CR 91-105

RULES CERTIFICATE

STATE OF WISCONSIN)
) SS
DEPT. OF INDUSTRY,)
LABOR & HUMAN RELATIONS)

RECEIVED
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Bureau

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, Carol Skornicka, Secretary of the Department of Industry, Labor and Human Relation, and custodian of the official records of said department, do hereby certify the the annexed rule(s) relating to private sewage systems (Subject) were duly approved and adopted by this department on March 16, 1992 (Date).

I further certify that said copy has been compared by me with the original on file in the department and that the same is a true copy thereof, and of the whole of such original.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the department at 8:00 a.m. in the city of Madison, this 16th day of March A.D. 19 92.

Carol Skornicka
Secretary

5-1-92

ORDER OF ADOPTION

Pursuant to authority vested n the Department of Industry, Labor and Human Relations by section(s)

101.02 (1) and 145.02 (2),

Stats., the Department of Industry, Labor and Human Relations [X] creates; [X] amends;

[X] repeals and recreates; [X] repeals and adopts rules of Wisconsin Administrative Code chapter(s):

ILHR 81-87 (Number) Plumbing Code (Title)

The attached rules shall take effect on the first day of the month following publication in the Wisconsin Administrative Register pursuant to section 227.22, Stats.

RECEIVED

MAR 16 1992

Revisor of Statutes Bureau

Adopted at Madison, Wisconsin this

date: March 16, 1992

DEPARTMENT OF INDUSTRY, LABOR AND HUMAN RELATIONS

Secretary

State of Wisconsin \ Department of Industry, Labor and Human Relations

RULES in FINAL DRAFT FORM

Rule: Chapter ILHR 83 and s. ILHR 84.30

Relating to: Miscellaneous Changes to the Private Sewage Systems Code

The Wisconsin Department of Industry, Labor and Human Relations proposes an order to: repeal ILHR 83.056, 83.125, Tables 13, 14 and 16, 83.15 (4) (e), 83.23 (2) (intro), 83.23 (3) and 84.30 (2) (d) 3; renumber ILHR 83.14 (4) (f) as 83.14 (4) (e), 83.23 (4) as 83.23 (3) and 84.30 (2) (d) 4 as 84.30 (2) (d) 3; amend ILHR 82.40 (8) (b) 1 and 2, 83.04 (6) (c) 1 a, 83.13 (6) (b), 84.30 (2) (c) and (d), and 84.30 (2) (e); repeal and recreate ILHR 83.02 (18), 83.09 (4n), 83.12 (3) and Table 1, 83.12 (4) (intro), 83.14 (2) (a), 83.14 (2) (c), Table 4, 83.14 (5) (a), 83.15 (2) (g) to (i), 83.15 (4) (a), 83.15 (5) and (5) (d), 83.15 (6), 83.18 (7) (a) and (e), 83.18 (8), Table 17 (titles) to Table 28 (titles), 83.23 (1) (a), 83.23 (1) (d) and (e), 83.23 (2) (a), 83.23 (2) (d) 1 (intro) and a, 83.23 (2) (e) 1, 83.23 (2) (g) and (h), and Table 84.30-5 (title); and create ILHR 83.02 (54m), 83.14 (5) (d) 4, 83.18 (8), Tables 1a, 1b, 4a, 12m, and 14, 83.23 (2) (d) 1 am, 83.23 (2) (g) and (h), and 84.30 (2) (i); relating to soil and site characteristics for design and placement of various components of private sewage systems.

* *

ANALYSIS OF RULES

Statutory authority: ss. 101.02 (1) and 145.02 (2), Stats.
Statutes interpreted: s. 145.02 (1), Stats.

This rule revision has been developed primarily for the following reasons:

1. To eliminate or substantially reduce the number of routine petitions the Department approves relative to soil and site criteria for mound system designs to replace an existing private sewage systems, the use of dual pumps in lieu of one-day reserve capacity in pump tanks, and the setback distances for system components;
2. To allow the owner and designer more flexibility in system placement and design in providing equivalence to the intent of the code;
3. To substantially reduce the cost and time delays to the public related to the filing of a petition; and
4. To provide consistency within the code with chapters ILHR 82 and 84, correct material specifications, format and cross references.

Total Petitions Received Relative to This Rule Revision [a]

Calendar Year	Number	Calendar Year	Number
1987	697	1989	623
1988	699	1990	573

[a] Information gathered from Wisconsin Plumbing Codes Reports, February 1987 through January 1991.

These rule revisions have been routed to the Department of Natural Resources for their approval, as specified in s. 144.025, Stats.

The proposed revisions involve:

ILHR 82.40 (8) (b) 1 and 2 This section is amended to clarify the setback distances for all sewage treatment tanks, which include septic tanks and holding tanks.

ILHR 83.02 (18) This definition is repealed and recreated to reflect recent statutory changes included in 1991 Wisconsin Act 31.

ILHR 83.02 (54m) The definition of soil horizon, previously included in s. ILHR 83.056 is now placed with the other definition of terms used in this chapter.

ILHR 83.04 (6) (c) 1 a This section is amended to reflect the renumbering of s. ILHR 83.18 (8) to 83.18 (9).

ILHR 83.056 This section is repealed in its entirety because all reference for variances was limited to mound systems and defined variances only for existing systems. Portions of this section are now included in section ILHR 83.02 Definitions and other portions are duplicated in other sections of this chapter.

ILHR 83.09 (4n) This section is repealed and recreated to clarify the use of the conditions where percolation test results and soil evaluation procedures are used in system sizing relative to when these tests are filed with the county.

ILHR 83.12 (3) and Tables 1 and 1a These tables are amended and created, respectively to reflect the use of soil evaluation procedures and percolation test results.

ILHR 83.12 (4) (intro) and Table 1b This section is amended and the table is created to clarify methods used to calculate sizing of soil absorption areas.

ILHR 83.125 This section is repealed as the issue is covered in another section of this chapter.

ILHR 83.13 (6) (b) This section is amended to delete an incorrect cross reference.

ILHR 83.14 (2) (a) and (c) and Tables 4 and 4a These sections are repealed and recreated to clarify the calculations and use of Tables 4 and 4a to determine sizing of soil absorption systems.

ILHR 83.14 (5) (a) This section is revised due to the repeal of the pump information within the mound design section.

ILHR 83.14 (5) (d) 4 This section requires amendments to clarify the allowance of duplex pumps within a single dosing tank or compartment.

ILHR 83.15 (2) (g) to (i) The changes made to the manhole riser in other sections requires changes to this section for conformance to other code sections.

ILHR 83.15 (4) (a) and Table 12m Setback distances for installation of treatment tanks, dosing chambers, suction lines and holding tanks have been modified to provide a distance that will continue to assure that effluent will not create a health or safety hazard. In a number of cases these petitions originate from owners of existing systems where there have been additions to or modifications of the structure being served, thus the existing tanks or components of private sewage systems are no longer within the setback distances as specified in the code.

ILHR 83.15 (4) (e) and (f) Paragraph (e) is repealed since the standards are listed in other portions of the code; paragraph (f) is then renumbered (e).

ILHR 83.15 (5) and (5) (a) These sections are recreated for clarification and to be consistent with other portions of the code.

Table 13 This table, which lists the minimum capacity of pump tanks, is repealed; information is clarified in s. ILHR 83.15.

ILHR 83.15 (6) Portions of this subsection needed clarification due to cross referencing in s. ILHR 83.15 (3) to (5).

ILHR 83.18 (7) (a) and (e) These sections are recreated such that reference to other types of tanks is standardized.

ILHR 83.18 (9) This section is created to allow the installation of a suction line to provide service, and outline installation specifications for floodplain construction. The criteria as specified will provide equivalence to the code and ease in the servicing and maintenance of holding tanks.

ILHR 83.18 (8) This section is revised to clarify the requirements for installation of holding tanks in floodplains.

ILHR 83.23 (1) (a) This section is recreated to allow for the installation of mounds replacing existing private sewage systems on slopes up to 20%.

Table 14 This table has been recreated to clarify the minimum depth to site and soil factors for mound installation.

ILHR 83.23 (1) (d) This paragraph is recreated to clearly indicate the depth to groundwater for new mounds and mounds replacing existing private sewage systems.

ILHR 83.23 (1) (e) This paragraph is recreated to clarify the maximum slope requirements for installation of mounds and mounds replacing existing private sewage systems.

ILHR 83.23 (2) (intro) and (2) (a) These sections are recreated to allow for the use of additional sand fill for mounds replacing existing private sewage systems to provide equivalence to the 3-foot separation distance. Formulas have been provided to more accurately calculate the sand fill depth which will provide the 3-foot separation.

Table 14 This table is created for ease and readability to list information previously included as text format.

ILHR 83.23 (2) (d) 1 (intro) and (2) (d) 1 a These sections are recreated to clearly indicate the formula to be used in calculating sand fill depth for new mounds and mounds replacing existing private sewage systems.

ILHR 83.23 (2) (a) 1 am This paragraph is created to allow for use of formulas in calculating mound height.

ILHR 83.23 (2) (e) 1 This section is repealed and recreated to list the tables used to estimate the basal area of mounds.

Table 16 This table is repealed as the information has been included in Table 4, 4a or 0.

ILHR 83.23 (2) (g) and (h) These sections are repealed and recreated to clarify items necessary for proper pump selections.

Table 17 (titles) to Table 28 (titles) The titles of these tables for mound dimensions are recreated to clarify the use of these tables for public buildings.

ILHR 83.23 (3) This section is repealed since title changes for Tables 17 to 28 have been clarified.

ILHR 83.23 (4) This section is renumbered sub. (3).

ILHR 84.30 (2) (c) and (d) 1 These sections are amended to differentiate between piping materials approved for use in pressurized and nonpressurized systems.

ILHR 84.30 (2) (d) 3 This subsection is repealed since the topic is covered in s. ILHR 84.30 (2) (d) 3.

ILHR 84.30 (2) (e) This section is amended to reflect correct code section citation.

ILHR 84.30 (2) (i) This section is created to make reference to Table 84.30-5.

Table 84.30-5 (title) The title is amended to include the use for service suction lines on holding tanks.

APPENDIX Material is included: forms for soil evaluation and dosing tanks cross section showing the tank capacities as now enumerated in the chapter.

SECTION 1. ILHR 82.40 (8) (b) 1 and 2 is amended to read:

ILHR 82.40 (8) (b) Location. 1. Water supply piping may not be located in, under or above sanitary sewer manholes, ~~septic~~ sewage treatment tanks, holding tanks, dosing tanks, distribution boxes, soil absorption areas or seepage pits for private sewage systems.

2. Water supply piping shall be located at least 10 feet horizontally away from a ~~septic~~ sewage treatment tank, holding tank, dosing tank, distribution box, or soil absorption area for a private sewage system.

SECTION 2. ILHR 83.02 (18) is repealed and recreated to read:

ILHR 83.02 (18) "Failing private sewage system" has the meaning as given in s. 145.245 (4), Stats.

Note: Section 145.245 (4), Stats., reads: "A failing private sewage system is one which causes or results in any of the following conditions: (a) the discharge of sewage into surface water or groundwater; (b) the introduction of sewage into zones of saturation which adversely affects the operation of a private sewage systems; (c) the discharge of sewage to a drain tile or into zones of bedrock; (d) the discharge of sewage to the surface of the ground; (e) the failure to accept sewage discharges and back up of sewage into the structure served by the private sewage system."

SECTION 3. ILHR 83.02 (54m) is created to read:

ILHR 83.02 (54m) "Soil horizon" means any layer of soil or soil material occurring approximately parallel to the land surface and differing from adjacent layers in physical, chemical, and biological properties or characteristics, including but not limited to color, texture, structure and consistency. Some types of soil horizons include:

(a) The "A" horizon means a mineral horizon that formed at the surface and is characterized by an accumulation of organic matter intimately mixed with the mineral fraction;

(b) The "B" horizon means a mineral horizon that formed below an "A" or "E" horizon and is dominated by concentrations of silicate clay, iron, aluminum, gypsum or silica; and

(c) The "E" horizon means a mineral horizon in which the main feature is the loss of silicate clay, iron, aluminum or a combination of these leaving a concentration of sand and silt particles of quartz or other resistant minerals.

SECTION 4. ILHR 83.04 (6) (c) 1 a is amended to read:

ILHR 83.04 (6) (c) 1. a. Holding tanks ~~that are flood proofed in accordance with county and state flood plain standards. [See s. ILHR 83.18 (8)].~~ flood proofed in accordance with s. ILHR 83.18 (9); or

SECTION 5. ILHR 83.056 is repealed.

SECTION 6. ILHR 83.09 (4n) is repealed and recreated to read:

ILHR 83.09 (4n) PERCOLATION TEST RESULTS FOR SIZING ABSORPTION SYSTEMS. The sizing of soil absorption systems shall be based upon either:

(a) Tables 1 and 4 if percolation test results are filed with the county, in accordance with sub. (1), prior to July 1, 1991; or

(b) Tables 1a, 1b, and 4a if percolation test results are filed with the county in accordance with sub. (1) after July 1, 1991;

(c) Table 0 if soil evaluation reports as specified in sub. (4m) are filed with the county, in accordance with sub. (1).

Note: Forms supplied by the department for use as specified in ss. ILHR 83.09 (4m) and (4n) are included in the Appendix.

SECTION 7. ILHR 83.12 (3) and Table 1 are repealed and recreated to read:

ILHR 83.12 (3) SIZING - RESIDENTIAL SYSTEMS. (a) Sizing based upon percolation tests. The minimum amount of soil absorption area for a gravity flow system to serve a one- or 2-family dwelling based upon percolation results shall be determined in accordance with either Table 1 or Table 1a depending upon:

1. When the percolation results have been filed with the county as specified in s. ILHR 83.09 (1);

2. The total number of bedrooms contained within the dwelling; and

3. The method of absorption-- trench, bed or pit.

(b) Sizing based upon soil evaluation. The minimum amount of soil absorption area for a gravity flow system to serve a one- or 2-family dwelling based upon soil evaluation conducted in accordance with s. ILHR 83.09 (4m) shall be determined by dividing the wastewater flow of 150 gallons per day per bedroom by the appropriate loading factor specified in Table 0.

Table 1

MINIMUM SOIL ABSORPTION AREAS
FOR ONE- AND 2-FAMILY DWELLINGS
BASED UPON PERCOLATION TEST RESULTS
FILED PRIOR TO JULY 1, 1991

Percolation Rate	Minimum Absorption Area (square feet)		
(minutes per inch)	Trenches (bottom area)	Beds (bottom area)	Pits (sidewall area)
0 to less than 10	165	205	165
10 to less than 30	250	315	250
30 to less than 45	300	375	300
45 to 60	330	415	330

SECTION 8. ILHR 83.12 Table 1a is created to read:

Table 1a

MINIMUM SOIL ABSORPTION AREAS
FOR ONE- AND 2-FAMILY DWELLINGS
BASED UPON PERCOLATION TEST RESULTS
FILED ON OR AFTER JULY 1, 1991

Percolation Rate	Minimum Absorption Area (square feet)		
(minutes per inch)	Trenches (bottom area)	Beds (bottom area)	Pits (sidewall area)
0 to less than 10	195	240	195
10 to less than 30	275	350	275
30 to less than 45	315	390	315
45 to 60	330	415	330

SECTION 9. ILHR 83.12 (4) (intro) is repealed and recreated to read:

ILHR 83.12 (4) SIZING PUBLIC BUILDING SYSTEMS. (a) Sizing based upon percolation tests. 1. The minimum amount of soil absorption area for a gravity flow system to serve a building or structure other than a one- or 2-family dwelling based upon percolation results shall depend upon:

a. The type of occupancies or uses contained within the building or structure; and

b. The method of absorption--trench, bed or pit.

2. The minimum amount of soil absorption area for a gravity flow system to serve a building or structure other than a one- or 2-family dwelling based upon percolation results shall be determined by using Tables 1b and 2, and the following formula:

Minimum Soil Absorption Area (sq ft) = (Soil Absorption Area, Table 1b) x (Factor in Column 3, Table 2) x (Number of Units in Column 2, Table 2)

(b) Sizing based upon soil evaluation. The minimum amount of soil absorption area for a gravity-flow system to serve a building or structure other than a one- or 2-family dwelling based upon soil evaluation conducted in accordance with s. ILHR 83.09 (4m) shall be determined by dividing the appropriate wastewater flow as specified in Table 12 by the appropriate loading factor specified in Table 0.

SECTION 10. ILHR 83.12 Table 1b is created to read:

Table 1b

MINIMUM SOIL ABSORPTION AREAS FOR PUBLIC BUILDINGS AND STRUCTURES BASED UPON PERCOLATION TEST RESULTS

Percolation Rate (minutes per inch)	Minimum Absorption Area (square feet)		
	Trenches (bottom area)	Beds (bottom area)	Pits (sidewall area)
0 to less than 10	110	140	110
10 to less than 30	165	205	165
30 to less than 45	200	250	200
45 to 60	220	280	220

[Note to Revisor: Place Table 1b immediately following s. ILHR 83.12 (4) (b).]

SECTION 11. ILHR 83.125 is repealed.

SECTION 12. ILHR 83.13 (6) (b) is amended to read:

ILHR 83.13 (6) (b) Distribution of effluent. Effluent ~~should~~ shall be distributed equally ~~to all distribuion pipes~~ throughout the distribution network. Distribution of effluent to seepage trenches on sloping sites may be accomplished by utilizing a drop box design. Where dosing is required, the siphon or pump shall discharge a dose of minimum capacity equal to 75% of the combined volume of the distribution piping in the absorption system. ~~See s. ILHR 83.12 (1) (b).~~ When dosing is required, the dosing frequency shall be a maximum 4 times daily.

SECTION 13. ILHR 83.14 (2) (a) is repealed and recreated to read:

ILHR 83.14 (2) (a) Sizing. The required soil absorption area shall be determined by dividing the total daily wastewater flow by the design loading rate.

SECTION 14. ILHR 83.14 (2) (c) and Table 4 are repealed and recreated to read:

ILHR 83.14 (2) (c) Design loading rate. 1. Loading rates based on percolation test results shall be determined using Tables 4 or 4a, depending upon when the test results were filed with the county in accordance with s. ILHR 83.09 (1).

2. Loading rates based on soil evaluation conducted in accordance with s. ILHR 83.09 (4m) shall be based on using Table 0.

[Note to Revisor: Place Tables 4 and 4a immediately following s. ILHR 83.14 (2) (c).]

Table 4

MAXIMUM DESIGN LOADING RATES
BASED UPON PERCOLATION TEST RESULTS
FILED PRIOR TO JULY 1, 1991

Percolation Rate (minutes per inch)	Design Loading Factor (gal/sq ft/day)
0 to less than 10	1.2
10 to less than 30	0.8
30 to less than 45	0.72
45 to 60	0.4
greater than 60 to 120	0.24 [a]

[a] For mound type systems only.

SECTION 15. ILHR 83.14 Table 4a is created to read:

Table 4a

**MAXIMUM DESIGN LOADING RATES
BASED UPON PERCOLATION TEST RESULTS
FILED ON OR AFTER JULY 1, 1991**

Percolation Rate (minutes per inch)	Design Loading Factor (gal/sq ft/day)
0 to less than 10	0.8
10 to less than 30	0.6
30 to less than 45	0.5
45 to 60	0.4
greater than 60 to 120	0.3 [a]

[a] For mound type systems only.

SECTION 16. ILHR 83.14 (5) (a) is repealed and recreated to read:

ILHR 83.14 (5) (a) Pump selection. Pump selection shall be based on the pump performance curve of the model selected. Pumps shall be rated by the manufacturer for use for sewage or effluent. The pump shall be capable of providing a minimum 2.5 feet of head at all of the perforations in the distribution network.

SECTION 17. ILHR 83.14 (5) (d) 4 is created to read:

ILHR 83.14 (5) (d) 4. 'Duplex pumps.' When 2 or more pumps are employed within a dosing tank, the pumps shall be interconnected such that the pumps alternate dosing, and dosing continues in the event that one pumps fails. Failure of a pump shall activate an alarm which is to remain audible or visible until manually turned off.

SECTION 18. ILHR 83.15 (2) (g) to (i) is repealed and recreated to read:

ILHR 83.15 (2) (g) Manholes. 1. Each single-compartment tank and each unit of a multi-compartment tank shall be provided with at least one manhole opening located over either the inlet or outlet opening.

2. Manholes and manhole risers for tanks shall provide an inside clearance of no less than 24 inches in diameter.

3. A manhole or top of a manhole riser for a tank shall terminate either:

a. At or below final grade, but no deeper than 6 inches; or

b. At least 4 inches above final grade.

4. a. Tanks of steel and fiberglass shall be provided with collars to accommodate manhole risers or extensions.

b. Collars for steel tanks and fiberglass tanks shall be of the same material as the tank.

c. Collars for steel tanks and fiberglass tanks shall be at least 2 inches in height.

d. Collars for steel tanks shall be permanently welded to the tank.

e. Collars for fiberglass tanks shall be an integral part of the tank.

(h) Manhole covers. 1. Manhole risers for tanks shall be provided with a substantial, fitted, watertight cover.

2. Manhole tank covers that are not buried shall have locking devices.

3. a. Manhole covers for tanks shall have warning labels printed in red or other contrasting color affixed to the manhole covers.

b. The wording used on the warning label shall clearly indicate the hazards present when entering a sewage or other treatment tank.

4. Covers, locking devices and warning labels shall be reviewed and approved as specified in s. ILHR 84.10.

(i) Inspection opening. An inspection pipe shall be provided directly over any inlet baffle or outlet baffle for a tank compartment over which a manhole opening is not provided. An inspection pipe shall:

1. Be of a material as listed in Table 84.30-2;

2. Be at least 4 inches in diameter;

3. Terminate at least 6 inches above the adjacent final grade; and

4. Terminate with a removable watertight cap or plug.

SECTION 19. ILHR 83.15 (4) (a) is repealed and recreated to read:

ILHR 83.15 (4) INSTALLATION. (a) Location. 1. The location of sewage treatment tanks and pump and siphon tanks shall be in conformance with the setback distances listed in Table 12m.

2. a. A sewage treatment tank may not be located within a building or under a building, except as permitted in subpar. b.

b. A sewage treatment tank and pump or siphon tank may be located either under a cantilevered portion of a building or under an unenclosed deck structure, if at least 5 feet of vertical clearance for servicing purposes is provided between the top of the manhole and the obstruction.

3. No structural supports of buildings, portions of buildings, decks or porches may rest upon any portion of a sewage or other treatment tank.

Note: Pump and siphon tanks are commonly referred to as dosing tanks.

[Note to Revisor: Place Table 12m immediately following s. ILHR 83.15 (4) (a) 3.]

SECTION 20. ILHR 83.15 (4) (a) Table 12m is created to read:

TABLE 12m

MINIMUM SETBACK DISTANCES FOR TREATMENT TANKS, PUMP AND SIPHON TANKS, SERVICE SUCTION LINES AND PUMP DISCHARGE LINES

Setback Element	Horizontal Distance (feet)
All Structures, Swimming Pools [a]	5
Lot or Property Line	2
Underground Water Supply System and Cistern	10
Well [b], High Water Mark of Lake, Stream, Pond, Flowage or Reservoir	25

[a] All structures include any building and portions of buildings with any type of foundation. Swimming pools include above ground and belowground pools.

[b] For location of wells, public, private or high capacity, reference should be made to ch. NR 112. For floodplains, refer to s. ILHR 83.18 (9).

SECTION 21. ILHR 83.15 (4) (e) is repealed.

SECTION 22. ILHR 83.15 (4) (f) is renumbered 83.15 (4) (e).

SECTION 23. ILHR 83.15 (5) is repealed and recreated to read:

ILHR 83.15 (5) DOSING TANKS. (a) Material and construction. 1. 'Dosing tanks.' Dosing tanks shall be watertight and constructed of materials as specified in s. ILHR 83.20.

2. 'Review and approval.' The design of site-constructed dosing tanks shall be reviewed and approved by the department prior to installation in accordance with s. ILHR 83.08.

3. 'Manholes.' a. A dosing tank shall be provided with a manhole opening as specified in sub. (2) (g).

b. The dosing tank manhole cover shall terminate no less than 4 inches above grade and be provided with both a locking device and warning label as specified in sub. (2) (h) 1. to 3.

4. 'Label.' A dosing tank shall be labeled in accordance with sub. (2) (d).

(b) Capacity and sizing of pump tanks. The minimum liquid capacity of a dosing tank or a dosing tank compartment employing one pump shall be determined from the distance between the bottom of the tank and the level of the inlet pipe to accommodate the cummulative volumes as specified in subds. 1 to 4. The minimum liquid capacity of a dosing tank or dosing tank compartment employing multiple pumps shall accommodate the cumulative volumes as specified in subds. 2 to 4.

1. A reserve capacity shall be provided above the high-water alarm that is at least equal to the daily wastewater discharged from the building served. This volume shall be determined for one- and 2-family residences based on 100 gallons per bedroom, or by using Table 12 for other uses.

2. The dose volume shall be provided as determined by the system type as specified in s. ILHR 83.13 (6) (b) or s. ILHR 83.14 (6).

3. A liquid volume between the pump "on" setting and the alarm float level shall be provided.

4. A liquid volume shall be provided as calculated from the bottom of the tank to the pump "off" setting.

Note: See Appendix for further explanatory material.

(c) Capacity and sizing of siphon tanks. The minimum liquid capacity of a dosing tank employing a siphon shall be sufficient to accommodate volumes necessary to provide dosing as specified by the system type.

(d) Venting. 1. A dosing tank or a dosing tank compartment shall be provided with a vent that:

a. Is sized in accordance with Table 82.31-4, but not less than 2 inches in diameter; and

b. Is of a material listed in Table 84.30-2.

2. Except as provided in subd. 3, a vent serving a dosing tank or dosing tank compartment shall:

a. Terminate at least 12 inches above the adjacent final grade;

b. Terminate with a vent cap or return bend; and

c. Be located at least 10 feet horizontally from any door, window or fresh air intake.

Note: Rules of other federal or state agencies may specify greater separation distances between vents and fresh air intakes for hospitals and nursing homes.

3. A vent serving a dosing tank or a dosing tank compartment may:

a. Connect to the venting system serving a building or a structure, in which case the vent shall conform with the requirements specified in s. ILHR 82.31 (15) and (16); or

b. Be attached to the exterior of a building or a structure, in which case the vent shall conform with the requirements specified in s. ILHR 82.31 (16) (a) to (e).

SECTION 24. ILHR 83.15 Table 13 is repealed.

SECTION 25. ILHR 83.15 (6) is repealed and recreated to read:

ILHR 83.15 (6) DESIGN OF OTHER SEWAGE TREATMENT TANKS. Other types of sewage treatment tanks shall be constructed in accordance with s. ILHR 83.20. Designs for site-constructed tanks shall be reviewed and approved by the department prior to installation in accordance with s. ILHR 83.08. Designs for prefabricated tanks shall be reviewed and approved by the department in accordance with s. ILHR 84.10.

SECTION 26. ILHR 83.18 (7) (a) is repealed and recreated to read:

ILHR 83.18 (7) INSTALLATION. (a) Location. 1. Holding tanks shall be located in conformance with the setback distances listed in Table 12m.

2. The service port or manhole cover of a holding tank shall be located no more than 25 feet from a service drive or road.

SECTION 27. ILHR 83.18 (7) (e) is repealed and recreated to read:

ILHR 83.18 (7) (e) Vent. 1. A holding tank shall be provided with a vent that:

a. Is not less than 2 inches in diameter; and

b. Is of a material listed in Table 84.30-2;

2. Except as provided in subd. 3, a vent serving a holding tank shall:

a. Terminate at least 12 inches above the adjacent final grade;

b. Terminate with a vent cap or return bend; and

c. Be located at least 10 feet horizontally from any door, window or fresh air intake.

Note: Rules of other federal or state agencies may specify greater separation distances between vents and fresh air intakes for hospitals and nursing homes.

3. A vent serving a holding tank may:

a. Connect to the venting system serving a building or a structure, in which case the vent shall conform with the requirements specified in s. ILHR 82.31 (15) and (16); or

b. Be attached to the exterior of a building or a structure, in which case the vent shall conform with the requirements specified in s. ILHR 82.31 (16) (a) to (e).

SECTION 28. ILHR 83.18 (8) is repealed and recreated to read:

ILHR 83.18 (8) SERVICE SUCTION AND DISCHARGE LINES. (a) A service suction line or discharge line serving a holding tank for servicing purposes shall:

1. Be constructed of piping materials in accordance with ch. ILHR 84;

2. Terminate with a service port consisting of a quick disconnect fitting with a removable plug;

3. Have the service port of the suction line terminate at least 2 feet above final grade;

4. Have the service port identified as a sewage suction line with a permanent sign with lettering at least 1/2-inch in height;

5. Have the service port secured to a permanent support;

6. Be protected against frost in accordance with s. ILHR 82.30 (11) (b), unless the entire length of the line is drained after each pumping of the tank; and

7. Be at least 3 inches in diameter.

(b) A suction line serving a holding tank may not be installed such that the tank can be drained by gravity or by siphonic action.

(c) Where a lift station is employed for servicing the holding tank, the pump discharge line shall conform with par. (a), except that:

1. The discharge line shall be at least 2 inches in diameter; and

2. The lift station pump shall be activated by means of a keyed-switch at the service port.

SECTION 29. ILHR 83.18 (9) is created to read:

ILHR 83.18 (9) TANK IN FLOODPLAIN. (a) Vent. A vent serving a holding tank located in a floodplain shall terminate at least 2 feet above the established regional flood elevation.

(b) Anchoring. Anchoring of a holding tank located in a floodplain shall be provided to counter buoyant forces caused by a regional flood or periodic saturated soil conditions using the following formula:

Weight of the tank plus the weight of the anchor =
1.5 x (volume of water the tank displaces) x
[the weight of water (62.4 pounds/cubic foot at 39° F)].

(c) Manhole. For a holding tank located in a floodplain:

1. At least two feet of elevation shall be provided between the top of the service manhole of a holding tank and the recorded regional flood elevation, or

2. A watertight manhole cover or service port shall be provided which is threaded or bolted to the riser.

SECTION 30. ILHR 83.23 (1) (a) is repealed and recreated to read:

ILHR 83.23 (1) a. General. The installation of a mound in a floodplain or filled area is prohibited. Removal of fill material may not make a site suitable. A mound shall not be installed in a compacted area. A mound shall not be installed over a failing conventional system.

SECTION 31. ILHR 83.23 (1) Table 14 is repealed.

SECTION 32. ILHR 83.23 (1) (d) is repealed and recreated to read:

ILHR 83.23 (1) (d) Depth to groundwater. 1. Except as provided in sub. 2., a mound system shall be allowed where at least 24 inches of unsaturated natural soil exists above estimated high groundwater as indicated by soil morphological conditions.

2. A mound system replacing an existing private sewage system shall be allowed where less than 24 inches of unsaturated natural soil exists above estimated high groundwater provided that:

a. The soils are not mottled or gleyed in the "E" or "B" horizon which is within 4 inches of the bottom of the "A" horizon; and

b. The cumulative depth of sandfill, as specified in sub. (2) (d) 1. a., and depth of suitable soil provides at least 3 feet of vertical separation to high groundwater.

SECTION 33. ILHR 83.23 (1) (e) is repealed and recreated to read:

ILHR 83.23 (1) (e) Slopes. 1. A mound may not be installed on a slope which is greater than 12%, except as permitted under subd. 2.

2. A mound replacing an existing private sewage system may not be installed on a slope which is greater than 20%.

SECTION 34. ILHR 83.23 (2) (intro) is repealed.

SECTION 35. ILHR 83.23 (2) (a) is repealed and recreated to read:

ILHR 83.23 (2) MOUND DESIGN AND DIMENSIONS. (a) Design criteria. 1. A mound system to serve a building with a design daily discharge of 600 gallons or less and to be installed on a site with at least 24 inches above estimated high groundwater, bedrock, or slowly permeable soils shall be designed using:

a. Tables 17 to 28; or

b. The specifications of pars. (b) to (i).

2. A mound system to serve a building with a design daily discharge of more than 600 gallons and to be installed on a site with at least 24 inches above estimated high groundwater, bedrock, or slowly permeable soils shall be designed using the specifications of pars. (b) to (i).

3. A mound system to replace an existing private sewage system, and to be installed on a site with less than 24 inches above estimated high groundwater, bedrock, or slowly permeable soils shall be designed using the specifications of pars. (b) to (i) with the depth of sand fill (D) increased according to the formula in par. (e).

Note: The dimensions and corresponding letter designations referenced in this section are shown in Figures 1 through 5.

SECTION 36. ILHR 83.23 Table 14 is created to read:

TABLE 14

MINIMUM SAND FILL DEPTH (D) FOR MOUNDS ON SITES HAVING AT LEAST 24 INCHES ABOVE A SOIL OR SITE FACTOR

Soil or Site Factor [a]	Minimum Sand Fill Depth (D) (Inches)
Slowly Permeable Soils [b]	12
Estimated High Groundwater	12
Observed Bedrock	
creviced	24 [c]
poorly cemented sandstone	18
Strata having 50% or more rock fragments by volume	12

[a] Soil type as identified in s. ILHR 83.23 (1).
[b] Refer to s. ILHR 83.23 (1) (b) 1. or soils having loading rates 0.3 or less.
[c] Minimum depth may be reduced to 18 inches on slopes greater than 10%.

[Note to Revisor: Place Table 14 immediately after s. ILHR 83.23 (1) (d).]

SECTION 37. ILHR 83.23 (2) (d) 1 (intro) and a are repealed and recreated to read:

ILHR 83.23 (2) (d) 1. 'Mound height.' On sites the mound height shall be calculated using the following equation where: sand fill depth (D), the downslope fill depth (E), the bed or trench depth (F), and the cap and topsoil depth (H).

$$\text{Mound height} = \frac{(D + E)}{2} + F + H$$

a. For sites having at least 24 inches above estimated high groundwater, bedrock, or slowly permeable soils, the minimum sand fill depth (D) shall be 12 inches, unless otherwise specified in Table 14. For mounds replacing existing private sewage systems on sites having less than 24 inches above estimated high groundwater, bedrock, or slowly permeable soils, the sand fill depth (D) shall be based on the following calculation:

Where D = 12 inches + (24 inches - depth in inches to soil or site factor)

SECTION 38. ILHR 83.23 (2) (d) 1 am is created to read:

ILHR 83.23 (2) (d) 1. am. On a sloping site, the sand fill depth (D) placed at the downslope edge of the bed or trench shall be increased so that the bottom of the bed or trench is level. The downslope sand fill depth (E) shall be increased according to one of the following calculations:

For beds: $E = D + [(\text{slope percentage})(A)]$.

For trenches: $E = D + [(\text{slope percentage}) (C + A)]$.

SECTION 39. ILHR 83.23 (2) (e) 1 is repealed and recreated to read:

ILHR 83.23 (2) (e) Basal area. 1. The minimum basal area shall be calculated using the infiltrative capacity of the natural soil and the total daily wastewater flow.

a. When using percolation test results, the minimum basal area shall be determined by dividing the total daily wastewater flow by the infiltrative capacity of the soil as specified in Table 4 or 4a.

b. When using soil evaluation, the minimum basal area shall be determined by dividing the total daily wastewater flow by the loading rate of the soil as specified in Table 0.

SECTION 40. Table 16 is repealed.

SECTION 41. ILHR 83.23 (2) (g) is repealed and recreated to read:

ILHR 83.23 (2) (g) Pump selection. Pump selection shall be based upon the criteria specified in s. ILHR 83.14 (5).

Note: For pump and alarm controls refer to s. ILHR 83.14 (6).

SECTION 42. ILHR 83.23 (2) (h) is repealed and recreated to read:

ILHR 83.23 (2) (h) Dose volume. The dose volume shall be calculated either:

a. According to s. ILHR 83.14 (6);

b. Using the design flow from Table 12; or

c. Using 150 gallons per bedroom for one- and 2-family residences.

SECTION 43. ILHR 83.23 (3) is repealed.

SECTION 44. ILHR 83.23 Table 17 (title) is repealed and recreated to read:

TABLE 17
DESIGN CRITERIA FOR MOUND TRENCHES
LOADING RATES UP TO 150 GAL/DAY
SLOWLY PERMEABLE SOIL

SECTION 45. ILHR 83.23 Table 18 (title) is repealed and recreated to read:

TABLE 18
DESIGN CRITERIA FOR MOUND TRENCHES
LOADING RATES 151 TO 300 GAL/DAY
SLOWLY PERMEABLE SOIL

SECTION 46. ILHR 83.23 Table 19 (title) is repealed and recreated to read:

TABLE 19
DESIGN CRITERIA FOR MOUND TRENCHES
LOADING RATES 301 TO 450 GAL/DAY
SLOWLY PERMEABLE SOIL

SECTION 47. ILHR 83.23 Table 20 (title) is repealed and recreated to read:

TABLE 20
DESIGN CRITERIA FOR MOUND TRENCHES
LOADING RATES 451 TO 600 GAL/DAY
SLOWLY PERMEABLE SOIL

SECTION 48. ILHR 83.23 Table 21 (title) is repealed and recreated to read:

TABLE 21
DESIGN CRITERIA FOR MOUND BEDS
LOADING RATES UP TO 150 GAL/DAY
PERMEABLE SOIL OVER CREVICED BEDROCK

SECTION 49. ILHR 83.23 Table 22 (title) is repealed and recreated to read:

TABLE 22
DESIGN CRITERIA FOR MOUND BEDS
LOADING RATES 151 TO 300 GAL/DAY
PERMEABLE SOIL OVER CREVICED BEDROCK

SECTION 50. ILHR 83.23 Table 23 (title) is repealed and recreated to read:

TABLE 23
DESIGN CRITERIA FOR MOUND BEDS
LOADING RATES 301 TO 450 GAL/DAY
PERMEABLE SOIL OVER CREVICED BEDROCK

SECTION 51. ILHR 83.23 Table 24 (title) is repealed and recreated to read:

TABLE 24
DESIGN CRITERIA FOR MOUND BEDS
LOADING RATES 451 TO 600 GAL/DAY
PERMEABLE SOIL OVER CREVICED BEDROCK

SECTION 52. ILHR 83.23 Table 25 (title) is repealed and recreated to read:

TABLE 25
DESIGN CRITERIA FOR MOUND BEDS
LOADING RATES UP TO 150 GAL/DAY
PERMEABLE SOIL WITH HIGH GROUNDWATER

SECTION 53. ILHR 83.23 Table 26 (title) is repealed and recreated to read:

TABLE 26
DESIGN CRITERIA FOR MOUND BEDS
LOADING RATES 151 TO 300 GAL/DAY
PERMEABLE SOIL WITH HIGH GROUNDWATER

SECTION 54. ILHR 83.23 Table 27 (title) is repealed and recreated to read:

TABLE 27
DESIGN CRITERIA FOR MOUND BEDS
LOADING RATES OF 301 TO 450 GAL/DAY
PERMEABLE SOIL WITH HIGH GROUNDWATER

SECTION 55. ILHR 83.23 Table 28 (title) is repealed and recreated to read:

TABLE 28
DESIGN CRITERIA FOR MOUND BEDS
LOADING RATES 451 TO 600 GAL/DAY
PERMEABLE SOIL WITH HIGH GROUNDWATER

SECTION 56. ILHR 83.23 (4) is renumbered 83.23 (3).

SECTION 57. ILHR 84.30 (2) (c) and (d) 1 are amended to read:

ILHR 84.30 (2) (c) Sanitary building sewer pipe. ~~Except as provided in s. ILHR 83.15 (4) (e), sanitary~~ Sanitary building sewer pipe shall conform to one of the standards listed in Table 84.30-3.

(d) Effluent piping. 1. ~~Except as provided in s. ILHR 84.15 (4) (e), non-perforated~~ Nonperforated drain piping conveying effluent from a ~~septic~~ sewage treatment tank to the distribution piping of a nonpressurized soil absorption system shall conform to one of the standards listed in Table 84.30-3.

SECTION 58. ILHR 84.30 (2) (d) 3 is repealed.

SECTION 59. ILHR 84.30 (2) (d) 4 is renumbered 84.30 (2) (d) 3.

SECTION 60. ILHR 84.30 (2) (e) is amended to read:

ILHR 84.30 (2) (e) Pressurized drain pipe. Except as provided in par. ~~(f)-3~~ (d) 3, pressurized drain pipe shall conform to one of the standards listed in Table 84.30-5 and shall be rated for the working pressure and temperature for which it will be subjected for a specific installation.

SECTION 61. ILHR 84.30 (2) (i) is created to read:

ILHR 84.30 (2) (i) 'Service suction lines.' A service suction line or pump discharge line serving a holding tank for cleaning purposes shall conform to one of the standards listed in Table 84.30-5. Joints and connections for suction lines shall conform to s. ILHR 84.40. The use of mechanical joints shall be in accordance with the recommendations and instructions specified by the manufacturer.

SECTION 62. ILHR 84.30 Table 84.30-5 (title) is repealed and recreated to read:

TABLE 84.30-5

PRESSURIZED DRAIN PIPE AND TUBING
AND
SERVICE SUCTION LINES

SECTION 63. APPENDIX material is to be included:

Forms: EH-115 and SBD-8330, soil description reports

Figure 83.15-1 Pump chamber cross-section.

(end)

* *

EFFECTIVE DATE

Pursuant to s. 227.22 (2) (intro.), Stats., these rules shall take effect on the first day of the month following publication in the Wisconsin Administrative Register.

* *

JMM:cdg:2764 to 27971:5/29/91 to CODES1#54:12/05/91:rev.#14

Tommy G. Thompson
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State of Wisconsin
Department of Industry, Labor and Human Relations

March 16, 1992

Gary Poulson
Assistant Revisor of Statutes
2nd Floor
119 Martin Luther King Blvd.
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Douglas LaFollette
Secretary of State
10th Floor
30 West Mifflin Street
Madison, Wisconsin 53703

Dear Messrs. Poulson and LaFollette:

TRANSMITTAL OF RULE ADOPTION

CLEARINGHOUSE RULE NO. 91-105

RULE NO. Chapter ILHR 83 and s. ILHR 84.30

RELATING TO: Miscellaneous Changes to the Private Sewage Systems Code

Pursuant to section 227.20, Stats., agencies are required to file a certified copy of every rule adopted by the agency with the offices of the Secretary of State and the Revisor of Statutes.

At this time, the following material is being submitted to you:

1. Order of Adoption.
2. Rules Certificate Form.
3. Rules in Final Draft Form.

Pursuant to section 227.114, Stats., a summary of the final regulatory flexibility analysis is included for permanent rules. A fiscal estimate and fiscal estimate worksheet is included with an emergency rule.

Respectfully submitted,

Carol Skornicka
Secretary

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MAR 16 1992
Revisor of Statutes
Bureau