

**LOSS RAC Discussion Agenda & Record of Decisions**

<b>Issue Paper for Technical Subcommittee Meeting</b>		Number of Members Present: ____	
<b>Engineering / Design Topics</b>	<b>Topic Number: 14A</b>	50% +1= ____	Two Thirds = ____
Topic Statement	Establish requirements for septic tanks that should be stated in the LOSS rule.		
Problem Statement	Sewage tanks are an integral part of all small OSS and LOSS. The tank may be a septic tank, a pump chamber, a tank that is part of a proprietary treatment process or other treatment component, a grease trap, or other type of tank. A State Board of Health rule is being developed for sewage tanks. This rule will focus on the design and construction of tanks, but may include other requirements too. <b><i>We must develop requirements for septic tanks to be included in the LOSS rule.</i></b>		
Background	<ul style="list-style-type: none"> <li>• The primary purpose of a septic tank is to protect more expensive downstream system components. The size, shape, flow patterns, and other tank features do this by subjecting the wastewater to anaerobic decomposition, reducing the volume of solids, capturing as many solids from the wastewater stream as possible, modulating surges that can push solids downstream, and discharging a relatively clarified effluent.</li> <li>• An absolute minimum of one day's retention must exist between the bottom of the scum layer (floatable solids) and the sludge layer (settleable solids). Any extra required liquid volume allows time for solids collect sufficiently to minimize pumping frequency.</li> <li>• Even though tank costs are minimal compared to the cost of the rest of the system, as required septic tank liquid volumes increase, the cost increases.</li> <li>• Requirements pertaining to the same subject in different rules should be consistent. If different rules are inconsistent, a justifiable rational for the inconsistencies should exist.</li> <li>• The Technical Review Committee (TRC) and the small OSS rule advisory committee discussed the sizing of septic tanks. Following the discussion and looking at what was suggested from around the country, they developed the following recommendations for the minimum liquid volumes of septic tanks which are in the small OSS rule (see reference section):             <ul style="list-style-type: none"> <li>○ Residential development, other than one single family home – 200 gallons/bedroom</li> <li>○ Non-residential development – three times the design flow</li> </ul> </li> <li>• After discussion by the initial LOSS rule advisory committee, evaluation of the small OSS rule, and internal discussion with DOH staff, the LOSS foundation document suggests:             <ul style="list-style-type: none"> <li>○ The required minimum liquid volumes should be:                 <ul style="list-style-type: none"> <li>▪ 200 gallons/bedroom for residential development (assumes some averaging)</li> <li>▪ Three times the daily <u>operating capacity</u> for non-residential development</li> </ul> </li> <li>○ An effluent screen be required (will probably be required in sewage tank rule) with an effective mesh size smaller than the orifice diameter in the downstream pressure distribution network (1/16 inch for subsurface drip)</li> </ul> </li> </ul>		

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Reference / Research	<p><b><u>WAC 246-272A-0232</u></b></p> <ul style="list-style-type: none"> <li>• Septic tanks shall have the following minimum liquid volumes:             <ul style="list-style-type: none"> <li>○ For OSS treating sewage from a residential source, other than one single-family residence, two hundred fifty gallons per bedroom with a minimum of one thousand gallons;</li> <li>○ For OSS treating sewage from a nonresidential source, three times the design flow.</li> </ul> </li> </ul> <p><b><u>WAC 246-272B-11501(2)(d)</u></b></p> <ul style="list-style-type: none"> <li>• For facilities handling residential sewage, other than one single family residence, 1.5 times the daily design flow with a minimum of 1000 gallons. (This was the same requirement in the 1995 small OSS rule that was changed to the language in WAC 246-272A-0232 noted above.)</li> <li>• Must have clean-out and inspection accesses within twelve inches of finished grade; and</li> <li>• Be designed with protection against floatation and ground water intrusion in high ground water areas.</li> </ul>		

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Questions	<p>1. Assuming a septic tank will be the primary treatment component for a LOSS serving a residential development, what minimum required liquid volume should be in the LOSS rule?</p> <p style="margin-left: 40px;">a. 250 gallons/bedroom/day per the small OSS rule? <b>YES</b> _____ <b>NO</b> _____</p> <p style="margin-left: 40px;">b. 200 gallons/bedroom/day per the LOSS foundation document? <b>YES</b> _____ <b>NO</b> _____</p> <p style="margin-left: 40px;">c. Some other specified minimum? <b>YES</b> _____ <b>NO</b> _____ If <b>YES</b>, what should it be?</p>																			
	<p><b>TRS Recommendation: Minimum of 1000 gallons per ERU for a community sewage tank.</b></p>																			
	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><th colspan="3" style="text-align: center;">Committee Vote</th></tr> <tr><th style="text-align: center;">GRN</th><th style="text-align: center;">YEL</th><th style="text-align: center;">RED</th></tr> <tr><td style="width: 30px; height: 30px;"></td><td></td><td></td></tr> </table> <p style="background-color: yellow; margin-top: 20px;"><b>TRS Recommendation: If individual homes each have a tank (sewage then flows to a community treatment system), or several homes with total flow less than 3500 gpd clustered on a tank, then refer to WAC 246-272A (small onsite systems) for tank sizing.</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><th colspan="3" style="text-align: center;">Committee Vote</th></tr> <tr><th style="text-align: center;">GRN</th><th style="text-align: center;">YEL</th><th style="text-align: center;">RED</th></tr> <tr><td style="width: 30px; height: 30px;"></td><td></td><td></td></tr> </table> <ul style="list-style-type: none"> <li>Need to be consistent with Tank Rule under development.</li> <li>Operating capacity: 90/gallons per bedroom.</li> <li>Concern for BOD increase if tanks are down-sized.</li> <li>Applicable to all flows 3500-100,000.</li> <li>3-4 times 270 gpd/ERU (previous recommendation) ~ 1000 gallon minimum.</li> <li>Pretreatment may allow a different size; this is for tank as primary treatment.</li> </ul>			Committee Vote			GRN	YEL	RED				Committee Vote			GRN	YEL	RED		
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<p>2. Assuming a septic tank will be the primary treatment component for a LOSS serving a non-residential development, what minimum required liquid volume should be in the LOSS rule?</p> <p style="margin-left: 40px;">a. Three <i>times</i> the design flow for the LOSS (depends on the decision made for design flow – this may be based on bedrooms, the anticipated operating capacity, or some other flow) <b>YES</b> _____ <b>NO</b> _____</p> <p style="margin-left: 40px;">b. Some other specified minimum? <b>YES</b> _____ <b>NO</b> _____ If <b>YES</b>, what should it be?</p>																				

**TRS Recommendation: Minimum tank size should be 3 times the design flow, regardless of waste strength.**

Committee Vote		
GRN	YEL	RED

- This is about 3 days of retention time.
- Should this be split – above 14,500 and below? No.
- What about change of use, change of waste strength in the future? Make same requirement for all.

3. Should the requirement for an effluent screen and the mesh sizes per the LOSS rule foundation document be included in the LOSS rule or do you want to recommend it be in the sewage tank rule?
- a. Include in the LOSS rule? YES \_\_\_\_\_ NO \_\_\_\_\_
  - b. Any changes suggested? YES \_\_\_\_\_ NO \_\_\_\_\_ If YES, what changes?

**TRS Recommendation: YES. Include the requirement in the LOSS Rule.**

Committee Vote		
GRN	YEL	RED

**TRS Recommendation: If a septic tank is the primary treatment, there must be an effluent screen on the outlet of the tank – or the last point before the effluent enters the pump chamber(s).**

Committee Vote		
GRN	YEL	RED

**TRS Recommendation: Mesh sizing should be per the LOSS Foundation Document.**

Committee Vote		
GRN	YEL	RED

Questions