Drainfield to Surface Water Setback Distance Subcommittee
Teleconference Meeting Minutes
Thursday, 10/14/2010, 10:00 am

Teleconference
Date: 2010-10-14
Start: 10:00 am

Attendance:	Boise: AJ Maupin, PE; Joe Canning, PE Hayden: Dick Martindale Idaho Falls: Nathan Taylor Kimberley: Dr. Jim Ippolito, Ph.D. USDA Coeur d'Alene: Allen Worst George Miles, PE, Athol Bill Holder, PE, Rapid City, SD
Missing:	John Corcoran (Realtor Association Representative); Brett Skidmore (Building Contractors Association Representative);

Meeting called to order at 10:02 am.

Past Meeting minutes:

Prior meeting minutes for the August 12th meeting were reviewed. Some typographical errors were noted. A motion was made to accept the minutes as amended, seconded and passed unanimously.

Prior meeting minutes for the September 9th meeting were reviewed. Some typographical errors and suggested changes to wording were addressed. A motion was made to accept the minutes as amended, seconded and passed unanimously.

White Paper

Status of White Paper section was provided. The introduction section is being composed and a draft will be delivered with the focus group sections in preparation for the next meeting. AJ has accepted the task to generate the draft introduction for everyone's review and comment.

Modeling

Dr. Ippolito's vadose (unsaturated soil) zone modeling was discussed again. Once again the difficulty of finding soils in Idaho which have had their cation, iron (Fe^{+3}), aluminum (Al^{+3}) and calcium (Ca^{+2}), concentrations previously analyzed and documented was identified. The model starts with identifying the soil volume beneath a drain field. The drain field was sized using the process defined in Rule and the TGM which uses (1) the wastewater flow volume from the home (based on # of bedrooms), and (2) the soil type, focusing on loamy (Type B) and silty (Type C) soils. This soil volume, coupled with the cation concentrations, yielded a mass of available ions to capture phosphorus. The phosphorus was modeled as phosphate ion (PO_4^{+3}) balanced with sodium (Na^{+}). The model's pH was also set to equal the receiving soil's pH. Additionally, the vadose zone adsorption sites were modeled as an aerobic environment. The phosphate concentration modeled entering the drain field was set at 9 mg-P/L (9,000 parts per billion (ppb)), the value currently accepted as representative of domestic wastewater in Idaho. Each iteration of the model represented a daily wastewater dose. The model was run until the concentration at the bottom of the soil column reached the designated limit (4.5 mg-P/L or 4,500 ppb). The number of iterations yielded the number of days in the life of the modeled drain field. The life was converted to years for ease of comparison.

Open Discussion

Open discussion commenced. The general question came up about how this information was going to be used to determine appropriate drain field setback distances to surface water. In conjunction with this question uncertainty was voiced about how the newly proposed Surface Water anti-degradation rules were going to influence this activity. A single methodology (undefined) was proposed as being the easiest and most consistent to implement statewide. Unfortunately, the diversity of Idaho's climates, topology and hydrogeology, coupled with the differing household product selection and water use habits across the state make defining a single methodology extremely difficult. Additionally, each watershed is unique. Some have pristine water while others are load limited with Total Maximum Daily Loads (TMDL) already allocated.

The aquifer modeling completed to evaluate how drain field contributions that reach the aquifer and flow to adjacent surface water indicated that the dilution factor was significant; especially after the ground water reached the surface

water. It was pointed out that the concentrations we are discharging to the drain field are about 9,000 ppb, with approximately 4,500 ppb eventually reaching the aquifer while the surface water limits may be around 50 ppb. While streams provide a continuous flowing dilution volume, what about lakes and reservoirs? DEQ has provided direction in conjunction with the Nutrient – Pathogen (NP) Study guidance that provides a method for identifying a dilution volume for a lake or reservoir that ground water is expected to be diluted in. This guidance is not anticipated to change at this time. While we have been thinking mainly of permanent surface waters, such as streams and rivers, and this question addressed lakes and reservoirs, how will we address the intermittent (present for more than 2 but less than 6 months each year) and temporary (present for less than 2 months a year) surface waters as defined in rule?

Clarification was provided on how the soil volume and resulting cation concentrations were determined for the model. It was noted that the cation concentrations were obtained from shallow soil samples. It was recommended that the soil samples for potential sites include the elevation at which the effluent will be discharged and any identifiable soil horizons below that layer down to a specified depth based on soil type. These samples would be analyzed at a lab to determine their cation (Fe, Al & Ca) concentrations.

It was proposed that we revisit the list of influential variables that were generated during the spring meetings. These variables included soil type, mass, surface water classification, depth to ground water, effective soil depth and many more. It was mentioned that the subcommittee should consider proposing operating permits for these complex systems and sites.

Based on this information, a request was made of all subcommittee members to compose their own position statement that (1) identifies their perspective of the situation and (2) details recommendations they would like the subcommittee to include in the White Paper for the Technical Guidance Committee (TGC). The position papers should be sent to AJ by 10th November so that they can be distributed for all participating subcommittee members review. The position statements will be discussed at the next teleconference.

Set Next Meeting Date/Time

The next meeting is scheduled for Thursday, 18 November 2010, from 10:00 am MDT (9:00 am PDT) to 12:00 pm MDT (11:00 am PDT).

Meeting adjourned at 12:00 am.

Next Meeting Topic:

1. Surface Water Regulations definition of “measurable degradation”.
2. Review listing of pertinent variables compiled during Spring 2010 meetings.
3. Discuss subcommittee position papers.
4. Discuss White Paper content.