

**WASHINGTON DEPARTMENT OF HEALTH**  
**Sewage Tank Rule Advisory Panel**  
July 8, 2008, 9:30 – 3:30  
Washington Department of Health, Kent Office

**SUMMARY**

**Action Items**

- **No “Next” Meeting Scheduled.**
- **DOH will be drafting WAC 246-272C based on Panel recommendations.**

**Follow-Up Items**

- **DOH:** Put in guidance: consider soil weight and depth of bury when designing tank. Clarify that standard is based on 110 lb/cubic foot, which is not the top end of soil loading – and numbers may need to be adjusted to fit the specific conditions of the site.
- **DOH:** Should investigate riser lid load-bearing testing during rule-writing.
- **DOH:** Continue to look for International Building Code (IBC) copy to ensure there is no structural inconsistency. (Local planning departments should have a copy.)
- **DOH:** Review pressure testing standards and report to the panel. Possibly vote by e-mail to determine if this should be allowed.

**Introduction and Opening Remarks**

Dave Lenning welcomed panel and audience members, reviewed the agenda, and asked panel members, DOH staff and audience members to introduce themselves. There were 9 panel members present establishing a quorum. One additional panel member joined at about 10:50.

There were no comments or additions to the agenda.

**Task 1: Water Tightness Standards and Testing.**

Mamdouh El-Aarag introduced the Technical Issue paper on Water Tightness. The issue paper was distributed to panel members prior to the meeting. He walked the group through the various sections and explained that the questions posed at the end of the paper would be the basis for our discussions and decisions. Dave Lenning asked for discussion of the issues described in the Issue Paper, before beginning to address the questions at the end. The discussion lasted until first break at 10:45. After that, the Panel began working with the questions.

**Panel Decisions and Recommendations**

1. **Should the rule contain testing criteria to ensure that sewage tanks are water tight?**

**Panel Vote: 8-Green, 1-Yellow.**

Comments:

- Yellow vote: wants details and expectations identified before agreeing.
- Define water tight. (Will develop later in the discussion.)

2. **Should the rule require tank manufacturers to certify water tightness of sewage tanks at the point of manufacturing?**

**Panel Vote: None;** not prepared to vote on the question.

Comments:

- The “certification” can be as general as the language in RS&G section 2.1.2.6 (page 11).
- Want to know what we’re agreeing to.
- May want to reconsider votes on questions 1 and 2 if not in agreement with later specifics and details.
- Suggest 2 types of tanks:
  - Demonstrated water tight into the riser – if needed by poor soil type or for another reason.
  - Water tight to the invert of the outlet: low risk situation: deep groundwater, low precipitation, etc.
- This implies field testing – not manufacturer’s test.
- Panel agreed that the rule requirements apply to all tanks used for sewage treatment process.
- Let the manufacturers decide how to build and certify their own tanks.
- Tank approval submittal package (to DOH) should include the details of the chosen testing protocol.
- RS&G 2.1.2.6 is acceptable.
- Not in favor of manufacturer testing if in-field testing is required.
- Suggest removing the second part of 2.1.2.6 or clarify to ensure that those manufacturers who test in plant are not held responsible for doing the field test.
- The manufacturer is basically certifying that the tank is built per the engineer’s design. Engineer must design a water tight tank.
- RS&G 2.1.2.6 implies pressure testing.
- Manufacturers should be testing/certifying their products.
- What about local requirements? Want level playing field across the state. (There was no state regulation before this, so counties had to develop their own requirements.)
- Compare to other specific provisions in the tank regulation – they are not this detailed. What’s the benefit in being this detailed?
- Suggestion: combine questions 2 and 3.

**3. Questions 2 AND 3: Should the rule require manufacturers to certify the water tightness of sewage tanks, as detailed in RS&G 2.1.2.6, with no intent of requiring testing of every single tank?**

**Panel Vote: 10-Green.**

Comments:

- Quality control process – not testing every tank, should be specified in the tank approval submittal to DOH.
- Concern for definition of water tightness: to invert of outlet or into the riser.
- Design engineer and manufacturer should specify tank details on water tightness, size of tank, traffic rating, etc.
- May want to revisit this vote, if Panel decides not to require field testing.

LUNCH BREAK

## **Task 2: Action Items and Updates (working lunch)**

Dave Lenning noted that he received Panel member Sam Carter's e-mail (July 7, 2008). The email contained some comments and proposals regarding tank loading issues this panel discussed previously. Paper copies of the email message were distributed to all present. Dave reminded the group that one of the items agreed to in the Working Agreement is that the Panel would not revisit issues already voted on. Dave explained that in order to review the concerns raised in the email and still operate within the Agreement, the Panel would need to suspend this rule temporarily and for this specific discussion. The Panel voted 7-Green and 3-Red to do this.

### **Sam Carter's Email Questions**

1. Soil Loading Proposal: increase the design loading rate of 110 lb/cubic foot to 140 lb/cubic foot.

**Consensus: No change.**

Comments:

- How many tank failures have there been? (This information has not been collected; unknown.)
- How about identifying the loading factor used for the regulation in the guidance document?
- High expense for manufacturers to retool – assuming redesign would be necessary.
- Further research into soil density/weights needed.
- For 3 feet of bury, ASTM standards use 100 lb/cubic foot. IAPMO uses 500 lb/cubic foot.
- Voted 11-Green last time to accept 110 lb/cubic foot. Also to revisit and research.
- Manufacturers should specify the depth of bury and loading their tanks are built for.
- Should designer have to test the soil and then choose the tank? High expense.
- Few test pits are dug exactly where the tank will be installed. Soils vary throughout the site.
- Look at safety factor already in design – how and where built in?
- **DOH follow-up:** Put in guidance: consider soil weight and depth of bury when designing tank. Clarify that standard is based on 110 lb/cubic foot, which is not the top end of soil loading – and numbers may need to be adjusted to fit the specific conditions of the site.

2. Should we adjust the design depth of bury from 3 feet to ??

**Consensus: No change; add to guidance – explain assumptions made in the rule. If possible, add a matrix of soil type and depth.**

Comments:

- Oregon chose to use 4 feet – to cover more of the actual installations.
  - Panel comments: estimates in Washington – 90% are 3 feet or less. Rare for depth of bury to exceed 3 feet.
  - Commercial and larger tanks more commonly have a deeper bury.
  - Do we have a problem with depth of bury? We don't know.
3. Should DOH consider specifying the minimum lateral loading for design purposes to be 62.4 lb/cubic foot?

**Consensus: No change in the RS&G – need to make sure to cover this in the new guidance.**

Comments:

- Specified in Oregon regulations.
  - Lateral loading from water.
  - Vacuum testing should be used to cover saturated conditions.
  - RS&G covers this in 3.1.5 (page 14).
4. Should there be a testing protocol for the 2500 lb wheel loading riser lid requirement?  
**Consensus: DOH can consider including it in guidance.**  
 Comments:
- See RS&G 3.4.7.
  - Is there a liability issue?
  - Is there a problem?
  - **DOH follow-up:** should investigate during rule-writing.

### Updates

1. The LOSS Rule Advisory Committee (RAC) recommendation is for in-field/in-place water tightness testing for all tanks.
2. The LOSS RAC specified a single spec for riser opening: 24 inches. Openings should be 8 foot, center to center.

Comments:

- The panel sees this as not much problem for specially designed and built tanks (larger systems).
- Shouldn't have inconsistencies between OSS and LOSS rules.
- Tank specs would change at the 3500 threshold.
- **DOH follow-up:** Continue to look for International Building Code (IBC) copy to ensure there is no structural inconsistency. (Local planning departments should have a copy.)

### Task 1: Water Tightness Standards and Testing – Continued.

#### 4. Define water tightness.

**A. What specs for loss during water testing? ASTM, per the RS&G? Allow a 24 hour period for wetting. Fill and “hold” the tank water level for 1 hour.**

**Panel Vote: 5-Green: Washington RS&G; 5-Yellow: Arizona standard.**

Comments:

- Options for amount of loss: not measurable (what does that mean?), 2”, 4” in 24 hours.
- Don't like the 24 hour wait period.
- Could use vacuum test – if approved.
- Concern for cost: water, time, labor.

Dave noted the tie vote and told the Panel that DOH will probably add some of the Arizona language about seeps vs. wet spots.

**B. Should we allow vacuum testing for water tightness?**

**Panel vote: 7-Green, 3-Red.**

Comments:

- Great for structural testing.
- Direction of the pressure is opposite of that of water/leak.

- Difficult to obtain vacuum level specified because of fittings.
- LOSS RAC: makes sense for large tanks (difficulty of obtaining water).
- Vacuum testing much quicker than water – therefore less cost.
- Water test helps tank settle before use and dilutes initial sewage load.
- ASTM recognizes vacuum testing as viable.

**C. What are the specs for loss during vacuum testing? ASTM: hold 90% vacuum for 10 minutes.**

**Panel Vote: 6-Green, 4 Red.** Use ASTM standard.

Comments:

- This allows 10% loss.
- May be because difficult to get all fittings/connections sealed.
- Tank shrinkage may occur with non-concrete tanks.

**D. Do we allow pressure testing for Fiberglas, poly and concrete tanks?**

**Panel Vote: None;** needs research.

Comments:

- ASTM method (whatever it is) is generally preferred because the other testing standards are ASTM.
- Montana uses UL 13.19.
- RS&G silent on this test method.
- Also check IAPMO and WSDOT protocols.
- **DOH follow-up:** Review these standards and report to the panel. Possibly vote by e-mail.

**E. To what level do we fill the tank with water?**

**Panel Vote: None taken.** Want to discuss first which tanks must be field tested.

Comments:

- LOSS RAC: all tested 2 inches into the riser.
- If only tested to invert of the outlet, performance of the tank and fittings above that level is unknown.
- Concern for surface water, root intrusion, exfiltration, especially if a pump failure results in flood conditions.
- Choices: invert of the outlet, crown of the outlet; invert of the inlet, crown of the inlet; into the riser.
- Can we consider an interim standard and see how we do? Can revise rule later. (Rule revisions don't happen regularly or on a schedule.)

**5. Should ALL tanks (including appurtenances) be tested for water tightness after installation? (Question 4 in issue paper.)**

**Panel Vote: 7-Green, 1-Yellow, 2-Red.**

**6. Should all tanks being water tested be filled 2 inches into the riser?**

**Panel Vote: 4-Green, 5-Red, 1-Yellow.**

**7. Should all tanks being water-tested be filled at least to the invert of the outlet? (Not applicable to pump chambers.)**

**Panel Vote: 6-Green, 1-Yellow, 3-Red.**

Comments:

- Should ensure entire tank is water tight – makes sense to fill to the riser as long as you are putting water in anyway.
- For a pump chamber – the pump-on level is the high water level – so need to test to that.
- What about a pump chamber being installed in groundwater – where is test level?
- Time-controllers will show if there's leakage --- use this as an indicator instead of water tightness testing.
- What if flooded chamber and no one responds to alarms?
- Why test to show meeting water tightness standard on low risk sites – waste of money.
- If a pump tank is installed into groundwater, test to a higher level – depending on the elevation of seasonal high water.
- If a septic tank is installed in groundwater, use the same testing as for pump tank.
- Suggest adopting the LOSS RAC recommendation: test 2 inches into the riser.
- Pump chamber in a “regular” installation should be tested to same minimum level as septic tank is.
- Groundwater levels, traffic rating, anti-buoyancy, etc. should be identified by the designer.
- All tanks installed in groundwater that is above the invert of the outlet should be tested to the seasonal high water level. If groundwater is higher than 2 inches into the riser, can stop there (test first joint only).
- Should a length of pipe be connected and tested at inlet and outlet when the tank is tested? Part of the “system”. We agreed that the intent is to test the connections to the tank as part of water tightness testing.

**8. Who certifies the water tightness testing?**

**Panel Consensus: Installer, engineer/designer, tank manufacturer, local health jurisdiction, DOH LOSS staff.**

**9. When should the tank be tested for water tightness?**

**Panel Consensus: Manufacturer: as specified in the testing portion of the submittal for DOH approval (self-determined); Field test: some time during the process of installation.**

Comments:

- Some counties want to see the tank exposed (for viewing the tank label); other say backfill is OK.
- Filling with water may help settle the sight, so may want to leave connections exposed if danger of breaking them during settling.
- No specific time or condition should be specified.

**10. Should we include provisions for regulators (DOH and LHJ) to specify more than the water tightness testing minimums if there is a good reason? (examples: sensitive area, coarse soil, tank used for advanced treatment) See Question 5 in the issue paper.**

**Panel Consensus: YES.**

### **Task 3: Sewage Tank Rule – What Happens Now?**

Melissa explained that there is a timeline laid out for the rule development process. We have completed the panel input portion and will next move to drafting the rule language. **The rest of the panel meetings scheduled for this year will be cancelled.** She expects we will have a draft in August or September. Some Panel members suggested a meeting with DOH in September to review the draft in person. Other Panel member suggested options such as email would work better. Melissa said a limited web site for members to use is set up already.

Melissa expects that we will try to get on the State Board of Health's agenda for a preliminary briefing in October 2008. Next would be a series of public workshops throughout the state to present the draft rule and DOH would call the Panel back together after the workshops. Dave mentioned that DOH would like as many panel members as possible to participate in the local workshops and meetings. We will be notifying interested parties prior to the workshops.

We would be back on the Board of Health's calendar in January 2009. If we can file the formal rule proposal rule with the Office of the Code Reviser in February or March, we should have the rule adopted and effective in the summer of 2009.

Dave and the WWMS staff thanked the panel for their thoughtful participation and the time they have spent helping us with the Sewage Tank Rule.

**Adjourn: 3:45 pm.**

## In attendance

### Technical Advisory Panel

#### Members

John Richardson	Premier Plastics
Curt Davis	Davis Sales, Norwesco
Scott Erickson	Wilbert PreCast
Tom Rogers	Northwest Cascade, Inc.
Jim Wolfe	Evergreen Pre-Cast
Bob Sweeney	Environmental Management Systems Inc,
Mark Allen	Seattle-King County Health Dept.
Rocky Billings	Peninsula Tanks
Sam Carter	Orenco Systems, Inc.
Bob Nation	Fextex Systems Inc.

#### DOH Staff

Dave Lenning	Wastewater Management Section
Melissa McEachron	
Denise Lahmann	
Mamdouh El-Aarag	
Jeanne Andreasson	
Lynn Schneider	

#### Guests

Jay Schinckie	Sound Placement Services
Peter Lombardi	Designer/Orenco Systems Inc
Bob Anderson	Fred Hill Materials
Linda Atkins	Jefferson Co. Public Health