



POWTS ADVISORY CODE COUNCIL MEETING
Room 121C, 1400 East Washington Avenue, Madison
Contact: Sandra Cleveland (608) 266-0797
March 16, 2016

9:00 am

The following agenda describes the issues that the Council plans to consider at the meeting. At the time of the meeting, items may be removed from the agenda. Please consult the meeting minutes for a record of the actions of the Council.

AGENDA

OPEN SESSION – CALL TO ORDER – ROLL CALL

A. Adoption of Agenda (1)

B. Approval of Minutes of February 10, 2016 (2)

C. Department Updates

D. Council Member Updates

E. Continue Review and Consideration of Changes to SPS 381-387 and 391 (3-25)

- 1) Review SPS 384.10 (3) related to Voluntary POWTS Component Review Process
- 2) Gravity Flow At-Grade Drainfields Discussion
- 3) Begin Review of SPS 383.44 related to High Strength Wastewater
- 4) Other SPS sections as time allows

F. Future Business

- 1) Meeting date and time and agenda for next meeting

G. Public Comments

H. Adjournment

**POWTS ADVISORY CODE COUNCIL
MEETING MINUTES
February 10, 2016**

PRESENT: Thomas Birrittieri, Steven Crosby (*Arrived at 9:07 a.m.*); Dale Dimond; Alan Kaddatz; Robert Schmidt; Bryon Wooten

STAFF: Sandra Cleveland, Administrative Rules Coordinator; Bradley Johnson, Section Chief; Matthew Janzen, Private Sewage Plan Reviewer; Nifty Lynn Dio, Bureau Assistant; and other Department staff

Bryon Wooten, Chair, called the meeting to order at 9:02 a.m. A quorum of five (5) members was present.

ADOPTION OF AGENDA

MOTION: Alan Kaddatz moved, seconded by Robert Schmidt, to adopt the agenda as published. Motion carried unanimously.

APPROVAL OF MINUTES OF DECEMBER 2, 2015

MOTION: Dale Dimond moved, seconded by Alan Kaddatz, to approve the minutes from December 2, 2015 as published. Motion carried unanimously.

Steven Crosby joined the meeting at 9:07 a.m.

ADJOURNMENT

MOTION: Alan Kaddatz moved, seconded by Thomas Birrittieri, to adjourn the meeting. Motion carried unanimously.

The meeting adjourned at 1:58 p.m.

VOLUNTARY POWTS COMPONENT REVIEW

SPS 384.10

SPS 384.10 (3) VOLUNTARY POWTS COMPONENT REVIEW

SPS 384.10 Department approval. No fixture, appliance, appurtenance, material, device or product may be sold for use in a plumbing system or may be installed in a plumbing system, unless it is of a type conforming to the standards or specifications of chs. SPS 382 and 383 and this chapter and ch. 145, Stats.

(1) **ALTERNATE OR EXPERIMENTAL PRODUCT APPROVAL.** If it is alleged that the approval of a fixture, appliance, appurtenance, material, device or product under this section would result in an adverse health effect or potentially adverse health effect on the waters of the state, the department may require an alternate or experimental product approval under s. SPS 384.50.

(2) **PRODUCT REVIEW AND APPROVAL.** (a) 1. Each type of plumbing product which falls into one of the categories specified in Table 384.10 shall be approved by the department in accordance with this subsection before the product may be sold for use in a plumbing system or installed in a plumbing system.

2. Specifications and plans or drawings for each type of product shall be submitted to the department for review. The submittal shall be accompanied by sufficient data and information to determine if the product and its performance comply with the provisions of chs. SPS 382, 383 and this chapter and ch. 145, Stats.

(b) The department may require that a submitter of a product for review have the product tested and its performance certified by an approved testing laboratory.

(c) If, upon review, the department determines that a product conforms to the provisions of chs. SPS 382, 383 and this chapter and ch. 145, Stats., the department shall issue an approval in writing. The department may impose specific conditions in granting an approval. Violations of the conditions under which an approval is granted shall constitute a violation of this chapter.

(d) If, upon review, the department determines that a product does not conform to provisions of chs. SPS 382, 383 and this chapter and ch. 145, Stats., the request for approval shall be denied in writing.

(e) The department shall review and make a determination on an application for a product approval within 40 business days of receipt of all fees, plans, drawings, specifications and other information required to complete the review.

(f) If an approved plumbing product is modified or additional assertions of function or performance are made, the approval shall be considered null and void, unless the change is submitted to the department for review and the approval is reaffirmed.

(g) Approvals for plumbing products issued by the department prior to November 1, 1985, shall expire 30 months after the effective date of this section.

(h) Approvals for plumbing products issued by the department after November 1, 1985, shall expire at the end of the 60th month after the date of approval issuance.

**Table 384.10
SUBMITTALS TO DEPARTMENT**

Product Categories
1. Bottled-water vending machines that are not listed by a certification body accredited by the American National Standards Institute
2. Chemical or biochemical treatments for POWTS
3. Health care plumbing appliances
4. Physical restoration processes for POWTS
5. Prefabricated holding or treatment components for POWTS
6. Prefabricated plumbing
7. Wastewater treatment devices used to meet the requirements in s. SPS 382.70
8. Water treatment devices that make a contaminant reduction claim which is not certified by a certification body accredited by the American National Standards Institute
9. Water treatment devices that are not certified to a standard which covers material safety, by a certification body accredited by the American National Standards Institute

Note: More information about the certification bodies accredited by the American National Standards Institute (ANSI), such as the National Sanitation Foundation, is available at the ANSI website at www.ansi.org; or at 1899 L Street, NW, 11th Floor Washington, DC, 20036; or at telephone 202.293.8020.

(3) **VOLUNTARY POWTS COMPONENT REVIEW.** (a) The department may issue an approval, upon request and review, for specific methods or technologies that are proposed to be utilized as POWTS holding, treatment or dispersal components which conform to the standards or specifications referenced in chs. SPS 381, 382, 383 and this chapter, but do not require approval under sub. (2) or s. SPS 384.50.

(b) Each request for approval shall be made on a form provided by the department.

Note: See ch. SPS 384 Appendix for a reprint of the form and addresses of the department where the form may be obtained.

(c) The submittal shall be accompanied by sufficient data and information to determine if the method or technology complies with the provisions of chs. SPS 381, 382 and 383, and this chapter. The submittal shall include, but not be limited to, all of the following:

1. Plans and specifications.
2. Theory of operation.
3. Testing protocol.
4. Testing data.
5. Limits of reliable operation.
6. Installation requirements and procedures.
7. Inspection checklist and worksheet.
8. Inspection requirements and procedures.
9. Operation and maintenance requirements.
10. Operation and maintenance schedule.
11. Operation and maintenance checklist and worksheet.

(d) 1. The department shall review a submittal under this subsection with input from a technical advisory committee.

2. The members on the technical advisory committee under subd. 1. shall be appointed by the department for staggered 3-year terms and shall include representatives of at least the following groups or organizations:

- a. The department of natural resources.
- b. Local governmental unit.
- c. POWTS designer.
- d. Academic or scientific community.
- e. Plumber.
- f. Environmental group.
- g. POWTS component manufacturer.

(e) 1. After review by the technical advisory committee under par. (d) but prior to issuing an approval under par. (f), the department shall seek public comments on a submittal under this subsection.

2. a. The department shall place the notice requesting public comment under subd. 1. in the official state newspaper.

Note: The official state newspaper at the time this rule goes into effect, July 1, 2000, is the Wisconsin State Journal.

b. The department shall include a time limit for public comment in each notice.

3. If the department receives a significant amount of public comment under subd. 2., the department may elect to recognize the specific method or technology through the rule-making process under ch. 227, Stats.

(f) 1. If, upon review, the department determines that the method or technology conforms to the provisions of chs. SPS 381, 382 and 383 and this chapter, the department shall issue an approval in writing.

2. The department may impose specific conditions in granting an approval, including a provision to provide training to POWTS installers and POWTS inspectors.

3. Violations of the conditions under which an approval is granted shall constitute a violation of this chapter.

(g) If, upon review, the department determines that the method or technology does not conform to the provisions of chs. SPS 381, 382 and 383 and this chapter, the request for approval shall be denied in writing.

(h) The department shall review and make a determination on an application for a method or technology approval within 3 months of receipt of all fees, plans, drawings, specifications and other information required to complete the review, unless the department elects to review the method or technology as part of the rule-making process under ch. 227, Stats.

(i) If an approved method or technology is modified or additional assertions of function or performance are made, the approval shall be considered null and void, unless the change is submitted to the department for review and the approval is reaffirmed.

(4) REVOCATION. The department may revoke any approval issued under this section for any false statements or misrepresentation of facts on which the approval was based, or as a result of the product's failure, or if data indicate a health hazard or threat to the waters of the state.

(5) LIMITATIONS. An approval of a plumbing product by the department may not be construed as an assumption of any responsibility for defects in design, construction or performance of any product nor for any damages that may result. All products shall be installed in accordance with the manufacturer's printed instructions and as specified in chs. SPS 382 to 384. If there is a conflict between the manufacturer's printed instructions and requirements of chs. SPS 382 to 384, the requirements of chs. SPS 382 to 384 shall take precedence.

(6) FEES. Fees for product approval review shall be submitted in accordance with s. SPS 302.66.

History: Cr. Register, May, 1988, No. 389, eff. 6-1-88; correction made in (6) under s. 13.93 (2m) (b) 7., Stats., Register, February, 1994, No. 458; emerg. am. Table 84.10, (2) (a) (intro.), r. (2) (a) 2., eff. 5-12-94; renum. (2) (a) (intro.), 1. and 2. to be 1., 2. and 3., r. (2) (a) 3., am. Table 84.10, Register, October, 1994, No. 466, eff. 11-1-94; am. Table 84.10 and r. and recr. (3), Register, April, 2000, No. 532, eff. 7-1-00; r. (2) (a) 2., renum. (2) (a) (intro.) and 1. to be (2) (a) 1. and 2. and am. (2) (a) 2., am. (5), (6) and Table 84.10, Register, July, 2000, No. 535, eff. 9-1-00; am. (4) and (5), Register, December, 2000, No. 540, eff. 1-1-01; CR 02-002: am. Table Register April 2003 No. 568, eff. 5-1-03; CR 04-035: am. Table 84.10 Register November 2004, eff. 12-1-04; CR 08-055: am. Table 84.10 Register February 2009 No. 638, eff. 3-1-09; correction in (intro.), (1), (2) (a) 1., 2., (c), (d), (3) (a), (c) (intro.), (e) 3., (f) 1., (g), (5), (6), Table 384.10 made under s. 13.92 (4) (b) 7., Stats., Register December 2011 No. 672; CR 11-031: am. (3) (e) 3. Register June 2013 No. 690, eff. 7-1-13; **EmR1423: emerg. renum. Table 84.10 rows 1 to**

5 and 6 to 2 to 6 and 8 and am. 8, cr. Table rows 1 and 9, eff. 9-27-14; CR 14-056: renum. Table 84.10 rows 1 to 5 and 6 to 2 to 6 and 8 and am. 8, cr. Table rows 1 and 9 Register July 2015 No. 715, eff. 8-1-15.

MATERIALS RELATED TO PRODUCT REVIEW IN MINNESOTA AND WASHINGTON

MINNESOTA

The Technical Advisory Panel (TAP) in MN is a subcommittee of the Technical Advisory Committee (TAC) and is responsible for reviewing all products that come through the product registration process. The MN code and registration process can be found under the first link below. Also, further information concerning the TAP and the registration process is provided in the last two links.

<https://www.revisor.mn.gov/rules/?id=7083>

SSTC Technical Advisory Panel Members, Meeting Agendas, Handouts, and Minutes

<https://www.pca.state.mn.us/water/ssts-technical-advisory-panel>

Product registration process for sewage tanks, distribution media, and treatment products website includes links to rules related to product registration process.

<https://www.pca.state.mn.us/water/product-registration-process-sewage-tanks-distribution-media-and-treatment-products>

How to Use the List of Registered Treatment and Distribution Products Subsurface Sewage Treatment Systems

<https://www.pca.state.mn.us/sites/default/files/wq-wwists1-18.pdf>

WASHINGTON

List of Registered On-site Treatment and Distribution Products
As Established in Chapter 246-272A WAC

<http://www.doh.wa.gov/Portals/1/Documents/Pubs/337-024.pdf>

The Wastewater Management Program website

<http://www.doh.wa.gov/CommunityandEnvironment/WastewaterManagement>

GRAVITY FLOW AT-GRADE DRAINFIELDS

Gravity Flow At-Grade Drainfields

By Jeffrey Hammes

If you don't live or work in Southwestern Wisconsin you may be asking yourself, "What's he talking about: An above grade drainfield without pressurization?"

Simply it is an at-grade drainfield using both 4 inch diameter solid (D3034) and perforated distribution (D2729) piping attached to a distribution box serving four sections within the aggregate cell instead of using pressurized small diameter schedule 40 pipes with drilled orifices attached to a force main from either a pump or siphon. From the septic tank a 4 inch diameter building sewer line extends down to a distribution box centered within the aggregate looking much like an at-grade drainfield using a siphon having proper soil cover over the pitched sewer line for frost proof protection.

And if you think this design is a rare occurrence, Grant County at the southwest corner of the State alone has over 740 of these systems installed. The general consensus from regulatory personnel concerning gravity flow type at-grades which are only approved as an Individual Site Design (ISD) can be summarized by the following: functionality suspect.

Homeowners, on the other hand, like them - especially as a replacement system. They like the lack of a pump and lift chamber, no use of electricity, no extra exposed riser to mow around; but most of all less cost than a normally installed pressurized at-grade. Installers appear to be in favor of gravity flow at-grades because they are so popular with clients (tends to sooth the client's wrath at not getting a below grade "conventional" system), avoids the feared siphon "trickling", and their simple design and easy installation.

But there are questions:

Is equal distribution of effluent remotely possible?

Does slope affect infiltration into the soil? (They have been installed on slopes exceeding 18%.)

What is the longevity of such a design? (Some are over 20 years old.)

What type of management is required? (ISD approvals have been requiring use of *Dial-A-Flow* inserts with mandated but not enforced inspections of equal distribution yearly or so.)

Does installation on concave slope sites further compromise treatment capability/infiltration?

What do you think? Currently there is a debate going on between State plan reviewers, field wastewater district staff, county inspectors, installers and designers. Should there be a component manual created to define where and how these systems may be considered? Please shoot us a message at WOWRA Newsletter.

(Interesting side note: The popularity of gravity flow at-grades has spawned use of non-pressurized versions with pumps and lift chambers. The pump is usually of lower horsepower than those required for pressurization, a simpler design, no small diameter piping to buy, no orifice drilling or line flushing required.)

We'd like to hear your comments.

Jeff is a CST, Certified Designer and Professional Soil Scientist located in Madison, WI.

From: [Leroy Jansky](#)
To: [WOWRA Admin](#)
Subject: Gravity At-grade Comments
Date: Monday, December 21, 2015 11:07:36 PM

It doesn't surprise me that debate is still ongoing regarding the general use of gravity distribution at-grade systems. This is likely the result of unfinished research by the university on the subject. If the research would have been completed I believe the state would have moved forward with a design manual for such systems. It would be interesting to have a research project completed on not only the apparent functionality of gravity at-grade systems from a wastewater distribution and maintenance aspect but one related to treatment as well. We tend to forget about things we don't readily see and say they work fine. Onsite systems need to both disperse and treat wastewater to levels that meet environmental and health standards. Just because a system isn't discharging to the ground surface doesn't mean it is working properly from a treatment standpoint.

I seem to recall research by Converse (and maybe Tyler) on treatment levels below dispersal cells. One disturbing item in this research was related to at-grades in that their high loading rates along a single distribution lateral forced indicator organisms to greater depths than three feet. This was especially evident in well structured, fine textured soils such as those in Southwestern Wisconsin. So one overriding concern is adequate treatment by the soil. If equal distribution along the contour is barely meeting treatment standards how can gravity distribution, where overloading smaller soil volumes likely occurs, meet treatment standards? I am not aware of any research that indicates gravity distribution provides better soil treatment than equal (pressure) distribution. In fact, I believe it's just the opposite. Equal distribution contributes to better treatment because it ensures that the maximum surface area is covered and thus the maximum soil volume is used for treatment. This never occurs under gravity flow until the biomat causes ponding throughout a dispersal cell. Then, treatment is great but back-up or surface discharge is more likely.

One other advantage of using pressure distribution from the onset is that equal distribution and maximum treatment is inherent, whereas gravity flow would need to be constantly adjusted to ensure the best performance level and avoid hydraulic failure. It is very unlikely that any owner would monitor and manage an at-grade gravity flow system so as to never have a surface discharge. So in effect we would be promoting a methodology designed to create a human health hazard at regular intervals until discovered by the owner and corrected again and again. I don't believe that the state has ever approved such a design manual and they would be foolish to start now. However, I can envision great political pressure by those inclined to consider only part of the onsite system mission (dispersal and treatment) and if this comes to be I'd hope a pressure distribution lateral is installed alongside the gravity one to make a future conversion less disruptive to the dispersal cell.

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HIGH STRENGTH WASTE

SPS 383.44

SPS 383.44

SPS 383.44 Parameters for POWTS components consisting of in situ soil. (1) EVALUATION. POWTS treatment and dispersal components consisting in part of in situ soil shall be evaluated in accordance with ch. SPS 385.

(2) INFLUENT QUALITY. (a) The quality of influent discharged into a POWTS treatment or dispersal component consisting in part of in situ soil shall be equal to or less than all of the following:

1. A monthly average of 30 mg/L fats, oil and grease.
2. A monthly average of 220 mg/L BOD₅.
3. A monthly average of 150 mg/L TSS.

(b) The monthly average under par. (a) shall be calculated as the sum of all measurements taken over 30 consecutive days, with at least 6 measurements occurring on 6 separate days, and divided by the number of measurements taken during that period.

(c) Influent discharged to a POWTS treatment or dispersal component that consists in part of unsaturated soil may not contain any solid or suspended solid exceeding 1/8 inch in diameter.

Note: Under s. SPS 383.03 (1) (b), the replacement of a POWTS anaerobic treatment tank (septic tank) in conjunction with this rule would limit any solids within the effluent leaving the tank to a maximum of 1/8-inch diameter.

(3) INFILTRATIVE SURFACE. (a) The infiltrative surface of unsaturated soil to which influent is discharged shall be located at least 24 inches above the estimated highest groundwater elevation and bedrock.

(b) 1. A POWTS designed utilizing a component manual recognized under s. SPS 383.60 (1) shall have at least 6 inches of the soil separation required under par. (a) consisting of an in situ soil type for which soil treatment capability has been credited under Table 383.44-3.

2. The purpose of the 6 inches of in situ soil under subd. 1. shall be to assure that the influent will be assimilated into the original subsurface soils without ponding on the ground surface.

(c) The infiltrative surface of unsaturated soil to which influent is discharged shall be located at least one inch below the finished grade.

(4) CAPABILITIES. (a) 1. a. Except as provided under subd. 2., the dispersal capability of a POWTS treatment or dispersal component consisting in part of unsaturated soil shall be limited to that specified in Table 383.44-1 or Table 383.44-2 based upon the influent quality concentrations being applied.

b. Under subd. 1. a., the influent quality parameter with the highest concentration shall determine the maximum application rate.

c. Except as provided in par. (c), the soil conditions at the infiltrative surface of unsaturated soil to which influent is to be discharged shall be used to establish the maximum application rate for a POWTS dispersal design.

d. The moist soil consistence of the soil horizon in which the infiltrative surface of a POWTS treatment or dispersal component will be located may not be stronger than firm or any cemented classification.

e. The maximum soil application for soil with moderate to strong platy structure shall not exceed 0.2 gals./sq. ft./day for effluent concentrations of ≤30 mg/L BOD₅ and TSS and shall be 0.0 gals./sq. ft./day for effluent concentrations of > 30 mg/L BOD₅ and TSS.

f. The application rates specified under Table 383.44-1 shall only be recognized where the percolation results have been filed with the governmental unit before July 2, 1994.

2. Maximum soil application rates other than those specified in Tables 383.44-1 or 383.44-2 may be employed for the design of a POWTS treatment or dispersal component consisting in part of in situ soil if documentation is submitted and approved under s. SPS 383.22 and is based on soil permeability and evapotranspiration estimates correlated to specific soil characteristics described in a detailed morphological soil evaluation.

(b) The treatment capability of a POWTS treatment component consisting of unsaturated soil shall be limited to that specified in Table 383.44-3, unless otherwise approved by the department.

(c) The design of a treatment or dispersal component consisting in part of in situ soil shall reflect restrictive soil horizons that affect treatment or dispersal.

(5) EFFLUENT DISTRIBUTION. (a) 1. Except as provided in subd. 2., the distribution of effluent to a treatment or dispersal component shall be by means of pressure distribution as specified in Tables 383.44-2 and 383.44-3.

2. Pressure distribution is not required when rehabilitating an existing non-pressurized in situ soil treatment or dispersal component that is persistently ponded and that has at least 24 inches of unsaturated soil beneath the infiltrative surface of the component.

(b) Each dose of effluent by means of pressurized distribution into a treatment or dispersal component consisting in part of in situ soil may not be less than 5 times the void volume of the POWTS distribution laterals.

**Table 383.44-1
Maximum Soil Application Rates Based Upon Percolation Rates**

Percolation Rate (minutes per inch)	Maximum Monthly Average	
	BOD ₅ > 30mg/L ≤ 220 mg/L TSS > 30 mg/L ≤ 150 mg/L (gals/sq ft/day)	BOD ₅ ≤ 30 mg/L TSS ≤ 30 mg/L (gals/sq ft/day)
0 to less than 10	0.7	1.2
10 to less than 30	0.6	0.9
30 to less than 45	0.5	0.7

45 to less than 60
60 to 120
greater than 120

0.3
0.2
0.0

0.5
0.3
0.0

Note: > means greater than
≤ means less than or equal to

Table 383.44-2
Maximum Soil Application Rates Based Upon Morphological Soil Evaluation (in gals./sq. ft./day)

Soil Characteristics			Maximum Monthly Average			
Texture ^d	Structure ^e		BOD ₅ >30 ≤220mg/L TSS >30 ≤150mg/L		BOD ₅ ≤30 mg/L ^c TSS ≤30 mg/L ^c	
	Shape	Grade				
COS, S, LCOS, LS	---	0	0.7 ^a	0.5 ^{b,c}	1.6 ^a	0.5 ^b
FS, LFS	---	0	0.5		1.0	
VFS, LVFS	---	0	0.4		0.6	
COSL, SL	---	0M	0.2		0.6	
	PL	1	0.4		0.6	
		2, 3	0.0		0.2	
	PR, BK, GR	1	0.4		0.7	
2, 3		0.6		1.0		
FSL, VFSL	---	0M	0.2		0.5	
	PL	2, 3	0.0		0.2	
	PL, PR, BK, GR	1	0.2		0.6	
	PR, BK, GR	2, 3	0.4		0.8	
L	---	0M	0.2		0.5	
	PL	2, 3	0.0		0.2	
	PL, PR, BK, GR	1	0.4		0.6	
	PR, BK, GR	2, 3	0.6		0.8	
SIL	---	0M	0.0		0.2	
	PL	2, 3	0.0		0.2	
	PL, PR, BK, GR	1	0.4 ^c		0.6	
	PR, BK, GR	2, 3	0.6		0.8	
SI	---	---	0.0		0.0	
Soil Characteristics			Maximum Monthly Average			
Texture ^d	Structure ^e		BOD ₅ >30 ≤220mg/L TSS >30 ≤150mg/L		BOD ₅ ≤30 mg/L ^c TSS ≤30 mg/L ^c	
	Shape	Grade				
SCL, CL, SICL	---	0M	0.0		0.0	
	PL	1, 2, 3	0.0		0.2	
	PR, BK, GR	1	0.2		0.3	
2, 3		0.4		0.6		
SC, C, SIC	---	0M	0.0		0.0	
	PL	1, 2, 3	0.0		0.0	
	PR, BK, GR	1	0.0		0.0	
2, 3		0.2		0.3		

Note a: With ≤60% rock fragments

Note b: With >60 to <90% rock fragments

Note c: Requires pressure distribution under sub. (5) (a)

Note d:	COS - Coarse Sand S-Sand LCOS - Loamy Coarse Sand LS - Loamy Sand FS - Fine Sand LFS - Loamy Fine Sand VFS - Very Fine Sand	LVFS - Loamy Very Fine Sand COSL - Coarse Sandy Loam SL - Sandy Loam FSL - Fine Sandy Loam VFSL - Very Fine Sandy Loam L - Loam SIL - Silt Loam	SI - Silt SCL - Sandy Clay Loam CL - Clay Loam SICL - Silty Clay Loam SC - Sandy Clay C - Clay SIC - Silty Clay
Note e:	PL - Platy PR - Prismatic BK - Blocky GR - Granular M - Massive	0 - Structureless 1 - Weak 2 - Moderate 3 - Strong	

**Table 383.44-3
Minimum Depth of Unsaturated Soil for Treatment Purposes^a (in inches)**

Soil Characteristics Texture ^d	Influent Quality ^e and Percent Coarse Fragments					
	Fecal Coliform >10 ⁴ cfu/100mL			Fecal Coliform ≤10 ⁴ cfu/100mL ^b		
	≤35%	>35 to ≤60%	>60 to ≤90% ^{b,c}	≤35%	>35 to ≤60%	>60 to ≤90% ^c
COS, S, LCOS, LS	36	60	60	24	36	60
FS, VFS, LFS, LVFS	36			24		
COSL, SL	36			24		
FSL, VFSL	36			24		
L	36			24		
SIL	36			24		
SI	36			24		
SCL, CL, SICL	36			24		
SC, C, SIC	36			24		

Note a: Influent quality as per s. SPS 383.44 (2)

Note b: Requires pressure distribution under sub. (5) (a)

Note c: All coarse fragment voids must be filled with fine earth

Note d:	COS - Coarse Sand S-Sand LCOS - Loamy Coarse Sand LS - Loamy Sand FS - Fine Sand LFS - Loamy Fine Sand VFS - Very Fine Sand	LVFS - Loamy Very Fine Sand COSL - Coarse Sandy Loam SL - Sandy Loam FSL - Fine Sandy Loam VFSL - Very Fine Sandy Loam L - Loam SIL - Silt Loam	SI - Silt SCL - Sandy Clay Loam CL - Clay Loam SICL - Silty Clay Loam SC - Sandy Clay C - Clay SIC - Silty Clay
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Note e: The values for fecal coliform are reported as a monthly geometric mean. The geometric mean shall be determined on the basis of measurements taken over 30 consecutive days, with at least 6 measurements occurring on 6 separate days.

(6) ORIENTATION. (a) 1. The infiltrative surface of a distribution cell within a POWTS treatment or dispersal component consisting in part of in situ soil and located in fill material above original grade shall be level.

2. The longest dimension of a an above grade POWTS treatment or dispersal component consisting in part of in situ soil shall be oriented along within 1% of the surface contour of the component site location unless otherwise approved by the department.

(b) The infiltrative surface of a distribution cell within a POWTS treatment or dispersal component consisting in part of in situ soil and located below the surface of the original grade shall be level.

(c) POWTS treatment or dispersal components consisting in part of in situ soil shall be so located as to minimize the infiltration of storm water into the component.

(7) GEOMETRY. The geometry of a subsurface treatment or dispersal component consisting in part of the in situ soil shall take into account linear loading rates that are based on soil texture, structure, consistence and distance to seasonal soil saturation and restrictive soil horizons.

History: Cr. Register, April, 2000, No. 532, eff. 7-1-00; CR 02-129: (3) (b) and (4) (c), r. and recr. (5) (a) and Tables 83.44-2 and 83.44-3 Register January 2004 No. 577, eff. 2-1-04; CR 07-100: am. (3) (b) 1. and Tables 83.44-2 and 3, r. (5) (b), renum. (5) (c) to be (5) (b) Register September 2008 No. 633, eff. 10-1-08; correction in (1), (3) (b) 1., (4) (a) 1. a., f., 2., (b), (5) (a) 1., Table 383.44-3 made under s. 13.92 (4) (b) 7., Stats., Register December 2011 No. 672.

INTERNET LINKS TO MINNESOTA, OREGON, AND WASHINGTON STATE ONSITE WASTE REGULATIONS

MINNESOTA REGULATIONS

Individual Subsurface Sewage Treatment Systems

<https://www.revisor.mn.gov/rules/?id=7080&version=2016-01-25T11:21:22-06:00&format=pdf>

Midsized Subsurface Sewage Treatment Systems

<https://www.revisor.mn.gov/rules/?id=7081&version=2016-01-25T11:21:34-06:00&format=pdf>

Local ISTS Programs

<https://www.revisor.mn.gov/rules/?id=7082>

SSTS Credentialing and Product Registration

<https://www.revisor.mn.gov/rules/?id=7083&version=2016-01-19T11:40:08-06:00&format=pdf>

Laws and regulations webpage

<https://www.pca.state.mn.us/water/current-ssts-rules-laws-statutes-regulations-and-ordinances>

OREGON

Oregon Administrative Rules - Chapter 340

Division 71 - Onsite Wastewater Treatment Systems

OAR 71 Rules

<http://www.deq.state.or.us/regulations/docs/d071rules.pdf>

Division 73 - Construction Standards

OAR 73 Rules

<http://www.deq.state.or.us/wq/onsite/docs/oar073rules.pdf>

Oregon Revised Statutes

ORS 454 - Sewage Treatment and Disposal Systems

https://www.oregonlegislature.gov/bills_laws/ors/ors454.html

ORS 468B - Water Quality

https://www.oregonlegislature.gov/bills_laws/ors/ors468B.html

**WASHINGTON STATE
SEWER SYSTEMS REGULATIONS**

- 246-270 Sewer systems—Certification of necessity for water district involvement.
<http://app.leg.wa.gov/WAC/default.aspx?cite=246-270>
- 246-271 Public sewage.
<http://app.leg.wa.gov/WAC/default.aspx?cite=246-271>
- 246-272 Wastewater and reclaimed water use fees.
<http://app.leg.wa.gov/wac/default.aspx?cite=246-272>
- 246-272A On-site sewage systems.
<http://app.leg.wa.gov/WAC/default.aspx?cite=246-272A>
- 246-272B Large on-site sewage system regulations.
<http://app.leg.wa.gov/wac/default.aspx?cite=246-272B>
- 246-272C On-site sewage system tanks.
<http://app.leg.wa.gov/wac/default.aspx?cite=246-272C>
- 246-273 On-site sewage system additives.
<http://app.leg.wa.gov/WAC/default.aspx?cite=246-273>
- 246-274 Greywater reuse for subsurface irrigation.
<http://app.leg.wa.gov/WAC/default.aspx?cite=246-274>

**Wisconsin Department of Safety and Professional Services
Private Onsite Wastewater Treatment Systems Code Advisory Council
Potential Administrative Rule Recommendations
3-4-2016**

SPS 381 DEFINITIONS AND STANDARDS					
NO.	SPS SECTION	ISSUE	POTENTIAL CHANGES	POTENTIAL COSTS/BENEFITS	CLASSIFICATION
1	381.01 (154r)	Definition for “Moh’s Scale of Hardness” proposed for use in 384.30(6)(j)2.	Add definition.	No cost. Clarify meaning.	<i>See draft language.</i>
2					

SPS 382 DESIGN, CONSTRUCTION, INSTALLATION, SUPERVISION, MAINTENANCE AND INSPECTION OF PLUMBING					
NO.	SPS SECTION	ISSUE	POTENTIAL CHANGES	POTENTIAL COSTS/BENEFITS	CLASSIFICATION
20	382.30(10) <i>Council Addition</i>	Exterior ejector pits - recommendation to Plumbing Council forthcoming.	More specification about exterior ejector pits may be needed.		Medium <i>Discussed at 2/10/2016 meeting</i>
21	382.30(11) <i>Council Addition</i>	Clarification of building sewer insulation requirements – recommendation to Plumbing Council forthcoming.	Possibly simplify insulation requirements.		Medium <i>Discussed at 2/10/2016 meeting</i>
22	382.35(5) <i>Council Addition</i>	Need for frost sleeves on shallow building sewers?	No change.		Medium <i>Discussed at 2/10/2016 meeting</i>
23					

SPS 383 PRIVATE ONSITE WASTEWATER TREATMENT SYSTEMS					
NO.	SPS SECTION	ISSUE	POTENTIAL CHANGES	POTENTIAL COSTS/BENEFITS	CLASSIFICATION
25	383.21 <i>Council Addition</i>	Clarify sanitary permit requirements for replacement of defective components in recently installed POWTS (<i>i.e. Replacement of a cracked tank after the installation has been approved, including changing pumps</i>)	Under what circumstances is a permit needed if a POWTS fails or needs repair soon after the permit ceases (<i>i.e. after final inspection.</i>) Statutes may dictate when a permit is needed. Are there cases where a reinspection may be conducted rather than requiring a whole new permit?		Medium <i>Discussed at 2/10/2016 meeting</i>

SPS 383 PRIVATE ONSITE WASTEWATER TREATMENT SYSTEMS

NO.	SPS SECTION	ISSUE	POTENTIAL CHANGES	POTENTIAL COSTS/BENEFITS	CLASSIFICATION
26	383.22(2)(c) <i>Council Addition</i>	Are changes to signature requirements needed to accommodate electronic submittal of plans?			Low <i>See draft language</i>
27	383.44 Combine these concepts.	Short of a petition for variance, many commercial facilities have been pushed towards unreliable pretreatment devices which fail to perform.	Allow 3rd soil column or alternative sizing method for High Strength Wastewater which would allow the same loading rate of BOD, FOG and TSS per square foot as system receiving "normal" strength effluent. An alternative is to entirely eliminate the limitation in SPS 383.44(2)(a) and size based upon effluent loading.	No change in costs. This revision would allow another simple low-technology option for owners and installers.	High <i>This will be combined into one topic regarding high strength waste. Begin discussion on 3/16/2016 meeting.</i>
28	383.44-1 Maximum Soil Application Rates Based Upon Percolation Rates (Table)	The rule references out of date percolation rates.	Remove all references to percolation rates.	Costs are expected to be minimal. New morphological soil tests would be needed to replace old soil tests showing percolation rates which are no longer used.	Low <i>See draft language</i>
29	383.44-2 Maximum Soil Application Rates Based Upon Morphological Soil Evaluation (Table)	High strength waste (>220 BOD and >150 TSS) have limited treatment options.	Additional loading rate column for moderately high strength wastes.	No costs increases are expected from this proposal. This proposal would provide more flexibility for dealing with high strength wastes.	High <i>This will be combined into one topic regarding high strength waste. Begin discussion on 3/16/2016 meeting.</i>
30	383.44(2) Influent quality.	Various commercial buildings produce influent quality greater than those listed, but still may be best served by a POWTS.	Add (d), "New facilities potentially generating waste greater than the parameters listed in (a) may be designated as 'At-Risk'. At-Risk facilities shall submit testing data, according to section (b), within one year of installation. Those facilities shown to produce parameters above the limits in (a) shall make the necessary changes to reduce wastewater strength according to the management plan."	The cost of this proposal expected to be minimal. This proposal is expected to provide better management of 'at-risk' systems and reduce violation of the code.	High <i>This will be combined into one topic regarding high strength waste. Begin discussion on 3/16/2016 meeting.</i>

SPS 383 PRIVATE ONSITE WASTEWATER TREATMENT SYSTEMS

NO.	SPS SECTION	ISSUE	POTENTIAL CHANGES	POTENTIAL COSTS/BENEFITS	CLASSIFICATION
31	383.44(2)(a)	<p>Currently, the department exclusively allows some form of aerobic treatment component to meet the parameters specified in 383.44(2)(a) in situations where those parameters would be exceeded without the aerobic treatment. Often, the aerobic components are incorporated into a POWTS design without consideration of relevant hydraulic flow and organic loading data. The hydraulic flow and organic loading must be within the performance limits of the proposed aerobic component model in order for it to operate properly. Furthermore, once these components are in operation, many are not maintained in a timely manner resulting in pre-maturely failing drain fields. Other design techniques are available that would eliminate these inherent problems with aerobic components. These techniques were effectively applied in Wisconsin for "high-strength" wastewater application to soil dispersal areas prior to the pervasive use of aerobic components which did not begin until the mid- to late 1990's.</p>	<p>Revise s. SPS 383.44(2)(a) to read: "Unless otherwise permitted under s. SPS 383.46," (remainder as currently worded). Then add a new code section, s. SPS 383.46, which would read: "Design techniques for in situ soil dispersal components receiving high-strength wastewater. (1) Definition. Influent to an in situ soil dispersal component shall be considered high-strength if it exceeds the parameters specified under s. SPS 383.44 (2)(a)&(b). (2) Permitted design techniques. Permitted techniques for designing in situ soil dispersal components receiving high strength wastewater include one or a combination of the following: (a) Determine the minimum required dispersal area based on organic loading rates. (b) Provide three separate dispersal components each having fifty percent of the minimum required area based on hydraulic loading rates. In an annual rotation scheme employing a diverter valve, two units would be on-line while one unit would be off-line." (These alternatives are suggestions open to discussion.)</p>	<p>The cost of this proposal is unknown.</p> <p>The proposed language would provide alternatives to the use of aerobic components to reduce organic load concentrations and to the inherent and intensive ATU maintenance requirements.</p>	<p>High</p> <p><i>This will be combined into one topic regarding high strength waste. Begin discussion on 3/16/2016 meeting.</i></p>

SPS 383 PRIVATE ONSITE WASTEWATER TREATMENT SYSTEMS

NO.	SPS SECTION	ISSUE	POTENTIAL CHANGES	POTENTIAL COSTS/BENEFITS	CLASSIFICATION
32	383.44(6)(a)2 ORIENTATION	Some component manuals allow systems to be constructed <1% off contour.	Codify component manual language by striking “along” and replacing it with “within 1% of”.	This proposal is not expected to increase costs. This proposal is expected to clarify rule requirements and provide a basis for more consistent interpretation of the rule.	Low <i>See draft language</i>
33	383.45 <i>Council Addition</i>	Specify cover/backfill depth for effluent lines and forcemains.	No specifications for the cover over forcemains. No minimum depth. If picking number, it would be one foot. Effluent lines and forcemains need to have 12 inches of cover.	Physical protection for issue. Hit with lawn mower and breaks. When it gets hit by a lawn mower or something then there could be a discharge. Common practice for other types of systems to provide frost proofing.	Medium
34	383.45(2) <i>Council Addition</i>	Change language to say “...frozen at <u>or below</u> the infiltrative surface...”			Low <i>See draft language</i>
35	383.45(6) <i>Council Addition</i>	Can we clarify requirements for POWTS in a floodplain? Should 383.45(6) allow Observation pipes <2’ above RFE, if they have watertight caps.	First, NR 116. This group can’t fix that. Question is why do they have to go that high if they are watertight caps? Strike “and observation pipes”. Observation pipes.		Medium
36	383.52(1) & 384.27(7)(h)	Clarify the concept of “locked or secured”	How do you secure objects (like ejector pits) that don’t have weight. Can we learn something from city manhole covers? Maintenance is big issue. Safety is a concern. Children falling in and dying-usually because the pit is open, not that they are lifting the cover off. Other states use safety nets. Fall protection for over 12 inches. Take a look at safety netting. Possible secondary net? Would that replace the primary security. ASTM C 1227.7.13 indicates minimum weight of manhole cover should be 59 pounds.		Low <i>Discussed at 2-10-2016 meeting</i>

SPS 383 PRIVATE ONSITE WASTEWATER TREATMENT SYSTEMS

NO.	SPS SECTION	ISSUE	POTENTIAL CHANGES	POTENTIAL COSTS/BENEFITS	CLASSIFICATION
			<p>Possibly say that all covers less than 59 pounds should be locked and secured. Change the wording from unauthorized (maybe accidental) access. National Precas Concrete Association best practices covers. Maybe leave 8 inches. Safety net. Make sure to use phrase locked and secured. 382.34 (5) (c) h.requires grease interceptors to have a manhole covers and shall have an approved locking device. Manhole risers for interceptor tanks shall be provided with a substantial, fitted watertight cover of concrete... Safety nets-systems permitted by the PCA, safety net. Subservice discharge code that not all have safety net. Anything over 59 pounds > 8 inches < 8 inches locked and secured Possible secondary (safety net)-homework on that.</p>		
37	383.54(2)(b) or fund department monitoring 383.70	Many pretreatment devices are not tested to the environmental conditions present in Wisconsin. Too many pretreatment devices appear not to perform as advertised causing POWTS failures and owners/installers upset with the department for approving these devices. Product approval has become more of a "buyer beware" environment than a real review of pertinent performance testing.	Require annual effluent testing for all devices that install pretreatment devices	<p>The potential cost would need to be determined.</p> <p>It would provide better data on the performance of devices approved for use in this state. Better data will result in ability to make informed decisions on the performance of devices.</p>	High
37	OTHER <i>Council Addition</i>	Inventory/maintenance of state owned POWTS			
38	OTHER	Wisconsin Fund Grant			

SPS 383 PRIVATE ONSITE WASTEWATER TREATMENT SYSTEMS

NO.	SPS SECTION	ISSUE	POTENTIAL CHANGES	POTENTIAL COSTS/BENEFITS	CLASSIFICATION
	<i>Council Addition</i>	program			
39					

SPS 384 PLUMBING PRODUCTS

NO.	SPS SECTION	ISSUE	POTENTIAL CHANGES	POTENTIAL COSTS/BENEFITS	CLASSIFICATION
50	384.25 <i>Council Addition</i>	Clarify requirements for repair of POWTS tanks <ul style="list-style-type: none"> • When can a tank be repaired vs replaced? • When is DSPS or manufacturer’s approval required for a repair? • Sanitary permit? 	Leave it the way it is now.		Medium <i>Discussed at 2-10-2016 meeting</i>
51	384.30(6)(j)	Various natural materials non-conductive to filtering in a POWTS have been proposed.	Additional language stating: “Also, sand used as a filtering medium in a treatment or dispersal component of a POWTS shall meet all of the following requirements: be comprised of outwash parent material and have a hardness value of at least 3 on Moh's Scale of Hardness.”	No expected cost increase. This proposal would clarify the type of material allowed for use in a POWTS.	Low <i>See draft language</i>
52	384.10 (3)	Review makeup committee and how referenced in code. Responsibilities of that committee.	Committee should be improved –important. Helping with the product approval. Minnesota, Washington, might be examples. It is cumbersome, but legitimate. Standards are spread over several codes so that could take some time. Discussion though concludes that the standards in the code don’t need to be changed for this purpose. Protocol out there for the advisory. Are we satisfied with the scope, and the makeup of that committee? Should it be the first step in approval process rather than the voluntary approval. Tony will review other states.	DIS finds more value in more input in product review. Information varies.	<i>Discuss at 3-16-2016 meeting.</i>

SPS 385 SOIL AND SITE EVALUATIONS					
NO	SPS SECTION	ISSUE	POTENTIAL CHANGES	POTENTIAL COSTS/BENEFITS	CLASSIFICATION
60	385.60(2)(a)	Wording does not adequately reflect the current use of Interpretative Determination Reports (IDR).	Revise second sentence. The written report shall conclusively determine current conditions of periodic soil saturation and assess their effect upon the operation of a POWTS.	No expected costs. Clarifies the use and intent of IDRs.	Low <i>See draft language</i>
61	385.60(2)(b)	Delays in approval of Interpretative Determinations (IDR) due to scheduling onsite with Wastewater Specialists.	Revise to exempt IDRs written by licensed Professional Soil Scientists from Departmental review.	May reduce review fees. Reduce delay in time to receive plan approval, especially during peak submittal times.	Low <i>See draft language</i>
62					