≤ 143,000)	(60.57121)	(0.004349)	(0.030582)	(-0.00037605)	(0)	(0.006585)

Design Category D. For Nonhalogenated Process Vent Streams,
If 1.9 < Net Heating Value (MJ/scm) ≤ 3.6 Or If 51 < Net Heating Value (Btu/scf) ≤ 97:

	Q_s = Vent Stream Flow Rate ~~(~~scm/min~~)~~ (scf/min)	a	b	c	d	e	f
1.	14.2 ≤ Q_s ≤ 1180 (501 ≤ Q_s ≤ 41,700)	6.67868 (14.72382)	0.06943 (0.004335)	0.02582 (0.002472)	0 (0)	0 (0)	0.01025 (0.003803)
2.	1180 < Q_s ≤ 2370 (41,000 < Q_s ≤ 83,700)	13.21633 (29.13672)	0.07546 (0.004711)	0.02582 (0.002472)	0 (0)	0 (0)	0.01449 (0.005376)
3.	2370 < Q_s ≤ 3550 (83,700 < Q_s ≤ 125,000)	19.75398 (43.54962)	0.07922 (0.004946)	0.02582 (0.002472)	0 (0)	0 (0)	0.01775 (0.00658)

Design Category E. For Nonhalogenated Process Vent Streams,
If Net Heating Value ~~≤~~ > 3.6 MJ/scm Or If Net Heating Value > 97 Btu/scf):

	Y_s = Dilution Flow rate ~~(~~scm/min~~)~~ = $(Q_s)(H_T)/3.6$ (scf/min) = $(Q_s)(H_T)/97$	a	b	c	d	e	f
1.	14.2 ≤ Y_s ≤ 1180 (501 ≤ Y_s ≤ 41,700)	6.67868 (14.72382)	0 (0)	0 (0)	−0.00707 (-0.0000164)	0.02220 (0.0001174)	0.01025 (0.003803)
2.	1180 < Y_s ≤ 2370 (41,700 < Y_s ≤ 83,700)	13.21633 (29.13672)	0 (0)	0 (0)	−0.00707 (-0.0000164)	0.02412 (0.0001276)	0.01449 (0.005376)
3.	2370 < Y_s ≤ 3550 (83,700 < Y_s ≤ 125,000)	19.75398 (43.54962)	0 (0)	0 (0)	−0.00707 (-0.0000164)	0.02533 (0.0001340)	0.01775 (0.006585)

[**Drafter's Note:** In the Design Category E table title, the less than or equal to sign (≤) following the word "Value" is being struck out and a greater than sign (>) is being inserted. The greater than sign is underlined to identify it as new.]

b. Where for a vent stream flow rate ~~(scm/min) at a standard temperature of 20°C~~ that is less than 14.2 scm/min (501 scf/min) at a standard temperature of 20°C (68°F):

TRE is the TRE index value

Q_s ~~=~~ is 14.2 scm/min (501 scf/min)

H_T is ~~the (FLOW)(HVAL)/14.2~~ (FLOW)(HVAL)/Q_s

where the following inputs are used:

FLOW is the vent stream flow rate (scm/min) (scf/min), at a standard temperature of 20°C (68°F)

HVAL is the vent stream net heating value ~~(~~MJ/scm~~)~~ (Btu/scf), where the net enthalpy per mole of vent stream is based on combustion at 25°C and 760 mm Hg (77°F and 30 in Hg), but the standard temperature for determining the volume corresponding to 1 mole is 20°C (68°F) as in the definition of Q_s

Y_s = ~~14.2 scm/min~~ Q_s for all vent stream categories listed in Table 1 except for Category E vent streams, where ~~Y_s = (14.2)(H_T)/3.6~~ $Y_s = Q_sH_T/3.6$ for metric units and $Y_s = Q_sH_T/97$ for English units.

E_{TOC} is the hourly emissions of TOC reported in kg/hr (lb/hr)

a,b,c,d,e and f are coefficients

The set of coefficients that apply to a vent stream shall be obtained from Table 1.

2. The equation for calculating the TRE index value of a vent stream controlled by a flare is as follows:

$$\mathrm{TRE} = \frac{1}{E_{TOC}}\left[a(Q_s) + b(Q_s)^{0.8} + c(Q_s)(H_T) + d(E_{TOC}) + e\right]$$

where:

TRE is the TRE index value

E_{TOC} is the hourly ~~emission rate~~ emissions of TOC ~~reported in~~, kg/hr (lb/hr)

Q_s is the vent stream flow rate, ~~(~~scm/min~~)~~ (scf/min) at a standard temperature of 20°C (68°F)

H_T is the vent stream net heating value, ~~(~~MJ/scm~~)~~ (Btu/scf), where the net enthalpy per mole of ~~offgas~~ vent stream is based on combustion at 25°C and

760 mm Hg (77°F and 30 in Hg), but the standard temperature for determining the volume corresponding to 1 mole is 20°C (68°F) as in the definition of Q_s

a,b,c,d and e are coefficients

The set of coefficients that apply to a vent stream shall be obtained from Table 2.

Table 2 - Air Oxidation Processes NSPS TRE Coefficients For Vent Streams Controlled By a Flare

	a	b	c	d	e
1. $H_T < 11.2$ MJ/scm	2.25	0.288	-0.193	-0.0051	2.08
($H_T < 301$ Btu/scf)	(0.140)	(0.0367)	(-0.000448)	(-0.0051)	(4.59)
2. $H_T \geq 11.2$ MJ/scm	0.309	0.0619	-0.0043	-0.0034	2.08
($H_T \geq 301$ Btu/scf)	(0.0193)	(0.00788)	(-0.000010)	(-0.0034)	(4.59)

SECTION 310. NR 440.675(6)(e) and (g)(intro.) are amended to read:

NR 440.675(6)(e) Each owner or operator subject to the provisions of this section who uses a boiler or process heater with a design heat input capacity of 44 MW (150 million Btu/hour) or greater to comply with sub. (3)(a) shall keep an up-to-date, readily accessible record of all periods of operation of the boiler or process heater.

(g)(intro.) Each owner or operator subject to the provisions of this section shall keep up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored under sub. (4)~~(c)~~ (e) as well as up-to-date, readily accessible records of periods of operation during which the parameter boundaries established during the most recent performance test are exceeded. The department may at any time require a report of these data. Where the owner or operator seeks to demonstrate compliance with sub. (3)(c), periods of operation during which the parameter boundaries established during the most recent performance tests are exceeded are defined as follows:

SECTION 311. NR 440.68(1)(b) and (5) are amended to read:

NR 440.68(1)(b) Any facility under par. (a) that commences construction or modification after December 14, 1982, is subject to the requirements of this section, except that a dryer installed between December 14, 1982 and September 21, 1984, in a plant with an annual solvent consumption level of less than 17,791 liters (4,700 gallons), is exempt from the requirements of this section.

(5) Each owner or operator of an affected facility subject to the provisions of sub. (3)(a) 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 shall be conducted for a duration of no less than 2 weeks during which no less than 50% of the dryer loads shall 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 ~~1~~ 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.

SECTION 312. NR 440.682(3)(f) and (4)(h)1. and 2. are amended to read:

NR 440.682(3)(f) An owner or operator shall use the following ~~provisions~~ provision instead of s. NR 440.62(6)(d)1. Each piece of equipment is presumed to be in VOC service or in wet gas service unless an owner or operator demonstrates that the piece of equipment is not in VOC service or in wet gas service. For a piece of equipment to be considered not in VOC service, it shall be determined that the ~~percent~~ VOC content can be reasonably expected never to exceed 10.0% by weight. For a piece of equipment to be considered in wet gas service, it shall be determined that it contains or contacts the field gas before the extraction step in the process. For purposes of determining the percent VOC content of the process fluid that is contained in or contacts a piece of equipment, procedures that conform to the methods described in ASTM ~~Methods~~ ~~E169-63~~ E169-93, ~~E168-67,~~ E168-92 or ~~E260-73~~ E260-96, incorporated by reference in s. NR 440.17(2)(a)74., 73. and 75., respectively, shall be used.

(4)(h)1. Equipment is in heavy liquid service if the weight percent evaporated is 10% or less at 150°C (302°F) as determined by ASTM ~~Method D86-78~~ D86-96, incorporated by reference in s. NR 440.17(2)(a)7.

2. Equipment is in light liquid service if the weight percent evaporated is greater than 10% at 150°C (302°F) as determined by ASTM ~~Method D86-78~~ D86-96, incorporated by reference in s. NR 440.17(2)(a)7.

SECTION 313. NR 440.684(2)(a)8. and (b)1. to 3. are amended to read:

NR 440.684(2)(a)8. “Total SO_2 equivalents’’ means the sum of volumetric or mass concentrations of the sulfur compounds obtained by adding the quantity existing as SO_2 to the quantity of SO_2 that would be obtained if all reduced sulfur compounds were converted to SO_2 ~~(ppmv or kg/DSCM)~~, ppmv or kg/dscm (lb/dscf).

(b)1. ‘‘E’’ ~~=~~ is the sulfur emission rate expressed as elemental sulfur~~,~~ ~~kilograms per hour (kg/hr)~~ in kg/hr (lb/hr), rounded to one decimal place.

2. ‘‘~~P~~ R’’ ~~=~~ is the sulfur emission reduction efficiency achieved in percent carried to one decimal place.

3. ‘‘S’’ ~~=~~ is the sulfur production rate in ~~kilograms per hour (kg/hr)~~ kg/hr (lb/hr), rounded to one decimal place.

SECTION 314. NR 440.684(2)(b)4. is repealed.

SECTION 315. NR 440.684(2)(b)5. to 7. are renumbered 440.684(2)(b)4. to 6. and are amended to read:

NR 440.684(2)(b)4. ‘‘X’’ ~~=~~ is the sulfur feed rate~~, i.e., the H_2S in the acid gas (expressed as sulfur)~~ from the sweetening unit, ~~expressed in long tons per day (LT/D) of sulfur~~ that is, the H_2S in the acid gas, expressed as sulfur, Mg/d (long ton/day), rounded to one decimal place.

5. ‘‘Y’’ ~~=~~ is the sulfur content of the acid gas from the sweetening unit, expressed as mole percent H_2S (dry basis) rounded to one decimal place.

6. ‘‘Z’’ ~~=~~ is the minimum required sulfur dioxide (SO_2) 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 continual basis after compliance with Z_i has been demonstrated.

SECTION 316. NR 440.684(5)(b)1. to 3. and (c)2. are amended to read:

NR 440.684(5)(b)1. The average sulfur feed rate (X) shall be computed as follows:

- $X = KQ_a Y$

where:

X is the average sulfur feed rate, ~~long ton/day~~ Mg/d (long ton/day)

Q_a is the average volumetric flow rate of acid gas from sweetening unit, ~~dscf/day~~ dscm/day (dscf/day)

Y is the average H_2S concentration in acid gas feed from sweetening unit, percent by volume, expressed as a decimal

K ~~= (32 lb S/lb mole)/[(100%)(385.36 dscf/lb mole)(2240 lb/long ton)]~~ ~~= 3.707 x 10^{-7}~~ is (32kg S/kg-mole)/((24.04 dscm/kg-mole)(1000kg S/Mg)) = 1.331 x 10^{-3} Mg/dscm for metric units, and is (32 lb S/lb-mole)/((385.36 dscf/lb-mole)(2240 lb S/long ton)) = 3.707 x 10^{-5} long ton/dscf for English units

2. The continuous readings from the process flowmeter shall be used to determine the average volumetric flow rate (Q_a) in ~~dscf/day~~ dscm/day (dscf/day) of the acid gas from the sweetening unit for each run.

3. The Tutwiler procedure in sub. (9) or a chromatographic procedure following ASTM ~~E260-73~~ E260-96, incorporated by reference in s. NR 440.17(2)(a)75., shall be used to determine the H_2S concentration in the acid gas feed from the sweetening unit. At least one sample per hour, at equally spaced intervals, shall be taken during each 4-hour run. The arithmetic mean of all samples shall be the average H_2S concentration (Y) on a dry basis for the run. By multiplying the result from the Tutwiler procedure by 1.62 x 10^{-3}, the units gr/100 scf are converted to volume percent.

(c)2. The level indicators or manual soundings shall be used to measure the liquid sulfur accumulation rate in the product storage tanks. Readings taken at the beginning and end of each run, the tank geometry, sulfur density at the storage temperature and sample duration shall be used to determine the sulfur production rate (S) in kg/hr (lb/hr) for each run.

SECTION 317. NR 440.684(5)(c)3. is repealed and recreated to read:

NR 440.684(5)(c)3. The emission rate of sulfur shall be computed for each run as follows:

$$E = C_e Q_{sd} / K_1$$

where:

E is the emission rate of sulfur per run, kg/hr (lb/hr)

C_e is the concentration of sulfur equivalent (SO_2 + reduced sulfur), g/dscm (lb/dscf)

Q_{sd} is the volumetric flow rate of effluent gas, dscm/hr (dscf/hr)

K_1 is a conversion factor, 1000 g/kg (7000 gr/lb)

SECTION 318. NR 440.684(5)(c)4. and (7)(b)1. and (c) are amended to read:

NR 440.684(5)(c)4. The concentration (C_e) of sulfur equivalent shall be the sum of the SO_2 and TRS concentrations, after being converted to sulfur equivalents. For each run and each of the test methods specified in ~~par. (c)~~ this paragraph, the sampling time shall be at least 4 hours. Method 1 shall be used to select the sampling site. The sampling point in the duct shall be at the centroid of the cross-section if the area is less than 5 m^2 (54 ft^2) or at a point no closer to the walls than 1 m (39 in.) if the cross-sectional area is 5 m^2 (54 ft^2) or more and the centroid is more than 1 m (39 in) from the wall.

a. Method 6 shall be used to determine the SO_2 concentration. Eight samples of 20 minutes each shall be taken at 30-minute intervals. The arithmetic average ~~in mg/dscm~~ shall be the concentration for the run. The concentration ~~in mg/dscm~~ shall be multiplied by 0.5×10^{-3} to convert the results to sulfur equivalent.

b. Method 15 shall be used to determine the TRS concentration from reduction-type devices or where the oxygen content of the effluent gas is less than 1.0% by volume. The sampling rate shall be at least 3 liters/min (0.1 ft^3/min) to insure minimum residence time in the sample line. Sixteen samples shall be taken at 15-minute intervals. The arithmetic average of all the samples shall be the concentration for the run. The concentration in ppm ~~TRS as SO_2~~ reduced sulfur as sulfur shall be multiplied by ~~1.352×10^{-3}~~ 1.333×10^{-3} to convert the results to sulfur equivalent.

c. Method 16A or 15 shall be used to determine the ~~TRS~~ reduced sulfur concentration from oxidation-type devices or where the oxygen content of the effluent gas is greater than 1.0% by volume. Eight samples of 20 minutes each shall be taken at 30-minute intervals. The arithmetic average shall be the concentration for the run. The concentration in ppm ~~TRS~~ reduced sulfur as ~~H_2S~~ sulfur shall be multiplied by ~~1.352 x 10^{-3}~~ 1.333 x 10^{-3} to convert the results to sulfur equivalent.

d. Method 2 shall be used to determine the volumetric flow rate of the effluent gas. A velocity traverse shall be conducted at the beginning and end of each run. The arithmetic average of the 2 measurements shall be used to calculate the volumetric flow rate (Q_{sd}) for the run. For the determination of the effluent gas molecular weight, a single integrated sample over the 4-hour period may be taken and analyzed or grab samples at 1-hour intervals may be taken, analyzed and averaged. For the moisture content, 2 samples of at least 0.10 dscm (~~0.35 dscf~~ 3.5 dscf) and 10 minutes shall be taken at the beginning of the 4-hour run and near the end of the time period. The arithmetic average of the 2 runs shall be the moisture content for the run.

(7)(b)1. A continuous monitoring system to measure the total sulfur emission rate (E) of SO_2 in the gases discharged to the atmosphere. The SO_2 emission rate shall be expressed in terms of equivalent sulfur mass flow rates ~~(kg/hr)~~, kg/hr (lb/hr). The span of this monitoring system shall be set so that the equivalent emission limit of sub. (3)(b) will be between 30% and 70% of the measurement range of the instrument system.

(c) 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 SO_2 equivalent in the gases discharged to the atmosphere. The SO_2 equivalent compound emission rate shall be expressed in terms of equivalent sulfur mass flow rates ~~(kg/hr)~~, kg/hr (lb/hr). The span of this monitoring system shall be set so that the equivalent emission limit of sub. (3)(b) will be between 30 and 70% of the measurement range of the system.

SECTION 319. NR 440.684(7)(e) is repealed and recreated to read:

NR 440.684(7)(e) In lieu of complying with par. (b) or (c), those sources with a design capacity of less than 152 Mg/d (150 long ton/day) of H_2S expressed as sulfur may calculate the sulfur emission reduction efficiency achieved for each 24-hour period by using the following equation:

$$R = \frac{K_2 S}{X}$$

where:

R is the sulfur dioxide removal efficiency achieved during the 24-hour period, percent

K_2 is a conversion factor, 0.02400 Mg/d per kg/hr (0.01071 long ton/day per lb/hr)

S is the sulfur production rate during the 24-hour period, kg/hr (lb/hr)

X is the sulfur feed rate in the acid gas, Mg/d (long ton/day)

SECTION 320. NR 440.686(1)(d) is created to read:

NR 440.686(1)(d) Owners or operators of process vents that are subject to this section may choose to comply with the provisions of 40 CFR part 65, subpart D, as in effect on December 14, 2000, to satisfy the requirements of subs. (3) to (6). The provisions of 40 CFR part 65, subpart D, as in effect on December 14, 2000, also satisfy the criteria of par. (c)4. and 6. Other provisions applying to an owner or operator who chooses to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, are provided in 40 CFR 65.1.

2. Owners or operators who choose to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, shall also comply with ss. NR 440.01, 440.02, 440.05, 440.06, 440.07(1)(a) and (d), 440.14, 440.15 and 440.16 for those process vents. All sections or subsections from ss. NR 440.01 to 440.19

not specified in this subdivision do not apply to owners or operators of process vents complying with 40 CFR part 65, subpart D, as in effect on December 14, 2000, except that provisions required to be met prior to implementing 40 CFR part 65 still apply. Owners or operators who choose to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, shall comply with 40 CFR part 65, subpart A.

3. Owners or operators who choose to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, at initial startup shall comply with subds. 1. and 2. for each vent stream on and after the date on which the initial performance test is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after the initial startup, whichever date comes first.

4. Each owner or operator subject to the provisions of this section that chooses to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, at initial startup shall notify the administrator of the specific provisions of 40 CFR 65.63(a)(1), (2) or (3), as in effect on December 14, 2000, with which the owner or operator has elected to comply. Notificaton shall be submitted with the notification of initial startup required by 40 CFR 65.5(b).

SECTION 321. NR 440.686(4)(c)(intro.) is amended to read:

NR 440.686(4)(c)(intro.) The owner or operator of an affected facility that uses a boiler or process heater to seek to comply with sub. (3)(a) shall install, calibrate, maintain and operate according to the manufacturer's specifications ~~in~~ the following equipment:

SECTION 322. NR 440.686(4)(d) and (e) are renumbered NR 440.686(4)(e) and (f).

SECTION 323. NR 440.686(4)(c)3. is renumbered NR 440.686(4)(d) and amended to read:

NR 440.686(4)(d) ~~Monitor~~ The owner or operator of an affected facility that uses a boiler or process heater to comply with sub. (3)(a) shall monitor and record the periods of operation of the boiler or process heater if the design heat input capacity of the boiler or process heater is 44 MW (150 million Btu/hr) or greater. The records shall be readily available for inspection.

SECTION 324. NR 440.686(5)(b)4.b. and c. are amended to read:

NR 440.675(5)(b)4.b. The emission reduction (R) of TOC (minus methane and ethane) shall be determined using the following equation:

$$R = \frac{E_i - E_o}{E_i} \times 100$$

where:

R is the emission reduction, percent by weight

E_i is the mass rate of TOC entering the control device, ~~kg TOC/hr~~ kg/hr (lb/hr)

E_o is the mass rate of TOC discharged to the atmosphere, ~~kg TOC/hr~~ kg/hr (lb/hr)

c. The mass rates of TOC (E_i, E_o) shall be computed using the following equations:

$$E_i = K_2 \left(\sum_{j=1}^{n} C_{ij} M_{ij} \right) Q_i$$

$$E_o = K_2 \left(\sum_{j=1}^{n} C_{oj} M_{oj} \right) Q_o$$

where:

C_{ij} and C_{oj} are the concentration of sample component ''j'' of the gas stream at the inlet and outlet of the control device, respectively, dry basis, ppm by volume

M_{ij} and M_{oj} are the molecular weight of sample component ''j'' of the gas stream at the inlet and outlet of the control device, respectively, g/g-mole (lb/lb-mole)

Q_i and Q_o are the flow rate of gas stream at the inlet and outlet of the control device, respectively, dscm/min (~~dscf/hr~~ dscf/min)

K_2 is a constant, 2.494×10^{-6} (1/ppm)(g-mole/scm)(kg/g)(min/hr) for metric units, where standard temperature for (g-mole/scm) is 20°C, and 1.557×10^{-7} (1/ppm)(lb-mole/scf)(min/hr) for English units, where standard temperature for (lb-mole/scf) is 68°F

SECTION 325. NR 440.686(5)(b)5., (c), (d), (e), (f) and (g) are renumbered NR 440.686(5)(c), (d), (e), (f), (g) and (h) respectively and as renumbered NR 440.686(5)(e)1., 2.b., 4. and 5. and (f)1.a., including Table 1, and (f)1.b. and 2., including Table 2, are amended to read:

NR 440.686(5)(e)1.a. Method 1 or 1A, as appropriate, shall be used for selection of the sampling site. The sampling site for the vent stream flow rate and molar composition determination prescribed in subds. 2. and 3. shall be, except for the situations outlined in subd. 1.~~a.~~ b., prior to the inlet of any control device, prior to any post-distillation dilution of the stream with air and prior to any post-distillation introduction of halogenated compounds into the process vent stream. No transverse site selection method is needed for vents smaller than ~~4 inches~~ 10 centimeters (4 inches) in diameter.

~~a.~~ b. If any gas stream other than the distillation vent stream from the affected facility is normally conducted through the final recovery device~~.~~ then all of the following apply:

~~b.~~ 1) The sampling site for vent stream flow rate and molar composition shall be prior to the final recovery device and prior to the point at which the nondistillation stream is introduced.

~~c.~~ 2) The efficiency of the final recovery device is determined by measuring the TOC concentration using Method 18 at the inlet to the final recovery device after the introduction of any nondistillation vent stream at the outlet of the final recovery device.

~~d.~~ 3) This efficiency is applied to the TOC concentration measured prior to the final recovery device and prior to the introduction of the nondistillation stream to determine the concentration of TOC in the distillation vent stream from the final recovery device. This concentration of TOC is then used to perform the calculations outlined in subds. 4. and 5.

2.b. ASTM ~~D1946-77~~ D1946-90 (reapproved 1994), incorporated by reference in s. NR 440.17(2)(a)24., to measure the concentration of carbon monoxide and hydrogen.

4. The net heating value of the vent stream shall be calculated using the following equation:

$$H_T = K_1\left(\sum_{j=1}^{n} C_j H_j\right)$$

where:

H_T is the net heating value of the sample, MJ/scm (Btu/scf), where the net enthalpy per mole of vent stream is based on combustion at 25°C and 760 mm Hg (77°F and 30 in. Hg), but the standard temperature for determining the volume corresponding to one mole is 20°C (68°F)~~, as in the definition of Q_s (vent stream flow rate)~~

~~K_1 is the constant, 1.740 x 10^{-7}~~

~~(1) (g mole) (MJ)~~
~~(ppm) (scm) (kcal)~~

~~where standard temperature for~~

~~(g mole) is 20°C~~
~~(scm)~~

K_1 is a constant, 1.740 x 10^{-7} (1/ppm)(g-mole/scm)(MJ/kcal) for metric units where standard temperature for (g-mole/scm) is 20°C, and 1.03 x 10^{-11} (1/ppm)(lb-mole/scf)(Btu/kcal) for English units where standard temperature for (lb-mole/scf) is 68°F

C_j is the concentration on a wet basis of compound j in ppm, as measured for organics by Method 18 and measured for hydrogen and carbon monoxide by ASTM ~~D1946-77~~ D1946-90 (reapproved 1994), incorporated by ~~references~~ reference in s. NR 440.17(2)(a)24., as indicated in ~~par.~~ ~~(d)~~ subd. 2.

H_j is the net heat of combustion of compound j, kcal/g-mole (kcal/lb-mole), based on combustion at 25°C and 760 mm Hg (77°F and 30 in Hg). The heats of combustion of vent stream components would be required to be determined using ASTM ~~D2382-76~~ D2382-88 or D4809-95, incorporated by reference as specified in s. NR 440.17(2)(a)30. and 61., if published values are not available or cannot be calculated.

5. The emission rate of TOC in the vent stream shall be calculated using the following equation:

$$E_{TOC} = K_2\left(\sum_{j=1}^{n} C_j M_j\right)Q_s$$

where:

E_{TOC} is the emission rate of TOC in the sample, kg/hr (lb/hr)

K_2 is the constant, 2.494×10^{-6} (1/ppm)(g-mole/scm)(kg/g)(min/hr) for metric units, where standard temperature for (g-mole/scm) is 20°C, and 1.557×10^{-7} (1/ppm)(lb-mole/scf)(min/hr) for English units, where standard temperature for (lb-mole/scf) is 68°F

C_j is the concentration on a wet basis of compound j in ppm as measured by Method 18 as indicated in subd. 2.

M_j is the molecular weight of sample j, g/g-mole (lb/lb-mole)

Q_s is the vent stream flow rate ~~(,~~ scm/min~~)~~ (scf/hr), at a temperature of 20°C (68°F)

(f)1.a. Where for a vent stream flow rate ~~(scm/min) at a standard~~

~~temperature of 20°C~~ that is greater than or equal to 14.2 scm/min (501 scf/min) at a standard temperature of 20°C (68°F):

TRE is the TRE index value

Q_s is the vent stream flow rate ~~(scm/min)~~, scm/min (scf/min), at a standard temperature of 20°C (68°F).

H_T is the vent stream net heating value ~~(MJ/scm)~~, MJ/scm (Btu/scf), where the net enthalpy per mole of vent stream is based on combustion at 25°C and 760 mm Hg (68°F and 30 in Hg), but the standard temperature for determining the volume corresponding to one mole is 20°C (68°F), as in the definition of Q_s

$Y_s = Q_s$ for all vent stream categories listed in Table 1 except for Category E vent streams where $Y_s = (Q_s)(H_T)/3.6$ for metric units and $Y_s = (Q_s)(H_T)/97$ for English units.

E_{TOC} is the hourly emissions of TOC ~~reported in~~, kg/hr (lb/hr)

a, b, c, d, e and f are coefficients. The set of coefficients that apply to a vent stream shall be obtained from Table 1.

Table 1.
Distillation NSPS TRE Coefficients For Vent Streams Controlled By an Incinerator

Design Category A1. For Halogenated Process Vent Streams,
If $0 \le$ Net Heating Value (MJ/scm) ≤ 3.5 Or If $0 \le$ Net Heating Value (Btu/scf) ≤ 94:

	Q_s = Vent Stream Flow Rate ~~(~~scm/min~~)~~ (scf/min)	a	b	c	d	e	f
1.	$14.2 \le Q_s \le 18.8$ $(501 \le Q_s \le 664)$	19.18370 (42.29238)	0.27580 (0.017220)	0.75762 (0.072549)	−0.13064 (-0.00030361)	0 (0)	0.01025 (0.003803)
2.	$18.8 < Q_s \le 699$ $(664 < Q_s \le 24{,}700)$	20.00563 (44.10441)	0.27580 (0.017220)	0.30387 (0.029098)	−0.13064 (-0.00030361)	0 (0)	0.01025 (0.003803)
3.	$699 < Q_s \le 1400$ $(24{,}700 < Q_s \le 49{,}000)$	39.87022 (87.89789)	0.29973 (0.018714)	0.30387 (0.029098)	−0.13064 (-0.00030361	0 (0)	0.01449 (0.005376)
4.	$1400 < Q_s \le 2100$ $(49{,}000 < Q_s \le 74000)$	59.73481 (131.6914)	0.31467 (0.019647)	0.30387 (0.029098)	−0.13064 (-0.00030361)	0 (0)	0.01775 (0.006585)
5.	$2100 < Q_s \le 2800$	79.59941	0.32572	0.30387	−0.13064	0	0.02049

	$(74,000 < Q_s \le 99,000)$	(175.4849)	(0.020337)	(0.029098)	(-0.00030361)	(0)	(0.007602)
6.	$2800 < Q_s \le 3500$ $(99,000 < Q_s \le 120,000)$	99.46400 (219.2783)	0.33456 (0.020888)	0.30387 (0.029098)	−0.13064 (-0.00030361)	0 (0)	0.02291 (0.008500)

Design Category A2. For Halogenated Process Vent Streams,
If Net Heating Value > 3.5 MJ/scm Or If Net Heating Value > 94 (Btu/scf):

	Q_s = Vent Stream Flow Rate ~~(~~scm/min~~)~~ (scf/min)	a	b	c	d	e	f
1.	$14.2 \le Q_s \le 18.8$ $(501 \le Q_s \le 664)$	18.84466 (41.54494)	0.26742 (0.016696)	−0.20044 (-0.019194)	0 (0)	0 (0)	0.01025 (0.003803)
2.	$18.8 < Q_s \le 699$ $(664 < Q_s \le 24,700)$	19.66658 (43.35694)	0.26742 (0.016696)	−0.25332 (-0.024258)	0 (0)	0 (0)	0.01025 (0.003803)
3.	$699 < Q_s \le 1400$ $(24,700 < Q_s \le 49,000)$	39.19213 (86.40297)	0.29062 (0.018145)	−0.25332 (-0.024258)	0 (0)	0 (0)	0.01449 (0.005376)
4.	$1400 < Q_s \le 2100$ $(49,000 < Q_s \le 74000)$	58.71768 (129.4490)	0.30511 (0.019050)	−0.25332 (-0.024258)	0 (0)	0 (0)	0.01775 (0.006585)
5.	$2100 < Q_s \le 2800$ $(74,000 < Q_s \le 99,000)$	78.24323 (172.4950)	0.31582 (0.019718)	−0.25332 (-0.024258)	0 (0)	0 (0)	0.02049 (0.007602)
6.	$2800 < Q_s \le 3500$ $(99,000 < Q_s \le 120,000)$	97.76879 (215.5411)	0.32439 (0.020253)	−0.25332 (-0.024258)	0 (0)	0 (0)	0.02291 (0.008500)

Design Category B. For Nonhalogenated Process Vent Streams,
If 0 ≤ Net Heating Value (MJ/scm) ≤ 0.48 Or If 0 ≤ Net Heating Value (Btu/scf) ≤ 13:

	Q_s = Vent Stream Flow Rate ~~(~~scm/min~~)~~ (scf/min)	a	b	c	d	e	f
1.	$14.2 \le Q_s \le 1340$ $(501 \le Q_s \le 47,300)$	8.54245 (18.83268)	0.10555 (0.0065901)	0.09030 (0.008647)	−0.17109 (-0.00039762)	0 (0)	0.01025 (0.003803)
2.	$1340 < Q_s \le 2690$ $(47,300 < Q_s \le 95,000)$	16.94386 (37.35443)	0.11470 (0.0071614)	0.09030 (0.008647)	−0.17109 (-0.00039762)	0 (0)	0.01449 (0.005376)
3.	$2690 < Q_s \le 4040$ $(95,000 < Q_s \le 143,000)$	25.34528 (55.87620)	0.12042 (0.0075185)	0.09030 (0.008647)	−0.17109 (-0.00039762)	0 (0)	0.01775 (0.00658)

Design Category C. For Nonhalogenated Process Vent Streams,
If 0.48 < Net Heating Value (MJ/scm) ≤ 1.9 Or If 13 < Net Heating Value (Btu/scf) ≤ 51:

	Q_s = Vent Stream Flow Rate ~~(scm/min)~~ (scf/min)	a	b	c	d	e	f
1.	$14.2 \leq Q_s \leq 1340$ $(501 \leq Q_s \leq 47{,}300)$	9.25233 (20.39769)	0.06105 (0.003812)	0.31937 (0.030582)	−0.16181 (-0.00037605)	0 (0)	0.01025 (0.003803)
2.	$1340 < Q_s \leq 2690$ $(47{,}300 < Q_s \leq 95{,}000)$	18.36353 (40.48446)	0.06635 (0.004143)	0.31937 (0.030582)	−0.16181 (-0.00037605)	0 (0)	0.01449 (0.005376)
3.	$2690 < Q_s \leq 4040$ $(95{,}000 < Q_s \leq 143{,}000)$	27.47492 (60.57121)	0.06965 (0.004349)	0.31937 (0.030582)	−0.16181 (-0.00037605)	0 (0)	0.01775 (0.006585)

Design Category D. For Nonhalogenated Process Vent Streams,
If 1.9 < Net Heating Value (MJ/scm) ≤ 3.6 Or If 51 < Net Heating Value (Btu/scf) ≤ 97:

	Q_s = Vent Stream Flow Rate ~~(scm/min)~~ (scf/min)	a	b	c	d	e	f
1.	$14.2 \leq Q_s \leq 1180$ $(501 \leq Q_s \leq 41{,}700)$	6.67868 (14.72382)	0.06943 (0.004335)	0.02582 (0.002472)	0 (0)	0 (0)	0.01025 (0.003803)
2.	$1180 < Q_s \leq 2370$ $(41{,}000 < Q_s \leq 83{,}700)$	13.21633 (29.13672)	0.07546 (0.004711)	0.02582 (0.002472)	0 (0)	0 (0)	0.01449 (0.005376)
3.	$2370 < Q_s \leq 3550$ $(83{,}700 < Q_s \leq 125{,}000)$	19.75398 (43.54962)	0.07922 (0.004946)	0.02582 (0.002472)	0 (0)	0 (0)	0.01775 (0.00658)

Design Category E. For Nonhalogenated Process Vent Streams,
If Net Heating Value ~~≦~~ > 3.6 MJ/scm Or If Net Heating Value > 97 Btu/scf):

	Y_s = Dilution Flow rate ~~(scm/min)~~ = $(Q_s)(H_T)/3.6$ (scf/min) = $(Q_s)(H_T)/97$	a	b	c	d	e	f
1.	$14.2 \leq Y_s \leq 1180$ $(501 \leq Y_s \leq 41{,}700)$	6.67868 (14.72382)	0 (0)	0 (0)	−0.00707 (-0.0000164)	0.02220 (0.0001174)	0.01025 (0.003803)
2.	$1180 < Y_s \leq 2370$ $(41{,}700 < Y_s \leq 83{,}700)$	13.21633 (29.13672)	0 (0)	0 (0)	−0.00707 (-0.0000164)	0.02412 (0.0001276)	0.01449 (0.005376)
3.	$2370 < Y_s \leq 3550$ $(83{,}700 < Y_s \leq 125{,}000)$	19.75398 (43.54962)	0 (0)	0 (0)	−0.00707 (-0.0000164)	0.02533 (0.0001340)	0.01775 (0.006585)

(f)1.b. Where for a vent stream flow rate ~~(scm/min) at a standard~~

~~temperature of 20°C~~ that is less than 14.2 scm/min (501 scf/min) at a standard temperature of 20°C (68°F):

TRE is the TRE index value

Q_s = 14.2 scm/min (501 scf/min)

H_T = ~~(FLOW)(HVAL)/14.2~~ (FLOW)(HVAL)/Q_s

where the following inputs are used:

FLOW is the vent stream flow rate (scm/min) (scf/min), at a standard temperature of 20°C (68°F)

HVAL is the vent stream net heating value ~~(~~, MJ/scm~~)~~ (Btu/scf), where the net enthalpy per mole of vent stream is based on combustion at 25°C and 760 mm Hg (77°F and 30 in Hg), but the standard temperature for determining the volume corresponding to one mole is 20°C (68°F) as in the definition of Q_s

Y_s is ~~14.2 scm/min~~ equal to Q_s for all vent stream categories listed in Table 1 except for Category E vent streams, where ~~Y_s is (14.2)(H_T)/3.6~~ $Y_s = Q_sH_T/3.6$ for metric units and $Y_s = Q_sH_T/97$ for English units.

E_{TOC} is the hourly emissions of TOC reported in kg/hr (lb/hr)

a,b,c,d,e and f are coefficients. The set of coefficients that apply to a vent stream shall be obtained from Table 1.

2. The equation for calculating the TRE index value of a vent stream controlled by a flare is as follows:

$$\mathrm{TRE} = \frac{1}{E_{TOC}}\left[a(Q_s) + b(Q_s)^{0.8} + c(Q_s)(H_T) + d(E_{TOC}) + e\right]$$

where:

TRE is the TRE index value

E_{TOC} is the hourly ~~emission rate~~ emissions of TOC ~~reported in~~, kg/hr (lb/hr)

Q_s is the vent stream flow rate, ~~(~~scm/min~~)~~ (scf/min), at a standard temperature of 20°C (68°F)

H_T is the vent stream net heating value, ~~(MJ/scm)~~ (Btu/scf), where the net enthalpy per mole of ~~offgas~~ vent stream is based on combustion at 25°C and 760 mm Hg (77°F and 30 in Hg), but the standard temperature for determining the volume corresponding to one mole is 20°C (68°F) as in the definition of Q_s

a, b, c, d and e are coefficients. The set of coefficients that apply to a vent stream shall be obtained from Table 2.

Table 2 - Distillation NSPS TRE Coefficients For Vent Streams Controlled By a Flare

	a	b	c	d	e
1. $H_T < 11.2$ MJ/scm	2.25	0.288	-0.193	-0.0051	2.08
($H_T < 301$ Btu/scf)	(0.140)	(0.0367)	(-0.000448)	(-0.0051)	(4.59)
2. $H_T \geq 11.2$ MJ/scm	0.309	0.0619	-0.0043	-0.0034	2.08
($H_T \geq 301$ Btu/scf)	(0.0193)	(0.00788)	(-0.000010)	(-0.0034)	(4.59)

SECTION 326. NR 440.686(6)(g)(intro.), (i), (L)5. and 6. and (8) are amended to read:

NR 440.686(6)(g)(intro.) Each owner or operator subject to the provisions of this section shall keep up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored under sub. ~~(4)(d)~~ (4)(e), as well as up-to-date, readily accessible records of all periods of operation during which the parameter boundaries established during the most recent performance test are exceeded. The department may at any time require a report of these data. Where an owner or operator seeks to comply with sub. (3)(c), periods of operation during which the parameter boundaries established during the most recent performance tests are exceeded are defined as follows:

(i) Each owner or operator of an affected facility that seeks to comply with the requirements of this section by complying with the flow rate cutoff in sub. (1)(c)6. shall keep up-to-date, readily accessible records to indicate that the vent stream flow rate is less than 0.008 ~~m^3/min~~ scm/min (0.3 scf/min) and of any change in equipment or process operation that increases the operating vent stream flow rate, including a measurement of the new vent stream flow rate.

(L)5. Any change in equipment or process operation that increases the operating vent stream flow rate above the low flow exemption level in sub. (1)(c)6., including a measurement of the new vent stream flow rate, as recorded under par. (i). These shall be reported as soon as possible after the change and no later than 180 days after the change. These reports may be submitted either in conjunction with semiannual reports or as a single separate report. A performance test shall be completed with the same time period to verify the recalculated flow value and to obtain the vent stream characteristics of heating value and E_{TOC}. The performance test is subject to the requirements of s. NR 440.08. Unless the facility qualifies for an exemption under the low capacity exemption status in sub. (1)(c)5., the facility shall begin compliance with the requirements set forth in sub. (3).

6. Any change in equipment or process operation, as recorded under par. (j), that increases the design production capacity above the low capacity exemption level in sub. (1)(c)5. and the new capacity resulting from the change for the distillation process unit containing the affected facility. These shall be reported as soon as possible after the change and no later than 180 days after the change. These reports may be submitted either in conjunction with semiannual reports or as a single separate report. A performance test shall be completed within the same time period to obtain the vent stream flow rate, heating value~~,~~ and E_{TOC}. The performance test is subject to the requirements of s. NR 440.08. ~~Unless the facility qualifies for an exemption under the low flow exemption in sub. (1)(c)6., the~~ The facility shall begin compliance with the requirements in sub. (1)(d) or (3). If the facility chooses to comply with sub. (3), the facility may qualify for an exemption in sub. (1)(c)4. or 6.

(8) CHEMICALS AFFECTED BY THIS SECTION.

Chemical Name	**CAS No.***

1.	Acetaldehyde	75-07-0
2.	Acetaldol	107-89-1
3.	Acetic acid	64-19-7
4.	Acetic anhydride	108-24-7
5.	Acetone	67-64-1
6.	Acetone cyanohydrin	75-86-5
7.	Acetylene	74-86-2
8.	Acrylic acid	79-10-7
9.	Acrylonitrile	107-13-1
10.	Adipic acid	124-04-9
11.	Adiponitrile	111-69-3
12.	Alcohols, C-11 or lower, mixtures	--
13.	Alcohols, C-12 or higher, mixtures	--
14.	Allyl chloride	107-05-1
15.	Amylene	513-35-9
16.	Amylenes, mixed	--
17.	Aniline	62-53-3
18.	Benzene	71-43-2
19.	Benzenesulfonic acid	98-11-3
20.	Benzenesulfonic acid C_{10-16}-alkyl derivatives, sodium salts	68081-81-2
21.	Benzoic acid, tech	65-85-0
22.	Benzyl chloride	100-44-7
23.	Biphenyl	92-52-4
24.	Bisphenol A	80-05-7
25.	Brometone	76-08-4
26.	1,3-Butadiene	106-99-0
27.	Butadiene and butene fractions	--
28.	n-Butane	106-97-8
29.	1,4-Butanediol	110-63-4
30.	Butanes, mixed	--
31.	1-Butene	106-98-9
32.	2-Butene	25167-67-3
33.	Butenes, mixed	--
34.	n-Butyl acetate	123-86-4
35.	Butyl acrylate	141-32-2
36.	n-Butyl alcohol	71-36-3
37.	sec-Butyl alcohol	78-92-2
38.	tert-Butyl alcohol	75-65-0
39.	Butylbenzyl phthalate	85-68-7
40.	Butylene glycol	107-88-0
41.	tert-Butyl hydroperoxide	75-91-2
42.	2-Butyne-1,4-diol	110-65-6
43.	Butyraldehyde	123-72-8
44.	Butyric anhydride	106-31-0
45.	Caprolactam	105-60-2
46.	Carbon disulfide	75-15-0
47.	Carbon tetrabromide	558-13-4
48.	Carbon tetrachloride	56-23-5
49.	Chlorobenzene	108-90-7
50.	2-Chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine	1912-24-9
51.	Chloroform	67-66-3
52.	p-Chloronitrobenzene	100-00-5
53.	Chloroprene	126-99-8
54.	Citric acid	77-92-9
55.	Crotonaldehyde	4170-30-0
56.	Crotonic acid	3724-65-0
57.	Cumene	98-82-8
58.	Cumene hydroperoxide	80-15-9
59.	Cyanuric chloride	108-77-0
60.	Cyclohexane	110-82-7
61.	Cyclohexane, oxidized	68512-15-2

62.	Cyclohexanol	108-93-0
63.	Cyclohexanone	108-94-1
64.	Cyclohexanone oxime	100-64-1
65.	Cyclohexene	110-83-8
66.	1,3-Cyclopentadiene	542-92-7
67.	Cyclopropane	75-19-4
68.	Diacetone alcohol	123-42-2
69.	Dibutanized aromatic concentrate	--
70.	1,4-Dichlorobutene	110-57-8
71.	3,4-Dichlor-1-butene	64037-54-3
72.	Dichlorodifluoromethane	75-71-8
73.	Dichlorodimethylsilane	75-78-5
74.	Dichlorofluoromethane	75-43-4
75.	1,3-Dichlorohydrin	96-23-1
76.	Diethanolamine	111-42-2
77.	Diethylbenzene	25340-17-4
78.	Diethylene glycol	111-46-6
79.	Di-n-heptyl-n-nonyl undecyl phthalate	85-68-7
80.	Di-isodecyl phthalate	26761-40-0
81.	Diisononyl phthalate	28553-12-0
82.	Dimethylamine	124-40-3
83.	Demithyl terephthalate	120-61-6
84.	2,4-Dinitrotoluene	121-14-2
85.	2,6-Dinitrotoluene	606-20-2
86.	Dioctyl phthalate	117-81-7
87.	Dodecene	25378-22-7
88.	Dodecylbenzene, non linear	--
89.	Dodecylbenzenesulfonic acid	27176-87-0
90.	Dodecylbenzenesulfonic acid, sodium salt	25155-30-0
91.	Epichlorohydrin	106-89-8
92.	Ethanol	64-17-5
93.	Ethanolamine	141-43-5
94.	Ethyl acetate	141-78-6
95.	Ethyl acrylate	140-88-5
96.	Ethylbenzene	100-41-4
97.	Ethyl chloride	75-00-3
98.	Ethyl cyanide	107-12-0
99.	Ethylene	74-85-1
100.	Ethylene dibromide	106-93-4
101.	Ethylene dichloride	107-06-2
102.	Ethylene glycol	107-21-1
103.	Ethylene glycol monobutyl	111-76-2
104.	Ethylene glycol monoethyl ether	110-80-5
105.	Ethylene glycol monoethyl ether acetate	111-15-9
106.	Ethylene glycol monomethyl ether	109-86-4
107.	Ethylene oxide	75-21-8
108.	2-Ethylhexanal	26266-68-2
109.	2-Ethylhexyl alcohol	104-76-7
110.	(2-Ethylhexyl) amine	104-75-6
111.	Ethylmethylbenzene	25550-14-5
112.	6-Ethyl-1,2,3,4-tetrahydro-9,10-anthracenedione	15547-17-8
113.	Formaldehyde	50-00-0
114.	Glycerol	56-81-5
115.	n-Heptane	142-82-5
116.	Heptenes, mixed	--
117.	Hexadecyl chloride	--
118.	Hexamethylene diamine	124-09-4
119.	Hexamethylene diamine adipate	3323-53-3
120.	Hexamethylenetetramine	100-97-0
121.	Hexane	110-54-3
122.	2-Hexenedinitrile	13042-02-9

123.	3-Hexenedinitrile	1119-85-3
124.	Hydrogen cyanide	74-90-8
125.	Isobutane	75-28-5
126.	Isobutanol	78-83-1
127.	Isobutylene	115-11-7
128.	~~Isobytyraldehyde~~ Isobutyraldehyde	78-84-2
129.	Isodecyl alcohol	25339-17-7
130.	Isooctyl alcohol	26952-21-6
131.	Isopentane	78-78-4
132.	Isophthalic acid	121-91-5
133.	Isoprene	78-79-5
134.	Isopropanol	67-63-0
135.	Ketene	463-51-4
136.	Linear alcohols, ethoxylated, mixed	--
137.	Linear alcohols, ethoxylated and sulfated, sodium salt, mixed	--
138.	Linear alcohols, sulfated, sodium salt, mixed	--
139.	Linear alkylbenzene	123-01-3
140.	Magnesium acetate	142-72-3
141.	Maleic anhydride	108-31-6
142.	Melamine	108-78-1
143.	Mesityl oxide	141-79-7
144.	Methacrylonitrile	126-98-7
145.	Methanol	67-56-1
146.	Methylamine	74-89-5
147.	ar-Methylbenzenediamine	25376-45-8
148.	Methyl chloride	74-87-3
149.	Methylene chloride	75-09-2
150.	Methyl ethyl ketone	78-93-3
151.	Methyl iodide	74-88-4
152.	Methyl isobutyl ketone	108-10-1
153.	Methyl methacrylate	80-62-6
154.	2-Methylpentane	107-83-5
155.	1-Methyl-2-pyrrolidone	872-50-4
156.	Methyl tert-butyl ether	91-20-3
158.	Nitrobenzene	98-95-3
159.	1-Nonene	27215-95-8
160.	Nonyl alcohol	~~143-08-08~~ 143-08-8
161.	Nonylphenol	25154-52-3
162.	Nonylphenol, ethoxylated	9016-45-9
163.	Octene	25377-83-7
164.	Oil-soluble petroleum sulfonate, calcium salt	--
165.	Oil-soluble petroleum sulfonate, sodium salt	--
166.	Pentaerythritol	115-77-5
167.	n-Pentane	109-66-0
168.	3-Pentenenitrile	4635-87-4
169.	Pentenes, mixed	109-67-1
170.	Perchloroethylene	127-18-4
171.	Phenol	108-95-2
172.	1-Phenylethyl hydroperoxide	3071-32-7
173.	Phenylpropane	103-65-1
174.	Phosgene	75-44-5
175.	Phthalic anhydride	85-44-9
176.	Propane	74-98-6
177.	Propionaldehyde	123-38-6
178.	Propionic acid	79-09-4
179.	Propyl alcohol	71-23-8
180.	Propylene	115-07-1
181.	Propylene chlorohydrin	57-55-6
183.	Propylene oxide	75-56-9
184.	Propyl alcohol	71-23-8
185.	Propylene	115-07-1

186.	Sodium cyanide	143-33-9
187.	Sorbitol	50-70-4
188.	Styrene	100-42-5
189.	Terephthalic acid	100-21-0
190.	1,1,2,2-Tetrachloroethane	79-34-5
191.	Tetraethyl lead	78-00-2
192.	Tetrahydrofuran	109-99-9
193.	Tetra (methyl-ethyl) lead	--
194.	Tetramethyl lead	75-74-1
195.	Toluene	108-88-3
196.	Toluene-2,4-diamine	95-80-7
197.	Toluene-2,4 (and 2,6)-diisocyanate(80/20 mixture)	26471-62-5
198.	Tribromomethane	75-25-2
199.	1,1,1-Trichloroethane	71-55-6
200.	1,1,2-Trichloroethane	79-00-5
201.	Trichloroethylene	79-01-6
202.	Trichlorfluoromethane	75-89-4
203.	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1
204.	Triethanolamine	102-71-6
205.	Triethylene glycol	112-27-67
206.	Vinyl acetate	108-05-4
207.	Vinyl chloride	75-01-4
208.	Vinylidene chloride	75-35-4
209.	m-Xylene	108-38-3
210.	o-Xylene	95-47-6
211.	p-Xylene	106-42-3
212.	Xylenes, mixed	1330-20-7
213.	m-Xylenol	576-26-1

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*CAS numbers refer to the Chemical Abstracts Service Registry numbers assigned to specific chemicals, isomers or mixtures of chemicals. Some isomers or mixtures that are covered by the standards do not have CAS numbers assigned to them. The standards apply to all of the chemicals listed, whether CAS numbers have been assigned or not.

SECTION 327. NR 440.688(1)(a) is amended to read:

NR 440.688(1)(a) Except as provided in pars. (am) and (b) to (d), the provisions of this section 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. Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this section.

SECTION 328. NR 440.688(1)(am) is created to read:

NR 440.688(1)(am) The provisions of this section do not apply to facilities located in underground mines, or to stand-alone screening operations at plants without crushers or grinding mills.

SECTION 329. NR 440.688(1)(d)2. is amended to read:

NR 440.688(1)(d)2. An owner or operator seeking to comply with this paragraph shall ~~comply with the reporting requirements of sub. (7)(a) and (b)~~ submit the information required in sub. (7)(a).

SECTION 330. NR 440.688(2)(ym) and (z) are created to read:

NR 440.688(2) (ym) ‘‘Wet mining operation’’ means a mining or dredging operation designed and operated to extract any nonmetallic mineral regulated under this section from deposits existing at or below the water table, where the nonmetallic mineral is saturated with water.

(z) ‘‘Wet screening operation’’ means a screening operation at a nonmetallic mineral processing plant that removes unwanted material or that separates marketable fines from the product by a washing process which is designed and operated at all times such that the product is saturated with water.

SECTION 331. NR 440.688(3)(a)(intro.) and 1., (b) and (c) are amended to read:

NR 440.688(3)(a)(intro.) On and after the date on which the performance test required to be conducted by s. NR 440.08 is completed, no owner or operator subject to the provisions of this section 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 meet both of the following criteria:

1. Contain particulate matter in excess of 0.05 g/dscm~~, or~~ (0.022 gr/dscf).

(b) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under s. NR 440.11, no owner or operator subject to the provisions of this section 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 10% opacity except as provided in pars. (c) to (e).

(c) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under s. NR 440.11, 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 15% opacity.

SECTION 332. NR 440.688(3)(f) to (h) are created to read:

NR 440.688(3)(f) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under s. NR 440.11, no owner or operator may cause to be discharged into the atmosphere from any baghouse that controls emissions from only an individual, enclosed storage bin, stack emissions which exhibit greater than 7% opacity.

(g) Owners or operators of multiple storage bins with combined stack emissions shall comply with the emission limits in par. (a)1. and 2.

(h) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup, no owner or operator may cause to be discharged into the atmosphere any visible emissions from:

1. Wet screening operations and subsequent screening operations, bucket elevators, and belt conveyors that process saturated material in the production line up to the next crusher, grinding mill or storage bin.

2. Screening operations, bucket elevators, and belt conveyors in the production line downstream of wet mining operations, where the screening operations, bucket elevators, and belt conveyors process saturated materials up to the first crusher, grinding mill or storage bin in the production line.

SECTION 333. NR 440.688(6)(c)(intro.), 1., 2. and 3. are renumbered NR 440.688(6)(c)1.(intro.), a., b. and c.

SECTION 334. NR 440.688(6)(c)2. to 4., (g) and (h) are created to read:

NR 440.688(6)(c)2. In determining compliance with the opacity of stack emissions from any baghouse that controls emissions only from an individual enclosed storage bin under sub. (3)(f), using Method 9, the duration of Method 9 observations shall be one hour (10 6-minute averages).

3. When determining compliance with the fugitive emission standard for any affected facility described under sub. (3)(b), the duration of the Method 9 observations may be reduced from 3 hours (30 6-minute averages) to one hour (10 6-minute averages) only if both of the following conditions apply:

a. There are no individual readings greater than 10% opacity.

b. There are no more than 3 readings of 10% for the 1-hour period.

4. When determining compliance with the fugitive emissions standard for any crusher at which a capture system is not used as described under sub. (3)(c), the duration of the Method 9 observations may be reduced from 3 hours (30 6-minute averages) to one hour (10 6-minute averages) only if both of the following conditions apply:

a. There are no individual readings greater than 15% opacity.

b. There are no more than 3 readings of 15% for the 1-hour period.

(g) If, after 30 days notice for an initially scheduled performance test, there is a delay (due to operational problems, etc.) in conducting any rescheduled performance test, the owner or operator of an affected facility shall submit a notice to the department at least 7 days prior to any rescheduled performance test.

(h) Initial Method 9 performance tests under s. NR 440.11 and this subsection are not required for:

1. Wet screening operations and subsequent screening operations, bucket elevators and belt conveyors that process saturated material in the production line up to, but not including, the next crusher, grinding mill or storage bin.

2. Screening operations, bucket elevators and belt conveyors in the production line downstream of wet mining operations, that process saturated materials up to the first crusher, grinding mill or storage bin in the production line.

SECTION 335. NR 440.688(7)(a)(intro.), 1., and 4.a. and b. are amended to read:

NR 440.688(7)(a)(intro.) Each owner or operator seeking to comply with sub. (1)(d) shall submit to the department the following information about the existing facility being replaced and the replacement ~~price~~ piece of equipment.

1. For a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station, both of the following:

a. The rated capacity in megagrams or tons per hour of the existing facility being replaced~~, and~~.

b. The rated capacity in megagrams or tons per hour of the replacement equipment.

4. For a storage bin, both of the following:

a. The rated capacity in megagrams or tons of the existing storage bin being replaced~~, and~~.

b. The rated capacity in megagrams or tons of replacement storage bins.

SECTION 336. NR 440.688(7)(b) is repealed.

SECTION 337. NR 440.688(7)(f) is amended to read:

NR 440.688(7)(f) The owner or operator of any affected facility shall submit written reports of the results of all performance ~~test~~ tests conducted to demonstrate compliance with the standards set forth in sub. (3) including reports of opacity observations made using Method 9, 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), to demonstrate compliance with sub. (3)(b) ~~and~~, (c) and (f) and reports of observations using Method 22, 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), to demonstrate compliance with sub. (3)(e).

SECTION 338. NR 440.688(7)(g) and (i) are created to read:

NR 440.688(7)(g) The owner or operator of any screening operation, bucket elevator or belt conveyor that processes saturated material and is subject to sub. (3)(h) and subsequently processes unsaturated materials, shall submit a report of this change within 30 days following the change. The screening operation, bucket elevator or belt conveyor is then subject to the 10% opacity limit in sub. (3)(b) and the emission test requirements of s. NR 440.11. A screening operation, bucket elevator or belt conveyor that processes unsaturated material but subsequently processes saturated material shall submit a report of this change within 30 days following the change. The screening operation, bucket elevator or belt conveyor is then subject to the no-visible-emission limit in sub. (3)(h).

(i) A notification of the actual date of initial startup of each affected facility shall be submitted to the department.

1. For a combination of affected facilities in a production line that begin actual initial startup on the same day, a single notification of startup may be submitted by the owner or operator to the department. The notification shall be

postmarked within 15 days after the date and shall include a description of each affected facility, equipment manufacturer and serial number of the equipment, if available.

2. For portable aggregate processing plants, the notification of the actual date of initial startup shall include both the home office and the current address or location of the portable plant.

SECTION 339. NR 440.69(4)(b) and (6)(c)1., 2. and 3.a. are amended to read:

NR 440.69(4)(b) An owner or operator subject to the provisions of this section who uses a wet electrostatic precipitator control device to comply with the mass emission standard shall install, calibrate, maintain and operate monitoring devices that measure the primary and secondary current (amperes) and voltage in each electrical field and the inlet water flow rate. In addition the owner or operator shall determine the total residue (total solids) content of the water entering the control device once per day using Method 2450 B, "Total Solids Dried at 103 - 105°C", in Standard Methods for the Examination of Water and Wastewater, ~~17th~~ 20th edition, ~~1989~~ 1998, incorporated by reference in s. NR 440.17(2)(e)1. Total solids shall be reported as percent by weight. All monitoring devices required under this paragraph ~~are to~~ shall be certified by their manufacturers to be accurate within ± 5% over their operating range.

(6)(c)1. The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$$E = {(C_t Q_{sd})} / {P_{avg} K}$$

where:

E is the emission rate of particulate matter, kg/Mg (lb/ton)

C_t is the concentration of particulate matter, g/dscm ~~(g/dscf)~~ (gr/dscf)

Q_{sd} is the volumetric flow rate of effluent gas, dscm/hr (dscf/hr)

P_{avg} is the average glass pull rate, Mg/hr (ton/hr)

K is the conversion factor, 1000 g/kg ~~(453.6 g/lb)~~ (7,000 gr/lb)

2. Method 5E shall be used to determine the particulate matter concentration (C_t) and the volumetric flow rate (Q_{sd}) of the effluent gas. The sampling time and sample volume shall be at least 120 minutes and 2.55 dscm ~~(90 dscf)~~ (90.1 dscf).

3.a. ASTM Standard Test Method ~~D2584-68 (reapproved 1979)~~ D2584-94, incorporated by reference in s. NR 440.17(2)(a)32., shall be used to determine the LOI for each run.

SECTION 340. NR 440.70(2)(d), (11)(a)2. and 3. and (13)(a)1. and 2. are amended to read:

NR 440.70(2)(d) "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 an emission source to a control device. If gas or vapor from regulated equipment is routed to a process, e.g., to a petroleum refinery fuel gas system, the process is not considered a closed vent system and is not subject to the closed vent system standards.

(11)(a)2. The primary seal shall be a liquid-mounted seal or a mechanic shoe seal.

3. A liquid-mounted seal means a foam or liquid-filled seal mounted in contact with the liquid between the wall of the separator and the floating roof. A mechanical shoe seal means a metal sheet held vertically against the wall of the separator by springs or weighted levers and connected by braces to the floating roof. A flexible coated fabric or envelope spans the annular space between the metal sheet and the floating roof.

(13)(a)1. Where a thermal incinerator is used for VOC emission reduction, a temperature monitoring device equipped with a continuous recorder shall be used to measure the temperature of the gas stream in the combustion zone of the incinerator. The temperature monitoring device shall have an accuracy of ± 1% of the temperature being measured, expressed in °C, or ± 0.5°C ~~(± 1.0°F)~~ (0.9°F), whichever is greater.

2. Where a catalytic incinerator is used for VOC emission reduction, temperature monitoring devices, each equipped with a continuous recorder, shall be used to measure the temperature in the gas stream immediately before and after the catalyst bed of the incinerator. The temperature monitoring devices shall have an accuracy of ± 1% of the temperature being measured, expressed in °C, or ± 0.5°C ~~(± 1.0°F)~~ (0.9°F), whichever is greater.

SECTION 341. NR 440.70(13)(a)3. is renumbered NR 440.70(13)(a)3.(intro.) and amended to read:

NR 440.70(13)(a)3.(intro.) Where a carbon absorber is used for VOC emissions reduction, ~~a monitoring device that continuously indicates and records the VOC concentration level or reading of organics in the exhaust gases of the control device outlet gas stream or inlet and outlet gas stream shall be used.~~ monitoring is required as follows:

SECTION 342. NR 440.70(13)(a)3.a. and b. are created to read:

NR 440.70(13)(a)3.a. For a carbon adsorption system that regenerates the carbon bed directly onsite, a monitoring device that continuously indicates and records the VOC concentration level or reading of organics in the exhaust gases of the control device outlet gas stream or inlet and outlet gas stream shall be used.

b. For a carbon adsorption system that does not regenerate the carbon bed directly onsite in the control device, e.g., a carbon canister, the concentration level of the organic compounds in the exhaust vent stream from the carbon adsorption system shall be monitored on a regular schedule, and the existing carbon shall be replaced with fresh carbon immediately when carbon breakthrough is indicated. The device shall be monitored on a daily basis or at intervals no greater than 20% of the design carbon replacement interval, whichever is greater. As an alternative to conducting this monitoring, an owner or operator may replace the carbon in the carbon adsorption system with fresh carbon at a regular predetermined time interval that is less than the carbon replacement interval that is determined by the maximum design flow rate and organic concentration in the gas stream vented to the carbon adsorption system.

SECTION 343. NR 440.70(15)(j)2. is repealed and recreated to read:

NR 440.70(15)(j)2. For a carbon adsorption system that does not regenerate the carbon bed directly onsite in the control device such as a carbon canister, the design analysis shall consider the vent stream composition, constituent concentrations, flow rate, relative humidity and temperature. The design analysis shall also establish the design exhaust vent stream organic compound concentration level, capacity of carbon bed, type and working capacity of activated carbon used for carbon bed, and design carbon replacement interval based on the total carbon working capacity of the control device and source operating schedule.

SECTION 344. NR 440.70(15)(j)11. and 12. and (o) and (16)(e)4. are created to read:

NR 440.70(15)(j)11. Each owner or operator that uses a carbon adsorber which is regenerated directly onsite shall maintain continuous records of the VOC concentration level or reading of organics of the control device outlet gas stream or inlet and outlet gas stream and records of all 3-hour periods of operation during which the average VOC concentration level or reading of organics in the exhaust gases or inlet and outlet gas stream, is more than 20% greater than the design exhaust gas concentration level and shall keep such records for 2 years after the information is recorded.

12. Each owner or operator that uses a carbon adsorber that is not regenerated directly onsite in the control device shall maintain records of dates and times when the control device is monitored, when breakthrough is measured, and shall record the date and time that the existing carbon in the control device is replaced with fresh carbon.

(o) For oil-water separators subject to sub. (11), the location, date and corrective action shall be recorded for inspections required by sub. (11)(b)1. and 2., and shall be maintained for the following time period as applicable:

1. For inspections required by sub. (11)(b)1., 10 years after the information is recorded.

2. For inspection required by sub. (11)(b)2., 2 years after the information is recorded.

(16)(e)4. Each occurrence when the carbon in a carbon adsorber system that is not regenerated directly onsite in the control device is not replaced at the pre-determined interval specified in sub. (13)(a)3.b.

SECTION 345. NR 440.705(1)(c)2., 3. and 4. are amended to read:

NR 440.705(1)(c)2. Each affected facility that has a total resource effectiveness (TRE) index value greater than 8.0 is exempt from all provisions of this section except for subs. (3)(c), (5)(d), (e) and (f) and (6)(g), (L)1. and 6. and (t).

3. Each affected facility in a process unit with a total design capacity for all chemicals produced within that unit of less than one gigagram per year (1,100 tons per year) is exempt from all provisions of this section except for the recordkeeping and reporting requirements in sub. (6)(i), (L)~~6.~~ 5. and (n).

4. Each affected facility operated with a vent stream flow rate less than 0.011 scm/min is exempt from all provisions of this section except for the test method and procedure and the recordkeeping and reporting requirements in subs. (5)(g) and (6)(h), (L)~~5.~~ 4. and (o).

SECTION 346. NR 440.705(1)(d) is created to read:

NR 440.705(1)(d)1. Owners or operators of process vents that are subject to this section may choose to comply with the provisions of 40 CFR part 65, subpart D, as in effect on December 14, 2000, to satisfy the requirements of subs. (3) to (6). The provisions of 40 CFR part 65, subpart D, as in effect on December 14, 2000, also satisfy the criteria of par. (c)2., 4. and 8. Other provisions applying to an owner or operator who chooses to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, are provided in 40 CFR 65.1.

2. Owners or operators who choose to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, shall also comply with ss. NR 440.01, 440.02, 440.05, 440.06, 440.07(1)(a) and (d), 440.14, 440.15 and 440.16 for those process vents. All sections or subsections from ss. NR 440.01 to 440.19 not specified in this subdivision do not apply to owners or operators of process vents complying with 40 CFR part 65, subpart D, as in effect on December 14, 2000, except that provisions required to be met prior to implementing 40 CFR part 65 still apply. Owners or operators who choose to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, shall comply with 40 CFR part 65, subpart A.

3. Owners or operators who choose to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, at initial startup shall comply with subds. 1. and 2. for each vent stream on and after the date on which the initial performance test is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after the initial startup, whichever date comes first.

4. Each owner or operator subject to the provisions of this section that chooses to comply with 40 CFR part 65, subpart D, as in effect on December 14, 2000, at initial startup shall notify the administrator of the specific provisions of 40 CFR 65.63(a)(1), (2) or (3), as in effect on December 14,

2000, with which the owner or operator has elected to comply. Notificaton shall be submitted with the notification of initial startup required by 40 CFR 65.5(b).

SECTION 347. NR 440.705(5)(d)2.b. and 4. and (f)1., (6)(L)1., 4., 5. and 8. and (8) are amended to read:

NR 440.705(5)(d)2.b. ASTM ~~D1946-77~~ D1946-90 (reapproved 1994), incorporated by reference in s. NR 440.17(2)(a)24., to measure the concentration of carbon monoxide and hydrogen.

4. The net heating value of the vent stream shall be calculated using the following equation:

$$H_T = K_1 \sum_{j=1}^{n} C_j H_j \left(1 - B_{ws}\right)$$

where:

H_T is the net heating value of the sample, MJ/scm, where the net enthalpy per mole of vent stream is based on combustion at 25°C and 760 mm Hg but the standard temperature for determining the volume corresponding to one mole is 20°C as in the definition of Q_s (vent stream flow rate)

K_1 is a constant, 1.740 x 10^{-7} (l/ppm) (g-mole/scm) (MJ/kcal), where standard temperature for (g-mole/scm) is 20°C

C_j is the concentration on a dry basis of compound ``j'' in ppm as measured for organics by Method 18 and measured for hydrogen and carbon monoxide by ASTM ~~D1946-77~~ D1946-90 (reapproved 1994), incorporated by reference in s. NR 440.17(2)(a)24., as indicated in subd. 2.

H_j is the net heat of combustion of compound ``j'', kcal/g-mole, based on combustion at 25°C and 760 mm Hg. The heats of combustion of vent stream components would be required to be determined using ASTM ~~D2382-76~~ D2382-88 or D4809-95, incorporated by reference in s. NR 440.17(2)(a)30. and 61., if published values are not available or cannot be calculated.

B_{ws} is the water vapor content of the vent stream, proportion by volume

(f)1. Where the recalculated TRE index value is less than or equal to 1.0, the owner or operator shall notify the department within one week of the recalculation and shall conduct a performance test according to the methods and procedures required by this subsection in order to determine compliance with sub. (3)(a) or (b). Performance tests shall be conducted as soon as possible after the process change but no later than 180 days from the time of the process change.

(6)(L)1. Exceedances of monitored parameters recorded under pars. (c) ~~and~~, (f) and (g).

4. Any change in equipment or process operation that increases the operating vent stream flow rate above the low flow exemption level in sub. (1)(c)4., including a measurement of the new vent stream flow rate, as recorded under par. (h). These shall be reported as soon as possible after the change and no later than 180 days after the change. These reports may be submitted either in conjunction with semiannual reports or as a single separate report. A performance test shall be completed within the same time period to verify the recalculated flow value and to obtain the vent stream characteristics of heating value and E_{TOC}. The performance test is subject to the requirements of s. NR 440.08. Unless the facility qualifies for an exemption under any of the exemption provisions listed in sub. (1)(c), except for the total resource effectiveness index greater than 8.0 exemption in sub. (1)(c)2., the facility shall begin compliance with the requirements in sub. (3).

5. Any change in equipment or process operation as recorded under par. (i) that increases the design production capacity above the low capacity exemption level in sub. (1)(c)3. and the new capacity resulting from the change for the reactor process unit containing the affected facility. These shall be reported as soon as possible after the change and no later than 180 days after the change. These reports may be submitted either in conjunction with semiannual reports or as a single separate report. A performance test

shall be completed within the same time period to obtain the vent stream flow rate, heating value and E_{TOC}. The performance test is subject to the requirements of s. NR 440.08. ~~Unless the facility qualifies for an exemption under any of the exemption provisions listed in sub. (1)(c), the~~ The facility shall begin compliance with the requirements in sub. (1)(d) or (3). If the facility chooses to comply with sub. (3), the facility may qualify for an exemption under sub. (1)(c)2., 4. or 8.

8. Any change in equipment or process operation that increases the vent stream concentration above the low concentration exemption level in sub. (1)(c)8., including a measurement of the new vent stream concentration as recorded under par. (j). These shall be reported as soon as possible after the change and no later than 180 days after the change. These reports may be submitted either in conjunction with semiannual reports or as a single separate report. If the vent stream concentration is above 300 ppmv as measured using Method 18 of Appendix A of 40 CFR part 60, incorporated by reference in s. NR 440.17(1), or above 150 ppmv as measured using Method 25A of Appendix A of 40 CFR part 60, incorporated by reference in s. NR 440.17(1), a performance test shall be completed within the same time period to obtain the vent stream flow rate, heating value and ~~E~~ E_{TOC} The performance test is subject to the requirements of s. NR 440.08. Unless the facility qualifies for an exemption under any of the exemption provisions listed in sub. (1)(c), except for the TRE index greater than 8.0 exemption in sub. (1)(c)2., the facility shall begin compliance with the requirements in sub. (3).

(8) CHEMICALS AFFECTED BY THIS SETION.

	Chemical Name	**CAS No.**[1]
1.	Acetaldehyde	75-07-0
2.	Acetic acid	64-19-7
3.	Acetic anhydride	108-24-7
4.	Acetone	67-64-1
5.	Acetone cyanohydrin	75-86-5
6.	Acetylene	74-86-2
7.	Acrylic acid	79-10-7
8.	Acrylonitrile	107-13-1
9.	Adipic acid	124-04-9

10.	Adiponitrile	111-69-3
11.	Alcohols, C-11 or lower, mixtures	
12.	Alcohols, C-12 or higher, mixtures	
13.	Alcohols, C-12 or higher, unmixed	
14.	Allyl chloride	107-05-1
15.	Amylene	513-35-9
16.	Amylenes, mixed	
17.	Aniline	62-53-3
18.	Benzene	71-43-2
19.	Benzenesulfonic acid	98-11-3
20.	Benzenesulfonic acid C10-16-alkyl derivatives, sodium salts	68081-81-2
21.	Benzyl chloride	100-44-7
22.	Bisphenol A	80-05-7
23.	Brometone	76-08-4
24.	1,3-Butadiene	106-99-0
25.	Butadiene and butene fractions	
26.	n-Butane	106-97-8
27.	1,4-Butanediol	110-63-4
28.	Butanes, mixed	
29.	1-Butene	106-98-9
30.	2-Butene	25167-67-3
31.	Butenes, mixed	
32.	n-Butyl acetate	123-86-4
33.	Butyl acrylate	141-32-2
34.	n-Butyl alcohol	71-36-3
35.	sec-Butyl alcohol	78-92-2
36.	tert-Butyl alcohol	75-65-0
37.	Butylbenzyl phthalate	~~85-86-7~~ 85-68-7
38.	tert-Butyl hydroperoxide	75-91-2
39.	2-Butyne-1,4-diol	110-65-6
40.	Butyraldehyde	123-72-8
41.	Butyric anhydride	106-31-0
42.	Caprolactam	105-60-2
43.	Carbon disulfide	75-15-0
44.	Carbon tetrachloride	56-23-5
45.	Chloroacetic acid	79-11-8
46.	Chlorobenzene	108-90-7
47.	Chlorodifluoromethane	75-45-6
48.	Chloroform	67-66-3
49.	p-Chloronitrobenzene	100-00-5
50.	Citric acid	77-92-9
51.	Cumene	98-82-8
52.	Cumene hydroperoxide	80-15-9
53.	Cyanuric chloride	108-77-0
54.	Cyclohexane	110-82-7
55.	Cyclohexane, oxidized	68512-15-2
56.	Cyclohexanol	108-93-0
57.	Cyclohexanone	108-94-1
58.	Cyclohexanone oxime	100-64-1
59.	Cyclohexene	110-83-8
60.	Cyclopropane	75-19-4
61.	Diacetone alcohol	123-42-2
62.	1,4-Dichlorobutene	110-57-6
63.	3,4-Dichloro-1-butene	64037-54-3
64.	Dichlorodifluoromethane	75-71-8
65.	Dichlorodimethylsilane	75-78-5
66.	Dichlorofluoromethane	75-43-4

67.	Diethanolamine	111-42-2
68.	Diethylbenzene	25340-17-4
69.	Diethylene glycol	111-46-6
70.	Di-isodecyl phthalate	26761-40-0
71.	Dimethyl terephthalate	120-61-6
72.	2,4-~~(and 2,6)-~~Dinitrotoluene	121-14-2
73.	2,6-Dinitrotoluene	606-20-2
74.	Dioctyl phthalate	117-81-7
75.	Dodecene	25378-22-7
76.	Dodecylbenzene, nonlinear	
77.	Dodecylbenzenesulfonic acid	27176-87-0
78.	Dodecylbenzenesulfonic acid, sodium salt	25155-30-0
79.	Epichlorohydrin	106-89-8
80.	Ethanol	64-17-5
81.	Ethanolamine	141-43-5
82.	Ethyl acetate	141-78-6
83.	Ethyl acrylate	140-88-5
84.	Ethylbenzene	100-41-4
85.	Ethyl chloride	75-00-3
86.	Ethylene	74-85-1
87.	Ethylene dibromide	106-93-4
88.	Ethylene dichloride	107-06-2
89.	Ethylene glycol	107-21-1
90.	Ethylene glycol monobutyl ether	111-76-2
91.	Ethylene glycol monoethyl ether acetate	111-15-9
92.	Ethylene glycol monomethyl ether	109-86-4
93.	Ethylene oxide	75-21-8
94.	2-Ethylhexyl alcohol	104-76-7
95.	(2-Ethylhexyl) amine	104-75-6
96.	6-Ethyl-1,2,3,4-tetrahydro 9,10-~~antracenedione~~ anthracenedione	15547-17-8
97.	Formaldehyde	50-00-0
98.	Glycerol	56-81-5
99.	n-Heptane	142-82-5
100.	Heptenes (mixed)	
101.	Hexamethylene diamine	124-09-4
102.	Hexamethylene diamine adipate	3323-53-3
103.	Hexamethylenetetramine	100-97-0
104.	Hexane	110-54-3
105.	Isobutane	75-28-5
106.	Isobutanol	78-83-1
107.	Isobutylene	115-11-7
108.	~~Isobytyraldehyde~~ Isobutyraldehyde	78-84-2
109.	Isopentane	78-78-4
110.	Isoprene	78-79-5
111.	Isopropanol	67-63-0
112.	Ketene	463-51-4
113.	Linear alcohols, ethoxylated, mixed	
114.	Linear alcohols, ethoxylated, and sulfated, sodium salt, mixed.	
115.	Linear alcohols, sulfated, sodium salt, mixed	
116.	Linear alkylbenzene	123-01-3
117.	Maleic anhydride	108-31-6
118.	Mesityl oxide	141-79-7
119.	Methanol	67-56-1
120.	Methylamine	74-39-5
121.	ar-Methylbenzenediamine	25376-45-8
122.	Methyl chloride	74-87-3
123.	Methylene chloride	75-09-2

124.	Methyl ethyl ketone	78-93-3
125.	Methyl isobutyl ketone	108-10-1
126.	Methyl methacrylate	80-62-6
127.	1-Methyl-2-pyrrolidone	872-50-4
128.	Methyl tert-butyl ether	
129.	Naphthalene	91-20-3
130.	Nitrobenzene	98-95-3
131.	1-Nonene	27215-95-8
132.	Nonyl alcohol	~~143-08-08~~ 143-08-8
133.	Nonylphenol	25154-52-3
134.	Nonylphenol, ethoxylated	9016-45-9
135.	Octene	25377-83-7
136.	Oil-soluble petroleum sulfonate, calcium salt	
137.	Pentaerythritol	115-77-5
138.	3-Pentenenitrile	4635-87-4
139.	Pentenes, mixed	109-67-1
140.	Perchloroethylene	127-18-4
141.	Phenol	108-95-2
142.	1-Phenylethyl hydroperoxide	071-32-7
143.	Phenylpropane	103-65-1
144.	Phosgene	75-44-5
145.	Phthalic anhydride	85-44-9
146.	Propane	74-98-6
147.	Propionaldehyde	123-38-6
148.	Propyl alcohol	71-23-8
149.	Propylene	115-07-1
150.	Propylene glycol	57-55-6
151.	Propylene oxide	75-56-9
152.	Sorbitol	50-70-4
153.	Styrene	100-42-5
154.	Terephthalic acid	100-21-0
155.	Tetraethyl lead	78-00-2
156.	Tetrahydrofuran	109-99-9
157.	Tetra (methyl-ethyl) lead	
158.	Tetramethyl lead	75-74-1
159.	Toluene	108-88-3
160.	Toluene-2,4-diamine	95-80-7
161.	Toluene-2,4-(and, 2,6)-diisocyanate (80/20 mixture)	26471-62-5
162.	1,1,1-Trichloroethane	71-55-6
163.	1,1,2-Trichloroethane	79-00-5
164.	Trichloroethylene	79-01-6
165.	Trichlorofluoromethane	75-69-4
166.	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1
167.	Triethanolamine	102-71-6
168.	Triethylene glycol	112-27-6
169.	Vinyl acetate	108-05-4
170.	Vinyl chloride	75-01-4
171.	Vinylidene chloride	75-35-4
172.	m-Xylene	108-38-3
173.	o-Xylene	95-47-6
174.	.p-Xylene	106-42-3
175.	.Xylenes (mixed)	1330-20-7

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[1] CAS numbers refer to the Chemical Abstracts Registry numbers assigned to specific chemicals, isomers or mixtures of chemicals. Some isomers or mixtures that are

covered by the standards do not have CAS numbers assigned to them. The standards apply to all of the chemicals listed whether CAS numbers have been assigned or not.

SECTION 348. NR 440.71(5)(a)(intro.) is renumbered NR 440.71(5)(a) and amended to read:

NR 440.71(5)(a) Each owner or operator of an affected coating operation that utilizes less solvent annually than the applicable cutoff provided in sub. (1)(b) and that is not subject to sub. (3), standards for coating operations, shall ~~both:~~ maintain records of actual solvent use.

SECTION 349 NR 440.71(5)(a)1. and 2. are repealed.

SECTION 350. NR 440.71(8)(c)(intro.) is renumbered NR 440.71(8)(c) and as renumbered is amended to read:

NR 440.71(8)(c) Each owner or operator of an affected coating operation initially utilizing less than the applicable volume of solvent specified in sub. (1)(b) per calendar year shall~~:~~ report the first calendar year in which actual annual solvent use exceeds the applicable volume.

SECTION 351. NR 440.71(8)(c)1. and 2. are repealed.

SECTION 352. NR 440.71(8)(d)(intro.) is amended to read:

NR 440.71(8)(d)(intro.) Each owner or operator of an affected coating operation or affected coating mix preparation equipment subject to sub. (3)(e), shall submit ~~quarterly~~ semiannual reports to the department documenting the following:

SECTION 353. NR 440.72(4)(b)1. and (5)(a)2. are amended to read:

NR 440.72(4)(b)1. The owner or operator shall determine the composition of coatings by analysis of each coating, as received, using ~~Reference~~ Method 24 of Appendix A, 40 CFR part 60, incorporated by reference in s. NR 440.17(1), from data that have been determined by the coating manufacturer using ~~Reference~~ Method 24, or by other methods approved by the administrator.

(5)(a)2. For each affected facility where compliance is determined under the provisions of sub. (4)(b)2.c., a list of the coatings used during the initial nominal 1-month period, the VOC content of each coating calculated from data determined using ~~Reference~~ Method 24~~,~~ of Appendix A, 40 CFR part 60, incorporated by reference in s. NR 440.17(1), and the lowest transfer efficiency at which each coating is applied during the initial nominal 1-month period.

SECTION 354. NR 440.73(3)(intro.) and (a) is amended to read:

NR 440.73(3)(intro.) Each owner or operator of any affected facility that is subject to this section shall comply with the emission limitations in this subsection on and after the date on which the initial performance test required by s. NR 440.08 is completed, but not later than 180 days after the initial startup, whichever date comes first. No emissions may be discharged into the atmosphere from any affected facility that does both of the following:

(a) Contains particulate matter in excess of 0.092 gram per dry standard cubic meter (g/dscm) (0.040 grain per dry standard cubic foot (gr/dscf)) for calciners and for calciners and dryers installed in series and in excess of 0.057 g/dscm (0.025 gr/dscf) for dryers~~; and~~ .

SECTION 355. NR 440.75 is created to read:

NR 440.75 Municipal solid waste landfills. (1) APPLICABILITY AND DESIGNATION OF AFFECTED FACILITY. (a) The provisions of this section apply to each municipal solid waste (MSW) landfill that commenced construction, reconstruction or modification on or after May 30, 1991. Physical or operational changes made to an existing MSW landfill solely to comply with 40 CFR part 60 subpart Cc are not considered construction, reconstruction or modification for the purposes of this section.

(b) Activities required by or conducted pursuant to a remedial action under the Comprehensive Environmental Response, Compensation and Liability Act (42 USC 9601 to 9675); the Resource, Conservation and Recovery Act (42 USC 6901 to 6992k) or chs. NR 700 to 750 are not considered construction, reconstruction or modification for purposes of this section.

(2) DEFINITIONS. As used in this section, all terms not defined in this subsection shall have the meanings given in s. NR 440.02 or, for terms not defined in s. NR 440.02, the meanings given in s. NR 400.02. In this section:

(a) "Active collection system" means a gas collection system that uses gas mover equipment.

(b) "Active landfill" means a landfill in which solid waste is being placed or a landfill that is planned to accept waste in the future.

(c) "Closed landfill" means a landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification as prescribed under s. NR 440.07(1)(d). Once a notification of modification has been filed, and additional solid waste is placed in the landfill, the landfill is no longer closed.

(d) "Closure" means that point in time when a landfill becomes a closed landfill.

(e) "Commercial solid waste" means all types of solid waste generated by stores, offices, restaurants, warehouses and other nonmanufacturing activities, excluding residential and industrial wastes.

(f) "Controlled landfill" means any landfill at which collection and control systems are required under this section as a result of the nonmethane organic compounds emission rate. The landfill is considered controlled at the time a collection and control system design plan is submitted in compliance with sub. (3)(b)2.a.

(g) “Design capacity” means the maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent operating license issued under s. 289.31, Stats., by the department, plus any in-place waste not accounted for in the most recent license. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to volume to demonstrate its design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, the calculation shall include a site specific density, which shall be recalculated annually.

(h) “Disposal facility” means all contiguous land and structures, other appurtenances and improvements on the land used for the disposal of solid waste.

(i) “Emission rate cutoff” means the threshold annual emission rate to which a landfill compares its estimated emission rate to determine if control under this section is required.

(j) “Enclosed combustor” means an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air.

(k) “Flare” means an open combustor without enclosure or shroud.

(L) “Gas mover equipment” means the equipment (e.g. a fan, blower or compressor) used to transport landfill gas through the header system.

(m) “Household waste” means any solid waste (including garbage, trash and sanitary waste in septic tanks) derived from households (including but not limited to single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas).

(n) “Industrial solid waste” means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under 40 CFR part 264 or 265. Industrial solid waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer and agricultural chemicals; food and related products and by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing and foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay and concrete products; textile manufacturing; transportation equipment; and water treatment. Industrial solid waste does not include mining waste or oil and gas waste.

(o) “Interior well” means any well or similar collection component located inside the perimeter of the landfill waste. A perimeter well located outside the landfilled waste is not an interior well.

(p) “Landfill” means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well or waste pile as those terms are defined under 40 CFR 257.2.

(q) “Lateral expansion” means a horizontal expansion of the waste boundaries of an existing MSW landfill. A lateral expansion is not a modification unless it results in an increase in the design capacity of the landfill.

(r) “Modification” means an increase in the volume design capacity of the landfill allowed by an operating license issued under s. 289.31, Stats., by either horizontal or vertical expansion based on its licensed design capacity as of May 30, 1991. Modification does not occur until the owner or operator commences construction on the horizontal or vertical expansion.

(s) “Municipal solid waste landfill” or “MSW landfill” means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSW landfill may also receive other types of wastes defined under 40 CFR 257.2 such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An

MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion.

(t) “Municipal solid waste landfill emissions” or “MSW landfill emissions” means gas generated by the decomposition of organic waste deposited in an MSW landfill or derived from the evolution of organic compounds in the waste.

(u) “NMOC” means nonmethane organic compounds, as measured according to the provisions of sub. (5).

(v) “Nondegradable waste” means any waste that does not decompose through chemical breakdown or microbiological activity. Examples include concrete, municipal waste combustor ash and metals.

(w) “Passive collection system” means a gas collection system that solely uses positive pressure within the landfill to move the gas rather than using gas mover equipment.

(x) “Sludge” means any solid, semisolid or liquid waste generated from a municipal, commercial or industrial wastewater treatment plant, water supply treatment plant or air pollution control facility, exclusive of the treated effluent from a wastewater treatment plant.

(y) “Solid waste” means any garbage, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits under 33 USC 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act, 42 (USC 2011 to 2259).

(ym) “Sufficient density” means any number, spacing and combination of collection system components, including vertical wells, horizontal collectors, and surface collectors necessary to maintain emission and migration control as determined by measures of performance set forth in this section.

(z) "Sufficient extraction rate" means a rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration, including any wellheads connected to the system as a result of expansion or excess surface emissions, for the life of the blower.

(3) STANDARDS FOR EMISSIONS FROM MUNICIPAL SOLID WASTE LANDFILLS. (a) Each owner or operator of an MSW landfill having a design capacity less than 2.5 million megagrams by mass or 2.5 million cubic meters by volume shall submit an initial design capacity report to the department as provided in sub. (8)(a). The landfill owner or operator may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions shall be documented and submitted with the report. Submittal of the initial design capacity report shall fulfill the requirements of this section except as follows:

1. The owner or operator shall submit to the department an amended design capacity report, as provided for in sub. (8)(a)3.

2. When an increase in the maximum design capacity of a landfill results in a revised maximum design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, the owner or operator shall comply with the provision of par. (b).

(b) Each owner or operator of an MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, shall either comply with subd. 2. or calculate an NMOC emission rate for the landfill using the procedures specified in sub. (5). The NMOC emission rate shall be recalculated annually, except as provided in sub. (8)(b)2. The owner or operator of an MSW landfill subject to this section with a design capacity greater than or equal to 2.5

million megagrams and 2.5 million cubic meters is subject to ch. NR 407 permitting requirements.

1. If the calculated NMOC emission rate is less than 50 megagrams per year, the owner or operator shall do the following:

a. Submit an annual emission report to the department, except as provided for in sub. (8)(b)2.

b. Recalculate the NMOC emission rate annually using the procedures specified in sub. (5)(a)1. until such time as the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, or the landfill is closed.

1) If the NMOC emission rate, upon recalculation, is equal to or greater than 50 megagrams per year, the owner or operator shall install a collection and control system in compliance with subd. 2.

2) If the landfill is permanently closed, a closure notification shall be submitted to the department as provided for in sub. (8)(d).

2. If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, the owner or operator shall do all of the following:

a. Submit a collection and control system design plan prepared by a professional engineer to the department within one year.

1) The collection and control system as described in the plan shall meet the design requirements of subd. 2.b.

2) The collection and control system design plan shall include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions of subs. (4) to (9) proposed by the owner or operator.

3) The collection and control system design plan shall either conform with specifications for active collection systems in sub. (10) or include a demonstration

to the department's satisfaction of the sufficiency of the alternative provisions to sub. (10).

4) The department shall review the information submitted under subd. 2.a.1) to 3) and either approve it, disapprove it, or request that additional information be submitted. Because of the many site-specific factors involved with landfill gas system design, alternative systems may be necessary. A wide variety of system designs are possible, such as vertical wells, combination horizontal and vertical collection systems, or horizontal trenches only, leachate collection components, and passive systems.

b. Install a collection and control system that captures the gas generated within the landfill within 30 months after the first annual report in which the emission rate equals or exceeds 50 megagrams per year, unless Tier 2 or Tier 3 sampling demonstrates that the emission rate is less than 50 megagrams per year, as specified in sub. (8)(c)1. or 2.

1) An active collection system shall:

a) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment.

b) Collect gas from each area, cell or group of cells in the landfill in which the initial solid waste has been placed for a period of 5 years or more if active, or 2 years or more if closed or at final grade.

c) Collect gas at a sufficient extraction rate.

d) Be designed to minimize off-site migration of subsurface gas.

2) A passive collection system shall:

a) Comply with the provisions specified in subd. 2.b.1)a), b) and d).

b) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners shall be installed as required under 40 CFR 258.40.

c. Route all the collected gas to a control system that complies with one of the following:

1) An open flare designed and operated in accordance with s. NR 440.18.

2) A control system designed and operated to reduce NMOC by 98% by weight, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98% by weight or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3% oxygen. The reduction efficiency or parts per million by volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in sub. (5)(d).

a) If a boiler or process heater is used as the control device, the landfill gas stream shall be introduced into the flame zone.

b) The control device shall be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in sub. (7).

3) A treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of subd. 2.c.1) or 2).

d. Operate the collection and control device installed to comply with this section in accordance with the provisions of subs. (4), (6) and (7).

3. The collection and control system may be capped or removed provided that all of the following conditions are met:

a. The landfill shall be a closed landfill. A closure report shall be submitted to the department as provided in sub. (8)(d).

b. The collection and control system shall have been in operation a minimum of 15 years.

c. Following the procedures specified in sub. (5)(b), the calculated NMOC gas produced by the landfill shall be less than 50 megagrams per year on 3 successive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart.

(c) For purposes of obtaining an operating permit under Title V of the Act (42 USC 7661 to 7661f), the owner or operator of a MSW landfill subject to this section with a design capacity less than 2.5 million megagrams or 2.5 million cubic meters is not subject to the requirement to obtain an operating permit for the landfill under ch. NR 407, unless the landfill is otherwise subject to ch. NR 407. For purposes of submitting a timely application for an operating permit under ch. NR 407, the owner or operator of a MSW landfill subject to this section with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters, and not otherwise subject to ch. NR 407, becomes subject to the requirements of s. NR 407.04(1), regardless of when the design capacity report is actually submitted, no later than the following:

1. June 10, 1996 for MSW landfills that commenced construction, modification, or reconstruction on or after May 30, 1991 but before March 12, 1996.

2. Ninety days after the date of commenced construction, modification or reconstruction for MSW landfills that commence construction, modification or reconstruction on or after March 12, 1996.

(d) When a MSW landfill subject to this section is closed, the owner or operator is no longer subject to the requirement to maintain an operating permit under ch. NR 407 for the landfill if the landfill is not otherwise subject to the requirements of ch. NR 407 and if either of the following conditions are met:

1. The landfill was never subject to the requirement for a control system under par. (b)2.

2. The owner or operator meets the conditions for control system removal specified in par. (b)2.e.

(4) OPERATIONAL STANDARDS FOR COLLECTION AND CONTROL SYSTEMS. (a) Each owner or operator of an MSW landfill with a gas collection and control system used to comply with the provisions of sub. (3)(b)2.b. shall:

1. Operate the collection system such that gas is collected from each area, cell or group of cells in the MSW landfill in which solid waste has been in place for:

a. 5 years or more if active.

b. 2 years or more if closed or at final grade.

2. Operate the collection system with negative pressure at each wellhead except under the following conditions:

a. A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in sub. (8)(f)1.

b. Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan.

c. A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the department.

3. Operate each interior wellhead in the collection system with a landfill gas temperature less than 55°C and with either a nitrogen level less than 20% or an oxygen level less than 5%. The owner or operator may establish a higher operating temperature, nitrogen or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause

fires or significantly inhibit anaerobic decomposition by killing methanogens. Nitrogen and oxygen level shall be determined as follows:

a. The nitrogen level shall be determined using Method 3C in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), unless an alternative test method is established as allowed by sub. (3)(b)2.a.

b. Unless an alternative test method is established as allowed by sub. (3)(b)2.a., the oxygen level shall be determined by an oxygen meter using Method 3A or 3C in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), except that:

1) The span shall be set so that the regulatory limit is between 20 and 50% of the span.

2) A data recorder is not required.

3) Only 2 calibration gases are required, a zero and span, and ambient air may be used as the span.

4) A calibration error check is not required.

5) The allowable sample bias, zero drift and calibration drift are ± 10%.

4. Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.

5. Operate the system such that all collected gases are vented to a control system designed and operated in compliance with sub. (3)(b)2.c. In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour.

6. Operate the control or treatment system at all times when the collected gas is routed to the system.

(b) If monitoring demonstrates that the operational requirements in par. (a)2., 3. or 4. are not met, corrective action shall be taken as specified in sub. (6)(a)3. to 5. or (c). If the specified corrective actions are taken, the monitored exceedance is not a violation of the operational requirements in this subsection.

(5) TEST METHODS AND PROCEDURES. (a)1. 'Emission rate calculation.' The landfill owner or operator shall calculate the NMOC emission rate using either of the equations provided in subd. 1.a. or b. as appropriate. Both equations may be used if the actual year-to-year solid waste acceptance rate is known for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown for part of the life of the landfill. The values used in both equations shall be 0.05 per year for k, 170 cubic meters per megagram for L_o and 4,000 parts per million by volume as hexane for C_{NMOC}. For landfills located in geographical areas with a 30 year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value used shall be 0.02 per year.

a. The following equation shall be used if the actual year-to-year solid waste acceptance rate is known:

$$M_{NMOC} = \sum_{i=1}^{n} 2kL_o M_i (e^{-kt_i})(C_{NMOC})(3.6 \times 10^{-9})$$

where:

M_{NMOC} is the total NMOC emission rate from the landfill in megagrams per year

k is the methane generation rate constant in $year^{-1}$

L_o is the methane generation potential in cubic meters per megagram of solid waste

M_i is the mass of solid waste in the i^{th} section in megagrams. The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

t_i is the age of the i^{th} section in years

C_{NMOC} is the concentration of NMOC in parts per million by volume as hexane

3.6×10^{-9} is a conversion factor

b. The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown:

$$M_{NMOC} = 2L_oR(e^{-kc} - e^{-kt})(C_{NMOC})(3.6 \, x \, 10^{-9})$$

where:

M_{NMOC} is the mass emission rate of NMOC in megagrams per year

L_o is the methane generation potential in cubic meters per megagram of solid waste

R is the average annual acceptance rate in megagrams per year. The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value or R, if documentation of the nature and amount of such wastes is maintained.

k is the methane generation rate constant in $year^{-1}$

t is the age of landfill in years

C_{NMOC} is the concentration of NMOC in parts per million by volume as hexane

c is the time since closure in years. For active landfill c = O and $e^{-kc} = 1$.

3.6×10^{-9} is a conversion factor

2. 'Tier 1.' The owner or operator shall compare the calculated NMOC mass emission rate to the standard of 50 megagrams per year and then do one of the following:

a. If the NMOC emission rate calculated in subd. 1. is less than 50 megagrams per year, the landfill owner shall submit an emission rate report as provided in sub. (8)(b)1., and shall recalculate the NMOC mass emission rate annually as required under sub. (3)(b)1.

b. If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, the landfill owner shall either comply with sub. (3)(b)2., or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the procedures provided in subd. 3.

3. 'Tier 2.' The landfill owner or operator shall determine the NMOC concentration using the sampling procedures in this subdivision. The landfill owner or operator shall install at least 2 sample probes per hectare of landfill surface that has retained waste for at least 2 years. If the landfill is larger than 25 hectares in area, only 50 sample probes are required. The sample probes shall be located to avoid known areas of nondegradable solid waste. The owner or operator shall collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25 or 25C in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). Method 18 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), may be used to analyze the samples collected by the Method 25 or 25C sampling procedure. Taking composite samples from

different probes into a single cylinder is allowed; however, equal sample volumes shall be taken from each probe. For each composite, the sampling rate, collection times, beginning and ending cylinder vacuums, or alternative volume measurements shall be recorded to verify that composite volumes are equal. Composite sample volumes may not be less than one liter unless evidence can be provided to substantiate the accuracy of smaller volumes. The owner or operator shall terminate compositing before the cylinder approaches ambient pressure, where measurement accuracy diminishes. If using Method 18, the owner or operator shall identify all compounds in the sample and, as a minimum, test for those compounds published in the Compilation of Air Pollutant Emission Factors, AP-42, incorporated by reference in s. NR 440.17(2)(i)2., minus carbon monoxide, hydrogen sulfide and mercury. As a minimum, the instrument shall be calibrated for each of the compounds on the list. The concentration of each Method 18 compound shall be converted to C_{NMOC} as hexane by multiplying by the ratio of its carbon atoms divided by 6. If more than the required number of samples are taken, all samples shall be used in the analysis. The landfill owner or operator shall divide the NMOC concentration from Method 25 or 25C by 6 to convert from C_{NMOC} as carbon to C_{NMOC} as hexane. If the landfill has an active or passive gas removal system in place, Method 25 or 25C samples may be collected from these systems instead of surface probes provided the removal system can be shown to provide sampling as representative as the 2 sampling probe per hectare requirement. For active collection systems, samples may be collected from the common header pipe before the gas moving or condensate removal equipment. For these systems, a minimum of 3 samples shall be collected from the header pipe. The landfill owner or operator shall recalculate the NMOC mass emission rate using the equations in subd. 1. and using the average NMOC concentration from the collected samples instead of the default value for the equation provided in subd. 1., and then do one of the following:

a. If the resulting mass emission rate calculated using the site-specific NMOC concentration is equal to or greater than 50 megagrams per year, the landfill owner or operator shall either comply with sub. (3)(b)2., or determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate constant and using the procedure specified in subd. 4.

b. If the resulting NMOC mass emission rate is less than 50 megagrams per year, the owner or operator shall submit a periodic estimate of the emission rate report as provided in sub. (8)(b)1. and retest the site-specific NMOC concentration every 5 years using the methods specified in this subsection.

4. 'Tier 3.' A landfill owner or operator electing to determine the site-specific methane generation rate constant and to recalculate the NMOC emission rate under this subdivision shall follow the procedures in this subdivision. The site-specific methane generation rate constant shall be determined using the procedures provided in Method 2E in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). The landfill owner or operator shall estimate the NMOC mass emission rate using the equations in subd. 1. as appropriate and using a site-specific methane generation rate constant, k, and the site-specific NMOC concentration as determined in subd. 3. instead of the default values provided in subd. 1. The landfill owner or operator shall compare the resulting NMOC mass emission rate to the standard of 50 megagrams per year, and then do one of the following:

a. If the NMOC mass emission rate as calculated using the site-specific methane generation rate constant and concentration of NMOC is equal to or greater than 50 megagrams per year, the owner or operator shall comply with sub. (3)(b)2.

b. If the NMOC mass emission rate is less than 50 megagrams per year, the owner or operator shall submit a periodic emission rate report as provided in sub. (8)(b)1. and shall recalculate the NMOC mass emission rate annually, as provided in sub.

(8)(b)1. using the equations in subd. 1. and using the site-specific methane generation rate constant and NMOC concentration obtained in subd. 3. The calculation of the methane generation rate constant is performed only once, and the value obtained from this test shall be used in all subsequent annual NMOC emission rate calculations.

5. 'Alternative methods.' The owner or operator may use other methods to determine the NMOC concentration or a site-specific k as an alternative to the methods required in subds. 3. and 4. if the method has been approved by the administrator.

(b)1. After the installation of a collection and control system in compliance with sub. (6), the owner or operator shall calculate the NMOC emission rate for purposes of determining when the system can be removed as provided in sub. (3)(b)2.e., using the following equation:

$$M_{NMOC} = (1.89 \, x \, 10^{-3}) Q_{LFG} C_{NMOC}$$

where:

M_{nmoc} is the mass emission rate of NMOC in megagrams per year

Q_{LFG} is the flow rate of landfill gas in cubic meters per minute

C_{NMOC} is the NMOC concentration in parts per million by volume as hexane

2. The flow rate of landfill gas, Q_{LFG}, shall be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1).

3. The average NMOC concentration, C_{NMOC}, shall be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25C or Method 18 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1). If using Method 18,

the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors, AP-42, incorporated by reference in s. NR 440.17(2)(i)2. The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The landfill owner or operator shall divide the NMOC concentration from Method 25C by 6 to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

4. The owner or operator may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the department.

(c) When calculating emissions for purposes of prevention of significant deterioration, the owner or operator of each MSW landfill subject to the provisions of this section shall estimate the NMOC emission rate for comparison to the major source and significance levels in s. NR 405.02 using the Compilation of Air Pollutant Emission Factors, AP-42, incorporated by reference in s. NR 440.17(2)(i)2., or other measurement procedures approved by the department.

(d) For the performance test required in sub. (3)(b)2.c.2), Method 18, 25 or 25C in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine compliance with the 98% by weight reduction efficiency or the 20 ppmv outlet concentration level, unless another method to demonstrate compliance has been approved by the department as provided by sub. (3)(b)2.a.2). Method 3 or 3A, in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to determine oxygen for correcting the NMOC concentration as hexane to 3%. In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), Method 25A shall be used in place of Method 25. If Method 18 is used, the minimum list of compounds to be tested shall be those published in the Compilation of Air Pollutant Emission Factors, AP-42, incorporated by reference in s. NR 440.17(2)(i)2. The following equation shall be used to calculate efficiency:

$$\text{Control Efficiency} = \frac{(\text{NMOC}_{\text{in}} - \text{NMOC}_{\text{out}})}{\text{NMOC}_{\text{in}}}$$

where:

NMOC_{in} is the mass of NMOC entering control device

NMOC_{out} is the mass of NMOC exiting control device

(6) COMPLIANCE PROVISIONS. (a) Except as provided in sub. (3)(b)2.a.2), the following specified methods shall be used to determine whether the gas collection system is in compliance with sub. (3)(b)2.b.:

1. For the purpose of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with sub. (3)(b)2.b.1)a), one of the equations in this subdivision shall be used. The k and L_o kinetic factors shall be those published in the Compilation of Air Pollutant Emission Factors, AP-42, incorporated by reference in s. NR 440.17(2)(i)2., or other site specific values demonstrated to be appropriate and approved by the department. If k has been determined as specified in sub. (5)(a)4., the value of k determined from the test shall be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure. The equations are as follows:

a. For sites with unknown year-to-year solid waste acceptance rate:

$$Q_m = 2L_oR(e^{-kc} - e^{-kt})$$

where:

Q_m is the maximum expected gas generation flow rate in cubic meters per year

L_o is the methane generation potential in cubic meters per megagram of solid waste

R is the average annual acceptance rate in megagrams per year

k is the methane generation rate constant in year^{-1}

t is the age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation in years.

C is the time since closure in years. For an active landfill c = 0 and $e^{-kc} = 1$.

b. For sites with known year-to-year solid waste acceptance rate:

$$Q_m = \sum_{i=1}^{n} 2kL_o M_i (e^{-kt_i})$$

where:

Q_m is the maximum expected gas generation flow rate in cubic meters per year

k is the methane generation rate constant in year^{-1}

L_o is the methane generation potential in cubic meters per megagram of solid waste

M_i is the mass of solid waste in the i^{th} section in megagrams

t_i is the age of the i^{th} section in years

2. If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equation in subd. 1.a. or b. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using the equation in subd. 1.a. or b. or other

methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

3. For the purposes of determining sufficient density of gas collectors for compliance with sub. (3)(b)2.b.1)b), the owner or operator shall design a system of vertical wells, horizontal collectors or other collection devices, satisfactory to the department, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.

4. For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with sub. (3)(b)2.b.1)c), the owner or operator shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within 5 calendar days, except for the 3 conditions allowed under sub. (4)(a)2. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure may not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the department for approval.

5. Owners or operators are not required to expand the system as required in subd. 4. during the first 180 days after gas collection system startup.

6. For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator shall monitor each well monthly for temperature and nitrogen or oxygen as provided in sub. (4)(a)3. If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted

corrective measure may not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the department for approval.

7. An owner or operator seeking to demonstrate compliance with sub. (3)(b)2.b.1)d) through the use of a collection system not conforming to the specifications provided in sub. (10) shall provide information satisfactory to the department as specified in sub. (3)(b)2.a.3) demonstrating that off-site migration is being controlled.

(b) For purposes of compliance with sub. (4)(a)1., each owner or operator of a controlled landfill shall place each well or design component as specified in the approved design plan as provided in sub. (3)(b)2.a. Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of one of the following:

1. 5 years if active.

2. 2 years if closed or at final grade.

(c) The following procedures shall be used for compliance with the surface methane operational standard as provided in sub. (4)(a)4.:

1. After installation of the collection system, the owner or operator shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals, or along a site-specific established spacing, for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in par. (d).

2. The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells.

3. Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions.

4. Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the actions specified in this subdivision shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of sub. (4)(a)4. The actions are as follows:

a. The location of each monitored exceedance shall be marked and the location recorded.

b. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance.

c. If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in subd. 4.e. shall be taken, and no further monitoring of that location is required until the action specified in subd. 4.e. has been taken.

d. Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in subd. 4.b. or c. shall be re-monitored one month from the initial exceedance. If the 1-month remonitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month remonitoring shows an exceedance, the actions specified in subd. 4.c. or e. shall be taken.

e. For any location where monitored methane concentration equals or exceeds 500 parts per million above background 3 times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the department for approval.

5. The owner or operator shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

(d) Each owner or operator seeking to comply with the provisions in par. (c) shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

1. The portable analyzer shall meet the instrument specifications provided in section 3 of Method 21 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), except that "methane" shall replace all references to VOC.

2. The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air.

3. To meet the performance evaluation requirements in section 3.1.3 of Method 21 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), the instrument evaluation procedures of section 4.4 of Method 21 shall be used.

4. The calibration procedures provided in section 4.2 of Method 21 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be followed immediately before commencing a surface monitoring survey.

(e) The provisions of this section apply at all times, except during periods of startup, shutdown or malfunction, provided that the duration of startup, shutdown or malfunction may not exceed 5 days for collection systems and may not exceed one hour for treatment or control devices.

(7) MONITORING OF OPERATIONS. Except as provided in sub. (3)(b)2.a.2):

(a) Each owner or operator seeking to comply with sub. (3)(b)2.b.1) for an active gas collection system shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and do all of the following:

1. Measure the gauge pressure in the gas collection header on a monthly basis as provided in sub. (6)(a)4.

2. Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as provided in sub. (6)(a)6.

3. Monitor temperature of the landfill gas on a monthly basis as provided in sub. (6)(a)6.

(b) Each owner or operator seeking to comply with sub. (3)(b)2.c. using an enclosed combustor shall calibrate, maintain and operate according to the manufacturer's specifications, the following equipment:

1. A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ± 1% of the temperature being measured, expressed in degrees Celsius, or ± 0.5 degrees Celsius, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity equal to or greater than 44 megawatts.

2. A device that records flow to or bypass of the control device. The owner or operator shall do one of the following:

a. Install, calibrate and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes.

b. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(c) Each owner or operator seeking to comply with sub. (3)(b)2.c. using an open flare shall install, calibrate, maintain and operate according to the manufacturer's specifications the following equipment:

1. A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame.

2. A device that records flow to or bypass of the flare. The owner or operator shall do one of the following:

a. Install, calibrate and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes.

b. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(d) Each owner or operator seeking to demonstrate compliance with sub. (3)(b)2.c. using a device other than an open flare or an enclosed combustor shall provide information satisfactory to the department as provided in sub. (3)(b)2.a.2) describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The department shall review the information and either approve it or request that additional information be submitted. The department may specify additional appropriate monitoring procedures.

(e) Each owner or operator seeking to install a collection system that does not meet the specifications in sub. (10), or seeking to monitor alternative parameters to those required by subs. (4) to (6) or this subsection, shall provide information satisfactory to the department as provided in sub. (3)(b)2.a.2) and 3) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The department may specify additional appropriate monitoring procedures.

(f) Each owner or operator seeking to demonstrate compliance with sub. (6)(c) shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in sub. (6)(d). Any closed landfill that has no monitored exceedances of the operational standard in 3 consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring shall return the frequency for that landfill to quarterly monitoring.

(8) REPORTING REQUIREMENTS. Except as provided in sub. (3)(b)2.a.2):

(a) Each owner or operator subject to the requirements of this section shall do all of the following:

1. Submit to the department an initial design capacity report which fulfills the requirements of the notification of the date construction is commenced as required under s. NR 440.07(1)(a) no later than one of the following:

a. June 10, 1996, for landfills that commenced construction, modification or reconstruction on or after May 30, 1991 but before March 12, 1996.

b. Ninety days after the date of commenced construction, modification or reconstruction for landfills that commence construction, modification or reconstruction on or after March 12, 1996.

2. Ensure that the initial design capacity report submitted under subd. 1. contains the following information:

a. A map or plot of the landfill, providing the size and location of the landfill, and identifying all areas where solid waste may be landfilled according to an operating license issued under s. 289.31, Stats., by the department.

b. The maximum design capacity of the landfill. Where the maximum design capacity is specified in an operating license issued under s. 289.31, Stats., by the department, a copy of the operating license specifying the maximum design capacity may be submitted as part of the report. If the maximum design capacity of the landfill is not specified in the operating license, the maximum design capacity shall be calculated using good engineering practices. The calculations shall be provided, along with the relevant parameters, as part of the report. The department may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill.

3. Submit an amended design capacity report to the department providing notification of an increase in the design capacity of the landfill, within 90 days of an increase in the maximum design capacity of the landfill to or above 2.5 million megagrams and 2.5 million cubic meters. This increase in design capacity may result from an increase in the volume of the landfill allowed in an operating license issued under s. 289.31, Stats., by the department, or an increase in the density as documented in the annual recalculation required in sub. (9)(h).

(b)1. Each owner or operator subject to the requirements of this section shall submit an NMOC emission rate report to the department initially and annually thereafter, except as provided for in subds. 2. and 4. The department may request additional information as may be necessary to verify the reported NMOC emission rate. The NMOC emission rate report shall contain an annual or 5-year estimate of the NMOC emission rate calculated using the formula and procedures provided in sub. (5)(a) or (b), as applicable. The initial NMOC emission rate report may be combined with the initial design capacity report required in par. (a)1. and shall be submitted no later than one of the following:

a. June 10, 1996, for landfills that commenced construction, modification or reconstruction on or after May 30, 1991, but before March 12, 1996.

b. Ninety days after the date of commenced construction, modification or reconstruction for landfills that commence construction, modification or reconstruction on or after March 12, 1996.

2. If the estimated NMOC emission rate as reported in the annual report to the department is less than 50 megagrams per year in each of the next 5 consecutive years, the owner or operator may elect to submit an estimate of the NMOC emission rate for the next 5-year period in lieu of the annual report. This estimate shall include the current amount of solid waste in-place and the estimated waste acceptance rate for each year of the 5 years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based shall be provided to the department. This estimate shall be revised at least once every 5 years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the 5-year estimate, a revised 5-year estimate shall be submitted to the department. The revised estimate shall cover the 5-year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate.

3. The NMOC emission rate report shall include all the data, calculations, sample reports and measurements used to estimate the annual or 5-year emissions.

4. Each owner or operator subject to the requirements of this section is exempted from the requirements of subds. 1. to 3., after the installation of a collection and control system in compliance with sub. (3)(b)2., during the time the collection and control system is in operation and in compliance with subs. (4) and (6).

(c) Each owner or operator subject to the provisions of sub. (3)(b)2.a. shall submit a collection and control system design plan to the department within one year of the first report required under par. (b) in which the emission rate equals or exceeds 50 megagrams per year, except as follows:

1. If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in sub. (5)(a)3. and the resulting rate is less than 50 megagrams per year, annual periodic reporting shall be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated emission rate is equal to or greater than 50 megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated emission rate based on NMOC sampling and analysis, shall be submitted within 180 days of the first calculated exceedance of 50 megagrams per year.

2. If the owner or operator elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant, k, as provided in Tier 3 in sub. (5)(a)4., and the resulting NMOC emission rate is less than 50 megagrams per year, annual periodic reporting shall be resumed. The resulting site-specific methane generation rate constant, k, shall be used in the emission rate calculation until the time the emissions rate calculation results in an exceedance. The revised NMOC emission rate report based on the provisions of sub. (5)(a)4. and the resulting site-specific methane generation rate constant, k, shall be submitted to the department within one year of the first calculated emission rate exceeding 50 megagrams per year.

(d) Each owner or operator of a controlled landfill shall submit a closure report to the department within 30 days of waste acceptance cessation. The department may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to the department, no additional wastes may be placed into the landfill without filing a notification of modification as described under s. NR 440.07(1)(d).

(e)1. Each owner or operator of a controlled landfill shall submit an equipment removal report to the department 30 days prior to removal or cessation of operation of the control equipment. The equipment removal report shall contain all of the following items:

a. A copy of the closure report submitted in accordance with par. (d).

b. A copy of the initial performance test report demonstrating that the 15 year minimum control period has expired.

c. Dated copies of 3 successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year.

2. The department may request additional information as may be necessary to verify that all of the conditions for removal in sub. (3)(b)2.e. have been met.

(f) Each owner or operator of a landfill seeking to comply with sub. (3)(b)2. using an active collection system designed in accordance with sub. (3)(b)2.b. shall submit to the department annual reports of the recorded information in subds. 1. to 6. The initial annual report shall be submitted within 180 days of installation and startup of the collection and control system, and shall include the initial performance test report required under s. NR 440.08. For enclosed combustion devices and flares, reportable exceedances are defined under sub. (9)(c). The information which shall be recorded is as follows:

1. Value and length of time for exceedance of applicable parameters monitored under sub. (7)(a) to (d).

2. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under sub. (7).

3. Description and duration of all periods when the control device was not operating for a period exceeding one hour and length of time the control device was not operating.

4. Description and duration of all periods when the collection system was not operating in excess of 5 days.

5. The location of each exceedance of the 500 parts per million methane concentration as provided in sub. (4)(a)4. and the concentration recorded at each location for which an exceedance was recorded in the previous month.

6. The date of installation and the location of each well or collection system expansion added pursuant to sub. (6)(a)4., (b) and (c)4.

(g) Each owner or operator seeking to comply with sub. (3)(b)2.c. shall include the following information with the initial performance test report required under s. NR 440.08:

1. A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion.

2. The data upon which the sufficient density of wells, horizontal collectors, surface collectors or other gas extraction devices and the gas mover equipment sizing are based.

3. The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material.

4. The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area.

5. The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill.

6. The provisions for the control of off-site migration.

(9) RECORDKEEPING REQUIREMENTS. (a) Except as provided in sub. (3)(b)2.a.2), each owner or operator of an MSW landfill subject to the provisions of sub. (3)(b)

shall keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report which triggered sub. (3)(b), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

(b) Except as provided in sub. (3)(b)2.a.2), each owner or operator of a controlled landfill shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in subds. 1. to 4. as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal. The data is as follows:

1. Where an owner or operator subject to the provisions of this section seeks to demonstrate compliance with sub. (3)(b)2.b., the following:

a. The maximum expected gas generation flow rate as calculated in sub. (6)(a)1. The owner or operator may use another method to determine the maximum gas generation flow rate if the method has been approved by the department.

b. The density of wells, horizontal collectors, surface collectors or other gas extraction devices determined using the procedures specified in sub. (10)(a)1.

2. Where an owner or operator subject to the provisions of this section seeks to demonstrate compliance with sub. (3)(b)2.c. through use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity equal to or greater than 44 megawatts, the following:

a. The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test.

b. The percent reduction of NMOC determined as specified in sub. (3)(b)2.c.2) achieved by the control device.

3. Where an owner or operator subject to the provisions of this section seeks to demonstrate compliance with sub. (3)(b)2.c.2)a) through use of a boiler or process heater of any size, a description of the location at which the collected gas vent stream is introduced into the boiler or process heater over the same time period of the performance testing.

4. Where an owner or operator subject to the provisions of this section seeks to demonstrate compliance with sub. (3)(b)2.c.1) through use of an open flare, the flare type (i.e., steam-assisted, air-assisted or nonassisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, exit velocity determinations made during the performance test as specified in s. NR 440.18, continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame or the flare flame is absent.

(c) Except as provided in sub. (3)(b)2.a.2), each owner or operator of a controlled landfill subject to the provisions of this section shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in sub. (7) as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded. Each owner or operator shall do the following:

1. Record and report under sub. (8)(f), the following, which constitute exceedances:

a. For enclosed combustors except for boilers and process heaters with design heat input capacity of 44 megawatts, (150 million British thermal units per hour) or greater, all 3-hour periods of operation during which the average combustion temperature was more than 28°C below the average combustion temperature during the most recent performance test at which compliance with sub. (3)(b)2.c. was determined.

b. For boilers or process heaters, any change in the location at which the vent stream is introduced into the flame zone as required under par. (b)3.

2. Keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under sub. (7).

3. If using a boiler or process heater with a design heat input capacity of 44 megawatts or greater to comply with sub. (3)(b)2.c., keep an up-to-date, readily accessible record of all periods of operation of the boiler or process heater.

Note: Examples of records of operation include records of steam use, fuel use or monitoring data collected pursuant to other department or federal regulatory requirements.

4. If seeking to comply with the provisions of this section by use of an open flare, keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under sub. (7)(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

(d) Except as provided in sub. (3)(b)2.a.2), keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.

(e) Each owner or operator subject to the provisions of this section shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under sub. (6)(b).

(f) Each owner or operator subject to the provisions of this section shall keep readily accessible documentation of the nature, date of deposition, amount and location of asbestos-containing or nondegradable waste excluded from collection as provided in sub. (10)(a)3.a. as well as any nonproductive areas excluded from collection as provided in sub. (10)(a)3.b.

(g) Except as provided in sub. (3)(b)2.a.2), each owner or operator subject to the provisions of this section shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in sub. (4), the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

(h) Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of "design capacity", shall keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

(10) SPECIFICATIONS FOR ACTIVE COLLECTION SYSTEMS. (a) Each owner or operator seeking to comply with sub. (3)(b)2.a. shall site active collection wells, horizontal collectors, surface collectors or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the department as provided in sub. (3)(b)2.a.3) and 4):

1. The collection devices within the interior and along the perimeter areas shall be certified to achieve comprehensive control of surface gas emissions by a professional engineer. The design for the collection system shall address depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandability, leachate and condensate management, accessibility, compatibility with filling operations, integration with closure end use, air intrusion control, corrosion resistance, fill settlement and resistance to the refuse decomposition heat.

2. The sufficient density of gas collection devices determined in subd. 1. shall address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior.

3. The placement of gas collection devices determined in subd. 1. shall control all gas producing areas, except as follows:

a. Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under sub. (9)(f). The documentation shall provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area, and shall be provided to the department upon request.

b. Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1% of the total amount of NMOC emissions from the landfill. The amount, location and age of the material shall be documented and provided to the department upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all the sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the following equation:

$$Q_i = 2kL_oM_i(e^{-kt_i})(C_{NMOC})(3.6 \text{ x } 10^{-9})$$

where:

Q_i is the NMOC emission rate from the i^{th} section in megagrams

per year

k is the methane generation rate constant in $year^{-1}$

L_o is the methane generation potential in cubic meters per megagram of solid

waste

M_i is the mass of the degradable solid waste in the i^{th} section in megagram

t_i is the age of the solid waste in the i^{th} section in years

C_{NMOC} is the concentration of nonmethane organic compounds in parts per million by volume

3.6×10^{-9} is a conversion factor

4. When calculating emissions using the equation in subd. 3.b., the values for k and C_{NMOC} determined in field testing shall be used if field testing has been performed in determining the NMOC emission rate or the radii of influence (the distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero). If field testing has not been performed, the default values for k, L_o and C_{NMOIC} provided in sub. (5)(a)1. or the alternative values from sub. (5)(a)5. shall be used. The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age and amount of the nondegradable material is documented as provided in subd. 3.a.

(b) Each owner or operator seeking to comply with sub. (3)(b)2.a.1) shall construct the gas collection devices using the following equipment or procedures:

1. The landfill gas extraction components shall be constructed of polyvinyl chloride, high density polyethylene pipe, fiberglass, stainless steel or other nonporous corrosion resistant material of suitable dimensions to convey projected amounts of gases; withstand installation, static and settlement forces; and withstand planned overburden or traffic loads. The collection system shall extend as necessary to comply with emission and migration standards. Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations shall be situated with regard to the need to prevent excessive air infiltration.

2. Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors shall be of sufficient cross-section so as to allow for their proper construction and completion including, for example, centering of pipes and placement of gravel backfill. Collection devices shall be designed so as not to allow indirect short circuiting of air into the cover or refuse into the collection system or gas into the air. Any gravel used around pipe perforations should be of a dimension so as not to penetrate or block perforations.

3. Collection devices may be connected to the collection header pipes below or above the landfill surface. The connector assembly shall include a positive closing throttle valve, any necessary seals and couplings, access couplings and at least one sampling port. The collection devices shall be constructed of polyvinyl chloride, high density polyethylene, fiberglass, stainless steel or other nonporous material of suitable thickness.

(c) Each owner or operator seeking to comply with sub. (3)(b)2.a.1) shall convey the landfill gas to a control system, in compliance with sub. (3)(b)2.c., through the collection header pipes. The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures:

1. For existing collection systems, the flow data shall be used to project the maximum flow rate. If no flow data exists, the procedures in subd. 2. shall be used.

2. For new collection systems, the maximum flow rate shall be in accordance with sub. (6)(a)1.

SECTION 356. NR 440.76 is created to read:

NR 440.76 Small municipal waste combustion units for which construction is commenced after August 30, 1999 or for which modification or reconstruction is

commenced after June 6, 2001. This section establishes new source performance standards for new small municipal waste combustion units. Some of the requirements in this section apply during municipal waste combustion unit planning and shall be completed before construction is commenced on the municipal waste combustion unit. In particular, the preconstruction requirements in subs. (3) and (4) shall be completed prior to commencing construction. Other requirements, such as the emission limits, apply when the municipal waste combustion unit begins operation.

Note: For purposes of this section "I", "my", "you" or "your", refers to the owner or operator of a municipal waste combustion unit or the applicant for a permit to construct a municipal waste combustion unit, unless the context indicates otherwise. (See the definitions in sub. (2)(z)and (zm).)

(1) APPLICABILITY. (a) *Does this section apply to my municipal waste combustion unit?* This section applies if your municipal waste combustion unit meets the following 2 criteria:

1. Your municipal waste combustion unit is a new municipal waste combustion unit.

2. Your municipal waste combustion unit has the capacity to combust at least 35 tons per day but no more than 250 tons per day of municipal solid waste or refuse-derived fuel.

(b) *What is a new municipal waste combustion unit?* 1. A new municipal waste combustion unit is a municipal waste combustion unit that meets either of the following 2 criteria:

a. Commenced construction after August 30, 1999.

b. Commenced reconstruction or modification after June 6, 2001.

2. This section does not apply to your municipal waste combustion unit if you make physical or operational changes to an existing municipal waste combustion unit primarily to comply with the emission guidelines in subpart BBBB of 40 CFR part 60. Those changes do not qualify as reconstruction or modification under this section.

(c) *Does this section allow any exemptions?* 1. 'Small municipal waste combustion units that combust less than 11 tons per day.' You are exempt from this section if you meet the following 4 requirements:

a. Your municipal waste combustion unit is subject to a federally enforceable permit limiting the amount of municipal solid waste combusted to less than 11 tons per day.

b. You notify the department that the unit qualifies for the exemption.

c. You provide the department with a copy of the federally enforceable permit.

Note: If the department issued the permit you may satisfy the requirement in subd. 1.c. by providing the department with your facility identification number and the number and date of issuance of the permit which limits the amount of municipal solid waste combusted.

d. You keep daily records of the amount of municipal solid waste combusted.

2. 'Small power production facilities.' You are exempt from this section if you meet the following 4 requirements:

a. Your unit qualifies as a small power production facility under section 3(17)(C) of the Federal Power Act (16 USC 796(17)(C)).

b. Your unit combusts homogeneous waste, excluding refuse-derived fuel, to produce electricity.

c. You notify the department that the unit qualifies for the exemption.

d. You provide the department with documentation that the unit qualifies for the exemption.

3. 'Cogeneration facilities.' You are exempt from this section if you meet the following 4 requirements:

a. Your unit qualifies as a cogeneration facility under section 3(18)(B) of the Federal Power Act (16 USC 796(18)(B)).

b. Your unit combusts homogeneous waste, excluding refuse-derived fuel, to produce electricity and steam or other forms of energy used for industrial, commercial, heating or cooling purposes.

c. You notify the department that the unit qualifies for the exemption.

d. You provide the department with documentation that the unit qualifies for the exemption.

4. 'Municipal waste combustion units that combust only tires.' You are exempt from this section if you meet the following 3 requirements:

a. Your municipal waste combustion unit combusts a single-item waste stream of tires and no other municipal waste. However, the unit can co-fire coal, fuel oil, natural gas or other nonmunicipal solid waste.

b. You notify the department that the unit qualifies for the exemption.

c. You provide the department with documentation that the unit qualifies for the exemption.

5. 'Hazardous waste combustion units.' You are exempt from this section if you get a permit for your unit under section 3005 of the Solid Waste Disposal Act (42 USC 6925) or a license under s. 291.25, Stats.

6. 'Materials recovery units.' You are exempt from this section if your unit combusts waste mainly to recover metals. Primary and secondary smelters qualify for the exemption.

7. 'Co-fired combustors.' You are exempt from this section if you meet the following 4 requirements:

a. Your unit has a federally enforceable permit limiting the combustion of municipal solid waste to 30% of the total fuel input by weight.

b. You notify the department that the unit qualifies for the exemption.

c. You provide the department with a copy of the federally enforceable permit.

Note: If the department issued the permit you may satisfy the requirement in subd. 7.c. by providing the department with your facility identification number and the number and date of issuance of the permit which limits the amount of municipal solid waste combusted.

d. You record the weights, each quarter, of municipal solid waste and of all other fuels combusted.

8. 'Plastics or rubber recycling units.' You are exempt from this section if you meet the following 4 requirements:

a. Your pyrolysis or combustion unit is an integrated part of a plastics or rubber recycling unit as defined in sub. (2).

b. You record the weights, each quarter, of plastics, rubber and rubber tires processed.

c. You record the weights, each quarter, of feed stocks produced and marketed from chemical plants and petroleum refineries.

d. You keep the name and address of the purchaser of those feed stocks.

9. 'Units that combust fuels made from products of plastics or rubber recycling plants.' You are exempt from this section if you meet the following 2 requirements:

a. Your unit combusts gasoline, diesel fuel, jet fuel, fuel oils, residual oil, refinery gas, petroleum coke, liquified petroleum gas, propane or butane produced by chemical plants or petroleum refineries that use feedstocks produced by plastics or rubber recycling units.

b. Your unit does not combust any other municipal solid waste.

10. 'Cement kilns.' You are exempt from this section if your cement kiln combusts municipal solid waste.

11. 'Air curtain incinerators.' If your air curtain incinerator, as defined in sub. (2), combusts 100% yard waste, only the requirements under sub. (14) apply to you.

(d) *Do the new source performance standards of s. NR 440.21 also apply to my municipal waste combustion unit?* If this section applies to your municipal waste combustion unit, then s. NR 440.21 does not apply to your municipal waste combustion unit.

(f) *How are these new source performance standards structured?* These new source performance standards contain the following 5 major components:

1. Preconstruction requirements consisting of the following:

a. Materials separation plan.

b. Siting analysis.

2. Good combustion practices consisting of the following:

a. Operator training.

b. Operator certification.

c. Operating requirements.

3. Emission limits.

4. Monitoring and stack testing.

5. Recordkeeping and reporting.

(g) *Do all 5 components of these new source performance standards apply at the same time?* No, you shall meet the preconstruction requirements before you commence construction of the municipal waste combustion unit. After the municipal waste combustion unit begins operation, you shall meet all of the good combustion practices, emission limits, monitoring and stack testing requirements and most recordkeeping and reporting requirements.

(h) *Are there different subcategories of small municipal waste combustion units within this section?* 1. Yes, this section subcategorizes small municipal waste combustion units into the following 2 groups based on the aggregate capacity of the municipal waste combustion plant as follows:

a. Class I units are small municipal waste combustion units that are located at municipal waste combustion plants with an aggregate plant combustion capacity greater than 250 tons per day of municipal solid waste. The definition of "municipal waste combustion plant capacity" in sub. (2) specifies which units at a plant are included in the aggregate capacity calculation.

b. Class II units are small municipal waste combustion units that are located at municipal waste combustion plants with an aggregate plant combustion capacity less than or equal to 250 tons per day of municipal solid waste. The definition of "municipal waste combustion plant capacity" in sub. (2) specifies which units at a plant are included in the aggregate capacity calculation.

2. The requirements for Class I and Class II units are identical except for the following 2 items:

a. Class I units have a nitrogen oxides emission limit. As indicated in Table 1, Class II units do not have a nitrogen oxides emission limit. Additionally, Class I units have continuous emission monitoring, recordkeeping and reporting requirements for nitrogen oxides.

b. Class II units are eligible for the reduced testing option provided in sub. (10)(e).

(2) DEFINITIONS. All terms used in this section that are not defined in this subsection shall have the meanings given in s. NR 440.02. If the terms are not defined in s. NR 440.02, the terms shall have the meanings given in s. NR 400.02, 40 CFR part 60, subpart B or the Act. In this section:

(a) “Air curtain incinerator” means an incinerator that operates by forcefully projecting a curtain of air across an open chamber or pit in which combustion occurs. Air curtain incinerators can be constructed above or below ground and with or without refractory walls and floor.

(am) “Batch municipal waste combustion unit” means a municipal waste combustion unit designed so it cannot combust municipal solid waste continuously 24 hours per day because the design does not allow waste to be fed to the unit or ash to be removed during combustion.

(b) “Calendar quarter” means 3 consecutive, nonoverlapping months beginning on January 1, April 1, July 1 or October 1.

(c) "Chief facility operator" means the person in direct charge and control of the operation of a municipal waste combustion unit. The chief facility operator is responsible for daily onsite supervision, technical direction, management and overall performance of the municipal waste combustion unit.

(cm) "Class I units" mean small municipal waste combustion units subject to this section that are located at municipal waste combustion plants with an aggregate plant combustion capacity greater than 250 tons per day of municipal solid waste. The definition in this subsection of "municipal waste combustion plant capacity" specifies which units at a plant site are included in the aggregate capacity calculation.

(d) "Class II units" mean small municipal waste combustion units subject to this section that are located at municipal waste combustion plants with an aggregate plant combustion capacity less than or equal to 250 tons per day of municipal solid waste. The definition in this subsection of "municipal waste combustion plant capacity" specifies which units at a plant site are included in the aggregate capacity calculation.

(dm) "Clean wood" means untreated wood or untreated wood products including clean untreated lumber, whole or chipped tree stumps and whole or chipped tree limbs. Clean wood does not include yard waste or construction, renovation and demolition wastes, such as railroad ties and telephone poles, that are exempt from the definition of municipal solid waste.

(e) "Co-fired combustion unit" means a unit that combusts municipal solid waste with nonmunicipal solid waste fuel (e.g., coal or industrial process waste). To be considered a co-fired combustion unit, the unit shall be subject to a federally enforceable permit that limits it to combusting a fuel feed stream which is 30% or less, by weight, municipal solid waste as measured each calendar quarter.

(em) "Continuous burning" means the continuous, semicontinuous or batch feeding of municipal solid waste to dispose of the waste, produce energy, or provide heat to the combustion system in preparation for waste disposal or energy production. Continuous burning does not mean the use of municipal solid waste solely to thermally protect the grate or hearth during the startup period when municipal solid waste is not fed to the grate or hearth.

(f) "Continuous emission monitoring system" means a monitoring system that continuously measures the emissions of a pollutant from a municipal waste combustion unit.

(fm) "Dioxins/furans" mean tetra- to octa- chlorinated dibenzo-p-dioxins and dibenzofurans.

(g) "Eight-hour block average" or "8-hour block average" means the average of all hourly emission concentrations or parameter levels when the municipal waste combustion unit operates and combusts municipal solid waste measured over any of the following 8-hour periods of time:

1. 12:00 midnight to 8:00 a.m.
2. 8:00 a.m. to 4:00 p.m.
3. 4:00 p.m. to 12:00 midnight.

(gm) "Federally enforceable" means all limits and conditions the administrator can enforce, including the requirements of 40 CFR parts 60, 61 and 63, requirements in a state's implementation plan, and any permit requirements established under ch. NR 406.

(h) "First calendar half" means the period that starts on January 1 and ends on June 30 in any year.

(hm) "Fluidized bed combustion unit" means a unit where municipal waste is combusted in a fluidized bed of material. The fluidized bed material may remain in the primary combustion zone or may be carried out of the primary combustion zone and returned through a recirculation loop.

(i) "Four-hour block average" or "4-hour block average" means the average of all hourly emission concentrations or parameter levels when the municipal waste combustion unit operates and combusts municipal solid waste measured over any of the following 4-hour periods:

1. 12:00 midnight to 4:00 a.m.

2. 4:00 a.m. to 8:00 a.m.

3. 8:00 a.m. to 12:00 noon.

4. 12:00 noon to 4:00 p.m.

5. 4:00 p.m. to 8:00 p.m.

6. 8:00 p.m. to 12:00 midnight.

(im) "Mass burn refractory municipal waste combustion unit" means a field-erected municipal waste combustion unit that combusts municipal solid waste in a refractory wall furnace. Unless otherwise specified, municipal waste combustion units with a cylindrical rotary refractory wall furnace are included.

(j) "Mass burn rotary waterwall municipal waste combustion unit" means a field-erected municipal waste combustion unit that combusts municipal solid waste in a cylindrical rotary waterwall furnace.

(jm) "Mass burn waterwall municipal waste combustion unit" means a field-erected municipal waste combustion unit that combusts municipal solid waste in a waterwall furnace.

(k) "Materials separation plan" means a plan that identifies a goal and an approach for separating certain components of municipal solid waste for a given service area in order to make the separated materials available for recycling. A materials separation plan may include the following 3 items:

1. Elements such as dropoff facilities, buy-back or deposit-return incentives, curbside pickup programs or centralized mechanical separation systems.

2. Different goals or approaches for different subareas in the service area.

3. No materials separation activities for certain subareas or, if warranted,

the entire service area.

(km) "Maximum demonstrated load of a municipal waste combustion unit" means the highest 4-hour block arithmetic average municipal waste combustion unit load achieved during 4 consecutive hours in the course of the most recent dioxins/furans stack test that demonstrates compliance with the applicable emission limit for dioxins/furans specified in this section.

(L) "Maximum demonstrated temperature of the particulate matter control device" means the highest 4-hour block arithmetic average flue gas temperature measured at the inlet of the particulate matter control device during 4 consecutive hours in the course of the most recent stack test for dioxins/furans emissions that demonstrates compliance with the limits specified in this section.

(Lm) "Medical/infectious waste" has the meaning given for "medical/infectious waste" in s. NR 440.218(2)(nm).

(m) "Mixed fuel-fired (pulverized coal and refuse-derived fuel) combustion unit" means a combustion unit that combusts coal and refuse-derived fuel simultaneously, in which pulverized coal is introduced into an air stream that carries the coal to the combustion chamber of the unit where it is combusted in suspension. This includes both conventional pulverized coal and micropulverized coal.

(mm) "Modification" or "modified municipal waste combustion unit" means a municipal waste combustion unit you have changed after June 6, 2001 and that meets one of the 2 following criteria:

1. The cumulative cost of the changes over the life of the unit exceeds 50% of the original cost of building and installing the unit, not including the cost of land, updated to current costs.

2. Any physical change in the municipal waste combustion unit or change in the method of operating it that increases the emission level of any air pollutant for which new source performance standards have been established under section 129 or

section 111 of the Act (42 USC 7429 or 7411). Increases in the emission level of any air pollutant shall be determined when the municipal waste combustion unit operates at 100% of its physical load capability and shall be measured downstream of all air pollution control devices. Load restrictions based on permits or other nonphysical operational restrictions may not be considered in the determination.

(n) "Modular excess-air municipal waste combustion unit" means a municipal waste combustion unit that combusts municipal solid waste, is not field-erected, and has multiple combustion chambers, all of which are designed to operate at conditions with combustion air amounts in excess of theoretical air requirements.

(nm) "Modular starved-air municipal waste combustion unit" means a municipal waste combustion unit that combusts municipal solid waste, is not field-erected, and has multiple combustion chambers in which the primary combustion chamber is designed to operate at substoichiometric conditions.

(o) "Municipal solid waste" or "municipal-type solid waste" means household, commercial, retail or institutional waste. Household waste includes material discarded by residential dwellings, hotels, motels and other similar permanent or temporary housing. Commercial or retail waste includes material discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities and other similar establishments or facilities. Institutional waste includes materials discarded by schools, nonmedical materials discarded by hospitals, materials discarded by nonmanufacturing activities at prisons and government facilities, and other similar establishments or facilities. Household, commercial, retail and institutional waste does include yard waste and refuse-derived fuel. Household, commercial, retail and institutional waste does not include used oil; sewage sludge; wood pallets; construction, renovation and demolition wastes, such as railroad ties and telephone poles; clean wood; industrial process or manufacturing wastes; medical waste; or motor vehicles, including motor vehicle parts or vehicle fluff.

(om) “Municipal waste combustion plant” means one or more municipal waste combustion units at the same location as specified under sub. (1)(b)1. and 2.

(p) “Municipal waste combustion plant capacity” means the aggregate municipal waste combustion capacity of all municipal waste combustion units at the plant that are subject to s. NR 440.215 or 440.216 or this section.

(pm) “Municipal waste combustion unit” means any setting or equipment that combusts solid, liquid or gasified municipal solid waste. The term "municipal waste combustion unit" includes field-erected combustion units with or without heat recovery; modular combustion units with starved-air or excess-air; boilers such as steam generating units; furnaces, whether suspension-fired, grate-fired, mass-fired, air curtain incinerators or fluidized bed-fired; and pyrolysis or combustion units. The following 2 criteria further define municipal waste combustion units:

1. Municipal waste combustion units do not include pyrolysis or combustion units located at a plastics or rubber recycling unit as specified under sub. (1)(c)8. and 9. Municipal waste combustion units also do not include cement kilns that combust municipal solid waste as specified under sub. (1)(c)10. Municipal waste combustion units also do not include internal combustion engines, gas turbines or other combustion devices that combust landfill gases collected by landfill gas collection systems.

2. The municipal waste combustion unit includes the municipal solid waste fuel feed system, grate system, flue gas system, bottom ash system and the combustion unit water system. The municipal waste combustion unit does not include air pollution control equipment, the stack, water treatment equipment or the turbine-generator set. The municipal waste combustion unit starts at the municipal solid waste pit or hopper and extends through the following 3 areas:

a. The combustion unit flue gas system, which ends immediately after the heat recovery equipment or, if there is no heat recovery equipment, immediately after the combustion chamber.

b. The combustion unit bottom ash system, which ends at the truck loading station or similar equipment that transfers the ash to final disposal. It includes all ash handling systems connected to the bottom ash handling system.

c. The combustion unit water system, which starts at the feed water pump and ends at the piping that exits the steam drum or superheater.

(q) "Particulate matter" means total particulate matter emitted from municipal waste combustion units as measured using Method 5 in Appendix A of 40 CFR part 60, incorporated by reference in s. NR 440.17(1), and the procedures specified in sub. (10)(d).

(qm) "Plastics or rubber recycling unit" means an integrated processing unit for which plastics, rubber or rubber tires are the only feed materials. Incidental contaminants may be in the feed materials. The feed materials are processed and marketed to become input feed stock for chemical plants or petroleum refineries. The following 3 criteria further define a plastics or rubber recycling unit:

1. Each calendar quarter, the combined weight of the feed stock that a plastics or rubber recycling unit produces shall be more than 70% of the combined weight of the plastics, rubber and rubber tires that the recycling unit processes.

2. The plastics, rubber or rubber tires fed to the recycling unit may originate from separating or diverting plastics, rubber or rubber tires from municipal or industrial solid waste. The feed materials may include manufacturing scraps, trimmings, and off-specification plastics, rubber and rubber tire discards.

3. The plastics, rubber and rubber tires fed to the recycling unit may contain incidental contaminants such as paper labels on plastic bottles or metal rings on plastic bottle caps.

(r) "Potential hydrogen chloride emissions" means the level of hydrogen chloride emissions from a municipal waste combustion unit that would occur from combusting municipal solid waste without emission controls for acid gases.

(rm) "Potential mercury emissions" means the level of mercury emissions from a municipal waste combustion unit that would occur from combusting municipal solid waste without controls for mercury emissions.

(s) "Potential sulfur dioxide emissions" means the level of sulfur dioxide emissions from a municipal waste combustion unit that would occur from combusting municipal solid waste without emission controls for acid gases.

(sm) "Pyrolysis or combustion unit" means a unit that produces gases, liquids or solids by heating municipal solid waste. The gases, liquids or solids produced are combusted and the emissions vented to the atmosphere.

(t) "Reconstruction" means rebuilding a municipal waste combustion unit and meeting the following 2 criteria:

1. The reconstruction begins after June 6, 2001.

2. The cumulative cost of the construction over the life of the unit exceeds 50% of the original cost of building and installing the municipal waste combustion unit, not including land, updated to current costs in dollars. To determine what systems are within the boundary of the municipal waste combustion unit used to calculate those costs, see the definition in this subsection of "municipal waste combustion unit."

(tm) "Refractory unit" or "refractory wall furnace" means a municipal waste combustion unit that has no energy recovery, such as through a waterwall, in the furnace of the municipal waste combustion unit.

(u) "Refuse-derived fuel" means a type of municipal solid waste produced by processing municipal solid waste through shredding and size classification. This includes all classes of refuse-derived fuel including the following 2 fuels:

1. Low-density fluff refuse-derived fuel through densified refuse-derived fuel.

2. Pelletized refuse-derived fuel.

(ug) “Same location” means the same or contiguous properties under common ownership or control, including those separated only by a street, road, highway or other public right-of-way. Common ownership or control includes properties that are owned, leased or operated by the same entity, parent entity, subsidiary, subdivision or any combination thereof. Entities may include a municipality, other governmental unit or any quasi-governmental authority such as a public utility district or regional authority for waste disposal.

(ur) “Second calendar half” means the period that starts on July 1 and ends on December 31 in any year.

(v) “Shift supervisor” means the person who is in direct charge and control of operating a municipal waste combustion unit and who is responsible for onsite supervision, technical direction, management and overall performance of the municipal waste combustion unit during an assigned shift.

(vg) “Spreader stoker, mixed fuel-fired (coal and refuse-derived fuel) combustion unit” means a municipal waste combustion unit that combusts coal and refuse-derived fuel simultaneously, in which coal is introduced to the combustion zone by a mechanism that throws the fuel onto a grate from above. Combustion takes place both in suspension and on the grate.

(vr) “Standard conditions” when referring to units of measure means a temperature of 20°C and a pressure of 101.3 kilopascals.

(w) “Startup period” means the period when a municipal waste combustion unit begins the continuous combustion of municipal solid waste. It does not include any warmup period during which the municipal waste combustion unit combusts fossil fuel or other solid waste fuel but receives no municipal solid waste.

(wg) “Stoker (refuse-derived fuel) combustion unit” means a steam generating unit that combusts refuse-derived fuel in a semisuspension combusting mode, using air-fed distributors.

(wr) “Total mass dioxins/furans” or “total mass” means the total mass of tetra- to octa- chlorinated dibenzo-p-dioxins and dibenzofurans as determined using Method 23 in Appendix A of 40 CFR part 60, incorporated by reference in s. NR 440.17(1), and the procedures specified in sub. (10)(d).

(x) “Twenty-four hour daily average” or “24-hour daily average” means either the arithmetic mean or geometric mean, as specified, of all hourly emission concentrations when the municipal waste combustion unit operates and combusts municipal solid waste, measured during the 24 hours between 12:00 midnight and the following midnight.

(xm) “Untreated lumber” means wood or wood products that have been cut or shaped and includes wet, air-dried and kiln-dried wood products. Untreated lumber does not include wood products that have been painted, pigment-stained or pressure-treated by compounds such as chromate copper arsenate, pentachlorophenol and creosote.

(y) “Waterwall furnace” means a municipal waste combustion unit that has energy recovery in the furnace (for example, radiant heat transfer section) of the combustion unit.

(ym) “Yard waste” means grass, grass clippings, bushes, shrubs and clippings from bushes and shrubs that come from residential, commercial or retail, institutional or industrial sources as part of maintaining yards or other private or public lands. Yard waste does not include the following 2 items:

1. Construction, renovation and demolition wastes that are exempt from the definition of “municipal solid waste”.

2. Clean wood that is exempt from the definition of “municipal solid waste”.

(z) “You” or "I" means the owner or operator of a municipal waste combustion unit or the applicant for a permit to construct a municipal waste combustion unit, unless the context indicates otherwise.

(zm) "Your" or "my" means of or relating to the owner or operator of a municipal waste combustion unit or the applicant for a permit to construct a municipal waste combustion unit, unless the context indicates otherwise.

(3) PRECONSTRUCTION REQUIREMENTS: MATERIALS SEPARATION PLAN. (a) *Who must submit a materials separation plan?* 1. You shall prepare a materials separation plan for your municipal waste combustion unit if you commence construction of a new small municipal waste combustion unit after December 6, 2000.

2. If you commence construction of your municipal waste combustion unit after August 30, 1999 but before December 6, 2000, you are not required to prepare the materials separation plan specified in this subsection.

3. You shall prepare a materials separation plan if you are required to submit an initial application for a construction permit, under ch. NR 405 or 408, as applicable, for the reconstruction or modification of your municipal waste combustion unit.

(b) *What is a materials separation plan?* The plan identifies a goal and an approach for separating certain components of municipal solid waste for a given service area prior to waste combustion and making them available for recycling.

(c) *What steps must I complete for my materials separation plan?* 1. For your materials separation plan, you shall complete the following 9 steps:

a. Prepare a draft materials separation plan.

b. Make your draft plan available to the public.

c. Hold a public meeting on your draft plan.

d. Prepare responses to public comments received during the public comment period on your draft plan.

e. Prepare a revised materials separation plan.

f. Discuss the revised plan at the public meeting for review of the siting analysis.

g. Prepare responses to public comments received on your revised plan.

h. Prepare a final materials separation plan.

i. Submit the final materials separation plan.

2. You may use analyses conducted under the requirements of s. NR 405.08 to determine BACT or 408.04 to determine LAER, to comply with some of the materials separation plan requirements of this section.

(d) *What must I include in my draft materials separation plan?* 1. You shall prepare and submit a draft materials separation plan for your municipal waste combustion unit and its service area.

2. Your draft materials separation plan shall identify a goal and an approach for separating certain components of municipal solid waste for a given service area prior to waste combustion and making them available for recycling. A materials separation plan may include such elements as dropoff facilities, buy-back or deposit-return incentives, programs for curbside pickup, and centralized systems for mechanical separation.

3. Your materials separation plan may include different goals or approaches for different subareas in the service area.

4. Your materials separation plan may exclude materials separation activities for certain subareas or, if warranted, the entire service area.

(e) *How do I make my draft materials separation plan available to the public?* 1. You shall distribute your draft materials separation plan to the main public libraries in the area where you will construct the municipal waste combustion unit.

2. You shall publish a notice of a public meeting in the main newspapers that serve the following 2 areas:

a. The area where you will construct the municipal waste combustion unit.

b. The areas where the waste that your municipal waste combustion unit combusts will be collected.

3. You shall include the following 6 items in your notice of the public

meeting:

a. The date of the public meeting.

b. The time of the public meeting.

c. The location of the public meeting.

d. The location of the public libraries where the public can find your materials separation plan. Include the normal business hours of each library.

e. An agenda of the topics that will be discussed at the public meeting.

f. The beginning and ending dates of the public comment period on your draft materials separation plan.

(f) *When must I accept comments on the materials separation plan?* 1. You shall accept verbal comments at the public meeting.

2. You shall accept written comments anytime during the period that begins on the date the document is distributed to the main public libraries and ends 30 days after the date of the public meeting.

(g) *Where and when must I hold a public meeting on my draft materials separation plan?* 1. You shall hold a public meeting and accept comments on your draft materials separation plan.

2. You shall hold the public meeting in the county where you will construct the municipal waste combustion unit.

3. You shall schedule the public meeting to occur at least 30 days after you make your draft materials separation plan available to the public.

4. You may combine the public meeting with any other public meeting required as part of any other federal, state or local permit review. However, you may not combine it with the public meeting required for the siting analysis under sub. (4)(g).

5. You are encouraged to address the following 8 topics at the public meeting for your draft materials separation plan:

a. Expected size of the service area for your municipal waste combustion unit.

b. Amount of waste you will collect in the service area.

c. Types and estimated amounts of materials proposed for separation.

d. Methods proposed for materials separation.

e. Amount of residual waste for disposal.

f. Alternate disposal methods for handling the residual waste.

g. Where your responses to public comments on the draft materials separation plan will be available for inspection.

h. Where your revised materials separation plan will be available for inspection.

6. You shall prepare a transcript of the public meeting on your draft materials separation plan.

(h) *What must I do with any public comments I receive during the public comment period on my draft materials separation plan?* You shall do the following 3 steps:

1. Prepare written responses to any public comments you received during the public comment period. Summarize the responses to public comments in a document that is separate from your revised materials separation plan.

2. Make the comment response document available to the public in the service area where you will construct your municipal waste combustion unit. You shall distribute the document at least to the main public libraries used to announce the public meeting.

3. Prepare a revised materials separation plan for the municipal waste combustion unit that includes, as appropriate, changes made in response to any public comments you received during the public comment period.

(i) *What must I do with my revised materials separation plan?* You shall do the following 2 tasks:

1. As specified under sub. (13)(a), submit the 5 items in subds. a. to e. to the department by the date you submit the application for a construction permit under

ch. NR 405 or 408. If you are not required to submit an application for a construction permit under ch. NR 405 or 408, submit the 5 items to the department by the date of your notice of construction under sub. (13)(b).

a. Your draft materials separation plan.

b. Your revised materials separation plan.

c. Your notice of the public meeting for your draft materials separation plan.

d. A transcript of the public meeting on your draft materials separation plan.

e. The document that summarizes your responses to the public comments you received during the public comment period on your draft materials separation plan.

2. Make your revised materials separation plan available to the public as part of the siting analysis procedures under sub. (4)(e).

(j) *What must I include in the public meeting on my revised materials separation plan?* As part of the public meeting for review of the siting analysis, as specified under sub. (4)(g), you shall discuss the following 2 areas:

1. Differences between your revised materials separation plan and your draft materials separation plan discussed at the first public meeting, conducted under par. (g).

2. Questions about your revised materials separation plan.

(k) *What must I do with any public comments I receive on my revised materials separation plan?* 1. You shall prepare written responses to any public comments and include them in the document that summarizes your responses to public comments on the siting analysis.

2. You shall prepare a final materials separation plan that includes, as appropriate, changes made in response to any public comments you received on your revised materials separation plan.

(L) *How do I submit my final materials separation plan?* As specified under sub. (13)(b), you shall submit your final materials separation plan to the department as part of the notice of construction for the municipal waste combustion unit.

(4) PRECONSTRUCTION REQUIREMENTS: SITING ANALYSIS. (a) *Who must submit a siting analysis?* 1. You shall prepare a siting analysis if you commence construction of a small municipal waste combustion unit after December 6, 2000.

2. If you commence construction on your municipal waste combustion unit after August 30, 1999, but before December 6, 2000, you are not required to prepare the siting analysis specified in this subsection.

3. You shall prepare a siting analysis if you are required to submit an initial application for a construction permit, under ch. NR 405 or 408, as applicable, for the reconstruction or modification of your municipal waste combustion unit.

(b) *What is a siting analysis?* The siting analysis addresses how your municipal waste combustion unit affects ambient air quality, visibility, soils, vegetation and other relevant factors. The analysis can be used to determine whether the benefits of your proposed facility significantly outweigh the environmental and social costs resulting from its location and construction. The analysis shall also consider other major industrial facilities near the proposed site.

(c) *What steps must I complete for my siting analysis?* 1. For your siting analysis, you shall complete the following 5 steps:

a. Prepare an analysis.

b. Make your analysis available to the public.

c. Hold a public meeting on your analysis.

d. Prepare responses to public comments received on your analysis.

e. Submit your analysis.

2. You may use analyses conducted under the requirements of ch. NR 405 or 408 to comply with some of the siting analysis requirements of this section.

(d) *What must I include in my siting analysis?* 1. You shall include an analysis of how your municipal waste combustion unit affects the following 4 areas:

a. Ambient air quality.

b. Visibility.

c. Soils.

d. Vegetation.

2. You shall include an analysis of alternatives for controlling air pollution that minimize potential risks to the public health and the environment.

(e) *How do I make my siting analysis available to the public?* 1. You shall distribute your siting analysis and revised materials separation plan to the main public libraries in the area where you will construct your municipal waste combustion unit.

2. You shall publish a notice of a public meeting in the main newspapers that serve the following 2 areas:

a. The area where you will construct your municipal waste combustion unit.

b. The areas where the waste that your municipal waste combustion unit combusts will be collected.

3. You shall include the following 6 items in your notice of the public meeting:

a. The date of the public meeting.

b. The time of the public meeting.

c. The location of the public meeting.

d. The location of the public libraries where the public can find your siting analysis and revised materials separation plan. Include the normal business hours of each library.

e. An agenda of the topics that will be discussed at the public meeting.

f. The beginning and ending dates of the public comment period on your siting analysis and revised materials separation plan.

(f) *When must I accept comments on the siting analysis and revised materials* *separation plan?* 1. You shall accept verbal comments at the public meeting.

2. You shall accept written comments anytime during the period that begins on the date the document is distributed to the main public libraries and ends 30 days after the date of the public meeting.

(g) *Where and when must I hold a public meeting on the siting analysis?* 1. You shall hold a public meeting to discuss and accept comments on your siting analysis and your revised materials separation plan.

2. You shall hold the public meeting in the county where you will construct your municipal waste combustion unit.

3. You shall schedule the public meeting to occur at least 30 days after you make your siting analysis and revised materials separation plan available to the public.

4. You shall prepare a transcript of the public meeting on your siting analysis.

(h) *What must I do with any public comments I receive during the public comment period on my siting analysis?* You shall do the following 3 things:

1. Prepare written responses to any public comments on your siting analysis and the revised materials separation plan you received during the public comment period. Summarize the responses to public comments in a document that is separate from your materials separation plan and siting analysis.

2. Make the comment response document available to the public in the service area where you will construct your municipal waste combustion unit. You shall distribute the document at least to the main public libraries used to announce the public meeting for the siting analysis.

3. Prepare a revised siting analysis for the municipal waste combustion unit that includes, as appropriate, changes made in response to any public comments you received during the public comment period.

(i) *How do I submit my siting analysis?* As specified under sub. (13)(b), submit the following 4 items as part of the notice of construction:

1. Your siting analysis.

2. Your notice of the public meeting on your siting analysis.

3. A transcript of the public meeting on your siting analysis.

4. The document that summarizes your responses to the public comments you received during the public comment period.

(5) GOOD COMBUSTION PRACTICES: OPERATOR TRAINING. (a) *What types of training must I do?* You are required to do the following 2 types of training:

1. Training of operators of municipal waste combustion units using the U.S. environmental protection agency or department approved training course.

2. Training of plant personnel using a plant-specific training course.

(b) *Who must complete the operator training course and by when?*

1. The following 3 types of employees shall complete the EPA or department approved operator training course:

a. Chief facility operators.

b. Shift supervisors.

c. Control room operators.

2. The employees identified in subd. 1. shall complete the operator training course by the later of the following 3 dates:

a. Six months after the initial startup of your municipal waste combustion.

b. December 6, 2001.

c. The date before an employee assumes responsibilities that affect operation of the municipal waste combustion unit.

(c) *Who must complete the plant-specific training course?* All employees with responsibilities that affect how a municipal waste combustion unit operates, including the following 6 types of employees, shall complete the plant-specific training course:

1. Chief facility operators.

2. Shift supervisors.

3. Control room operators.

4. Ash handlers.

5. Maintenance personnel.

6. Crane or load handlers.

(d) *What plant-specific training must I provide?* For plant-specific training, you shall do the following 4 things:

1. For training at a particular plant, develop a specific operating manual for that plant by the later of the following 2 dates:

a. Six months after the initial startup of your municipal waste combustion unit.

b. December 6, 2001.

2. Establish a program to review the plant-specific operating manual with people whose responsibilities affect the operation of your municipal waste combustion unit. Complete the initial review by the later of the following 3 dates:

a. Six months after the initial startup of your municipal waste combustion unit.

b. December 6, 2001.

c. The date before an employee assumes responsibilities that affect operation of the municipal waste combustion unit.

3. Update your manual annually.

4. Review your manual with staff annually.

(e) *What information must I include in the plant-specific operating manual?* You shall include 11 items in the operating manual for your plant:

1. A summary of all applicable requirements in this section.

2. A description of the basic combustion principles that apply to municipal

waste combustion units.

3. Procedures for receiving, handling and feeding municipal solid waste.

4. Procedures to be followed during periods of startup, shutdown and malfunction of the municipal waste combustion unit.

5. Procedures for maintaining a proper level of combustion air supply.

6. Procedures for operating the municipal waste combustion unit in compliance with the requirements contained in this section.

7. Procedures for responding to periodic upset or off-specification conditions.

8. Procedures for minimizing carryover of particulate matter.

9. Procedures for handling ash.

10. Procedures for monitoring emissions from the municipal waste combustion unit.

11. Procedures for recordkeeping and reporting.

(f) *Where must I keep the plant-specific operating manual?* You shall keep your operating manual in an easily accessible location at your plant. It shall be available for review or inspection by all employees who are required to review it and by the department.

(6) GOOD COMBUSTION PRACTICES: OPERATOR CERTIFICATION. (a) *What types of operator certification must the chief facility operator and shift supervisor obtain and by when must they obtain it?* 1. Each chief facility operator and shift supervisor shall obtain and keep a current provisional operator certification from the American Society of Mechanical Engineers in accordance with ASME QRO-1-1994, incorporated by reference in s. NR 440.17(2)(h), or obtain and keep a current operator certification from the department in accordance with subds. 3.a and 4.

2. Each chief facility operator and shift supervisor who obtains a provisional certification from the American Society of Mechanical Engineers to satisfy subd. 1., shall obtain the provisional certification by the later of the following 3 dates:

a. Six months after the municipal waste combustion unit initial startup.

b. December 6, 2001.

c. Six months after they transfer to the municipal waste combustion unit or 6 months after they are hired to work at the municipal waste combustion unit.

3. Each chief facility operator and shift supervisor shall take one of the following 3 actions:

a. Obtain a full certification from the American Society of Mechanical Engineers or an operator certification from the department in accordance with ch. NR 499.

b. Schedule a full certification exam with the American Society of Mechanical Engineers in accordance with ASME QRO-1-1994, incorporated by reference in s. NR 440.17(2)(h).

c. Schedule a certification exam with the department in accordance with ch. NR 499.

4. Each chief facility operator and shift supervisor shall either obtain a certification under subd. 3.a. or be scheduled to take a certification exam under subd. 3.b. or c. by the later of the following 3 dates:

a. Six months after the initial startup of the municipal waste combustion unit.

b. December 6, 2001.

c. Six months after they transfer to the municipal waste combustion unit or 6 months after they are hired to work at the municipal waste combustion unit.

(b) *After the required date for operator certification, who may operate the municipal waste combustion unit?* After the required date for full or provisional certifications, you may not operate your municipal waste combustion unit unless one of the following 4 employees is on duty:

1. A fully certified chief facility operator.

2. A provisionally certified chief facility operator who is scheduled to take the full certification exam.

3. A fully certified shift supervisor.

4. A provisionally certified shift supervisor who is scheduled to take the full certification exam.

(c) *What if all the certified operators must be temporarily offsite?* If the certified chief facility operator and certified shift supervisor both are unavailable, a provisionally certified control room operator at the municipal waste combustion unit may fulfill the certified operator requirement. Depending on the length of time that a certified chief facility operator and certified shift supervisor are away, you shall meet one of the following 3 criteria:

1. When the certified chief facility operator and certified shift supervisor are both offsite for 12 hours or less, and no other certified operator is onsite, the provisionally certified control room operator may perform the required duties without notice to, or approval by, the department.

2. When the certified chief facility operator and certified shift supervisor are offsite for more than 12 hours, but for 2 weeks or less, and no other certified operator is onsite, the provisionally certified control room operator may perform the required duties without notice to, or approval by, the department. However, you shall record the period when the certified chief facility operator and certified shift supervisor are offsite and include that information in the annual report as specified under sub. (13)(h)12.

3. When the certified chief facility operator and certified shift supervisor are offsite for more than 2 weeks, and no other certified operator is onsite, the provisionally certified control room operator may perform the required duties without approval by the department. However, you shall take the following 2 actions:

a. Notify the department in writing. In the notice, state what caused the absence and what you are doing to ensure that a certified chief facility operator or certified shift supervisor is onsite.

b. Submit a status report and corrective action summary to the department every 4 weeks following the initial notification. If the department notifies you that your status report or corrective action summary is disapproved, the municipal waste combustion unit may continue operation for 90 days, but then shall cease operation. If corrective actions are taken in the 90-day period such that the department withdraws the disapproval, municipal waste combustion unit operation may continue.

(7) GOOD COMBUSTION PRACTICES: OPERATING REQUIREMENTS. (a) *What are the operating practice requirements for my municipal waste combustion unit?* 1. You may not operate your municipal waste combustion unit at loads greater than 110% of the maximum demonstrated load of the municipal waste combustion unit, based on a 4-hour block average, as specified in sub. (2).

2. You may not operate your municipal waste combustion unit so that the temperature at the inlet of the particulate matter control device exceeds 17°C above the maximum demonstrated temperature of the particulate matter control device, based on a 4-hour block average, as specified in sub. (2).

3. If your municipal waste combustion unit uses activated carbon to control dioxins/furans or mercury emissions, you shall maintain an 8-hour block average carbon feed rate at or above the highest average level established during the most recent dioxins/furans or mercury test.

4. If your municipal waste combustion unit uses activated carbon to control dioxins/furans or mercury emissions, you shall evaluate total carbon usage for each calendar quarter. The total amount of carbon purchased and delivered to your municipal waste combustion plant shall be at or above the required quarterly usage of carbon. At your option, you may choose to evaluate required quarterly carbon usage on a municipal waste combustion unit basis for each individual municipal waste combustion unit at your plant. Calculate the required quarterly usage of carbon using the equation in sub. (15)(f)1. or 2.

5. Your municipal waste combustion unit is exempt from limits on load level, temperature at the inlet of the particulate matter control device, and carbon feed rate during any of the following 5 situations:

a. During your annual tests for dioxins/furans.

b. During your annual mercury tests, for carbon feed rate requirements only.

c. During the 2 weeks preceding your annual tests for dioxins/furans.

d. During the 2 weeks preceding your annual mercury tests, for carbon feed rate requirements only.

e. Whenever the department permits you to do any of the following 5 activities:

1) Evaluate system performance.

2) Test new technology or control technologies.

3) Perform diagnostic testing.

4) Perform other activities to improve the performance of your municipal waste combustion unit.

5) Perform other activities to advance the state of the art for emission controls for your municipal waste combustion unit.

(b) *What happens to the operating requirements during periods of startup, shutdown and malfunction?* 1. The operating requirements of this section apply at all times except during periods of municipal waste combustion unit startup, shutdown or malfunction.

2. Each startup, shutdown or malfunction may not last for longer than 3 hours.

(8) EMISSION LIMITS. (a) *What pollutants are regulated by this section?* The following 11 pollutants, in 4 groupings, are regulated:

1. ‘Organics.’ Dioxins/furans.

2. ‘Metals.’

a. Cadmium.

b. Lead.

c. Mercury.

d. Opacity.

e. Particulate matter.

3. 'Acid gases.'

a. Hydrogen chloride.

b. Nitrogen oxides.

c. Sulfur dioxide.

4. 'Other.'

a. Carbon monoxide.

b. Fugitive ash.

(b) *What emission limits must I meet and by when?* You shall meet the emission limits specified in Tables 1 and 2 of this section. You shall meet the limits 60 days after your municipal waste combustion unit reaches the maximum load level but no later than 180 days after its initial startup.

(c) *What happens to the emission limits during periods of startup, shutdown and malfunction?* 1. The emission limits of this section apply at all times except during periods of municipal waste combustion unit startup, shutdown or malfunction.

2. Each startup, shutdown or malfunction may not last for longer than 3 hours.

3. A maximum of 3 hours of test data may be dismissed from compliance calculations during periods of startup, shutdown or malfunction.

4. During startup, shutdown or malfunction periods longer than 3 hours, emissions data cannot be discarded from compliance calculations and all provisions under s. NR 440.11(4) apply.

(9) CONTINUOUS EMISSION MONITORING. (a) *What types of continuous emission monitoring must I perform?* To continuously monitor emissions, you shall perform the following 4 tasks:

1. Install continuous emission monitoring systems for certain gaseous

pollutants.

2. Make sure your continuous emission monitoring systems are operating correctly.

3. Make sure you obtain the minimum amount of monitoring data.

4. Install a continuous opacity monitoring system.

(b) *What continuous emission monitoring systems must I install for gaseous pollutants?* 1. You shall install, calibrate, maintain and operate continuous emission monitoring systems for oxygen or carbon dioxide, sulfur dioxide and carbon monoxide. If you operate a Class I municipal waste combustion unit, you shall also install, calibrate, maintain and operate a continuous emission monitoring system for nitrogen oxides. You shall install the continuous emission monitoring systems for sulfur dioxide, nitrogen oxides and oxygen or carbon dioxide at the outlet of the air pollution control device.

2. You shall install, evaluate and operate each continuous emission monitoring system according to the monitoring requirements in s. NR 440.13.

3. You shall monitor the oxygen or carbon dioxide concentration at each location where you monitor sulfur dioxide and carbon monoxide. Additionally, if you operate a Class I municipal waste combustion unit, you shall also monitor the oxygen or carbon dioxide concentration at the location where you monitor nitrogen oxides.

4. You may choose to monitor carbon dioxide instead of oxygen as a diluent gas. If you choose to monitor carbon dioxide, then an oxygen monitor is not required, and you shall follow the requirements in par. (g).

5. If you choose to demonstrate compliance by monitoring the percent reduction of sulfur dioxide, you shall also install continuous emission monitoring systems for sulfur dioxide and oxygen or carbon dioxide at the inlet of the air pollution control device.

6. If you prefer to use an alternative sulfur dioxide monitoring method, such

as parametric monitoring, or cannot monitor emissions at the inlet of the air pollution control device to determine percent reduction, you may apply to the department for approval to use an alternative monitoring method under s. NR 440.13(9).

(c) *How are the data from the continuous emission monitoring systems used?* You shall use data from the continuous emission monitoring systems for sulfur dioxide, nitrogen oxides and carbon monoxide to demonstrate continuous compliance with the emission limits specified in Tables 1 and 2 of this section. To demonstrate compliance for dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride and fugitive ash, you shall meet sub. (10)(b).

(d) *How do I make sure my continuous emission monitoring systems are operating correctly?* 1. You shall conduct initial, daily, quarterly and annual evaluations of your continuous emission monitoring systems that measure oxygen or carbon dioxide, sulfur dioxide, nitrogen oxides (for Class I municipal waste combustion units only) and carbon monoxide.

2. You shall complete your initial evaluation of the continuous emission monitoring systems within 60 days after your municipal waste combustion unit reaches the maximum load level at which it will operate, but no later than 180 days after its initial startup.

3. For initial and annual evaluations, you shall collect data concurrently, or within 30 to 60 minutes, using your oxygen or carbon dioxide continuous emission monitoring system, your sulfur dioxide, nitrogen oxides, or carbon monoxide continuous emission monitoring systems, as appropriate, and the appropriate test methods specified in Table 3 of this section. You shall collect the data during each initial and annual evaluation of your continuous emission monitoring systems following the applicable performance specifications in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1). Table 4 of this section shows the performance specifications that apply to each continuous emission monitoring system.

4. You shall follow the quality assurance procedures in 40 CFR part 60, Appendix F, Procedure 1, incorporated by reference in s. NR 440.17(1), for each continuous emission monitoring system. The procedures include daily calibration drift and quarterly accuracy determinations.

(e) *Am I exempt from any requirements to evaluate continuous emission monitoring systems under 40 CFR part 60, Appendix B or F, incorporated by reference in s. NR 440.17(1)?* Yes, the accuracy tests for your sulfur dioxide continuous emission monitoring system require you to also evaluate your oxygen or carbon dioxide continuous emission monitoring system. Therefore, your oxygen or carbon dioxide continuous emission monitoring system is exempt from the following 2 requirements:

1. Relative accuracy requirement in 40 CFR part 60, Appendix B, section 2.3 of Performance Specification 3, incorporated by reference in s. NR 440.17(1).

2. Relative accuracy test audit in 40 CFR part 60, Appendix F, section 5.1.1, incorporated by reference in s. NR 440.17(1).

(f) *What is my schedule for evaluating continuous emission monitoring systems?* 1. You shall conduct annual evaluations of your continuous emission monitoring systems no more than 13 months after the previous evaluation was conducted.

2. You shall evaluate your continuous emission monitoring systems daily and quarterly as specified in 40 CFR part 60, Appendix F, incorporated by reference in s. NR 440.17(1).

(g) *What must I do if I choose to monitor carbon dioxide instead of oxygen as a diluent gas?* You shall establish the relationship between oxygen and carbon dioxide during the initial evaluation of your continuous emission monitoring systems. You may reestablish the relationship during annual evaluations. To establish the relationship, use the following 3 procedures:

1. Use Method 3A or 3B in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), to determine oxygen concentration at the location of your carbon

dioxide monitor.

2. Conduct at least 3 test runs for oxygen. Make sure each test run represents a 1-hour average and that sampling continues for at least 30 minutes in each hour.

3. Use the fuel-factor equation in Method 3B in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), to determine the relationship between oxygen and carbon dioxide.

(h) *What is the minimum amount of monitoring data I must collect with my continuous emission monitoring systems and is the data collection requirement enforceable?* 1. Where continuous emission monitoring systems are required, you shall obtain 1-hour arithmetic averages. Make sure the averages for sulfur dioxide, nitrogen oxides and carbon monoxide are in parts per million by dry volume at 7% oxygen, or the equivalent carbon dioxide level. Use the 1-hour averages of oxygen or carbon dioxide data from your continuous emission monitoring system to determine the actual oxygen or carbon dioxide level and to calculate emissions at 7% oxygen, or the equivalent carbon dioxide level.

2. You shall obtain at least 2 data points per hour in order to calculate a valid 1-hour arithmetic average. Section NR 440.13(5)(b) requires your continuous emission monitoring systems to complete at least one cycle of operation, sampling, analyzing and data recording for each 15-minute period.

3. You shall obtain valid 1-hour averages for 75% of the operating hours per day for 90% of the operating days per calendar quarter. An operating day is any day the unit combusts any municipal solid waste or refuse-derived fuel.

4. If you do not obtain the minimum data required in subds. 1. to 3., you are in violation of the data collection requirement regardless of the emission level monitored, and you shall notify the department according to sub. (13)(h)5.

5. If you do not obtain the minimum data required in subds. 1. to 3., you shall still use all valid data from the continuous emission monitoring systems in

calculating emission concentrations and percent reductions in accordance with par. (i).

(i) *How do I convert my 1-hour arithmetic averages into the appropriate averaging times and units?* 1. You shall use the equation in sub. (15)(a) to calculate emissions at 7% oxygen.

2. You shall use section 4.3 of Method 19 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), to calculate the daily geometric average concentrations of sulfur dioxide emissions. If you are monitoring the percent reduction of sulfur dioxide, use section 5.4 of Method 19 to determine the daily geometric average percent reduction of potential sulfur dioxide emissions.

3. If you operate a Class I municipal waste combustion unit, you shall use section 4.1 of Method 19 to calculate the daily arithmetic average for concentrations of nitrogen oxides.

4. You shall use section 4.1 of Method 19 to calculate the 4-hour or 24-hour daily block averages, as applicable, for concentrations of carbon monoxide.

(j) *What is required for my continuous opacity monitoring system and how are the data used?* 1. You shall install, calibrate, maintain and operate a continuous opacity monitoring system.

2. You shall install, evaluate and operate each continuous opacity monitoring system according to s. NR 440.13.

3. You shall complete an initial evaluation of your continuous opacity monitoring system according to Performance Specification 1 in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1). You shall complete the evaluation within 60 days after your municipal waste combustion unit reaches the maximum load level at which it will operate, but no more than 180 days after its initial startup.

4. You shall complete each annual evaluation of your continuous opacity monitoring system no more than 13 months after the previous evaluation.

5. You shall use tests conducted according to Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), as specified in sub. (10)(d), to determine compliance with the opacity limit in Table 1 of this section.

Note: The data obtained from your continuous opacity monitoring system are not used to determine compliance with the opacity limit.

(k) *What additional requirements must I meet for the operation of my continuous emission monitoring systems and continuous opacity monitoring system?* You shall use the required span values and applicable performance specifications in Table 4 of this section.

(L) *What must I do if any of my continuous emission monitoring systems are temporarily unavailable to meet the data collection requirements?* You shall refer to Table 4 of this section. It shows alternate methods for collecting data when systems malfunction or when repairs, calibration checks or zero and span checks keep you from collecting the minimum amount of data.

(10) STACK TESTING. (a) *What types of stack tests must I conduct?* You shall conduct initial and annual stack tests to measure the emission levels of dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride and fugitive ash.

(b) *How are the stack test data used?* You shall use results of stack tests for dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride and fugitive ash to demonstrate compliance with the emission limits in Table 1 of this section. To demonstrate compliance for carbon monoxide, nitrogen oxides and sulfur dioxide, see sub. (9)(c).

(c) *What schedule must I follow for the stack testing?* 1. You shall conduct initial stack tests for the pollutants listed in par. (a) within 60 days after your municipal waste combustion unit reaches the maximum load level at which it will operate, but no later than 180 days after its initial startup.

2. You shall conduct annual stack tests for the same pollutants after the initial stack test. You shall conduct each annual stack test no later than 13 months after the previous stack test.

(d) *What test methods must I use to stack test?* 1. You shall follow Table 5 of this section to establish the sampling location and to determine pollutant concentrations, number of traverse points, individual test methods, and other specific testing requirements for the different pollutants.

2. You shall make sure that stack tests for all the pollutants consist of at least 3 test runs, as specified in s. NR 440.08. You shall use the average of the pollutant emission concentrations from the 3 test runs to determine compliance with the emission limits in Table 1 of this section.

3. You shall obtain an oxygen or carbon dioxide measurement at the same time as your pollutant measurements to determine diluent gas levels, as specified in sub. (9)(b).

4. You shall use the equations in sub. (15)(a) to (c) to calculate emission levels at 7% oxygen, or an equivalent carbon dioxide basis, the percent reduction in potential hydrogen chloride emissions, and the percent reduction for mercury emissions. The individual test methods in Table 5 of this section shall be used for other required equations.

5. You may apply to the department under s. NR 440.08(2) for approval to use a reference method with minor changes in methodology, to use a shorter samping time or smaller sampling volume or for a waiver of the requirement for a performance test because you have demonstrated by other means that you are in compliance. You may apply to the administrator as allowed under s. NR 440.08(2) for approval to use an equivalent method or an alternative method the results of which the administrator has determined are adequate for demonstrating compliance.

(e) *May I conduct stack testing less often?* 1. You may test less often than requied under par. (c)2. if you own or operate a Class II municipal waste combustion unit and if all stack tests for a given pollutant over 3 consecutive years show you comply with the emission limit. In that case, you are not required to conduct a stack test for that pollutant for the next 2 years. However, you shall conduct another stack test within 36 months of the anniversary date of the third consecutive stack test that shows you comply with the emission limit. Thereafter, you shall perform stack tests every 3rd year but no later than 36 months following the previous stack tests. If a stack test shows noncompliance with an emission limit, you shall conduct annual stack tests for that pollutant until all stack tests over 3 consecutive years show compliance with the emission limit for that pollutant. The provision applies to all pollutants subject to stack testing requirements: dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride and fugitive ash.

2. You may test less often for dioxins/furans emissions if you own or operate a municipal waste combustion plant that meets the following 2 conditions. First, you have multiple municipal waste combustion units onsite that are subject to this section. Second, all those municipal waste combustion units have demonstrated levels of dioxins/furans emissions less than or equal to 7 nanograms per dry standard cubic meter, total mass, for 2 consecutive years. In that case, you may choose to conduct annual stack tests on only one municipal waste combustion unit per year at your plant. This provision only applies to stack testing for dioxins/furans emissions and is subject to the following 3 conditions:

a. You shall conduct the stack test no more than 13 months following a stack test on any municipal waste combustion unit subject to this section at your plant. Each year, you shall test a different municipal waste combustion unit subject to this section and shall test all municipal waste combustion units subject to this section in a sequence that you determine. Once you determine a testing sequence, it may not be changed without approval by the department.

b. If each annual stack test shows levels of dioxins/furans emissions less than or equal to 7 nanograms per dry standard cubic meter, total mass, you may continue stack tests on only one municipal waste combustion unit subject to this section per year.

c. If any annual stack test indicates levels of dioxins/furans emissions greater than 7 nanograms per dry standard cubic meter, total mass, you shall conduct subsequent annual stack tests on all municipal waste combustion units subject to this section at your plant. You may return to testing one municipal waste combustion unit subject to this section per year if you can demonstrate dioxins/furans emission levels less than or equal to 7 nanograms per dry standard cubic meter, total mass, for all municipal waste combustion units at your plant subject to this section for 2 consecutive years.

(f) *May I deviate from the 13-month testing schedule if unforeseen circumstances arise?* You may not deviate from the 13-month testing schedules specified in pars. (c)2. and (e)2.a. unless you apply to the department for an alternative schedule, and the department approves your request for alternate scheduling prior to the date on which you would otherwise have been required to conduct the next stack test.

(11) OTHER MONITORING REQUIREMENTS. (a) *Must I meet other requirements for continuous monitoring?* You shall also monitor 3 operating parameters:

1. Load level of each municipal waste combustion unit.

2. Temperature of flue gases at the inlet of your particulate matter air pollution control device.

3. Carbon feed rate if activated carbon is used to control dioxins/furans or mercury emissions.

(b) *How do I monitor the load of my municipal waste combustion unit?* 1. If your municipal waste combustion unit generates steam, you shall install, calibrate, maintain and operate a steam flowmeter or a feed water flowmeter and meet the following 5 requirements:

a. Continuously measure and record the measurements of steam, or feed water, in kilograms or pounds per hour.

b. Calculate your steam, or feed water, flow in 4-hour block averages.

c. Calculate the steam, or feed water, flow rate using the method in "American Society of Mechanical Engineers Power Test Codes: Test Code for Steam Generating Units, Power Test Code 4.1 - 1964 (R1991)," section 4, incorporated by reference in s. NR 440.17(2)(h)2.

d. Design, construct, install, calibrate and use nozzles or orifices for flow rate measurements, using the recommendations in "American Society of Mechanical Engineers Interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters," 6th Edition (1971), chapter 4, incorporated by reference in s. NR 440.17(2)(h)3.

e. Before each dioxins/furans stack test, or at least once a year, calibrate all signal conversion elements associated with steam, or feed water, flow measurements according to the manufacturer instructions.

2. If your municipal waste combustion unit does not generate steam, or, if your municipal waste combustion units have shared steam systems and steam load cannot be estimated per unit, you shall determine, to the satisfaction of the department, one or more operating parameters that can be used to continuously estimate load level (for example, the feed rate of municipal solid waste or refuse-derived fuel). You shall continuously monitor the selected parameters.

(c) *How do I monitor the temperature of flue gases at the inlet of my particulate matter control device?* You shall install, calibrate, maintain and operate a device to continuously measure the temperature of the flue gas stream at the inlet of each particulate matter control device.

(d) *How do I monitor the injection rate of activated carbon?* If your municipal waste combustion unit uses activated carbon to control dioxins/furans or mercury emissions, you shall meet the following 3 requirements:

1. Select a carbon injection system operating parameter that can be used to calculate carbon feed rate (for example, screw feeder speed).

2. During each dioxins/furans and mercury stack test, determine the average carbon feed rate in kilograms, or pounds, per hour. Also, determine the average operating parameter level that correlates to the carbon feed rate. Establish a relationship between the operating parameter and the carbon feed rate in order to calculate the carbon feed rate based on the operating parameter level.

3. Continuously monitor the selected operating parameter during all periods when the municipal waste combustion unit is operating and combusting waste, and calculate the 8-hour block average carbon feed rate in kilograms, or pounds, per hour, based on the selected operating parameter. When calculating the 8-hour block average, do the following 2 things:

a. Exclude hours when the municipal waste combustion unit is not operating.

b. Include hours when the municipal waste combustion unit is operating but the carbon feed system is not working correctly.

(e) *What is the minimum amount of monitoring data I must collect with my continuous parameter monitoring systems and is the data collection requirement enforceable?* 1. Where continuous parameter monitoring systems are used, you shall obtain 1-hour arithmetic averages for the following 3 parameters:

a. Load level of the municipal waste combustion unit.

b. Temperature of the flue gases at the inlet of your particulate matter control device.

c. Carbon feed rate if activated carbon is used to control dioxins/furans or mercury emissions.

2. You shall obtain at least 2 data points per hour in order to calculate a valid 1-hour arithmetic average.

3. You shall obtain valid 1-hour averages for at least 75% of the operating hours per day for 90% of the operating days per calendar quarter. An operating day is any day the unit combusts any municipal solid waste or refuse-derived fuel.

4. If you do not obtain the minimum data required in subds. 1. to 3., you are in violation of the data collection requirement and you shall notify the department according to sub. (13)(h)5.

(12) RECORDKEEPING. (a) *What records must I keep?* You shall keep 5 types of records:

1. Materials separation plan and siting analysis.

2. Operator training and certification.

3. Stack tests.

4. Continuously monitored pollutants and parameters.

5. Carbon feed rate.

(b) *Where must I keep my records and for how long?* 1. You shall keep all records onsite in paper copy or electronic format unless the department approves another format.

2. You shall keep all records on each municipal waste combustion unit for at least 5 years.

3. You shall make all records available for submittal to the department, or for onsite review by an inspector.

(c) *What records must I keep for the materials separation plan and siting analysis?* You shall keep records of the following 5 items:

1. The date of each record.

2. The final materials separation plan.

3. The siting analysis.

4. A record of the location and date of the public meetings.

5. Your responses to the public comments received during the public comment periods.

(d) *What records must I keep for operator training and certification?* You shall keep records of the following 6 items:

1. 'Records of provisional certifications.' The following 3 items shall be included:

a. For your municipal waste combustion plant, names of the chief facility operator, shift supervisors and control room operators who are provisionally certified by the American Society of Mechanical Engineers.

b. Dates of the initial provisional certifications.

c. Documentation showing current provisional certifications.

2. 'Records of full certifications.' The following 3 items shall be included:

a. For your municipal waste combustion plant, names of the chief facility operator, shift supervisors and control room operators who are fully certified by the American Society of Mechanical Engineers or the department under ch. NR 499.

b. Dates of initial and renewal full certifications.

c. Documentation showing current full certifications.

3. 'Records showing completion of the operator training course.' The following 3 items shall be included:

a. For your municipal waste combustion plant, names of the chief facility operator, shift supervisors and control room operators who have completed the EPA or department municipal waste combustion operator training course.

b. Dates of completion of the operator training course.

c. Documentation showing completion of the operator training course.

4. 'Records of reviews for plant-specific operating manuals.' The following 3 items shall be included:

a. Names of persons who have reviewed the operating manual.

b. Date of the initial review.

c. Dates of subsequent annual reviews.

5. 'Records of when a certified operator is temporarily offsite.' The following 2 items shall be included:

a. If the certified chief facility operator and certified shift supervisor are offsite for more than 12 hours, but for 2 weeks or less, and no other certified operator is onsite, record the dates that the certified chief facility operator and certified shift supervisor were offsite.

b. When the certified chief facility operator and certified shift supervisor are offsite for more than 2 weeks and no other certified operator is onsite, keep records of the following 4 items:

1) Your notice that all certified persons are offsite.

2) The conditions that cause those people to be offsite.

3) The corrective actions you are taking to ensure a certified chief facility operator or certified shift supervisor is onsite.

4) Copies of the written reports submitted every 4 weeks that summarize the actions taken to ensure that a certified chief facility operator or certified shift supervisor will be onsite.

6. 'Records of calendar dates.' You shall include the calendar date on each record.

(e) *What records must I keep for stack tests?* For stack tests required under sub. (10)(a), you shall keep records of the following 4 items:

1. The results of the stack tests for the following 8 pollutants or parameters recorded in the appropriate units of measure specified in Table 1 of this section:

a. Dioxins/furans.

b. Cadmium.

c. Lead.

d. Mercury.

e. Opacity.

f. Particulate matter.

g. Hydrogen chloride.

h. Fugitive ash.

2. Test reports including supporting calculations that document the results of all stack tests.

3. The maximum demonstrated load of your municipal waste combustion units and maximum temperature at the inlet of your particulate matter control device during all stack tests for dioxins/furans emissions.

4. The calendar date of each record.

(f) *What records must I keep for continuously monitored pollutants or parameters?* You shall keep records of the following 8 items:

1. 'Monitoring data.' You shall document the following 6 parameters measured using continuous monitoring systems:

a. All 6-minute average levels of opacity.

b. All 1-hour average concentrations of sulfur dioxide emissions.

c. For Class I municipal waste combustion units only, all 1-hour average concentrations of nitrogen oxides emissions.

d. All 1-hour average concentrations of carbon monoxide emissions.

e. All 1-hour average load levels of your municipal waste combustion unit.

f. All 1-hour average flue gas temperatures at the inlet of the particulate matter control device.

2. 'Average concentrations and percent reductions.' You shall document the following 5 parameters:

a. All 24-hour daily block geometric average concentrations of sulfur dioxide emissions or average percent reductions of sulfur dioxide emissions.

b. For Class I municipal waste combustion units only, all 24-hour daily arithmetic average concentrations of nitrogen oxides emissions.

c. All 4-hour block or 24-hour daily block arithmetic average concentrations of carbon monoxide emissions.

d. All 4-hour block arithmetic average load levels of your municipal waste combustion unit.

e. All 4-hour block arithmetic average flue gas temperatures at the inlet of the particulate matter control device.

3. 'Exceedances.' You shall document the following 3 items:

a. Calendar dates whenever any of the 5 pollutant or parameter levels recorded in subd. 2. or the opacity level recorded in subd. 1.a. did not meet the emission limits or operating levels specified in this section.

b. Reasons you exceeded the applicable emission limits or operating levels.

c. Corrective actions you took, or are taking, to meet the emission limits or operating levels.

4. 'Minimum data.' You shall document the following 3 items:

a. Calendar dates for which you did not collect the minimum amount of data required under subs. (9)(h) and (11)(e). Record the dates for the following 5 types of pollutants and parameters:

1) Sulfur dioxide emissions.

2) For Class I municipal waste combustion units only, nitrogen oxides emissions.

3) Carbon monoxide emissions.

4) Load levels of your municipal waste combustion unit.

5) Temperatures of the flue gases at the inlet of the particulate matter control device.

b. Reasons you did not collect the minimum data.

c. Corrective actions you took, or are taking, to obtain the required amount of data.

5. ‘Exclusions.’ You shall document each time you have excluded data from your calculation of averages for any of the following 5 pollutants or parameters and the reasons the data were excluded:

a. Sulfur dioxide emissions.

b. For Class I municipal waste combustion units only, nitrogen oxides emissions.

c. Carbon monoxide emissions.

d. Load levels of your municipal waste combustion unit.

e. Temperatures of the flue gases at the inlet of the particulate matter control device.

6. ‘Drift and accuracy.’ You shall document the results of your daily drift tests and quarterly accuracy determinations according to Procedure 1 of 40 CFR part 60, Appendix F, incorporated by reference in s. NR 440.17(1). Keep the records for the sulfur dioxide, nitrogen oxides for Class I municipal waste combustion units only, and carbon monoxide continuous emissions monitoring systems.

7. ‘The relationship between oxygen and carbon dioxide.’ If you choose to monitor carbon dioxide instead of oxygen as a diluent gas, you shall document the relationship between oxygen and carbon dioxide, as specified in sub. (9)(g).

8. ‘Calendar dates.’ You shall include the calendar date on each record.

(g) *What records must I keep for municipal waste combustion units that use activated carbon?* For municipal waste combustion units that use activated carbon to control dioxins/furans or mercury emissions, you shall keep records of the following 5 items:

1. ‘Average carbon feed rate.’ You shall document the following 5 items:

a. Average carbon feed rate in kilograms, or pounds, per hour during all stack tests for dioxins/furans and mercury emissions. Include supporting calculations in the records.

b. For the operating parameter chosen to monitor carbon feed rate, average operating level during all stack tests for dioxins/furans and mercury emissions. Include supporting data that document the relationship between the operating parameter and the carbon feed rate.

c. All 8-hour block average carbon feed rates in kilograms, or pounds, per hour calculated from the monitored operating parameter.

d. Total carbon purchased and delivered to the municipal waste combustion plant for each calendar quarter. If you choose to evaluate total carbon purchased and delivered on a municipal waste combustion unit basis, record the total carbon purchased and delivered for each individual municipal waste combustion unit at your plant. Include supporting documentation.

e. Required quarterly usage of carbon for the municipal waste combustion plant, calculated using the equation in sub. (15)(f)1. or 2. If you choose to evaluate required quarterly usage for carbon on a municipal waste combustion unit basis, record the required quarterly usage for each municipal waste combustion unit at your plant. Include supporting calculations.

2. 'Low carbon feed rates.' You shall document the following 3 items:

a. The calendar dates when the average carbon feed rate over an 8-hour block was less than the average carbon feed rates determined during the most recent stack test for dioxins/furans or mercury emissions, whichever has a higher feed rate.

b. Reasons for the low carbon feed rates.

c. Corrective actions you took or are taking to meet the 8-hour average carbon feed rate requirement.

3. 'Minimum carbon feed rate data.' You shall document the following 3 items:

a. Calendar dates for which you did not collect the minimum amount of carbon feed rate data required under sub. (11)(e).

b. Reasons you did not collect the minimum data.

c. Corrective actions you took or are taking to get the required amount of data.

4. 'Exclusions.' You shall document each time you have excluded data from your calculation of average carbon feed rates and the reasons the data were excluded.

5. 'Calendar dates.' You shall include the calendar date on each record.

(13) REPORTING. (a) *What reports must I submit before I submit my notice of construction?* 1. If you are required to submit an application for a construction permit under ch. NR 405 or 408, you shall submit the following 5 items by the date you submit your application:

a. Your draft materials separation plan, as specified in sub. (3)(d).

b. Your revised materials separation plan, as specified in sub. (3)(h)3.

c. Your notice of the initial public meeting for your draft materials separation plan, as specified in sub. (3)(e)2.

d. A transcript of the initial public meeting, as specified in sub. (3)(g)6.

e. The document that summarizes your responses to the public comments you received during the initial public comment period, as specified in sub. (3)(h)1.

2. If you are not required to submit an application for a construction permit under ch. NR 405 or 408, you shall submit the items in subd. 1. with your notice of construction.

(b) *What must I include in my notice of construction and when must I submit it?* 1. You shall include the following 10 items in your notice of construction:

a. A statement of your intent to construct the municipal waste combustion unit.

b. The planned initial startup date of your municipal waste combustion unit.

c. The types of fuels you plan to combust in your municipal waste combustion unit.

d. The capacity of your municipal waste combustion unit including supporting capacity calculations, as specified in sub. (15)(d) and (e).

e. Your siting analysis, as specified in sub. (4)(d).

f. Your final materials separation plan, as specified in sub. (3)(k)2.

g. Your notice of the second public meeting (the siting analysis meeting) as specified in sub. (4)(e)2.

h. A transcript of the second public meeting, as specified in sub. (4)(g)4.

i. A copy of the document that summarizes your responses to the public comments you received during the second public comment period, as specified in sub. (4)(h)1.

j. Your final siting analysis, as specified in sub. (4)(h)3.

2. You shall submit your notice of construction no later than 30 days after you commence construction, reconstruction or modification of your municipal waste combustion unit.

(c) *What reports must I submit after I submit my notice of construction and in what form?* 1. You shall submit an initial report and annual reports, plus semiannual reports for any emission or parameter level that does not meet the limits specified in this section.

2. You shall submit all reports on paper, postmarked on or before the submittal dates in pars. (e), (g) and (j). If the department agrees, you may submit electronic reports.

3. You shall keep a copy of all reports required by pars. (f), (h) and (k) onsite for 5 years.

(d) *What are the appropriate units of measurement for reporting my data?* Tables 1 and 2 of this section provide the appropriate units of measurement for reporting your data.

(e) *When must I submit the initial report?* As specified in s. NR 440.07(3), you shall submit your initial report within 60 days after your municipal waste combustion unit reaches the maximum load level at which it will operate, but no later than 180 days after its initial startup.

(f) *What must I include in my initial report?* You shall include the following 7 items in your initial report:

1. The emission levels measured on the date of the initial evaluation of your continuous emission monitoring systems for all of the following 5 pollutants or parameters as recorded in accordance with sub. (12)(f)2:

a. The 24-hour daily geometric average concentration of sulfur dioxide emissions or the 24-hour daily geometric percent reduction of sulfur dioxide emissions.

b. For Class I municipal waste combustion units only, the 24-hour daily arithmetic average concentration of nitrogen oxides emissions.

c. The 4-hour block or 24-hour daily arithmetic average concentration of carbon monoxide emissions.

d. The 4-hour block arithmetic average load level of your municipal waste combustion unit.

e. The 4-hour block arithmetic average flue gas temperature at the inlet of the particulate matter control device.

2. The results of the initial stack tests for the following 8 pollutants or parameters, using appropriate units as specified in Table 2 of this section:

a. Dioxins/furans.

b. Cadmium.

c. Lead.

d. Mercury.

e. Opacity.

f. Particulate matter.

g. Hydrogen chloride.

h. Fugitive ash.

3. The test report that documents the initial stack tests including supporting calculations.

4. The initial performance evaluation of your continuous emissions monitoring systems. Use the applicable performance specifications in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 440.17(1), in conducting the evaluation.

5. The maximum demonstrated load of your municipal waste combustion unit and the maximum demonstrated temperature of the flue gases at the inlet of the particulate matter control device. Use values established during your initial stack test for dioxins/furans emissions and include supporting calculations.

6. If your municipal waste combustion unit uses activated carbon to control dioxins/furans or mercury emissions, the average carbon feed rates that you recorded during the initial stack tests for dioxins/furans and mercury emissions. Include supporting calculations as specified in sub. (12)(g)1.a. and b.

7. If you choose to monitor carbon dioxide instead of oxygen as a diluent gas, documentation of the relationship between oxygen and carbon dioxide, as specified in sub. (9)(g).

(g) *When must I submit the annual report?* You shall submit the annual report no later than February 1 of each year that follows the calendar year in which you collected the data. If you have an operating permit for any unit under Title V of the Act (42 USC 7661 to 7661f), the permit may require you to submit semiannual reports. Chapter NR 407 contains program requirements for operating permits.

(h) *What must I include in my annual report?* You shall summarize data collected for all pollutants and parameters regulated under this section. Your summary shall include the following 12 items:

1. The results of the annual stack test, using appropriate units, for the

following 8 pollutants, as recorded under sub. (12)(e)1.:

a. Dioxins/furans.

b. Cadmium.

c. Lead.

d. Mercury.

e. Particulate matter.

f. Opacity.

g. Hydrogen chloride.

h. Fugitive ash.

2. A list of the highest average levels recorded, in the appropriate units, for the following 5 pollutants or parameters:

a. Sulfur dioxide emissions.

b. For Class I municipal waste combustion units only, nitrogen oxides emissions.

c. Carbon monoxide emissions.

d. Load level of the municipal waste combustion unit.

e. Temperature of the flue gases at the inlet of the particulate matter air pollution control device, expressed as a 4-hour block average.

3. The highest 6-minute opacity level measured. You shall base the value on all 6-minute average opacity levels recorded by your continuous opacity monitoring system under sub. (12)(f)1.a.

4. For municipal waste combustion units that use activated carbon for controlling dioxins/furans or mercury emissions, include the following 4 records:

a. The average carbon feed rates recorded during the most recent dioxins/furans and mercury stack tests.

b. The lowest 8-hour block average carbon feed rate recorded during the year.

c. The total carbon purchased and delivered to the municipal waste combustion plant for each calendar quarter. If you choose to evaluate total carbon purchased and delivered on a municipal waste combustion unit basis, record the total carbon purchased and delivered for each individual municipal waste combustion unit at your plant.

d. The required quarterly carbon usage of your municipal waste combustion plant calculated using the equation in sub. (15)(f)1. or 2. If you choose to evaluate required quarterly usage for carbon on a municipal waste combustion unit basis, record the required quarterly usage for each municipal waste combustion unit at your plant.

5. The total number of days that you did not obtain the minimum number of hours of data for the following 6 pollutants or parameters. Include the reasons you did not obtain the data and corrective actions that you have taken to obtain the data in the future. Include data on all of the following:

a. Sulfur dioxide emissions.

b. For Class I municipal waste combustion units only, nitrogen oxides emissions.

c. Carbon monoxide emissions.

d. Load level of the municipal waste combustion unit.

e. Temperature of the flue gases at the inlet of the particulate matter air pollution control device.

f. Carbon feed rate.

6. The number of hours you have excluded data from the calculation of average levels and the reasons for excluding the data. Include data for the following 6 pollutants or parameters:

a. Sulfur dioxide emissions.

b. For Class I municipal waste combustion units only, nitrogen oxides emissions.

c. Carbon monoxide emissions.

d. Load level of the municipal waste combustion unit.

e. Temperature of the flue gases at the inlet of the particulate matter air pollution control device.

f. Carbon feed rate.

7. A notice of your intent to begin a reduced stack testing schedule for dioxins/furans emissions during the following calendar year, if you are eligible for alternative scheduling under sub. (10)(e)1. or 2.

8. A notice of your intent to begin a reduced stack testing schedule for other pollutants during the following calendar year if you are eligible for alternative scheduling under sub. (10)(e)1.

9. A summary of any emission or parameter level that did not meet the limits specified in this section.

10. A summary of the data in subds. 1. to 4. from the year preceding the reporting year which give the department a summary of the performance of the municipal waste combustion unit over a 2-year period.

11. If you choose to monitor carbon dioxide instead of oxygen as a diluent gas, documentation of the relationship between oxygen and carbon dioxide, as specified in sub. (9)(g).

12. Documentation of periods when all certified chief facility operators and certified shift supervisors are offsite for more than 12 hours.

(i) *What must I do if I am out of compliance with the requirements of this section?* You shall submit a semiannual report on any recorded emission or parameter level that does not meet the requirements specified in this section.

(j) *If a semiannual report is required, when must I submit it?* 1. For data collected during the first half of a calendar year, you shall submit your semiannual report by August 1 of that year.

2. For data you collected during the second half of the calendar year, you

shall submit your semiannual report by February 1 of the following year.

(k) *What must I include in the semiannual out-of-compliance reports?* You shall include the following 3 items in the semiannual report:

1. For any of the following 6 pollutants or parameters that exceeded the limits specified in this section, include the calendar date they exceeded the limits, the averaged and recorded data for that date, the reasons for exceeding the limits, and your corrective actions:

a. Concentration or percent reduction of sulfur dioxide emissions.

b. For Class I municipal waste combustion units only, concentration of nitrogen oxides emissions.

c. Concentration of carbon monoxide emissions.

d. Load level of your municipal waste combustion unit.

e. Temperature of the flue gases at the inlet of your particulate matter air pollution control device.

f. Average 6-minute opacity level.

Note: The data obtained from your continuous opacity monitoring system are not used to determine compliance with the limit on opacity emissions.

2. If the results of your annual stack tests, as recorded in sub. (12)(e)1., show emissions above the limits specified in Table 1 of this section for dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride or fugitive ash, include a copy of the test report that documents the emission levels and your corrective actions.

3. For municipal waste combustion units that apply activated carbon to control dioxins/furans or mercury emissions, include the following 2 items:

a. Documentation of all dates when the 8-hour block average carbon feed rate, calculated from the carbon injection system operating parameter, is less than the highest carbon feed rate established during the most recent mercury or dioxins/furans stack test, as specified in sub. (12)(g)1.a. Include the following 4 items:

1) Eight-hour average carbon feed rate.

2) Reasons for occurrences of low carbon feed rates.

3) The corrective actions you have taken to meet the carbon feed rate requirement.

4) The calendar date.

b. Documentation of each quarter when total carbon purchased and delivered to the municipal waste combustion plant is less than the total required quarterly usage of carbon. If you choose to evaluate total carbon purchased and delivered on a municipal waste combustion unit basis, record the total carbon purchased and delivered for each individual municipal waste combustion unit at your plant. Include the following 5 items:

1) Amount of carbon purchased and delivered to the plant.

2) Required quarterly usage of carbon.

3) Reasons for not meeting the required quarterly usage of carbon.

4) The corrective actions you have taken to meet the required quarterly usage of carbon.

5) The calendar date.

(L) *Can reporting dates be changed?* 1. If the department agrees, you may change the semiannual or annual reporting dates.

2. Section NR 440.185(3) specifies the procedures to seek approval to change your reporting date.

(14) AIR CURTAIN INCINERATORS THAT BURN 100% YARD WASTE. (a) *What are the emission limits for air curtain incinerators that burn 100% yard waste?* If your air curtain incinerator combusts 100% yard waste, only the emission limits in this subsection apply.

1. Within 60 days after your air curtain incinerator reaches the maximum load level at which it will operate, but no later than 180 days after its initial startup,

you shall meet the following 2 limits:

a. The opacity limit is 10% (6-minute average) for air curtain incinerators that can combust at least 35 tons per day of municipal solid waste and no more than 250 tons per day of municipal solid waste.

b. The opacity limit is 35% (6-minute average) during the startup period that is within the first 30 minutes of operation.

2. Except during malfunctions, the requirements of this subsection apply at all times. Each malfunction may not exceed 3 hours.

(b) *How must I monitor opacity for air curtain incinerators that burn 100% yard waste?* 1. You shall use Method 9 in 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), to determine compliance with the opacity limit.

2. You shall conduct an initial test for opacity as specified in s. NR 440.08.

3. After the initial test for opacity, you shall conduct annual tests no later than 13 calendar months following the date of your previous test.

(c) *What are the recordkeeping and reporting requirements for air curtain incinerators that burn 100% yard waste?* 1. You shall provide a notice of construction that includes the following 4 items:

a. Your intent to construct the air curtain incinerator.

b. Your planned initial startup date.

c. Types of fuels you plan to combust in your air curtain incinerator.

d. The capacity of your incinerator, including supporting capacity calculations, as specified in sub. (15)(d) and (e).

2. You shall keep records of results of all opacity tests onsite in either paper copy or electronic format unless the department approves another format.

3. You shall keep all records for each incinerator for at least 5 years.

4. You shall make all records available for submittal to the department or for onsite review by an inspector.

5. You shall submit the results (each 6-minute average) of the opacity tests by February 1 of the year following the year of the opacity emission test.

6. You shall submit reports as a paper copy on or before the applicable submittal date. If the department agrees, you may submit reports on electronic media.

7. If the department agrees, you may change the annual reporting dates under s. NR 440.185(3).

8. You shall keep a copy of all reports onsite for a period of 5 years.

(15) EQUATIONS. (a) *Concentration correction to 7% oxygen.* You shall correct any pollutant concentration to 7% oxygen using the following equation:

$$C_{7\%} = C_{unc} * (13.9) * (1/(20.9 - O_2))$$

where:

$C_{7\%}$ is the concentration corrected to 7% oxygen

C_{unc} is the uncorrected pollutant concentration

O_2 is the concentration of oxygen, percent

(b) *Percent reduction in potential mercury emissions.* You shall calculate the percent reduction in potential mercury emissions ($\%P_{Hg}$) using the following equation:

$$\%P_{Hg} = (E_i - E_o) * (100/E_i)$$

where:

$\%P_{Hg}$ is the percent reduction of potential mercury emissions

E_i is the mercury emission concentration as measured at the air pollution control device inlet, corrected to 7% oxygen, dry basis

E_o is the mercury emission concentration as measured at the air pollution control device outlet, corrected to 7% oxygen, dry basis

(c) *Percent reduction in potential hydrogen chloride emissions.* You shall calculate the percent reduction in potential hydrogen chloride emissions ($\%P_{HCl}$) using the following equation:

$$\%P_{HCl} = (E_i - E_o) * (100/E_i)$$

where:

$\%P_{HCl}$ is the percent reduction of the potential hydrogen chloride emissions

E_i is the hydrogen chloride emission concentration as measured at the air pollution control device inlet, corrected to 7% oxygen, dry basis

E_o is the hydrogen chloride emission concentration as measured at the air pollution control device outlet, corrected to 7% oxygen, dry basis

(d) *Capacity of a municipal waste combustion unit.* For a municipal waste combustion unit that can operate continuously for 24-hour periods, you shall calculate the municipal waste combustion unit capacity based on 24 hours of operation at the maximum charge rate. To determine the maximum charge rate, use one of the following 2 methods:

1. For municipal waste combustion units with a design based on heat input capacity, you shall calculate the maximum charging rate based on the maximum heat input capacity and one of the following 2 heating values:

a. If your municipal waste combustion unit combusts refuse-derived fuel, use a heating value of 12,800 kilojoules per kilogram (5,500 Btu per pound).

b. If your municipal waste combustion unit combusts municipal solid waste, use a heating value of 10,500 kilojoules per kilogram (4,500 Btu per pound).

2. For municipal waste combustion units with a design not based on heat input capacity, you shall use the maximum designed charging rate.

(e) *Capacity of a batch municipal waste combustion unit.* You shall calculate the capacity of a batch municipal waste combustion unit as the maximum design amount of municipal solid waste that can be charged per batch multiplied by the maximum number of batches that can be processed in 24 hours. Calculate the maximum number of batches by dividing 24 by the number of hours needed to process one batch. Retain fractional batches in the calculation. For example, if one batch requires 16 hours, the municipal waste combustion unit can combust 24/16, or 1.5 batches, in 24 hours.

(f) *Quarterly carbon usage.* If you use activated carbon to comply with the dioxins/furans or mercury limits, you shall calculate the required quarterly usage of carbon using the equation in subd. 1. for plant basis or the equation in subd. 2. for unit basis.

$$C = \sum_{i=1}^{n} f_i * h_i$$

1. 'Plant basis.'

where:

C is the required quarterly carbon usage for the plant in kilograms or pounds

f_i is the required carbon feed rate for the municipal waste combustion unit in kilograms or pounds per hour. The required carbon feed rate is the average carbon feed rate during the most recent mercury or dioxins/furans stack tests, whichever has a higher feed rate.

h_i is the number of hours the municipal waste combustion unit was in operation during the calendar quarter.

n is the number of municipal waste combustion units, i, located at your plant.

2. 'Unit basis.'

$$C = f * h$$

where:

C is the required quarterly carbon usage for the unit in kilograms or pounds.

f is the required carbon feed rate for the municipal waste combustion unit in kilograms or pounds per hour. The required carbon feed rate is the average carbon feed rate during the most recent mercury or dioxins/furans stack tests, whichever has a higher feed rate.

h = number of hours the municipal waste combustion unit was in operation during the calendar quarter.

Table 1. Emission Limits for New Small Municipal Waste Combustion Units

For the following pollutants:	You shall meet the following emission limits:	Using the following averaging times:	And determine compliance by the following methods:
1. Organics			
Dioxins/Furans (total mass basis)	13 nonograms per dry standard cubic meter.	3-run average (minimum run duration is 4 hours).	Stack test.
2. Metals			
a. Cadmium	0.020 milligrams per dry standard cubic meter.	3-run average (run duration specified in test method).	Stack test.
b. Lead	0.20 milligrams per dry standard cubic meter.	3-run averate (run duration specified in test method).	Stack test.
c. Mercury	0.080 milligrams per dry standard cubic meter or 85% reduction of potential mercury emissions.	3-run averate (run duration specified in test method).	Stack test.
d. Opacity	10%.	Thirty 6-minute aveages.	Stack test.
e. Particulate Matter	24 milligrams per dry standard cubic meter.	3-run averate (run duration specified in test method).	Stack test.
3. Acid Gases			
a. Hydrogen Chloride	25 parts per million by dry volume or 95% reduction of potential hydrogen chloride emissions.	3-run average (minimum run duration is 1 hour).	Stack test.
b. Nitrogen Oxides (Class I units)[b]	150 (180 for 1st year of operation) parts per million by dry volume.	24-hour daily block arithmetic average concentration.	Continuous emission monitoring system.
c. Nitrogen Oxides (Class II units)[c]	500 parts per million by dry volume.	See footnote [d].	See footnote [d].
d. Sulfur Dioxide	30 parts per million by dry volume or 80% reduction of potential	24-hour daily block geometric average concentration or	Continuous emission monitoring system.

	sulfur dioxide emissions.	percent reduction	
4. Other: Fugitive Ash	Visible emissions for no more than 5% of hourly observation period.	Three 1-hour observation periods.	Visible emission test.

[a] All emission limits, except for opacity, are measured at 7% oxygen.
[b] Class I units mean small municipal waste combustion units subject to this section that are located at municipal waste combustion plants with an aggregate plant combustion capacity of more than 250 tons per day of municipal solid waste. See sub. (2) for definitions.
[c] Class II units mean small municipal waste combustion units subject to this section that are located at municipal waste combustion plants with an aggregate plant combustion capacity of no more than 250 tons per day of municipal solid waste. See sub. (2) for definitions.
[d] No monitoring, testing, recordkeeping or reporting is required to demonstrate compliance with the nitrogen oxides limit for Class II units.

Table 2. Carbon Monoxide Emission Limits for New Small Municipal Waste Combustion Units

For the following municipal waste combustion units:	**You shall meet the following carbon monoxide limits[a]:**	**Using the following averaging times:**
1. Fluidized-bed	100 parts per million by dry volume.	4-hour.
2. Fluidized bed, mixed fuel, (wood/refuse-derived fuel)	200 parts per million by dry volume.	24-hour.
3. Mass burn rotary refractory	100 parts per million by dry volume.	4-hour.
4. Mass burn rotary waterwall.	100 parts per million by dry volume.	24-hour.
5. Mass burn waterwall and refractory	100 parts per million by dry volume.	4-hour.
6. Mixed fuel fired (pulverized coal/refuse-derived fuel)	150 parts per million by dry volume.	4-hour.
7. Modular starved-air and excess air	50 parts per million by dry volume.	4-hour.
8. Spreader stoker, mixed fuel-fired (coal/refuse-derived fuel).	150 parts per million by dry volume.	24-hour daily.
9. Stoker, refuse-derived fuel	150 parts per million by dry volume.	24-hour daily.

[a] All limits, except for opacity, are measured at 7% oxygen. Compliance is determined by continuous emission monitoring systems.
[b] Block averages, arithmetic mean. See sub. (2) for definitions.
[c] 24-hour block average, geometric mean. See sub. (2) for definitions.

Table 3. Requirements for Validating Continuous Emission Monitoring Systems (CEMS)

For the following continuous emission monitoring systems:	**Use the following methods in Appendix A of 40 CFR part 60[b] to validate pollutant concentration levels:**	**Use the following methods in Appendis A of 40 CFR part 60[b] to measure oxygen or carbon dioxide:**
1. Nitrogen Oxides (Class 1 units only	Method 7, 7A, 7B, 7C, 7D or 7E.	Method 3 or 3A

2. Sulfur Dioxide	Method 6 or 6C	Method 3 or 3A
3. Carbon Monoxide	Method 10, 10A or 10B	Method 3 or 3A

[a] Class I units mean small municipal waste combustion units subject to this section that are located at municipal waste combustion plants with an aggregate plant combustion capacity of more than 250 tons per day of municipal solid waste. See sub. (2) for definitions.
[b] Incorporated by reference in s. NR 440.17(1).

Table 4. Requirements for Continuous Emission Monitoring Systems (CEMS)

For the following pollutants:	**Use the following span values for your CEMS:**	**Use the following performance specifications in Appendix B of 40 CFR part 60 for your CEMS:**	**If needed to meet a minimum data requirements, use the following alternate methods in Appendix A of 40 CFR part 60[c] to collect data:**
1. Opacity	100% opacity	P.S. 1	Method 9
2. Nitrogen Oxides (Class I units only)	Control device outlet: 125% of the maximum expected hourly potential nitrogen oxides emissions of the municipal waste combustion unit	P.S. 2	Method 9
3. Sulfur Dioxide	Inlet to control device: 125% of the maximum expected sulfur dioxide emissions of the municipal waste combustion unit. Control device outlet: 50% of the maximum expected hourly potential sulfur dioxide emissions of the municipal waste combustion unit	P.S. 2	Method 6C
4. Carbon Monoxide	125% of the maximum expected hourly potential carbon monoxide emissions of the municipal waste combustion unit	P.S. 4A	Method 10 with alternative interference trap
5. Oxygen or Carbon Dioxide	25% oxygen or 25% carbon dioxide	P.S. 3	Method 3A or 3B.

[a] Class I units mean small municipal waste combustion units subject to this section that are located at municipal waste combustion plants with an aggregate plant combustion capacity of more than 250 tons per day of municipal solid waste. See sub. (2) for definitions.
[b] Incorporated by reference in s. NR 440.17(1).
[c] Incorporated by reference in s. NR 440.17(1).

Table 5. Requirements for Stack Tests

To measure the following pollutants:	**Use the following mehods in Appendix A of 40 CFR part 60[c] to determine the sampling location:**	**Use the following methods in Appendix A of 40 CFR part 60[c] to measure pollutant concentration:**	**Also note the following additional information:**
1. Organics:			

a. Dioxins/furans	Method 1	Method 23[a]	The minimum sampling time shall be 4 hours per test run while the municipal waste combustion unit is operating at full load.
2. Metals:			
a. Cadmium	Method 1	Method 29[a]	Compliance testing shall be performed while the municipal waste combustion unit is operating at full load.
b. Lead	Method 1	Method 29[a]	Compliance testing shall be performed while the municipal waste combustion unit is operating at full load.
c. Mercury	Method 1	Method 29[a]	Compliance testing shall be performed while the municipal waste combustion unit is operating at full load.
d. Opacity	Method 9	Method 9	Use Method 9 to determine compliance with opacity limit. 3-hour observation period. (thirty 6-minute averages)
e. Particulate matter	Method 1	Method 5[a]	The minimum sample volume shall be 1.0 cubic meters. The probe and filter holder heating systems in the sample train shall be set to provide a gas temperature no greater than 160 ± 14°C. The minimum sampling time shall be 1 hour.
3. Acid Gases:[b]			
a. Hydrogen Chloride	Method 1	Method 26 or 26A	Test runs shall be at least 1 hour long while the municipal waste combustion unit is operating at full load.
4. Other:[b]			
a. Fugitive Ash	Not applicable	Method 22 (visible emissions)	The 3 1-hour observation periods shall include periods when the facility transfers fugitive ash from the municipal waste combustion unit to the area where the fugitive ash is stored or loaded into containers or trucks.

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[a] Simultaneously measure oxygen or carbon dioxide using Method 3A or 3B in Appendix A of 40 CFR part 60, incorporated by reference in s. NR 440.17(1).

[b] Use CEMS to test sulfur dioxide, nitrogen oxides and carbon monoxide. Stack tests are not required except for quality assurance requirements in Appendix F of 40 CFR part 60, incorporated by reference in s. NR 440.17(1).

[c] Incorporated by reference in s. NR 440.17(1).

SECTION 357. NR 440.77 is created to read:

NR 440.77 Commercial and Industrial Solid Waste Incineration Units for Which Construction is Commenced After November 30, 1999 or for Which Modification or Reconstruction is Commenced on or After June 1, 2001. This section establishes new source performance standards for commercial and industrial solid waste incineration (CISWI) units. Some of the requirements in this section apply to planning the CISWI unit, such as the preconstruction requirements in sub. (3), and shall be completed even before construction is initiated on the CISWI unit. Other requirements, such as the emission limitations and operating limits, apply after the CISWI unit begins operation.

Note: For purposes of this section "I", "my", "you" or "your", refers to the owner or operator of a commercial and industrial solid waste incineration unit or the applicant for a permit to construct a commercial and industrial solid waste incineration unit, unless the context indicates otherwise. (See the definitions in sub. (2)(z) and (zm)).

(1) APPLICABILITY. (a) *Does this section apply to my incineration unit?* This section applies if your incineration unit meets all of the following requirements:

1. Your incineration unit is a new incineration unit as specified in par. (b).

2. Your incineration unit is a CISWI unit as defined in sub. (2).

3. Your incineration unit is not exempt under par. (c).

(b) *What is a new incineration unit?* 1. A new incineration unit is an incineration unit that meets either of the following 2 criteria:

a. Construction on the unit commenced after November 30, 1999.

b. Reconstruction or modification of the unit commenced on or after June 1, 2001.

2. This section does not affect your incineration unit if you make physical or operational changes to your incineration unit primarily to comply with the emission

guidelines in subpart DDDD of 40 CFR part 60. Those changes do not qualify as reconstruction or modification under this section.

(c) *What combustion units are exempt from this section?* The following 15 types of units are exempt from this section:

1. 'Pathological waste incineration units.' Incineration units burning 90% or more by weight (on a calendar quarter basis and excluding the weight of auxiliary fuel and combustion air) of pathological waste, low-level radioactive waste or chemotherapeutic waste, as defined in sub. (2), if you meet the following 2 requirements:

a. Notify the department that the unit meets the criteria of this subdivision.

b. Keep records on a calendar quarter basis of the weight of pathological waste, low-level radioactive waste and chemotherapeutic waste burned, and the weight of all other fuels and wastes burned in the unit.

2. 'Agricultural waste incineration units.' Incineration units burning 90% or more by weight (on a calendar quarter basis and excluding the weight of auxiliary fuel and combustion air) of agricultural wastes as defined in sub. (2) if you meet the following 2 requirements:

a. Notify the department that the unit meets the criteria of this subdivision.

b. Keep records on a calendar quarter basis of the weight of agricultural waste burned, and the weight of all other fuels and wastes burned in the unit.

3. 'Municipal waste combustion units.' Incineration units that meet either of the following 2 criteria:

a. The units are regulated under s. NR 440.215, 440.216, 440.76, 40 CFR part 60 subpart Cb (Emission Guidelines and Compliance Time for Large Municipal Combustors that are Constructed on or Before September 20, 1994) or 40 CFR part 60 subpart BBBB (Emission Guidelines for Existing Stationary Sources: Small Municipal Waste Combustion Units).

b. The units burn greater than 30% municipal solid waste or refuse-derived fuel, as defined in ss. NR 440.215, 440.216, 440.76 and 40 CFR part 60 subpart BBBB, and the units have the capacity to burn less than 35 tons (32 megagrams) per day of municipal solid waste or refuse-derived fuel, if you meet the following 2 requirements:

1) Notify the department that the unit meets the criteria of this subdivision paragraph.

2) Keep records on a calendar quarter basis of the weight of municipal solid waste burned, and the weight of all other fuels and wastes burned in the unit.

4. 'Medical waste incineration units.' Incineration units regulated under s. NR 440.218 or 40 CFR part 60 subpart Ce (Emission Guidelines and Compliance Times for Hospital/Medical/Infectious Waste Incinerators).

5. 'Small power production facilities.' Units that meet all of the following 3 requirements:

a. The unit qualifies as a small power-production facility under section 3(17)(C) of the Federal Power Act (16 USC 796(17)(C)).

b. The unit burns homogeneous waste (not including refuse-derived fuel) to produce electricity.

c. You notify the department that the unit meets all of the criteria in this subdivision.

6. 'Cogeneration facilities.' Units that meet all of the following 3 requirements:

a. The unit qualifies as a cogeneration facility under section 3(18)(B) of the Federal Power Act (16 USC 796(18)(B)).

b. The unit burns homogeneous waste (not including refuse-derived fuel) to produce electricity and steam or other forms of energy used for industrial, commercial, heating or cooling purposes.

c. You notify the department that the unit meets all of the criteria in this subdivision.

7. ‘Hazardous waste combustion units.’ Units that meet either of the following 2 criteria:

a. Units for which you are required to get a permit under section 3005 of the Solid Waste Disposal Act (42 USC 6925) or a license under s. 291.25, Stats.

b. Units regulated under subpart EEE of 40 CFR part 63 (National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors).

8. ‘Materials recovery units.’ Units that combust waste for the primary purpose of recovering metals, such as primary and secondary smelters.

9. ‘Air curtain incinerators.’ Air curtain incinerators that burn only the following materials are only subject to sub. (13):

a. 100% wood waste.

b. 100% clean lumber.

c. 100% mixture of only wood waste, clean lumber and yard waste.

10. ‘Cyclonic barrel burners.’ Cyclonic barrel burners as defined in sub. (2).

11. ‘Reclamation units.’ Rack, part and drum reclamation units as the terms are defined in sub. (2)(s), (q) and (Lm).

12. ‘Cement kilns.’ Kilns regulated under subpart LLL of 40 CFR part 63 (National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry).

13. ‘Sewage sludge incinerators.’ Incineration units regulated under s. NR 440.32.

14. ‘Chemical recovery units.’ Combustion units burning materials to recover chemical constituents or to produce chemical compounds where there is an existing commercial market for the recovered chemical constituents or compounds. The following 7 types of units are considered chemical recovery units:

a. Units burning only pulping liquors (i.e., black liquor) that are reclaimed in a pulping liquor recovery process and reused in the pulping process.

b. Units burning only spent sulfuric acid used to produce virgin sulfuric acid.

c. Units burning only wood or coal feedstock for the production of charcoal.

d. Units burning only manufacturing byproduct streams or residues containing catalyst metals which are reclaimed and reused as catalysts or used to produce commercial grade catalysts.

e. Units burning only coke to produce purified carbon monoxide that is used as an intermediate in the production of other chemical compounds.

f. Units burning only hydrocarbon liquids or solids to produce hydrogen, carbon monoxide, synthesis gas or other gases for use in other manufacturing processes.

g. Units burning only photographic film to recover silver.

15. 'Laboratory analysis units.' Units that burn samples of materials for the purpose of chemical or physical analysis.

(d) *What if my chemical recovery unit is not listed in par. (c)14.?* 1. If your chemical recovery unit is not listed in par. (c)14., you can petition the administrator to add your unit to the list as provided in 40 CFR 60.2025.

2. Until the administrator approves your petition, the incineration unit is covered by this section.

3. If a petition is approved, the administrator will amend 40 CFR 60.2020(n) to add the unit to the list of chemical recovery units and the department will add the unit to par. (c)14.

(f) *How are these new source performance standards structured?* The new source performance standards in this section contain the following 11 major components:

1. Definitions.

2. Preconstruction siting analysis.

3. Waste management plan.

4. Operator training and qualification.

5. Emission limitations and operating limits.

6. Performance testing.

7. Initial compliance requirements.

8. Continuous compliance requirements.

9. Monitoring.

10. Recordkeeping and reporting.

11. Tables.

(g) *Do all 11 components of these new source performance standards apply at the same time?* No. You shall meet the preconstruction siting analysis and waste management plan requirements before you commence construction of the CISWI unit. The operator training and qualification, emission limitations, operating limits, performance testing and compliance, monitoring and most recordkeeping and reporting requirements are met after the CISWI unit begins operation.

(2) DEFINITIONS. As used in this section, all terms not defined in this subsection have the meanings given in s. NR 440.02 or, for terms not defined in s. NR 440.02, the meanings given in s. NR 400.02. In this section:

(a) "Agricultural waste" means vegetative agricultural materials such as nut and grain hulls and chaff (e.g., almond, walnut, peanut, rice and wheat), bagasse, orchard prunings, corn stalks, coffee bean hulls and grounds, and other vegetative waste materials generated as a result of agricultural operations.

(b) "Air curtain incinerator" means an incinerator that operates by forcefully projecting a curtain of air across an open chamber or pit in which combustion occurs. Incinerators of this type can be constructed above or below ground and with or without refractory walls and floor.

Note: Air curtain incinerators are not to be confused with conventional combustion devices with enclosed fireboxes and controlled air technology such as mass burn, modular and fluidized bed combustors.

(c) "Auxiliary fuel" means natural gas, liquified petroleum gas, fuel oil or diesel fuel.

(cm) “Bag leak detection system” means an instrument that is capable of monitoring particulate matter loadings in the exhaust of a fabric filter (that is, baghouse) in order to detect bag failures. A bag leak detection system includes an instrument that operates on triboelectric, light scattering, light transmittance or other principle to monitor relative particulate matter loadings.

(d) “Calendar quarter” means 3 consecutive months, nonoverlapping, beginning on: January 1, April 1, July 1 or October 1.

(e) “Chemotherapeutic waste” means waste material resulting from the production or use of antineoplastic agents used for the purpose of stopping or reversing the growth of malignant cells.

(f) “Clean lumber” means wood or wood products that have been cut or shaped and include wet, air-dried and kiln-dried wood products. Clean lumber does not include wood products that have been painted, pigment-stained or pressure-treated by compounds such as chromate copper arsenate, pentachlorophenol and creosote.

(g) “Commercial and industrial solid waste incineration unit” or “CISWI unit” means any combustion device that combusts commercial and industrial waste, as defined in this subsection. A CISWI unit includes the commercial or industrial solid waste fuel feed system, grate system, flue gas system and bottom ash. The CISWI unit does not include air pollution control equipment or the stack. The CISWI unit starts at the commercial and industrial solid waste hopper, if applicable, and extends through the following 2 areas:

1. The combustion unit flue gas system, which ends immediately after the last combustion chamber.

2. The combustion unit bottom ash system, which ends at the truck loading station or similar equipment that transfers the ash to final disposal. It includes all ash handling systems connected to the bottom ash handling system.

(h) “Commercial and industrial waste” means solid waste combusted in an enclosed device using controlled flame combustion without energy recovery that is a distinct operating unit of any commercial or industrial facility (including field-erected, modular and custom built incineration units operating with starved or excess air) or solid waste combusted in an air curtain incinerator without energy recovery that is a distinct operating unit of any commercial or industrial facility.

(i) “Contained gaseous material” means gases that are in a container when that container is combusted.

(im) “Cyclonic barrel burner” means a combustion device for waste materials that is attached to a 55 gallon, open-head drum. The device consists of a lid, which fits onto and encloses the drum, and a blower that forces combustion air into the drum in a cyclonic manner to enhance the mixing of waste material and air.

(j) “Deviation” means any instance in which an affected source subject to this section, or an owner or operator of such a source, fails to meet any of the following:

1. Any requirement or obligation established by this section, including any emission limitation, operating limit or operator qualification and accessibility requirements.

2. Any term or condition that is adopted to implement an applicable requirement in this section and that is included in the operating permit for any affected source required to obtain such a permit.

3. Any emission limitation, operating limit or operator qualification and accessibility requirement in this section during startup, shutdown or malfunction, regardless of whether or not such failure is permitted by this section.

(k) “Dioxins/furans” means tetra- to octa- chlorinated dibenzo-p-dioxins and dibenzofurans.

(L) “Discard” means, for purposes of this section only, burned in an incineration unit without energy recovery.

(Lm) “Drum reclamation unit” means a unit that burns residues out of drums (e.g., 55 gallon drums) so that the drums can be reused.

(m) “Energy recovery” means the process of recovering thermal energy from combustion for useful purposes such as steam generation or process heating.

(n) “Fabric filter” means an add-on air pollution control device used to capture particulate matter by filtering gas streams through filter media, also known as a baghouse.

(o) “Low-level radioactive waste” means waste material which contains radioactive nuclides emitting primarily beta or gamma radiation, or both, in concentrations or quantities that exceed applicable federal or state standards for unrestricted release. Low-level radioactive waste is not high-level radioactive waste, spent nuclear fuel or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC 2014(e)(2)).

(p) “Modification” or “modified CISWI unit” means a CISWI unit you have changed later than June 1, 2001 and that meets one of the following 2 criteria:

1. The cumulative cost of the changes over the life of the unit exceeds 50% of the original cost of building and installing the CISWI unit (not including the cost of land) updated to current costs in dollars. To determine what systems are within the boundary of the CISWI unit used to calculate these costs, see the definition of CISWI unit.

2. Any physical change in the CISWI unit or change in the method of operating it that increases the amount of any air pollutant emitted for which section 129 or section 111 of the Act (42 USC 7429 or 7411) has established standards.

(q) “Part reclamation unit” means a unit that burns coatings off parts (e.g., tools or equipment) so that the parts can be reconditioned and reused.

(r) “Particulate matter” means total particulate matter emitted from CISWI units as measured by Method 5 or Method 29 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1).

(rm) "Pathological waste" means waste material consisting of only human or animal remains, anatomical parts or tissue; the bags or containers used to collect and transport the waste material; and animal bedding, if applicable.

(s) "Rack reclamation unit" means a unit that burns the coatings off racks used to hold small items for application of a coating. The unit burns the coating overspray off the rack so the rack can be reused.

(t) "Reconstruction" means rebuilding a CISWI unit and meeting the following 2 criteria:

1. The reconstruction begins on or after June 1, 2001.

2. The cumulative cost of the construction over the life of the incineration unit exceeds 50% of the original cost of building and installing the CISWI unit (not including land) updated to current costs in dollars. To determine what systems are within the boundary of the CISWI unit used to calculate these costs, see the definition of CISWI unit.

(u) "Refuse-derived fuel" means a type of municipal solid waste produced by processing municipal solid waste through shredding and size classification. This includes all classes of refuse-derived fuel including the following 2 fuels:

1. Low-density fluff refuse-derived fuel through densified refuse-derived fuel.

2. Pelletized refuse-derived fuel.

(um) "Shutdown" means the period of time after all waste has been combusted in the primary chamber.

(v) "Solid waste" means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant or air pollution control facility and other discarded material, including solid, liquid, semisolid or contained gaseous material resulting from industrial, commercial, mining or agricultural operations and from community activities. Solid waste does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (33 USC 1342), or source, special nuclear or byproduct material as defined by the Atomic Energy Act of 1954, as amended (42 USC 2014). For purposes of this section only, solid waste does not include the waste burned in the 15 types of units described in sub. (1)(c).

(w) “Standard conditions”, when referring to units of measure, means a temperature of 68°F (20°C) and a pressure of one atmosphere (101.3 kilopascals).

(x) “Startup period” means the period of time between the activation of the system and the first charge to the unit.

(xm) “Wet scrubber” means an add-on air pollution control device that utilizes an aqueous or alkaline scrubbing liquor to collect particulate matter, including nonvaporous metals and condensed organics, or to absorb and neutralize acid gases or both.

(y) “Wood waste” means untreated wood and untreated wood products including whole or chipped tree stumps, trees, whole or chipped tree limbs, bark, sawdust, chips, scraps, slabs, millings and shavings. Wood waste does not include any of the following:

1. Grass, grass clippings, bushes, shrubs and clippings from bushes and shrubs from residential, commercial or retail, institutional or industrial sources as part of maintaining yards or other private or public lands.

2. Construction, renovation or demolition wastes.

3. Clean lumber.

(z) “You” or "I" means the owner or operator of a commercial and industrial solid waste incineration unit or the applicant for a permit to construct a commercial and industrial solid waste incineration unit, unless the context indicates otherwise.

(zm) "Your" or "my" means of or relating to the owner or operaor of a commercial and industrial solid waste incineration unit or the applicant for a permit to construct a commercial and industrial solid waste incineration unit, unless the context indicates otherwise.

(3) PRECONSTRUCTION SITING ANALYSIS. (a) *Who must prepare a siting analysis?* 1. You shall prepare a siting analysis if you plan to commence construction of a CISWI unit after December 1, 2000.

2. You shall prepare a siting analysis if you are required to submit an initial application for a construction permit under ch. NR 405 or 408, as applicable, for the reconstruction or modification of your CISWI unit.

(b) *What is a siting analysis and when must it be submitted?* 1. The siting analysis shall consider air pollution control alternatives that minimize, on a site-specific basis, to the maximum extent practicable, potential risks to public health or the environment. In considering the alternatives, the analysis may consider costs, energy impacts, non-air environmental impacts or any other factors related to the practicability of the alternatives.

2. Analyses of your CISWI unit's impacts that are prepared to comply with state, local or other federal regulatory requirements may be used to satisfy the requirements of this paragraph, provided they include the consideration of air pollution control alternatives specified in subd. 1.

3. You shall complete and submit the siting requirements of this paragraph as required under sub. (11)(d)3. prior to commencing construction.

(4) WASTE MANAGEMENT PLAN. (a) *What is a waste management plan?* A waste management plan is a written plan that identifies both the feasibility and the methods used to reduce or separate certain components of solid waste from the waste stream in order to reduce or eliminate toxic emissions from incinerated waste.

(b) *When must I submit my waste management plan?* You shall submit a waste management plan prior to commencing construction.

(c) *What should I include in my waste management plan?* A waste management plan shall include consideration of the reduction or separation of waste-stream elements such as paper, cardboard, plastics, glass, batteries or metals; or the use of recyclable materials. The plan shall identify any additional waste management measures and implement those measures you consider practical and feasible, considering the effectiveness of waste management measures already in place, the costs of additional measures, the emissions reductions expected to be achieved, and any other environmental or energy impacts they might have.

(5) OPERATOR TRAINING AND QUALIFICATION. (a) *What are the operator training and qualification requirements?* 1. No CISWI unit may be operated unless a fully trained and qualified CISWI unit operator is accessible, either at the facility or can be at the facility within one hour. The trained and qualified CISWI unit operator may operate the CISWI unit directly or be the direct supervisor of one or more other plant personnel who operate the unit. If all qualified CISWI unit operators are temporarily not accessible, you shall follow the procedures in par. (g).

2. Operator training and qualification shall be obtained through a state-approved program or by completing the requirements included in subd. 3.

3. Training shall be obtained by completing an incinerator operator training course that includes, at a minimum, the following 3 elements:

a. Training on the following 11 subjects:

1) Environmental concerns, including types of emissions.

2) Basic combustion principles, including products of combustion.

3) Operation of the specific type of incinerator to be used by the operator, including proper startup, waste charging and shutdown procedures.

4) Combustion controls and monitoring.

5) Operation of air pollution control equipment and factors affecting performance, if applicable.

6) Inspection and maintenance of the incinerator and air pollution control devices.

7) Actions to correct malfunctions or conditions that may lead to malfunction.

8) Bottom and fly ash characteristics and handling procedures.

9) Applicable federal, state and local regulations, including occupational safety and health administration workplace standards.

10) Pollution prevention.

11) Waste management practices.

b. An examination designed and administered by the instructor.

c. Written material covering the training course topics that may serve as reference material following completion of the course.

(b) *When must the operator training course be completed?* The operator training course shall be completed by the later of the following 3 dates:

1. Six months after startup of your CISWI unit.

2. December 3, 2001.

3. The date before an employee assumes responsibility for operating the CISWI unit or assumes responsibility for supervising the operation of the CISWI unit.

(c) *How is operator qualification obtained?* 1. The operator shall obtain operator qualification by completing a training course that satisfies the criteria under par. (a)2.

2. Qualification is valid from the date on which the training course is completed and the operator successfully passes the examination required under par. (a)3.b.

(d) *How is operator qualification maintained?* To maintain qualification, the operator shall complete an annual review or refresher course covering, at a minimum, the following 5 topics:

1. Update of regulations.

2. Incinerator operation, including startup and shutdown procedures, waste charging and ash handling.

3. Inspection and maintenance.

4. Responses to malfunctions or conditions that may lead to malfunction.

5. Discussion of operating problems encountered by attendees.

(e) *How is a lapsed operator qualification renewed?* The operator shall renew a lapsed operator qualification by one of the following 2 methods:

1. For a lapse of less than 3 years, the operator shall complete a standard annual refresher course described in par. (d).

2. For a lapse of 3 years or more, the operator shall repeat the initial qualification requirements in par. (c)1.

(f) *What site-specific documentation is required?* 1. Documentation shall be available at the facility and readily accessible for all CISWI unit operators that addresses the 10 topics described in this subdivision. You shall maintain this information and the training records required by subd. 3. in a manner that they can be readily accessed and are suitable for inspection upon request. The topics are as follows:

a. Summary of the applicable standards under this section.

b. Procedures for receiving, handling and charging waste.

c. Incinerator startup, shutdown and malfunction procedures.

d. Procedures for maintaining proper combustion air supply levels.

e. Procedures for operating the incinerator and associated air pollution control systems within the standards established under this section.

f. Monitoring procedures for demonstrating compliance with the incinerator operating limits.

g. Reporting and recordkeeping procedures.

h. The waste management plan required under sub. (4).

i. Procedures for handling ash.

j. A list of the wastes burned during the performance test.

2. You shall establish a program for reviewing the information listed in subd. 1. with each incinerator operator according to the following schedule:

a. The initial review of the information listed in subd. 1. shall be conducted by July 30, 2001 or prior to an employee's assumption of responsibilities for operation of the CISWI unit, whichever date is later.

b. Subsequent annual reviews of the information listed in subd. 1. shall be conducted not later than 12 months following the previous review.

3. You shall also maintain the following information:

a. Records showing the names of CISWI unit operators who have completed review of the information in subd. 1. as required by subd. 2., including the date of the initial review and all subsequent annual reviews.

b. Records showing the names of the CISWI unit operators who have completed the operator training requirements under par. (a), met the criteria for qualification under par. (c) and maintained or renewed their qualification under par. (d) or (e). Records shall include documentation of training, the dates of the initial and refresher training, and the dates of their qualification and all subsequent renewals of such qualifications.

c. For each qualified operator, the phone and pager number, if applicable, at which they can be reached during operating hours.

(g) *What if all the qualified operators are temporarily not accessible?* If all qualified operators are temporarily not accessible (i.e., not at the facility and not able to be at the facility within one hour) you shall meet one of the 2 criteria specified in subds. 1. and 2., depending on the length of time that a qualified operator is not accessible:

1. When all qualified operators are not accessible for more than 8 hours, but

less than 2 weeks, the CISWI unit may be operated by other plant personnel familiar with the operation of the CISWI unit who have completed a review of the information specified in par. (f)1. within the past 12 months. However, you shall record the period when all qualified operators were not accessible and include this deviation in the annual report as specified under sub. (11)(h).

2. When all qualified operators are not accessible for 2 weeks or more, you shall take the following 2 actions:

a. Notify the department of this deviation in writing within 10 days. In the notice, state what caused this deviation, what you are doing to ensure that a qualified operator is accessible, and when you anticipate that a qualified operator will be accessible.

b. Submit a status report to the department every 4 weeks outlining what you are doing to ensure that a qualified operator is accessible, stating when you anticipate that a qualified operator will be accessible and requesting approval from the department to continue operation of the CISWI unit. You shall submit the first status report 4 weeks after you notify the department of the deviation under subd. 2.a. If the department notifies you that your request to continue operation of the CISWI unit is disapproved, the CISWI unit may continue operation for 90 days, then shall cease operation. Operation of the unit may resume if you meet the following 2 requirements:

1) A qualified operator is accessible as required under par. (a)1.

2) You notify the department that a qualified operator is accessible and that you are resuming operation.

(6) EMISSION LIMITATIONS AND OPERATING LIMITS. (a) *What emission limitations must I meet and by when?* You shall meet the emission limitations specified in Table 1 of this section 60 days after your CISWI unit reaches the charge rate at which it will operate, but no later than 180 days after its initial startup.

(b) *What operating limits must I meet and by when?* 1. If you use a wet scrubber to comply with the emission limitations, you shall establish operating limits for the following 4 operating parameters (as specified in Table 2 of this section) during the initial performance test:

a. Maximum charge rate, calculated using one of the following 2 different procedures, as appropriate:

1) For continuous and intermittent units, the maximum charge rate is 110% of the average charge rate measured during the most recent performance test demonstrating compliance with all applicable emission limitations.

2) For batch units, the maximum charge rate is 110% of the daily charge rate measured during the most recent performance test demonstrating compliance with all applicable emission limitations.

b. Minimum pressure drop across the wet scrubber, calculated as 90% of the average pressure drop across the wet scrubber measured during the most recent performance test demonstrating compliance with the particulate matter emission limitations; or minimum amperage to the wet scrubber, calculated as 90% of the average amperage to the wet scrubber measured during the most recent performance test demonstrating compliance with the particulate matter emission limitations.

c. Minimum scrubber liquor flow rate, calculated as 90% of the average liquor flow rate at the inlet to the wet scrubber measured during the most recent performance test demonstrating compliance with all applicable emission limitations.

d. Minimum scrubber liquor pH, which is calculated as 90% of the average liquor pH at the inlet to the wet scrubber measured during the most recent performance test demonstrating compliance with the HCl emission limitation.

2. You shall meet the operating limits established during the initial performance test 60 days after your CISWI unit reaches the charge rate at which it will operate, but no later than 180 days after its initial startup.

3. If you use a fabric filter to comply with the emission limitations, you shall

operate each fabric filter system such that the bag leak detection system alarm does not sound more than 5% of the operating time during a 6-month period. In calculating this operating time percentage, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm shall be counted as a minimum of one hour. If you take longer than one hour to initiate corrective action, the alarm time shall be counted as the actual amount of time taken by you to initiate corrective action.

(c) *What if I do not use a wet scrubber or fabric filter to comply with the emission limitations?* If you use an air pollution control device other than a wet scrubber or fabric filter, or limit emissions in some other manner, to comply with the emission limitations under par. (a), you shall petition the department for specific operating limits to be established during the initial performance test and continuously monitored thereafter. You may not conduct the initial performance test until after the petition has been approved by the department. Your petition shall include the following 5 items:

1. Identification of the specific parameters you propose to use as additional operating limits.

2. A discussion of the relationship between these parameters and emissions of regulated pollutants, identifying how emissions of regulated pollutants change with changes in these parameters, and how limits on these parameters will serve to limit emissions of regulated pollutants.

3. A discussion of how you will establish the upper or lower values, or both, for these parameters which will establish the operating limits on these parameters.

4. A discussion identifying the methods you will use to measure and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments.

5. A discussion identifying the frequency and methods for recalibrating the

instruments you will use for monitoring these parameters.

(d) *What happens during periods of startup, shutdown and malfunction?* 1. The emission limitations and operating limits apply at all times except during CISWI unit startups, shutdowns or malfunctions.

2. Each malfunction may not last longer than 3 hours.

(7) PERFORMANCE TESTING (a) *How do I conduct the initial and annual performance test?* 1. All performance tests shall consist of a minimum of 3 test runs conducted under conditions representative of normal operations.

2. You shall document that the waste burned during the performance test is representative of the waste burned under normal operating conditions by maintaining a log of the quantity of waste burned (as required in sub. (11)(a)2.a.) and the types of waste burned during the performance test.

3. All performance tests shall be conducted using the minimum run duration specified in Table 1 of this section.

4. Method 1 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used to select the sampling location and number of traverse points.

5. Method 3A or 3B of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), shall be used for gas composition analysis, including measurement of oxygen concentration. Method 3A or 3B shall be used simultaneously with each method.

6. All pollutant concentrations, except for opacity, shall be adjusted to 7% oxygen using the following equation:

$$C_{adj} = C_{meas}\left(20.9 - 7\right)/\left(20.9 - \%O_2\right)$$

where:

C_{adj} is the pollutant concentration adjusted to 7% oxygen

C_{meas} is the pollutant concentration measured on a dry basis

(20.9-7) is 20.9% oxygen – 7% oxygen (defined oxygen correction basis)

20.9 is the oxygen concentration in air, expressed as percent

$\%O_2$ is the oxygen concentration measured on a dry basis, expressed as percent

7. You shall determine dioxins/furans toxic equivalency according to the following procedures:

a. Measure the concentration of each dioxin/furan tetra- to octachlorinated congener emitted using EPA Method 23 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1).

b. For each dioxin/furan tetra- to octachlorinated congener measured in accordance with subd. 7.a., multiply the congener concentration by its corresponding toxic equivalency factor specified in Table 3 of this section.

c. Sum the products calculated in accordance with subd. 7.b. to obtain the total concentration of dioxins/furans emitted in terms of toxic equivalency.

(b) *How are the performance test data used?* You use the results of the performance tests to demonstrate compliance with the emission limitations in Table 1 of this section.

(8) INITIAL COMPLIANCE REQUIREMENTS. (a) *How do I demonstrate initial compliance with the emission limitations and establish the operating limits?* You shall conduct an initial performance test, as required under s. NR 440.08, to determine compliance with the emission limitations in Table 1 of this section and to establish operating limits using the procedure in sub. (6)(b) or (c). The initial performance test shall be conducted using the test methods listed in Table 1 of this section and the procedures in sub. (7)(a).

(b) *By what date must I conduct the initial performance test?* The initial performance test shall be conducted within 60 days after your CISWI unit reaches the charge rate at which it will operate, but no later than 180 days after its initial startup.

(9) CONTINUOUS COMPLIANCE REQUIREMENTS. (a) *How do I demonstrate continuous compliance with the emission limitations and the operating limits?* 1. You shall conduct an annual performance test for particulate matter, hydrogen chloride and opacity for each CISWI unit as required under s. NR 440.08 to determine compliance with the emission limitations. The annual performance test shall be conducted using the test methods listed in Table 1 of this section and the procedures in sub. (7)(a).

2. You shall continuously monitor the operating parameters specified in sub. (6)(b) or established under sub. (6)(c). Operation above the established maximum or below the established minimum operating limits constitutes a deviation from the established operating limits. Three-hour rolling average values shall be used to determine compliance (except for baghouse leak detection system alarms) unless a different averaging period is established under sub. (6)(c). Operating limits do not apply during performance tests.

3. You shall only burn the same types of waste used to establish operating limits during the performance test.

(b) *By what date must I conduct the annual performance test?* You shall conduct annual performance tests for particulate matter, hydrogen chloride and opacity within 12 months following the initial performance test. Subsequent annual performance tests shall be conducted within 12 months following the previous one.

(c) *May I conduct performance testing less often?* 1. You may test less often for a given pollutant if you have test data for at least 3 years, and all performance tests for the pollutant (particulate matter, hydrogen chloride or opacity) over 3 consecutive years show that you comply with the emission limitation. In this case, you do not have to conduct a performance test for that pollutant for the next 2 years. You shall conduct a performance test during the 3rd year and no later than 36 months following the previous performance test.

2. If your CISWI unit continues to meet the emission limitation for particulate matter, hydrogen chloride or opacity, you may choose to conduct performance tests for these pollutants every 3rd year, but each test shall be within 36 months of the previous performance test.

3. If a performance test shows a deviation from an emission limitation for particulate matter, hydrogen chloride or opacity, you shall conduct annual performance tests for that pollutant until all performance tests over a 3-year period show compliance.

(d) *May I conduct a repeat performance test to establish new operating limits?* 1. You may conduct a repeat performance test at any time to establish new values for the operating limits. The department may request a repeat performance test at any time.

2. You shall repeat the performance test if your feed stream is different than the feed streams used during any performance test used to demonstrate compliance.

(10) MONITORING. (a) *What monitoring equipment must I install and what parameters must I monitor?* 1. If you are using a wet scrubber to comply with the emission limitation under sub. (6)(a), you shall install, calibrate to manufacturers' specifications, maintain and operate devices (or establish methods) for monitoring the value of the operating parameters used to determine compliance with the operating limits listed in Table 2 of this section. These devices or methods shall measure and record the values for these operating parameters at the frequencies indicated in Table 2 of this section at all times except as specified in par. (b)1.

2. If you use a fabric filter to comply with the requirements of this section, you shall install, calibrate, maintain and continuously operate a bag leak detection system as follows:

a. You shall install and operate a bag leak detection system for each exhaust stack of the fabric filter.

b. Each bag leak detection system shall be installed, operated, calibrated and maintained in a manner consistent with the manufacturer's written specifications and recommendations.

c. The bag leak detection system shall be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of 10 milligrams per actual cubic meter or less.

d. The bag leak detection system sensor shall provide output of relative or absolute particulate matter loadings.

e. The bag leak detection system shall be equipped with a device to continuously record the output signal from the sensor.

f. The bag leak detection system shall be equipped with an alarm system that will sound automatically when an increase in relative particulate matter emissions over a preset level is detected. The alarm shall be located where it is easily heard by plant operating personnel.

g. For positive pressure fabric filter systems, a bag leak detection system shall be installed in each baghouse compartment or cell. For negative pressure or induced air fabric filters, the bag leak detector shall be installed downstream of the fabric filter.

h. Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

3. If you are using something other than a wet scrubber or fabric filter to comply with the emission limitations under sub. (6)(a), you shall install, calibrate to the manufacturers' specifications and maintain and operate the equipment necessary to monitor compliance with the site-specific operating limits established using the procedures in sub. (6)(c).

(b) *Is there a minimum amount of monitoring data I must obtain?* 1. Except for monitor malfunctions, associated repairs and required quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments of the monitoring system) you shall conduct all monitoring at all times the CISWI unit is operating.

2. You may not use data recorded during monitor malfunctions, associated repairs and required quality assurance or quality control activities for meeting the requirements of this section, including data averages and calculations. You shall use all the data collected during all other periods in assessing compliance with the operating limits.

(11) RECORDKEEPING AND REPORTING. (a) *What records must I keep?* You shall maintain the following 14 items, as applicable, for a period of at least 5 years:

1. Calendar date of each record.

2. Records of the following data:

a. The CISWI unit charge dates, times, weights and hourly charge rates.

b. Liquor flow rate to the wet scrubber inlet every 15 minutes of operation, as applicable.

c. Pressure drop across the wet scrubber system every 15 minutes of operation or amperage to the wet scrubber every 15 minutes of operation, as applicable.

d. Liquor pH as introduced to the wet scrubber every 15 minutes of operation, as applicable.

e. For affected CISWI units that establish operating limits for controls other than wet scrubbers under sub. (6)(c), data collected for all operating parameters used to determine compliance with the operating limits.

f. If a fabric filter is used to comply with the emission limitations, the date, time and duration of each alarm and the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken. Also, you shall record the percent of operating time during each 6-month period that the alarm sounds, calculated as specified in sub. (6)(b)3.

3. Identification of calendar dates and times for which monitoring systems used to monitor operating limits were inoperative, inactive, malfunctioning or out of control (except for downtime associated with zero and span and other routine calibration checks). Identify the operating parameters not measured, the duration, reasons for not obtaining the data and a description of corrective actions taken.

4. Identification of calendar dates, times and durations of malfunctions, and a description of the malfunction and the corrective action taken.

5. Identification of calendar dates and times for which data show a deviation from the operating limits in Table 2 of this section or a deviation from other operating limits established under sub. (6)(c) with a description of the deviations, reasons for such deviations, and a description of corrective actions taken.

6. The results of the initial, annual and any subsequent performance tests conducted to determine compliance with the emission limits or to establish operating limits, or both, as applicable. Retain a copy of the complete test report including calculations.

7. All documentation produced as a result of the siting requirements of sub. (3).

8. Records showing the names of CISWI unit operators who have completed review of the information in sub. (5)(f)1. as required by sub. (5)(f)2., including the date of the initial review and all subsequent annual reviews.

9. Records showing the names of the CISWI unit operators who have completed the operator training requirements under sub. (5)(a), met the criteria for qualification under sub. (5)(c), and maintained or renewed their qualification under sub. (5)(d) or (e). Records shall include documentation of training, the dates of the initial and refresher training, and the dates of their qualification and all subsequent renewals of the qualifications.

10. For each qualified operator, the phone and pager number, if applicable, at which they can be reached during operating hours.

11. Records of calibration of any monitoring devices as required under sub. (10)(a).

12. Equipment vendor specifications and related operation and maintenance requirements for the incinerator, emission controls and monitoring equipment.

13. The information listed in sub. (5)(f)1.

14. On a daily basis, a log of the quantity of waste burned and the types of waste burned (always required).

(b) *Where and in what format must I keep my records?* All records shall be available onsite in either paper copy or computer-readable format that can be printed upon request, unless an alternative format is approved by the department.

(c) *What reports must I submit?* Table 4 of this section includes a summary of the reporting requirements.

(d) *What must I submit prior to commencing construction?* You shall submit a notification prior to commencing construction that includes the following 5 items:

1. A statement of intent to construct.

2. The anticipated date of commencement of construction.

3. All documentation produced as a result of the siting requirements of sub. (3)(b).

4. The waste management plan as specified in sub. (4).

5. Anticipated date of initial startup.

(e) *What information must I submit prior to initial startup?* You shall submit the following information prior to initial startup:

1. The type or types of waste to be burned.

2. The maximum design waste burning capacity.

3. The anticipated maximum charge rate.

4. If applicable, the petition for site-specific operating limits under sub. (6)(c).

5. The anticipated date of initial startup.

(f) *What information must I submit following my initial performance test?* You shall submit the information specified in subds. 1. to 3. no later than 60 days following the initial performance test. All reports shall be signed by the facility's manager. The required information is as follows:

1. The complete test report for the initial performance test results obtained under sub. (8)(a), as applicable.

2. The values for the site-specific operating limits established in sub. (6)(b) or (c).

3. If you are using a fabric filter to comply with the emission limitations, documentation that a bag leak detection system has been installed and is being operated, calibrated and maintained as required by sub. (10)(a)2.

(g) *When must I submit my annual report?* You shall submit an annual report no later than 12 months following the submission of the information in par. (f). You shall submit subsequent reports no later than 12 months following the previous report.

Note: If the unit is subject to permitting requirements under Title V of the Act (42 USC 7661 to 7661f), you may be required by the permit to submit these reports more frequently.

(h) *What information must I include in my annual report?* The annual report required under par. (g) shall include the 10 items listed in subds. 1. to 10. If you have a deviation from the operating limits or the emission limitations, you shall also submit deviation reports as specified in pars. (i), (j) and (k).

1. Company name and address.

2. Statement by a responsible official, with that official's name, title and signature, certifying the accuracy of the content of the report.

3. Date of report and beginning and ending dates of the reporting period.

4. The values for the operating limits established pursuant to sub. (6)(b) or (c).

5. If no deviation from any emission limitation or operating limit that applies to you has been reported, a statement that there was no deviation from the emission limitations or operating limits during the reporting period, and that no monitoring system used to determine compliance with the operating limits was inoperative, inactive, malfunctioning or out of control.

6. The highest recorded 3-hour average and the lowest recorded 3-hour average, as applicable, for each operating parameter recorded for the calendar year being reported.

7. Information recorded under par. (a)2.f. and 3. to 5. for the calendar year being reported.

8. If a performance test was conducted during the reporting period, the results of that test.

9. If you met the requirements of sub. (9)(c)1. or 2., and did not conduct a performance test during the reporting period, you shall state that you met the requirements of sub. (9)(c)1. or 2., and therefore you were not required to conduct a performance test during the reporting period.

10. Documentation of periods when all qualified CISWI unit operators were unavailable for more than 8 hours, but less than 2 weeks.

(i) *What else must I report if I have a deviation from the operating limits or the emission limitations?* 1. You shall submit a deviation report if any recorded 3-hour average parameter level is above the maximum operating limit or below the minimum operating limit established under this section, if the bag leak detection system alarm sounds for more than 5% of the operating time for the 6-month reporting period, or if a performance test was conducted that showed an exceedance of any emission limitation.

2. The deviation report shall be submitted by August 1 of that year for data

collected during the first half of the calendar year (January 1 to June 30) and by February 1 of the following year for data you collected during the second half of the calendar year (July 1 to December 31).

(j) *What must I include in the deviation report?* In each report required under par. (i), for any pollutant or parameter that deviated from the emission limitations or operating limits specified in this section, include the following 6 items:

1. The calendar dates and times your unit deviated from the emission limitations or operating limit requirements.

2. The averaged and recorded data for those dates.

3. Durations and causes of each deviation from the emission limitations or operating limits and your corrective actions.

4. A copy of the operating limit monitoring data during each deviation and any test report that documents the emission levels.

5. The dates, times, number, duration and causes for monitor downtime incidents (other than downtime associated with zero, span and other routine calibration checks).

6. Whether each deviation occurred during a period of startup, shutdown or malfunction, or during another period.

(k) *What else must I report if I have a deviation from the requirement to have a qualified operator accessible?* 1. If all qualified operators are not accessible for 2 weeks or more, you shall take the following 2 actions:

a. Submit a notification of the deviation within 10 days that includes the following 3 items:

1) A statement of what caused the deviation.

2) A description of what you are doing to ensure that a qualified operator is accessible.

3) The date when you anticipate that a qualified operator will be available.

b. Submit a status report to the department every 4 weeks that includes the following 3 items:

1) A description of what you are doing to ensure that a qualified operator is accessible.

2) The date when you anticipate that a qualified operator will be accessible.

3) A request for approval from the department to continue operation of the CISWI unit.

2. If your unit was shut down by the department, under the provisions of sub. (5)(g)2.b., due to a failure to provide an accessible qualified operator, you shall notify the department that you are resuming operation once a qualified operator is accessible.

(L) *Are there any other notifications or reports that I must submit?* You shall also submit notifications as provided by s. NR 440.07.

(m) *In what form can I submit my reports?* You shall submit initial, annual and deviation reports electronically or in paper format, postmarked on or before the submittal due dates.

(n) *Can reporting dates be changed?* If the administrator agrees, you may change the semiannual or annual reporting dates. Section NR 440.185(3) establishes procedures to seek approval to change your reporting date.

(12) TITLE V OPERATING PERMITS. *Am I required to apply for and obtain a title V operating permit for my unit?* Each CISWI unit shall operate pursuant to a part 70 source permit issued under ch. NR 407.

(13) AIR CURTAIN INCINERATORS. (a) *What if I restrict the materials burned in an air curtain incinerator?* Air curtain incinerators that burn only the following materials are only required to meet the requirements under this subsection:

1. 100% wood waste.

2. 100% clean lumber.

3. 100% mixture of only wood waste, clean lumber or yard waste.

(b) *What are the emission limitations for air curtain incinerators?* 1. Within 60 days after your air curtain incinerator reaches the charge rate at which it will operate, but no later than 180 days after its initial startup, you shall meet the following 2 limitations:

a. The opacity limitation is 10% (6-minute average) except as described in subd. 1.b.

b. The opacity limitation is 35% (6-minute average) during the startup period that is within the first 30 minutes of operation.

2. Except during malfunctions, the requirements of this subsection apply at all times, and each malfunction may not exceed 3 hours.

(c) *How must I monitor opacity for air curtain incinerators?* 1. You shall use Method 9 of 40 CFR part 60, Appendix A, incorporated by reference in s. NR 440.17(1), to determine compliance with the opacity limitation.

2. You shall conduct an initial test for opacity as specified in s. NR 440.08.

3. After the initial test for opacity, you shall conduct annual tests no more than 12 calendar months following the date of your previous test.

(d) *What are the recordkeeping and reporting requirements for air curtain incinerators?* 1. Prior to commencing construction on your air curtain incinerator, you shall submit the following 3 items:

a. Notification of your intent to construct the air curtain incinerator.

b. Your planned initial startup date.

c. Types of materials you plan to burn in your air curtain incinerator.

2. You shall keep records of the results of all initial and annual opacity tests onsite in either paper copy or electronic format, unless the department approves another format, for at least 5 years.

3. You shall make all records available for submittal to the department or for an inspector's onsite review.

4. You shall submit the results(each 6-minute average) of the initial opacity tests no later than 60 days following the initial test. You shall submit annual opacity test results within 12 months following the previous report.

5. You shall submit initial and annual opacity test reports as electronic or paper copy on or before the applicable submittal date.

6. You shall keep a copy of the initial and annual reports onsite for a period of 5 years.

Table 1. Emission Limitations

For the air pollutant:	You shall meet this emission limitation[a]:	Using this averaging time:	And determining compliance using this method[b]:
1. Cadmium	0.004 milligrams per dry standard cubic meter	3-run average (1 hour minimum sample time per run)	Performance test (Method 29 of 40 CFR part 60, Appendix A)
2. Carbon monoxide	157 parts per million by dry volume	3-run average (1 hour minimum sample time per run)	Performance test (Method 10, 10A or 10B of 40 CFR part 60, Appendix A)
3. Dioxins/furans (toxic equivalency basis)	0.41 nanograms per dry standard cubic meter	3-run average (1 hour minimum sample time per run)	Performance test (Method 23 of 40 CFR part 60, Appendix A)
4. Hydrogen chloride	62 parts per million by dry volume	3-run average (1 hour minimum sample time per run)	Performance test (Method 26A of 40 CFR part 60, Appendix A)
5. Lead	0.04 milligrams per dry standard cubic meter	3-run average (1 hour minimum sample time per run)	Performance test (Method 29 of 40 CFR part 60, Appendix A)
6. Mercury	0.47 milligrams per dry standard cubic meter	3-run average (1 hour minimum sample time per run)	Performance test (Method 29 of 40 CFR part 60, Appendix A)
7. Opacity	10%	6 minute average	Performance test (Method 9 of 40 CFR part 60, Appendix A)
8. Oxides of nitrogen	388 parts per million by dry volume	3-run average (1 hour minimum sample time per run)	Performance test (Method 7, 7A, 7C, 7D or 7E of 40 CFR part 60, Appendix A)
9. Particulate matter	70 milligrams per dry standard cubic meter	3-run average (1 hour minimum sample time per run)	Performance test (Method 5 or 29 of 40 CFR part 60, Appendix A)
10. Sulfur dioxide	20 part per million by dry volume	3-run average (1 hour minimum sample time per run)	Performance test (Method 6 or 6C of 40 CFR part 60, Appendix A)

[a] All emission limitations, except for opacity, are measured at 7% oxygen, dry basis at standard conditions.

[b] The methods in Appendix A of 40 CFR part 60 are incorporated by reference in s. NR 440.17(1).

Table 2. Operating Limits for Wet Scrubbers

For these operating parameters	You shall establish these operating limits	And monitor using these frequencies		
		Data measurement	Data recording	Averaging time
1. Charge rate	Maximum charge rate	Continuous	Every hour	Daily (batch units); 3-hour rolling (continuous and intermittent units)[a]
2. Pressure drop across the wet scrubber or amperage to wet scrubber	Minimum pressure drop or amperage	Continuous	Every 15 minutes	3-hour rolling[a]
3. Scrubber liquor flow rate	Minimum flow rate	Continuous	Every 15 minutes	3-hour rolling[a]
4. Scrubber liquor pH	Minimum pH	Continuous	Every 15 minutes	3-hour rolling[a]

[a] Calculated each hour as the average of the previous 3 operating hours.

Table 3. Toxic Equivalency Factors

Dioxin/furan congener	Toxic equivalency factor
1. 2,3,7,8-tetrachlorinated dibenzo-p-dioxin	1
2. 1,2,3,7,8-pentachlorinated dibenzo-p-dioxin	0.5
3. 1,2,3,4,7,8-hexachlorinated dibenzo-p-dioxin	0.1
4. 1,2,3,7,8,9-hexachlorinated dibenzo-p-dioxin	0.1
5. 1,2,3,6,7,8-hexachlorinated dibenzo-p-dioxin	0.1
6. 1,2,3,4,6,7,8-heptachlorinated dibenzo-p-dioxin	0.01
7. octachlorinated dibenzo-p-dioxin	0.001
8. 2,3,7,8-tetrachlorinated dibenzofuran	0.1
9. 2,3,4,7,8-pentachlorinated dibenzofuran	0.5
10. 1,2,3,7,8-pentachlorinated dibenzofuran	0.05
11. 1,2,3,4,7,8-hexachlorinated dibenzofuran	0.1
12. 1,2,3,6,7,8-hexachlorinated dibenzofuran	0.1
13. 1,2,3,7,8,9-hexachlorinated dibenzofuran	0.1
14. 2,3,4,6,7,8-hexachlorinated dibenzofuran	0.1
15. 1,2,3,4,6,7,8-heptachlorinated dibenzofuran	0.01
16. 1,2,3,4,7,8,9-heptachlorinated dibenzofuran	0.01
17. octachlorinated dibenzofuran	0.001

Table 4. Summary of Reporting Requirements[a]

Report	Due date	Contents	Reference
1. Preconstruction report	Prior to commencing construction	a. Statement of intent to construct. b. Anticipated date of commencement of construction. c. Documentation for siting requirements. d. Waste management plan. e. Anticipated date of initial startup.	s. NR 440.77(11)(d)
2. Startup notification	Prior to initial startup	a. Type of waste to be burned. b. Maximum design waste burning capacity. c. Anticipated maximum charge rate. d. If applicable, the petition for site-specific operating limits.	s. NR 440.77(11)(e)
3. Initial test report	No later than 60 days following the initial performance test	a. Complete test report for the initial performance test. b. The values for the site-specific operating limits. c. Installation of bag leak detection system for fabric filter.	s. NR 440.77(11)(f)
4. Annual report	No later than 12 months following the submission of the initial test report. Subsequent reports shall be submitted no more than 12 months following the previous report.	a. Name and address. b. Statement and signature by responsible official. c. Date of report. d. Values for the operating limits. e. If no deviations or malfunctions were reported, a statement that no deviations occurred during the reporting period. f. Highest recorded 3-hour average and the lowest 3-hour average, as applicable, for each operating parameter recorded for the calendar year being reported. g. Information for deviations or malfunctions recorded under sub.	s. NR 440.77(11)(g) and (h)

		(11)(a)2.f. and 3. to 5. h. If a performance test was conducted during the reporting period, the results of the test. If a performance test was not conducted during the reporting period, a statement that the requirements of sub. (9)(c)1. or 2. were met. i. Documentation of periods when all qualified CISWI unit operators were unavailable for more than 8 hours but less than 2 weeks.	
5. Emission limitation or operating limit deviation report	By August 1 of that year for data collected during the first half of the calendar year. By February 1 of the following year for data collected during the second half of the calendar year.	a. Dates and times of deviation. b. Averaged and recorded data for those dates. c. Duration and causes of each deviation and the corrective actions taken. d. Copy of operating limit monitoring data and any test reports. e. Dates, times and causes for monitor downtime incidents. f. Whether each deviation occurred during a period of startup, shutdown or malfunction.	s. NR 440.77(11)(i) and (j)
6. Qualified operator deviation notification	Within 10 days of deviation	a. Statement of cause of deviation. b. Description of efforts to have an accessible qualified operator. c. The date a qualified operator will be accessible.	s. NR 440.77(11)(k)1.a.
7. Qualified operator deviation status report	Every 4 weeks following deviation	a. Description of efforts to have an accessible qualified operator. b. The date a qualified operator will be accessible. c. Request for approval to continue operation.	s. NR 440.77(11)(k)1.b.
8. Qualified operator deviation notification of resumed operation	Prior to resuming operation	a. Notification that you are resuming operation.	s. NR 440.77(11)(k)2.

[a] This table is only a summary. See the referenced sections of the rule for the complete requirements.

SECTION 358. TERMINOLOGY CHANGES.

(1) Wherever an equal sign appears in the following sections of the code, the term “is the” is substituted: NR 440.53(2)(b)1. to 25., 440.57(2)(b)4. to 6., 440.58(2)(b)4. to 7. and 9., 440.63(2)(b)3. to 6.

(2) Wherever an equal sign appears in the following sections of the code, the word “is” is substituted: NR 440.56(2)(b)1. to 25., 440.57(2)(b)1. to 3. and 7. to 23., 440.58(2)(b)1. to 3., 8. and 10. to 24., 440.63(2)(b)1., 2., and 7. to 25.

(3) Wherever an equal sign appears in the following sections of the code, the word "denotes" is substituted: NR 440.56(2)(c)1. to 4., 440.71 Table 1B, footnote b, 440.74 Table 1B, footnote a.

(4) Wherever "Q_s=Vent" appears in the following section of the code, the phrase "Q_s is the Vent" is substituted: NR 440.705 Table 1 subheadings.

(5) Wherever "Y_s=Dilution" appears in the following section of the code, the phrase "Y_s is the Dilution" is substituted: NR 440.705 Table 1 subheading.

SECTION 359. STYLE CHANGES. As requested in the Legislative Council Rules Clearinghouse report for Clearinghouse Rule 06-109, comment 2.f., please number entries in tables in the following sections of the code:

(1) s. NR 440.19(6)(c)3.

(2) s. NR 440.20(5)(a)1. and 2.

(3) s. NR 440.20(7)(i)3.

(4) s. NR 440.205(9)(e)2.

(5) s. NR 440.24(5)(d)(Note)

(6) s. NR 440.46(3)(a)2.

(7) s. NR 440.48(4)(c)1.a.2)

(8) s. NR 440.53(4)(c)1.a.3)

(9) s. NR 440.57(4)(b)1.a.3)

(10) s. NR 440.62(2)(a)1.c.

(11) s. NR.440.63(4)(b)2.a.1)

(12) s. NR 440.647(1)(d)

(13) s. NR 440.675(8)

(14) s. NR 440.684(4)(b)

(15) s. NR 440.705(5)(e)1.a.

(16) s. NR 440.72(4)(b)2.a.4)

SECTION 360. EFFECTIVE DATE. This rule shall take effect on the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22 (2) (intro.), Stats.

SECTION 361. BOARD ADOPTION. This rule was approved and adopted by the State of Wisconsin Natural Resources Board on _______________________.

Dated at Madison, Wisconsin _________________________________.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By__________________________________
Matt Frank, Secretary

(SEAL)