**Course: 8402 HOLDING TANK QUIZ**

**This course is valid for these credentials:**

| Credential Description | Cred Code | Credit Hours |
|---|---|---|
| Journeyman Plumber | PJ | 6.0 |
| Journeyman Plumber-Restricted Service | PJRS | 6.0 |
| Master Plumber | PM | 6.0 |
| Master Plumber-Restricted Service | PMRS | 6.0 |
| POWTS Inspector | PI | 6.0 |
| POWTS MAINTAINER | PO | 6.0 |
| Soil Tester | ST | 6.0 |

**Instructions:** 1. Print these pages.
2. Scroll down to page 14 for additional instructions.
3. The Holding Tank manual is included and starts on pages 15.

# HOLDING TANK COMPONENT QUIZ

## I. INTRODUCTION AND SPECIFICATIONS

1. This Private Onsite Wastewater Treatment System (POWTS) component manual provides design, construction, inspection, operation, and maintenance specifications for a holding tank component. However, these items must accompany a properly prepared and reviewed plan acceptable to the governing unit to help provide a system that can be installed and function properly. Violations of this manual constitute a violation of SPS _____, Wis. Adm. Code.
   A. 382
   B. 383
   C. 384
   D. both B & C
2. Detailed plans and specifications must be developed, and submitted for review and approval by the governing unit having authority over the plan for the installation. In addition, a state Sanitary Permit must be obtained from the _____ unit having jurisdiction.
   A. department
   B. governmental
   C. local building inspector
   D. both A or B

Table 1
SIZE AND ORIENTATION

3. Holding capacity for a holding tank shall?
   A. ≥ 5 times design daily wastewater flow or 2000 gals, whichever is greater.
   B. Meets 383.43 (9) (i), Wis. Adm. Code.
   C. ≥25 feet to service drive or road measured from service access opening or pump out port.

D. None of the above.

4. Horizontal setback shall?
   A. ≥ 5 times design daily wastewater flow or 2000 gals, whichever is greater.
   B. Meets 383.43 (9) (i), Wis. Adm. Code.
   C. ≥25 feet to service drive or road measured from service access opening or pump out port.
   D. None of the above.
5. Location to service access shall?
   A. ≥ 5 times design daily wastewater flow or 2000 gals, whichever is greater.
   B. Meets 383.43 (9) (i), Wis. Adm. Code.
   C. ≥25 feet to service drive or road measured from service access opening or pump out port.
   D. None of the above.

Table 2
OTHER SPECIFICATIONS

6. Tank design and construction shall?
   A. Meets 384.25.
   B. ≥ 1 opening having an inside diameter of at least 8 inches.
   C. Meets 383.43 (9) (e), Wis. Adm. Code
   D. Meets 383.43 (9) (g), Wis. Adm. Code and the weight of anchor is ≥ 1.5 x tank volume in cubic feet x 62.4 pounds per cubic foot - weight of tank.
   E. In accordance with 383, Wis. Adm. Code
   F. In accordance with 383, Wis. Adm. Code and this manual
   G. Meets 383.54 (2), Wis. Adm. Code
7. Vent location and orientation shall?
   A. Meets 384.25.
   B. Meets 382.31(16)(d)2. and 383.45(6)(b), Wis. Adm. Code. Vent openings are oriented down.
   C. Meets 383.43 (9) (e), Wis. Adm. Code
   D. Meets 383.43 (9) (g), Wis. Adm. Code and the weight of anchor is ≥ 1.5 x tank volume in cubic feet x 62.4 pounds per cubic foot - weight of tank.
   E. In accordance with 383, Wis. Adm. Code
   F. In accordance with 383, Wis. Adm. Code and this manual.
   G. Meets 383.54 (2), Wis. Adm. Code
8. Alarms or warning system shall?
   A. Meets 384.25.
   B. ≥ 1 opening having an inside diameter of at least 8 inches.
   C. Meets 383.43 (9) (e), Wis. Adm. Code and 384.25 (10)
   D. Meets 383.43 (9) (g), Wis. Adm. Code and the weight of anchor is ≥ 1.5 x tank volume in cubic feet x 62.4 pounds per cubic foot - weight of tank.
   E. In accordance with 383, Wis. Adm. Code
   F. In accordance with 383, Wis. Adm. Code and this manual.
   G. Meets 383.54 (2), Wis. Adm. Code
9. Meters shall?
   A. Meets 384.25.
   B. ≥ 1 opening having an inside diameter of at least 8 inches.

C. Meets 383.43 (9) (e), Wis. Adm. Code
D. Meets 383.43 (9) (g), Wis. Adm. Code and the weight of anchor is
≥ 1.5 x tank volume in cubic feet x 62.4 pounds per cubic foot - weight of tank.
E. In accordance with 383, Wis. Adm. Code
F. In accordance with 383, Wis. Adm. Code and this manual
G. Meets 383.54 (2), Wis. Adm. Code

10. Installation in periodic or constant saturated soils shall?
A. Meets 384.25.
B. ≥ 1 opening having an inside diameter of at least 8 inches.
C. Meets 383.43 (9) (e), Wis. Adm. Code
D. Meets 383.43 (8) (g), Wis. Adm. Code.
E. In accordance with 383, Wis. Adm. Code
F. In accordance with 383, Wis. Adm. Code and this manual
G. Meets 383.54 (2), Wis. Adm. Code

11. Installation inspection shall?
A. Meets c384.25.
B. ≥ 1 opening having an inside diameter of at least 8 inches.
C. Meets 383.43 (9) (e), Wis. Adm. Code
D. Meets 383.43 (9) (g), Wis. Adm. Code and the weight of anchor is
≥ 1.5 x tank volume in cubic feet x 62.4 pounds per cubic foot - weight of tank.
E. In accordance with 383, Wis. Adm. Code
F. In accordance with 383, Wis. Adm. Code and this manual
G. Meets 383.54 (2), Wis. Adm. Code

12. Management shall?
A. Meets 384.25.
B. ≥ 1 opening having an inside diameter of at least 8 inches.
C. Meets383.43 (9) (e), Wis. Adm. Code
D. Meets 383.43 (9) (g), Wis. Adm. Code and the weight of anchor is
≥ 1.5 x tank volume in cubic feet x 62.4 pounds per cubic foot - weight of tank.
E. In accordance with 383, Wis. Adm. Code
F. In accordance with 383, Wis. Adm. Code and this manual.
G. Meets 383.54 (2), Wis. Adm. Code

## II. DEFINITIONS

"Service provider" means the individual or company that is responsible for inspecting, maintaining, or servicing the holding tank system.
"All-weather road" means a gravel or paved surface that can support a fully loaded pump truck in all seasons.
"Cobbles" means rock fragments greater than 3 inches, but less than 10 inches in diameter.
"Stones" means rock fragments greater than 10 inches in diameter, but less than 24 inches.

13. "Cobbles" means?
A. rock fragments greater than 3 inches, but less than 10 inches in diameter.
B. the individual or company that is responsible for managing and maintaining the holding tank system.

C. rock fragments greater than 10 inches in diameter, but less than 24 inches.
D. gravel or paved surface that can support a fully loaded pump truck in all seasons.

14. "Service provider" means?
A. rock fragments greater than 3 inches, but less than 10 inches in diameter.
B. the individual or company that is responsible for managing and maintaining the holding tank system.
C. rock fragments greater than 10 inches in diameter, but less than 24 inches.
D. gravel or paved surface that can support a fully loaded pump truck in all seasons.

15. "Stones" means?
A. rock fragments greater than 3 inches, but less than 10 inches in diameter.
B. the individual or company that is responsible for managing and maintaining the holding tank system.
C. rock fragments greater than 10 inches in diameter, but less than 24 inches.
D. gravel or paved surface that can support a fully loaded pump truck in all seasons.

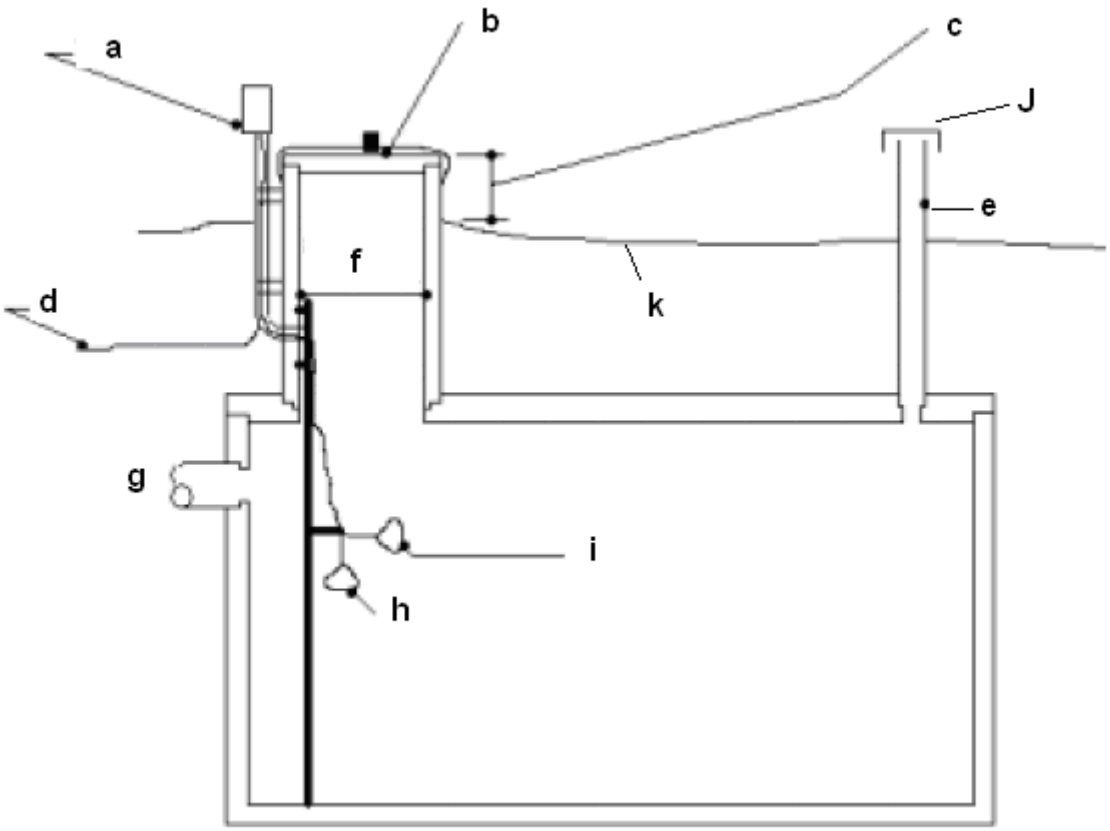
16. "All weather road" means?
A. rock fragments greater than 3 inches, but less than 10 inches in diameter.
B. the individual or company that is responsible for managing and maintaining the holding tank system.
C. rock fragments greater than 10 inches in diameter, but less than 24 inches.
D. gravel or paved surface that can support a fully loaded pump truck in all seasons.

III. DESCRIPTION AND PRINCIPLE OF OPERATION

17. The POWTS holding tank serves to contain _____on site until the contents is pumped and hauled to a proper point of disposal. Pumping and monitoring reports are submitted to the department or designated agent.
A. wastewater
B. sewage
C. surface water
D. both A or B

18. The holding tank installed under this component manual holds domestic wastewater, stormwater or clearwater inclusions permitted under_____, Wis. Adm. Code, until pumped by an individual certified as a septage servicing operator under ch. NR 114, Wis. Adm. Code.
A. 381.36
B. 382.36
C. 383.36
D. 384.36

**Figure 1 – Cross-Section of Holding Tank**
**Use diagram for questions 18-26**




19. Letter ‘a’ represents:
    A. electric must comply with Comm 16 and NEC 300
    B. cover with warning label and locking device
    C. 4’ min. above surrounding grade or 2 ft. above established regional flood elevation, unless access port is water and gas tight
    D. power source
20. Letter ‘b’ represents
    A. electric must comply with Comm 16 and NEC 300
    B. cover with warning label and locking device
    C. 4’ min. above surrounding grade or 2 ft. above established regional flood elevation, unless access port is water and gas tight
    D. power source
21. Letter ‘c’ represents:
    A. electric must comply with Comm 16 and NEC 300
    B. cover with warning label and locking device
    C. 4’ min. above surrounding grade or 2 ft. above established regional flood elevation, unless access port is water and gas tight
    D. power source

22. Letter ‘d’ represents:
    A. electric must comply with Comm 16 and NEC 300
    B. cover with warning label and locking device
    C. 4’ min. above surrounding grade or 2 ft. above established regional flood elevation, unless access port is water and gas tight
    D. power source
23. Letter ‘e’ represents:
    A. vent
    B. 23 inch minimum diameter
    C. represents building sewer
    D. alarm float
24 Letter ‘f’ represents:
    A. vent
    B. 23 inch minimum diameter
    C. represents building sewer
    D. alarm float
25. Letter ‘g’ represents:
    A. vent
    B. 23 inch minimum diameter
    C. represents building sewer
    D. alarm float
26. Letter ‘h’ represents:
    A. vent
    B. 23 inch minimum diameter
    C. represents building sewer
    D. alarm float
27. Letter ‘i’ represents:
    A. maximum alarm on level set at 12” below tank inlet invert or 90% of the liquid capacity of the tank below the tank inlet invert
    B. 12” minimum above surrounding grade or 2 ft above established regional flood elevation
    C. finished grade
28. Letter ‘j’ represents:
    A. maximum alarm on level set at 12” below tank inlet invert or 90% of the liquid capacity of the tank below the tank inlet invert
    B. 12” minimum above surrounding grade or 2 ft above established regional flood elevation
    C. finished grade
29. Letter ‘k’ represents:
    A. maximum alarm on level set at 12” below tank inlet invert or 90% of the liquid capacity of the tank below the tank inlet invert
    B. 12” minimum above surrounding grade or 2 ft above established regional flood elevation
    C. finished grade

IV. DESIGN

30. One- and Two-family Dwellings. Minimum liquid capacity of a holding tank for one- and two family dwelling application must not be less than _____ gallons or 5 times the

estimated daily wastewater flow determined in accordance with 383.43 (3), (4), or (5), Wis. Adm. Code, whichever is greater.

A. 1000
B. 2000
C. 3000
D. none of the above

31. Public Facilities. The minimum liquid capacity of a holding tank for public facilities shall not be less than 2000 gallons or ____times the estimated daily wastewater flow determined in accordance with 383.43(6), Wis. Adm. Code or Table 3 whichever is greater. Estimated flows for facilities not listed in Table 3 shall be provided pursuant to 383.43(6), Wis. Adm. Code.

A. 3
B. 4
C. 5
D. 6

B. Tank Anchoring

32. When a holding tank may be installed in saturated soils (see ch. SPS 385, Wis. Adm. Code, for information on how to determine soil saturation) and/or in an area that is considered part of a flood plain, the tank shall meet the provisions of s. SPS_____, Wis. Adm. Code..

A. 38.43(8)(g)
B. 382.43(8)(g)
C. 383.43(8)(g)
D. 384.43(8)(g)

C. Monitoring/Management Equipment.

33. The alarm for the holding tank installation is an audible and/or visual alarm installed in a conspicuous location in or on the building served or on a post near the tank. The alarm is connected to a float switch or other electrical sensor in the holding tank. The maximum alarm on level is set at 12 inches below the tank inlet when only one tank is used or ____% of the total volume of the tankage when more than one tank is used.

A. 70
B. 80
C. 90
D. 100

V. SITE PREPARATION AND CONSTRUCTION

A. Sanitary Permit:

34. Prior to the construction of the system, a state sanitary permit shall be obtained and posted _____ on the site. Arrangements for inspection(s) must be made with the governmental unit that issues the state sanitary permit. When a POWTS is located or will be located on property owned by the state, the sanitary permit shall be obtained from the

department. Arrangements for inspection(s) shall be made with the department.

A. at the tank location
B. in a clearly visible location
C. both a or b
D. none of the above

B. Site Preparation and Tank Installation:

35. The holding tank must be installed in accordance with the manufacturers printed instructions, product approval, plan approval and specifications in this component manual. If there is a conflict between the manufacturer's instructions and the product approval, plan approval and/or component manual specifications, the _____ take precedence.
    A. product approval
    B. plan approval
    C. component manual specifications
    D. All of the above
36. Access openings that terminate at grade and/or less than 1 ft. above the established regional flood elevation (if applicable) must have water tight access openings. Access openings that terminate at least 4 inches above the surrounding grade and 1 ft. above the established regional flood elevation (if applicable) _____required to have water tight access openings.
    A. are
    B. are not
    C. should be
    D. none of the above
37. Access opening covers that terminate at or above grade may be provided with a service port that is 8 inches inside diameter. The reduced opening must have a locking device or a brass cleanout plug. Service ports larger than ___ inches inside diameter must have a locking device in accordance with s. SPS 384.25(7)(h), Wis. Adm. Code.
    A. 6
    B. 7
    C. 8
    D. none of the above
38. All access openings shall be located as to permit a minimum of 3 feet of clear space above the opening and 2 feet in all directions horizontally from any point of the access opening for purposes of inspection, maintenance or servicing. Access openings within ____ feet of any building shall also be gas tight.
    A. 8
    B. 9
    C. 10
    D. 15
39. The connection of the holding tank to the sanitary sewer shall be by means of a _____ Wis. Adm. Code.
    A. mechanical joint
    B. solvent cement joint
    C. other joint conforming to 384.40
    D. all of the above

40. Below grade connections. Joints between the tank, access opening risers, and covers shall be _____.
    A. airtight
    B. watertight
    C. both A & B
    D. none of the above

C. Alarm Equipment Installation:

41. The alarm switch shall be set to activate an alarm when liquid volume is ___" below the tank inlet invert or at 90% of the liquid capacity of the tank below the tank inlet invert.
    A. 8
    B. 10
    C. 12
    D. 18
42. All wiring shall be installed in accordance with National Electrical Code (NEC) Article 300 and SPS_____, Wis. Adm. Code.
    A. 316.21
    B. 316.22
    C. 316.23
    D. 316.24

D. Backfill

43. The holding tank excavation is backfilled as per manufacturer instructions with sufficient soil material to divert surface water runoff _____ the tank location.
    A. towards
    B. away from
    C. near
    D. near by

VI. OPERATION, MAINTENANCE and PERFOMANCE MONITORING

A. Owner is Responsible:

44. The POWTS owner is responsible for the operation and maintenance of the POWTS_____. The owner or owner's agent is required to submit reports as required by 383.55 (1), Wis. Adm. Code, to the governmental unit or designated agent.
    A. locking device
    B. alarm
    C. access opening
    D. all of the above

B. Approvals and Inspections:

45. Design approval and site inspections before, during and after construction are conducted by

the governmental unit or other appropriate jurisdiction(s) in accordance with_____.
A. 383.22
B. 383.26
C. both A & B
D. none of the above

C. Performance Expectations

46. Maintenance cycle. The holding tank must be serviced by certified septage operators (pumpers). An alarm system must be installed to activate when the liquid level in a single tank is within 12 inches of the inlet invert or when the total volume of the tankage of multiple tanks reaches ____%.
A. 75
B. 80
C. 90
D. all of the above
47. Performance monitoring. Within ____ calendar days from the date of an inspection, maintenance or servicing event, the owner of the POWTS or the owner's agent shall file a report with the governmental unit or designated agent.
A. 20
B. 25
C. 30
D. 45

D. User's Manual:

48. A user's manual is to accompany the component. The manual is to contain the following as a minimum:
A. Diagrams of all components and their location.
B. Names and phone numbers of local governmental unit authority, component manufacturer or POWTS service provider to be contacted in the event of component failure or malfunction.
C. A management plan that contains information on the periodic inspection, maintenance or servicing of the component, including electrical/mechanical components.
D. All of the above
E. Only A & C

VII. PLAN SUBMITTAL AND INSTALLATION INSPECTION

A. Plan Submittal

49. In order to install a POWTS correctly, it is important to develop plans that will be used to guide the installation. The following checklist may be used when preparing plans for review. Conformance to the list ____ a guarantee of plan approval.
A. is
B. is not
C. typically
D. none of the above

50. Additional information may be _____ to address unusual or unique characteristics of a particular project. Contact the reviewing agency for specific plan submittal requirements, which may be different than the list included in this manual.
    A. needed
    B. requested
    C. both A or B
    D. none of the above

B. General Submittal Information:

51. Legible photocopies of _____, and other documents are acceptable. However, an original signature is required on certain documents (e.g. index page).
    A. reports
    B. forms
    C. plans
    D. all of the above
52. Submittal of additional information requested during plan review or questions concerning a specific plan must be referenced to the _____ number assigned to that plan by the reviewing agency.
    A. documentation
    B. identification
    C. both a & b
    D. none of the above
53. Plans or documents must be _____.
    A. permanent
    B. legible copies
    C. originals
    D. all of the above

C. Forms and Fees:

54. A current version of a completed Application For Review form, (SBD-_____) along with proper fees must be included with plans submitted to the department. If plans are to be submitted to a local governmental unit, the appropriate reviewer should be contacted for information regarding application forms and fees.
    A. 10576
    B. 10577
    C. 10578
    D. 10579

D. Soils Related Information:

55. Soils Related Information include?
    A. A holding tank is a component that does not utilize in situ soil for treatment or dispersal of wastewater; therefore a soil test is not required per 383.44 (1), Wis. Adm. Code.

B. Pertinent flood plain areas and OHWM designations of navigable waters of the state shall be shown on a soil test and/or the system plot plan.
C. A soil test may be required (one borehole at tank location) for the evaluation of saturated soil depths if tank anchoring is a concern.
D. Section 383.32(2), Wis. Adm. Code, allows municipalities to prohibit or limit holding tanks. These municipalities may require a complete soil test by ordinance to verify that a holding tank is the only option available.
E. all of the above

56. Documentation requirements include?
A. Architects, engineers or designers shall sign, seal and date each page of the submittal or sign, seal and date an index page, which is attached to the bound set.
B. Master Plumbers and Master Plumbers-Restricted Service shall, sign, date and include their license number on each page of the submittal or sign and date an index page which is attached to each bound set .
C. At least three sets of plans and one set of specifications (clear, permanent and legible) shall be submitted to the department. Submittals must be on paper measuring at least 8-1/2 by 11 inches. Each plan set shall be bound using staples, brads or other permanent fasteners. Pages which are held together by rubber bands and/or paper clips are not considered to be a bound volume.
D. all of the above

57. Plot Plan information includes?
A. Dimensioned plans or plans drawn to scale (scale indicated on plans) with property lines, parcel size, and property boundaries clearly marked.
B. Benchmark and north arrow.
C. Elevations when the bottom of the furthest tank is proposed to be located more than 15 feet below the elevation where the all-weather road is to be provided.
D. All of the above

58. Plot Plan information includes?
A. Information showing that the access opening of the furthest tank is located not more than 25 feet horizontally from where the all-weather road is to be provided.
B. Pertinent existing and proposed buildings, wells, water lines, swimming pools, flood plain location and elevation and OHWM designations of navigable waters.
C. Location information; legal description (down to 40 acres and/or subdivision), block and lot number of platted lands.
D. All of the above

## I. Septage Disposal:

59. Estimated daily wastewater flows greater than _____ gpd, shall include information pursuant to s. NR 113.07(1)(e), Wis. Adm. Code. Written notification from the Department of Natural Resources shall be provided confirming agreement from a publicly owned treatment work to accept the contents from the holding tank.
A. 1000
B. 2000
C. 3000
D. 4000

J. Inspections**:**

60. Inspection(s) shall be made in accordance with _____, Wis. Adm. Code. The inspection form on the following two pages may be used.
    A. ch. 140.20, Wis. Stats.
    B. 381.26
    C. both A & B
    D. none of the above
61. The inspection of the POWTS installation is to verify that the POWTS conforms to specifications listed in Table _____ of this manual and the approved plans.
    A. 1
    B. 2
    C. 3
    D. both A & B

## Holding Tank Quiz Answer Sheet

| | | | | | |
|---|---|---|---|---|---|
| 1 | a b c d e | 21 | a b c d e | 41 | a b c d e |
| 2 | a b c d e | 22 | a b c d e | 42 | a b c d e |
| 3 | a b c d e | 23 | a b c d e | 43 | a b c d e |
| 4 | a b c d e | 24 | a b c d e | 44 | a b c d e |
| 5 | a b c d e | 25 | a b c d e | 45 | a b c d e |
| 6 | a b c d e f g | 26 | a b c d e | 46 | a b c d e |
| 7 | a b c d e f g | 27 | a b c d e | 47 | a b c d e |
| 8 | a b c d e f g | 28 | a b c d e | 48 | a b c d e |
| 9 | a b c d e f g | 29 | a b c d e | 49 | a b c d e |
| 10 | a b c d e f g | 30 | a b c d e | 50 | a b c d e |
| 11 | a b c d e f g | 31 | a b c d e | 51 | a b c d e |
| 12 | a b c d e f g | 32 | a b c d e | 52 | a b c d e |
| 13 | a b c d e | 33 | a b c d e | 53 | a b c d e |
| 14 | a b c d e | 34 | a b c d e | 54 | a b c d e |
| 15 | a b c d e | 35 | a b c d e | 55 | a b c d e |
| 16 | a b c d e | 36 | a b c d e | 56 | a b c d e |
| 17 | a b c d e | 37 | a b c d e | 57 | a b c d e |
| 18 | a b c d e | 38 | a b c d e | 58 | a b c d e |
| 19 | a b c d e | 39 | a b c d e | 59 | a b c d e |
| 20 | a b c d e | 40 | a b c d e | 60 | a b c d e |
| | | | | 61 | a b c d e |

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----------Educational Course Attendance Verification Form ----------

Attendee's Name_____Date _____

Address_____

Credential Number_____Phone#_____

Course Title and Name Holding Tank Quiz Fax#_____

List the name of each credential held by attendee_____

_____Credited Hours 6 hours **Fee $55.00**

Email _____

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To be completed by GaryKlinka.com

Course Password_____Course ID# 8402

Attendee passed the course with a greater than 70% score on Date_____

Instructor Signature_____

# HOLDING TANK COMPONENT MANUAL
# FOR PRIVATE ONSITE WASTEWATER TREATMENT SYSTEMS
# (VERSION 2.1)

**May 2022**
**Exp. end of May 2027**

**State of Wisconsin**
**Department of Safety & Professional Services**
**Division of Industry Services**

**HOLDING TANK COMPONENT MANUAL**
**FOR PRIVATE ONSITE WASTEWATER TREATMENT SYSTEMS (POWTS)**
**(VERSION 2.1)**

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## I. INTRODUCTION AND SPECIFICATIONS

This Private Onsite Wastewater Treatment System (POWTS) component manual provides design, construction, inspection, operation, and maintenance specifications for a prefabricated or site constructed holding tank component that has a current plumbing product approval from the Department. Site constructed holding tank components that do not have plumbing product approval must be submitted as an individual site design. Violations of this manual constitute a violation of chapters SPS 383 and 384, Wis. Adm. Code. Design variations of this manual will constitute an "Individual Site Design" which require exclusive plan review conducted by state staff.

Note: Detailed plans and specifications must be developed and submitted for review and approval to the governing unit having plan review authority. In addition, a state Sanitary Permit must be obtained from the department or governmental unit having jurisdiction. See Section VII for more details.

**Table 1**
**SIZE AND LOCATION**

| | |
|---|---|
| Holding capacity | ≥ 5 times estimated daily wastewater flow or 2000 gals, whichever is greater |
| Horizontal setback distances | Meet s. SPS 383.43 (8) (i), Wis. Adm. Code |
| Location of service access opening | ≤ 25 feet to an all-weather road measured from the furthest service access opening or pump out port. |

**Table 2**
**OTHER SPECIFICATIONS**

| | |
|---|---|
| Tank design and construction | Meets s. SPS 384.25, Wis. Adm. Code |
| Alarm or warning system | Meets s. SPS 383.43(8)(e)2. and s. SPS 384.25 (10), Wis. Adm. Code |
| Metering | When specifically required, meets s. SPS 383.54 (2), Wis. Adm. Code |
| Installation in soils that indicate periodic or constant saturation. | Meets s. SPS 383.43 (8) (g), Wis. Adm. Code. |
| Installation inspection | In accordance with ch. SPS 383, Wis. Adm. Code |
| Management | In accordance with ch. SPS 383, Wis. Adm. Code and this manual |
| Piping materials for vents | ≥ 2" I.D. pipe constructed of materials listed in ch. SPS 384, Table 384.30-1, Wis. Adm. Code. |
| Vent Location and Orientation | Meets s. SPS 382.31(16)(d)2. and s. SPS 383.45(6)(b), Wis. Adm. Code. Vent openings are oriented down. |

## II. DEFINITIONS.

Definitions not found in this section are located in chapter SPS 381, Wis. Adm. Code, or the terms use the standard dictionary definition.

1. "Service provider" means the individual or company that is responsible for inspecting, maintaining, or servicing the holding tank system.
2. "All-weather road" means a gravel or paved surface that can support a fully loaded pump truck in all seasons.

## III. DESCRIPTION AND PRINCIPLE OF OPERATION

The POWTS holding tank serves to contain wastewater or sewage on site until the contents are pumped and hauled to a proper point of disposal. Pumping and monitoring reports are submitted to the governmental unit or designated agent.

The holding tank installed under this component manual holds domestic wastewater, stormwater or clearwater inclusions permitted under s. SPS 382.36, Wis. Adm. Code, until pumped by an individual certified as a septage servicing operator under ch. NR 114, Wis. Adm. Code. See Figure 1 for an example of a typical holding tank.

Industrial wastewater is regulated by the Department of Natural Resources (DNR), and is not included in this specification, unless approved by the DNR in advance.

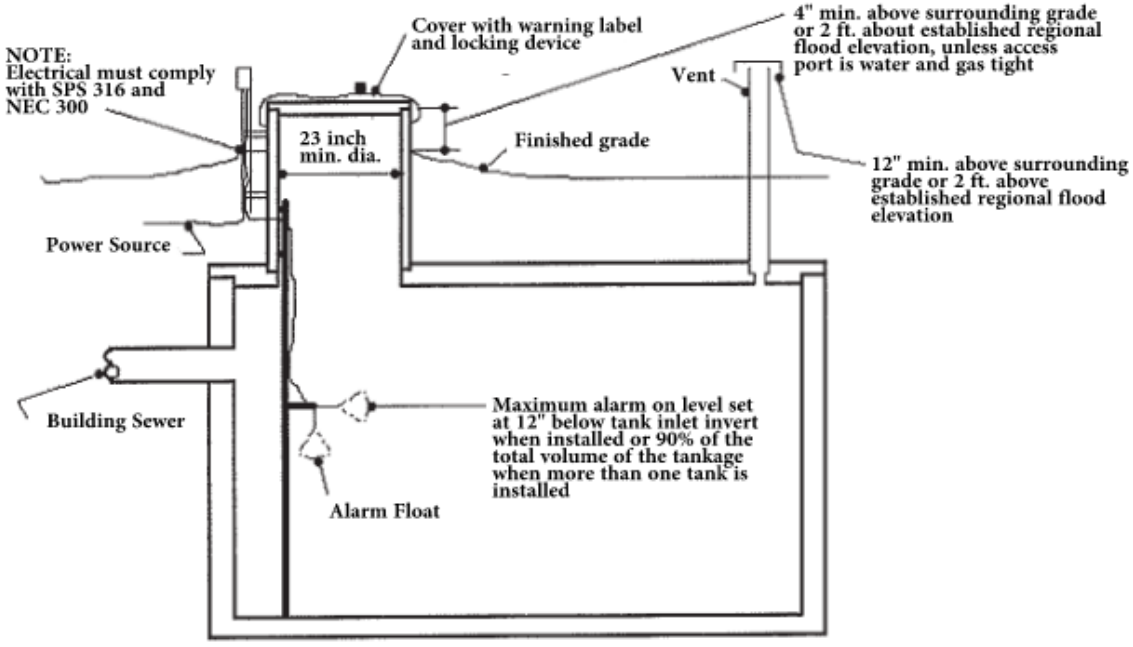


Figure 1 – Cross-section of Holding Tank

## IV. DESIGN

### A. Tank Size:

1. One- and Two-family Dwellings. The minimum liquid capacity of a holding tank for one- and two-family dwelling applications shall not be less than 2000 gallons or 5 times the estimated daily wastewater flow determined in accordance with s. SPS 383.43(3), (4), or (5), Wis. Adm. Code, whichever is greater.
2. Public Facilities. The minimum liquid capacity of a holding tank for public facilities shall not be less than 2000 gallons or 5 times the estimated daily wastewater flow determined in accordance with s. SPS 383.43(6), Wis. Adm. Code or Table 3 whichever is greater. Estimated flows for facilities not listed in Table 3 shall be provided pursuant to s. SPS 383.43(6), Wis. Adm. Code.

### B. Tank Anchoring:

When a holding tank may be installed in saturated soils (see ch. SPS 385, Wis. Adm. Code, for information on how to determine soil saturation) and/or in an area that is considered part of a flood plain, the tank shall meet the provisions of s. SPS 383.43(8)(g), Wis. Adm. Code.

See chapter SPS 383, Wis. Adm. Code, Appendix for examples of anchoring calculations.

### C. Monitoring/Management Equipment:

The alarm for the holding tank installation is an audible and/or visual alarm installed in a conspicuous location in or on the building served or on a post near the tank. The alarm is connected to a float switch or other electrical sensor in the holding tank. The maximum alarm on level is set at 12 inches below the tank inlet when only one tank is used or 90% of the total volume of the tankage when more than one tank is used.

## V. SITE PREPARATION AND CONSTRUCTION

### A. Sanitary Permit:

Prior to the construction of the system, a state sanitary permit shall be obtained and posted in a clearly visible location on the site. Arrangements for inspection(s) must be made with the governmental unit that issues the state sanitary permit. When a POWTS is located or will be located on property owned by the state, the sanitary permit shall be obtained from the department. Arrangements for inspection(s) shall be made with the department.

### B. Site Preparation and Tank Installation:

The holding tank must be installed in accordance with the manufacturer's printed instructions, product approval, plan approval and specifications in this component manual. If there is a conflict between the manufacturer's instructions and the product approval, plan approval and/or component manual specifications, the product approval, plan approval and/or component manual specifications take precedence.

1. The tank shall be set level. (Refer to tank manufacturer's recommendations for bedding and backfill listed in tank approval letter.)
2. Access openings that terminate at grade and/or less than 2 ft. above the established regional flood elevation (if applicable) must have watertight access openings. Access openings that terminate at least 4 inches above the surrounding grade and 2 ft. above the established regional flood elevation (if applicable) are not required to have watertight access openings.
3. Access opening covers that terminate at or above grade may be provided with a service port that is 8 inches inside diameter. The reduced opening must have a locking device or a brass cleanout plug. Service ports larger than 8 inches inside diameter must have a locking device in accordance with s. SPS 384.25(7)(h), Wis. Adm. Code.
4. All access openings shall be located as to permit a minimum of 3 feet of clear space above the opening and 2 feet in all directions horizontally from any point of the access opening for purposes of inspection, maintenance or servicing. Access openings within 10 feet of any building shall also be gas tight.
5. The connection of the holding tank to the sanitary sewer shall be by means of a mechanical joint, solvent cement joint or other joint conforming to s. SPS 384.40, Wis. Adm. Code.
6. Below grade connections. Joints between the tank, access opening risers, and covers shall be watertight.

**C. Alarm Equipment Installation:**

The alarm switch shall be set to activate an alarm when liquid volume is 12" below the tank inlet invert or at 90% of the liquid capacity of the tank below the tank inlet invert. All wiring shall be installed in accordance with National Electrical Code (NEC) Article 300 and s. SPS 316.23, Wis. Adm. Code.

**D. Backfill:**

The holding tank excavation is backfilled as per manufacturer instructions with sufficient soil material to divert surface water runoff away from the tank location.

## VI. OPERATION, MAINTENANCE AND PERFORMANCE MONITORING

**A. Owner is Responsible:**

The POWTS owner is responsible for the operation and maintenance of the POWTS locking device, alarm, and access opening. The owner or owner's agent is required to submit reports as required by s. SPS 383.55 (1), Wis. Adm. Code, to the governmental unit or designated agent.

**B. Approvals and Inspections:**

Design approval and site inspections before, during and after construction are conducted by the governmental unit or other appropriate jurisdiction(s) in accordance with ss. SPS 383.22 and 383.26, Wis. Adm. Code.

**C. Performance Expectations:**

1. Maintenance cycle. The holding tank must be serviced by certified septage operators (pumpers). An alarm system must be installed to activate when the liquid level in a single tank is within 12 inches of the inlet invert or when the total volume of the tankage of multiple tanks reaches 90%.
2. Performance monitoring. Within 30 calendar days from the date of an inspection, maintenance or servicing event, the owner of the POWTS or the owner's agent shall file a report with the governmental unit or designated agent.

**D. User's Manual:**

A user's manual shall accompany the POWTS component and be provided to the owner following installation. At a minimum, the manual shall contain the following information:

1. Diagram(s) of all components and their locations.
2. Names and phone numbers of local governmental unit authority, component manufacturer or POWTS service provider to be contacted in the event of component failure or malfunction.
3. A management plan that contains information on the periodic inspection, maintenance or servicing of the component, including electrical/mechanical components.

## VII. PLAN SUBMITTAL AND INSTALLATION INSPECTION

**A. Plan Submittal:**

In order to install a POWTS correctly, it is important to develop plans that will be used to guide the installation. The following checklist may be used when preparing plans for review. Conformance to the list is not a guarantee of plan approval. Additional information may be needed or requested to address unusual or unique characteristics of a particular project. Contact the reviewing agency for specific plan submittal requirements, which may be different than the list included in this manual.

**B. General Submittal Information:**

1. Legible photocopies of reports, forms, plans, and other documents are acceptable. However, an original signature is required on certain documents (e.g. index page).

2. Submittal of additional information requested during plan review or questions concerning a specific plan must be referenced to the identification number assigned to that plan by the reviewing agency.
3. Plans or documents must be permanent, legible copies or originals.

**C. Forms and Fees:**

A current version of a completed Application For Review form, (SBD-10577) along with proper fees must be included with plans submitted to the department. If plans are to be submitted to a local governmental unit, the appropriate reviewer should be contacted for information regarding application forms and fees.

**D. Soils Related Information:**

1. A holding tank is a component that does not utilize in situ soil for treatment or dispersal of wastewater; therefore a soil test is not required per s. SPS 383.44 (1), Wis. Adm. Code.
2. Pertinent flood plain areas and OHWM designations of navigable waters of the state shall be shown on a soil test and/or the system plot plan.
3. A soil test may be required (one borehole at tank location) for the evaluation of saturated soil depths if tank anchoring is a concern.
4. Section SPS 383.32(2), Wis. Adm. Code, allows municipalities to prohibit or limit holding tanks. These municipalities may require a complete soil test by ordinance to verify that a holding tank is the only option available.

**E. Documentation Requirements:**

1. Architects, engineers, or designers shall sign, seal and date each page of the submittal or sign, seal and date an index page, which is attached to the bound set.
2. Master Plumbers and Master Plumbers-Restricted Service shall, sign, date and include their license number on each page of the submittal or sign and date an index page which is attached to each bound set.
3. At least three sets of plans and one set of specifications (clear, permanent, and legible) shall be submitted to the department. Submittals must be on paper measuring at least 8-1/2 by 11 inches. Each plan set shall be bound using staples, brads or other permanent fasteners. Pages which are held together by rubber bands and/or paper clips are not considered to be a bound volume.

**F. Plot Plan Information:**

1. Dimensioned plans or plans drawn to scale (scale indicated on plans) with property lines, parcel size, and property boundaries clearly marked.
2. Benchmark and north arrow.
3. Elevations when the bottom of the furthest tank is proposed to be located more than 15 feet below the elevation where the all-weather road is to be provided.

4. Information showing that the access opening of the furthest tank is located not more than 25 feet horizontally from where the all-weather road is to be provided.
5. Pertinent existing and proposed buildings, wells, water lines, swimming pools, flood plain location and elevation and OHWM designations of navigable waters.
6. Location information; legal description (down to 40 acres and/or subdivision), block and lot number of platted lands.

**G. System Sizing:**

1. For one- and two-family dwellings the number of bedrooms shall be included.
2. For public facilities, the sizing calculations shall be included; . Public facility estimated daily wastewater flows can be found in s. SPS 383.43(6), Wis. Adm. Code. Facilities not listed in s. SPS 383.43(6), Wis. Adm. Code can be discussed with the plan reviewer to establish an acceptable daily flow rate volume.

**H. Tank Information:**

1. Construction details for site-constructed tanks. (Note: site constructed tanks that do not have a valid plumbing product approval are not included within the scope of this manual and must be submitted as individual site designs)
2. Size, model number and manufacturer information for prefabricated tank(s).
3. Installation information must include vent and access opening locations, depth to inlet; and height/elevation of freeboard, if applicable.
4. Anchoring information shall be provided whenever a tank is located within the floodplain and/or the depth to seasonal soil saturation indicates anchoring is necessary to prevent flotation of the tank.
5. Cross section of tank (or tanks to be installed in series), with information regarding liquid depth, depth of high water alarm, approved joints and any modifications (suction pipes, etc.) clearly marked.

**I. Septage Disposal:**

Estimated daily wastewater flows greater than 3,000 gpd, shall include information pursuant to s. NR 113.07(1)(e), Wis. Adm. Code. Written notification from the Department of Natural Resources shall be provided confirming agreement from a publicly owned treatment work to accept the contents from the holding tank.

A confirmation agreement from a publicly owned wastewater treatment plant to accept the contents from the holding tank shall also be included if the facility is designated to be “At-Risk” or produces High-Strength wastewater.

## J. Inspections:

Inspection(s) shall be made in accordance with ch. 145.20, Wis. Stats., and s. SPS 383.26, Wis. Adm. Code. The inspection form on the following two pages may be used. The inspection of the POWTS installation is to verify that the POWTS conforms to specifications listed in Tables 1 and 2 of this manual and the approved plans.