On-Site Wastewater
Technical Advisory Group

April 8, 2014
Kittitas County Courthouse
County Commissioners Chambers
Ellensburg, WA

Meeting Summary

MEETING ATTENDEES

Core Group Members Present	Guests
David Jensen, P.E., Jensen Engineering Brent Stenson, Adams County Health Department Robert Monetta, Windermere Real Estate-Methow Valley Cindy Waite, Mason Co. Health John Wolpers, Whatcom Co. Health Joe Gilbert, Kittitas Co. Health	Mike Moren, PE Bill Zachmann, EPA
Group Core Not Present	DOH Staff
Peter Lombardi, L.D., Orenco Eric Knoff, Indigo Design	John Eliasson Leslie Turner Mamdouh El-Aarag Richard Benson

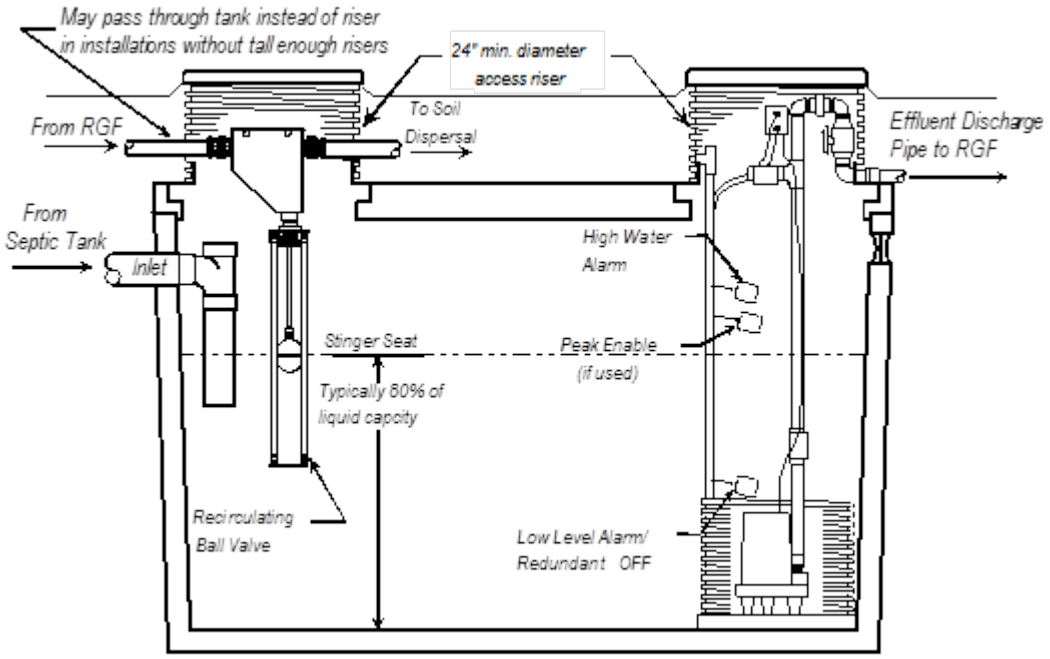
INTRODUCTION:

There was a brief discussion regarding core member terms of service. It was agreed that up to two successive 3 year terms would be the maximum service, unless that position cannot be filled. Joe Gilbert is the new representative for the Eastern WA field staff. John Wolpers is the new representative for the Western WA Environmental Health Directors. A new representative for the Eastern WA Environmental Health Directors will be sought at the next EHD meeting.

SUMMARY OF TECHNICAL RGF DISCUSSIONS

Existing RS&G for Recirculating Gravel Filter:

Figure 3 – Example of a Recirculating/Mixing Tank with a Recirculating Ball Valve:



The drawing depicts the recirculating ball valve connections from the RGF to the soil dispersal component located in the riser. What might be the impact of cold weather and/or high water? An informational box discussing cold weather insulating may be helpful.

The ball valve can be adjusted by cutting the PVC.

What are the applications for a denitrifying RGF? The applications include high strength residential and low strength commercial systems with high nitrogen levels, including LOSS.

If the RGF bed uses subsurface drip irrigation or chambers, placing 9 inches of rock over these is optional.

Nitrifying Recirculating Gravel Filter with Vegetated Denitrification Woodchip Bed:

The gabion basket was made with a modified EZ Flow bundle.

General thoughts/questions: what type of woodchips can be used? The Denitrification (Nitrogen Reduction) Verification Project at Snohomish used Alder, as have many successful studies in different states. Cedar may have too many volatiles; others may be too hard or

soft. There are studies in existence using pine woodchips. Allowing pine would give more flexibility for obtaining low cost local raw materials.

The life span of the woodchips is estimated to be 7 to 8 years.

Colder temperatures slow down microbial reactions. What is the limit of degree days to still have effective denitrification occur? Unknown.

Where can you obtain Cattail plants (Typha latifolia)? Local parks often have sites they would like cleaned up, municipalities may have storm retention ponds to clean, and some nurseries may have them available. What other plants can be used? Unknown, however Bird of Paradise was used in one study.

Average versus Daily Design flow. The daily design flow will increase the retention time which is desirable especially in winter. The average flow will yield a lower retention time. Extended absences may cause minor problems due to microbial die off, but the system is generally forgiving.

The Water Level Control Basin example in Figure 9 should have an optional concrete base for anti-flotation.

Vegetated Recirculating Gravel Filter

Gravity flow to the anoxic bed is recommended.

Adding the summary data tables for the denitrifying systems was suggested.

Should there be an option for chambers to be used in place of orifice shields? This was not tried in the VRGF denitrification evaluation project. Weeds with low widespread roots grew in between chambers in the Recirculating Gravel Filter for the Vegetative Denitrifying Woodchip Bed. If cultivated plants are placed so far from the orifice can they still survive? Unknown. The optional use of chambers in a vegetative recirculating gravel filter was not resolved.

Overview and discussion about the plants used in the project. Plants were placed adjacent to the orifice shields on both sides. The bed was “overplanted” to test as many plants as possible. The plants were all cultivated and selected for the Snohomish area site along with other factors as in the

During dismantling of the system, it was discovered that approximately 30% of the orifices were clogged. The vegetative bed was dismantled without determining; how much of the clogging was due to the ever present, excessive slime and how much was due to roots? Was the wastewater (WWTP) a factor in the sliming? If clogging was due to roots, which ones were they? Was there a competition factor?

Which plants reproduced? Was it by seed or root/rhizome? However, we do have enough information to make some suggestions for plants.

A suggestion to use riparian restoration plants was made. They typically have low spreading, “not water seeking” roots that are drought tolerant.

Suggestions for plant information included The University of Minnesota and the Master Gardeners of the Cooperative Extension.

WRAP UP:

The draft final is due by the end of July. The next meeting will likely be sometime in the fall.