

GROUNDWATER RECHARGE STAKEHOLDER ADVISORY GROUP

DRAFT MEETING NOTES ADVISORY GROUP MEETING – TUESDAY, MARCH 27, 2012 DEQ PIEDMONT REGIONAL OFFICE TRAINING ROOM

Meeting Attendees

<i>STAKEHOLDERS</i>	<i>INTERESTED PUBLIC</i>	<i>TECHNICAL SUPPORT</i>
Greg Evanylo – VA TECH	Alicia Connelly – City of Norfolk Utilities – Alternate for Chris Harbin	John Aulbach - VDH
Larry Foster – AWWA VA Section/Newport News Waterworks	Blair Cruz – VA Agribusiness Council	Melanie Davenport - DEQ
Chris Harbin – City of Norfolk Utilities		Marcia Degen – VDH
Whitney Katchmark – Hampton Roads PDC		Wes Kleene - VDH
Mike Lang – New Kent County – Public Utilities – Alternate for Larry Dame		Barry Matthews – VDH
Michael Lawless – Mission H2O		Brian McGurk - DEQ
Craig Maples – City of Chesapeake Public Works		Randy McFarland – USGS
Clifton Parker IV – Aqua America		Angela Neilan - DEQ
Jim Pletl – Hampton Roads Sanitation District		Bill Norris – DEQ
Cameron Tana – HydroMetrics Water Resources, Inc.		Valerie Rourke – DEQ
Cabell Vest – VAMWA		Neil Zahradka – DEQ
Brent Waters – Golder Associates		

NOTE: The following Stakeholder Advisory Group Members were absent from the meeting: Peter Brooks – PMBA (Asked to be removed from active Advisory Group Listing 03/26/2012); Larry Dame – New Kent County – Public Utilities; Ed Fleischer – CH2M Hill; Ron Harris – Newport News Waterworks; Janet Herman – UVA; Peter McDonough – Golf Course Superintendents Association; Britt McMillan – Eastern Shore of Virginia Groundwater Committee

1. Welcome & Introductions (Angela Neilan and Bill Norris):

Bill Norris, Regulatory Analyst with the DEQ Office of Regulatory Affairs, welcomed everyone to the 3rd meeting of the Groundwater Recharge Stakeholders Advisory Group. He asked for introductions of those attending today's meeting.

He noted that he had received notification from Dan Horne (VDH) that he would be unable to attend due to a scheduling conflict.

2. Meeting Notes – January 24, 2012 (Bill Norris):

Bill Norris asked if there were any changes or clarifications needed in the January 24, 2012 meeting notes. He noted that he had received some comments from staff and Advisory Group members.

These were incorporated into the draft meetings notes that were distributed to the group on Tuesday, March 20, 2012.

No additional comments or revisions were recommended by the Advisory Group members.

ACTION ITEM: Staff will post the notes from the January 24, 2012 meeting as "final".

3. Aligning Advisory Group Recommendations with Federal and State Authorities for Groundwater Recharge (Melanie Davenport/All):

Melanie Davenport, Director of DEQ's Water Division, provided an overview of the status of current discussions. She noted that the staff has been really busy since our first meeting trying to assimilate the conversations that we have had and trying to identify where we are and where we are heading. The document before you entitled "Aligning SAG Recommendations with Federal and State Authorities for Groundwater Recharge" is our attempt to put in writing "where we think we are as a group" and beginning to focus on "where we might go from here". The major question that you need to consider is "Is what we heard, what you meant to say?" The first three items are very specific issues and the fourth item is more of a big picture thing. Based on earlier discussion of the advisory group, DEQ thought that there was consensus among the group that DEQ should not adopt or move forward with any program or regulation that would be redundant to an existing program or regulation. The first three items are guided by this consensus. She summarized the four major areas of advisory group recommendations that had been compiled from the group's previous discussions. These included:

- a. **Underground Injection:** Groundwater recharge through underground injection wells is an activity regulated by the EPA UIC program. Per the comments of the SAG at their meeting on 12/1/11, the SAG did not support redundant regulations or programs for groundwater recharge and acknowledged that DEQ would need additional staff to evaluate and permit such proposals. Consistent with these comments, DEQ would continue to not issue state permits for any underground injection wells that can be covered by an EPA UIC Program rule authorization or permit. Other methods of groundwater recharge that are not required to be covered by the EPA UIC Program could be permitted by DEQ (e.g., Rapid Infiltration Basins).

Group discussions included the following:

- How do these things relate to the groundwater withdrawal permit? Could recharge lead into credits for groundwater withdrawal or other types of permits? With an Underground Injection Permit, if someone was planning on such a permit, could the groundwater withdrawal permit refer to the Underground Injection Permit if it is set up this way? If so then this would make sense. There is one project in Chesapeake where the injection is covered by a UIC permit and the withdrawal is covered by a DEQ permit. Not sure whether there is any reference between the two permits. The "math" of it would be something that would be done through modeling and it doesn't matter what the permit context is when you are talking about "in-and-out" – the model would accommodate it. It would be handled on a case-by-case basis, because they are very spatial as far as "in-and-out" and associated

impacts. In the case of Chesapeake, the injection well (ASR well) was installed in 1989. The Groundwater Withdrawal Permit for the city's other wells was recently renewed and the ASR well became a part of that in terms of the way the apportionment of the withdrawal was stated in the permit. For example, the Western Branch Well Field, where the ASR well is located, the permit states that we can withdraw 3 mgd from either the ASR well or a conventional existing well near the ASR well, but not both. There is an inter-relationship between the two since the ASR well is referenced in the Groundwater Withdrawal Permit. The UIC Permit that was originally issued was not renewed. At the moment Chesapeake does not have a UIC permit. Was there any reason or explanation given by EPA for not renewing the UIC permit for the Chesapeake well? It was not renewed by EPA, not meaning "denied". Apparently, EPA had all of the information that they needed in terms of the monitoring and other information that had been provided by Chesapeake through the original UIC permit so that they didn't require anything else related to the well and activity that they could have requested through a new (renewed) permit. The original permit was approved by "Rule". Is the 3 mgd quantity contingent on injecting a certain amount? Regardless of the apportionment, no more water can be withdrawn from the ASR well than has been injected. On "Day One", when the switch was thrown to place the well in operation, Chesapeake could not withdraw any water until a period of time had passed where water had been injected.

- DEQ not taking on the UIC program appears to be consistent with what had been discussed previously. Would the groundwater recharge program that we are discussing be restricted to shallow rapid infiltration basins and septic systems type activities and not underground injection or would underground injection be considered a mechanism for recharge that just won't be approved through DEQ, i.e., it would remain through EPA.

b. Onsite sewage systems: DEQ does not issue permits for groundwater recharge by onsite sewage systems (conventional or alternative) with below ground components that discharge directly or indirectly to groundwater when such systems are designed pursuant to §§ 32.1-163.6 and 32.1-164 of the Code of Virginia and regulations promulgated there under. Comments from the 12/1/11 SAG meeting do not support redundant regulations or programs. Since these systems are currently regulated under existing statutory provisions and regulatory programs of the Virginia Department of Health (VDH), they should stay regulated as they are. DEQ should not consider moving forward with a program that would create an additional layer of regulations or requirements. The question is did we hear the right thing?

Group discussions included the following:

- Yes, but the Health Department has some work to do. The way that the VDH regulations and Code are written, they are very broad. We (VDH) felt that we may at some points overstep into DEQ's permitting authority with some of the proposals that the department has received. So, if DEQ does not want to delineate where they (DEQ) need to step in, then VDH may need to delineate where they (VDH) may need to step out. VDH does not want to regulate systems that can be authorized by the UIC program, i.e., very well defined injection wells. VDH regulates on-site systems that are in a shallow water table. That needs to be clearly spelled out so that VDH is not getting into a realm that we don't intend to be in and don't

have the expertise to do so.

- If someone was building a new wastewater plant and wanted to have a VPDES permit for the discharge and the opportunity to discharge into a mass drainfield, would they need a permit for both the facility and the drainfield (as a backup) or could they purchase nutrient credits? Would they have to go to the Health Department as well as DEQ? Yes. The guidance that DEQ has out for the Reuse Regulation anticipates that and includes language to address the concept of use of one system as a main and one as a backup. The issuance of the DEQ permit would be contingent upon the issuance of a VDH permit for the mass drainfield. VDH regulates the drainfield as a disposal area and DEQ regulates the treatment works and the water reclamation and reuse activities.
 - These items that are being discussed are really about who has permitting authority. We are not getting into the idea of a technical regulation. This is the first step in figuring out what a DEQ program would look like to address these issues. This is why we are doing this as a pre-regulatory action. This is a way to clarify where we are and to see if there are any other ideas that need to be addressed by the group that we have missed.
 - When we get through these items (#1; #2; & #3), these are the things that are already covered under existing programs. So the question then becomes "what is left"? What kinds or means of recharge does that leave for us to consider as part of a DEQ program? That is what we have to consider. It might be helpful to determine what is actually left as a means of recharge that could be considered. Is it just rapid infiltration basins that are left? The EPA UIC program regulates "injection wells" with the key word being "wells". So if it is a "well" then EPA covers it. Because EPA covers them, DEQ would not regulate them to avoid redundancy. That pretty much leaves out of all of the available options of "injection wells"; "vadose zone injection wells"; & "rapid infiltration basins". That then leaves "rapid infiltration basins" or similar facilities as those that DEQ could regulate.
- c. **Stormwater:** Oversight of stormwater management is currently the subject of several pieces of legislation before the 2012 General Assembly. Consequently, there is significant uncertainty regarding the future administration of regulatory programs for stormwater management. DEQ does not have regulatory authority for groundwater recharge by stormwater management facilities (e.g., stormwater infiltration basins). These types of facilities are currently the responsibility of DCR and are permitted where they are part of a construction project or are owned by a municipal separate storm sewer system (MS4). Again, comments from the 12/1/11 SAG meeting do not support redundant regulations or programs. This is the big unknown piece of the puzzle. The bill making these changes has a reenactment clause that will need to be acted on during the 2013 General Assembly Session. Prior to that time, there will be a study conducted by the Secretary of Natural Resources to look at the implications of these programmatic changes. It is recommended that this item be tabled until the status of the legislation is known and the Secretary's report is completed so that we avoid considering and discussing potentially duplicative regulatory fixes.

Group discussions included the following:

- How uncertain are you that it won't end up at DEQ? Pretty certain that the MS4 component

will come over to DEQ. The status of the Stormwater Construction GP and the Virginia Stormwater Management Regulations are unclear. At the same time that the General Assembly passed this legislation they also passed DCR's Integration Bill, which is an attempt to merge a lot of the concepts in E&S; Chesapeake Bay Preservation and the Stormwater GP to a local level. So the answer has become more complicated. The Secretary's Report is due November 1st, so we should have recommendations by that time. This is a potential change and results in a momentary "by-pass" of the issue.

- So the idea is for the group to take DEQ's recommendation and take the consideration of the potential stormwater components to recharge and "pass-it-by" until the status is better known.
- There are already programs and permitting programs in place for these different areas but they do not address how these things could address "reuse" of the resource. Does it mean that just because the UIC is permitted, does it mean that the water can be reused? The same goes for on-site sewer systems and stormwater. It seems that there may be something needed in addition to the existing permitting programs that would allow for the reuse and encourage the reuse and that could apply whether we know where stormwater permitting will be in the future. There may be a need for another program to encourage and facilitate reuse.
- When the water gets injected into the ground under the federal UIC program with a deep injection well, is that not the beginning and end of the reuse. Do we need to be concerned about pulling that water out for reuse? Is the use actually putting it in the ground for whatever purpose, or do we need to concern ourselves with some further use of that water after it is pulled back out? Does the UIC program cover all of that? The UIC program only covers injection. The withdrawal may be covered by DEQ's Groundwater Withdrawal Permit depending on the quantity withdrawn and whether or not it is within a Groundwater Management Area. Would it be covered under a Reuse permit or regulation or some existing program? If it is a withdrawal within a Groundwater Management Area it would be covered by the Groundwater Withdrawal Permit. It may not necessarily be considered a reuse. The reuse covered by the federal government is sticking it in the ground and then some other program would cover it so we don't need to consider.
- It all gets back to what is left to consider. It looks like we may be able to do a heck of a job on RIBs but there is not much else that can be considered at this time.
- The only issue that exists between the two issues of using the water once it is in the formation versus putting it in the formation is whether or not we feel that there is a need to have a permitting link between the two. From what has been said, this appears to be a local issue, dependent very specifically on location and how they are injecting and withdrawing. Sounds like it is already being done. If it is already being done at least in one location then why do we need to create regulations to allow it to happen? In the one situation where it is occurring it is not "reclaimed water" but "treated drinking water" that is being injected. When we start talking about injecting reclaimed water, the question becomes should we be treating it still as reclaimed water and regulating it as reclaimed water versus saying it is like any other water that we inject into the ground. VDH might be concerned that reclaimed water might reach potable water supplies. What would be the impact on private wells?
- Florida has been going through the process of increasing ASR wells and looking at the idea of putting excess surface water and treated water into ASR wells. Florida has primacy for UIC regulations. They may be a source of information about putting reclaimed water into

ASR wells.

- Our discussions seem to be very much focused on redundancy. Shouldn't we be asking the opposite question and be looking at "gaps"? Is there anything in Virginia's current regulations or statutes that would preclude groundwater recharge? There is nothing that would specifically preclude it, but it is not recognized as a reuse. The Water Reclamation and Reuse Regulation do not, for example, recognize groundwater recharge as indirect potable reuse. Therefore, there is not a structure under which groundwater recharge permits could be developed. The regulation currently does not recognize groundwater recharge with reclaimed as a reuse, but that doesn't mean that it couldn't be done. It could still be permitted, but it wouldn't be called a reuse.
- Are the uses that are expressed in regulations examples or are they all of the recognized uses? Are there other uses that are recognized, but not listed? There are uses that this group has discussed that are not listed. There is a table that lists the most commonly known uses in Subsection 90A (9VAC25-740-90 A) of the Water Reclamation and Reuse Regulation. Subsection 90B of the same regulation allows you to propose uses that are not listed. DEQ would evaluate and develop standards and monitoring requirements for these uses on a case-by-case basis. DEQ would also consult with the VDH to make sure that the appropriate standards are applied for the proposed use/reuses.
- Is there a difference in the use of the terms uses and reuses? The use of Reclaimed Water is a "reuse".
- If there are other possible uses does the state have to go through some formal process to have the uses approved/adopted? When you submit your application for water reclamation and reuse, you would identify the proposed reuses of the reclaimed water. DEQ would evaluate those proposed reuses and look at the current quality of the reclaimed water being generated to verify that there is no potential for conflict with those proposed reuses. If there is potential for human contact you would have to use Level I reclaimed water, if there is no potential for human contact then you could probably use Level II reclaimed water.
- If a use of reclaimed water such as "rising sea level" or "subsidence of land" were proposed, is there anything in the regulations that would preclude those uses with a proposal for an injection well? Would you just be able to include the proposed "use" or would that "use" need to be approved prior to application? Would a use not included in the regulations have to be approved prior to beginning the permit application process? You would need to get the use approved but it is all part of the application process. Does that mean that it is only part of a permitting process not a regulatory process? The application process is laid out in the regulations.
- Would the regulations have to be modified every time a use/reuse that is not specifically listed in the regulations is proposed? No.
- Doesn't the example mentioned require UIC program authorization? Yes, it could. If it were a project that could be covered by the UIC program permit or rule authorization, then DEQ would refer the applicant to EPA. DEQ would need to make sure that the Reclamation and Reuse Regulation acknowledges that approach and make sure it is clear that the proposed use or activity is not prohibited. The regulatory aspects of the proposal would be handled under a federal program.
- There is a fine line between being "silent" on a topic and allowing it or promoting it. A concern is that in the previous process, we decided to be "silent" on the topic of groundwater

recharge and removed it from the definition of "reuse". That is why we are here today. The conclusions that we seem to be coming to is that these activities are being covered under other programs. Are we being proactive enough in our regulation to make sure that there aren't any barriers in the current regulations or misunderstandings of the current regulations that are going to inhibit activities to promote injection? Would hate to see this group go from a point where we think that everything is covered by other regulations and basically being "silent" versus trying to promote "reuse" and having something substantial in regulations that says that we support it. We could acknowledge and support the activity while still saying that the activity is covered under the UIC program or another regulation under given circumstances and not just documenting in our notes that these are our recommendations. There should be clear documentation, not just in meeting notes/minutes, of the recommendations of this group and the support for this activity. There should be a product that clearly states that DEQ is okay with this as long as this process is followed. There is a fine but important line between being "silent" and "promoting" an activity. Would rather that we not be "silent". Some of the process part of this could be handled through the development of guidance. Guidance could spell out the process under which these activities could be approved and undertaken.

- It would be a clearer and more defined process if DEQ could come out in regulations and spell out that this activity or activities are allowed as long as you follow this process.
- One suggestion would be the use of an overlay of the EPA type permit process. The UIC program covers injection/disposal of wastewater into non-potable aquifers. The groundwater withdrawal example (the Chesapeake example) is the injection of potable water into a potable aquifer. The UIC program is essentially a letter review - it is not a robust program, it is being handled more under the groundwater withdrawal program. There is going to be situations where this reuse goes forward and it won't be connected to a groundwater withdrawal permit, it may become more of a disposal type mechanism or beneficial reuse to control "land subsidence"; "salt water intrusion", or almost a disposal type mechanism, like the Roanoke Well for stormwater that would be classified as groundwater recharge. The current EPA UIC program may not be robust enough to handle the injection or disposal of treated effluent into a drinking water aquifer. It is important to have some other type of regulatory overlay, similar to the VPA permit or a NPDES discharge to groundwater permit to ensure that you are meeting groundwater/drinking water standards in your injection water quality and you are not causing degradation to the aquifer through a monitoring well network down gradient of the injection points. EPA's role in UIC is not very robust other than in the area of the well construction requirements. We should not just rely on EPA's UIC program for regulatory oversight for groundwater recharge through injection wells. Is the idea then that DEQ may not want to just rely totally on EPA's UIC program to provide regulatory oversight for all injection wells. Yes. Would not be comfortable without having some level of state oversight or other state regulatory program. This is opposite from what we have previously discussed. But when a RIB is regulated through a VPA permit and other discharges to groundwater are regulated through a UIC permit, this is a discharge to groundwater that needs the same level of regulatory oversight even if it is a beneficial reuse. The state needs to take a fairly robust role to ensure that the drinking water aquifers are not contaminated through these activities. Maybe the idea is not regulating the injection wells but regulating the process of injecting something that is not drinking water into a potable water aquifer. Then should the state look to what would be required to regulate injection

wells that inject reclaimed water into a potable aquifer at the state level? At a minimum some level of state oversight for the process is needed.

- It would be helpful to know if someone came in and said that they wanted to inject 1 million gallons of water a day from either stormwater or a wastewater treatment plant, what provisions are currently in place to implement the Antidegradation policy for groundwater and what they would need to do. Seems that the authority is here, but we don't have the guidelines or regulations to discharge or inject large amounts of water into an aquifer and ensure compliance with the Antidegradation policy. We have the authority, but we can't do anything to lower the existing groundwater quality. How do we ensure that happens? The focus of groundwater recharge should be to protect the aquifer, not only from a water quality standpoint but also from a storage standpoint.
- Based on the presentation made by EPA at the last meeting, it appears that injection through Class V wells would have to meet drinking water standards. That seems good enough.
- MCLs are robust and are fairly extensive. But you are dealing with something that is different when you are taking a stormwater from a parking lot and treated effluent rather than treated drinking water and putting it into drinking water aquifer. There still may be micro constituents that may be of concern. The drinking water standards don't necessarily address everything that may be in the water.
- They key is a system that ensures that the proper process is followed to protect water quality. That doesn't seem to be in place. The standard is one thing, but the mechanism to ensure that the proper monitoring is done is also needed.

d. Groundwater classification: Section 62.1-44.2(1) of the Code of Virginia sets out the anti-degradation requirements for state waters. As long as potable water supply is considered a “reasonable public use” for all groundwater in Virginia, § 62.1-44.2(1) does not appear to support a use-based groundwater classification system if all groundwater must meet the highest quality (i.e., suitable for potable water supply). However, § 62.1-44.15 gives the State Water Control Board (and DEQ) the authority “To establish such standards of quality and policies for any state waters consistent with the general policy set forth in [State Water Control Law], and to modify, amend or cancel any such standards or policies established and to take all appropriate steps to prevent quality alteration contrary to the public interest or to standards”. Section 62.1-44.15 provides the statutory basis for “Use Designations” contained in the Water Quality Standards (9VAC25-260), which function like a use-based classification system for surface waters. Use Designations include aquatic life, public water supply, and all other surface waters. Previously, the Ground Water Standards (9VAC25-280) were a part of the Water Quality Standards. However, the EPA Clean Water Act program that requires states to develop water quality standards for surface waters does not have similar authority to require states to develop standards for groundwater. Therefore, the Ground Water Standards were removed from the Water Quality Standards and made into a separate regulation effective February 12, 2004. Despite this, § 62.1-44.15 also provides the statutory basis for the Ground Water Standards at the state level, and would appear to allow Use Designations similar to those contained in the Water Quality Standards to be established for the Ground Water Standards. There is no non-potable groundwater in the state. All groundwater is assumed to be for potable use. We have almost no information on

groundwater geology across the state. This is a huge unknown. We may need to look at the groundwater standards as a regulatory action unto itself. We think that we can make the argument that we have the statutory authority to think about a groundwater use classification to look at other uses other than potable.

Group discussions included the following:

- There is a ton of information from VDH on drinking water wells. There is a tremendous amount of data on water quality data from this source.
- From a treatment perspective, all water in the state is potable. It can be treated to meet drinking water standards. It all depends on the treatment options. We do have a dominantly fresh water source with very small localized areas that could be designated as non-potable. The majority of the water in the state is drinking water quality or can be made drinking water quality through treatment technologies that are available today.
- Under the Water Works Regulations, although they don't stipulate a classification system like what is being discussed, there is an assumption that the water table aquifer is a non-potable source simply because of the way the construction standards are written for potable wells. That is dealt with requiring 50 feet of grouted casing for those wells. It is important to note that there are number of private wells that are shallow and use this water table aquifer.
- From a laboratory or analytical standpoint there are two factors that need to be considered: is the water polluted or not polluted and from a geochemistry perspective how does the characteristic of the aquifer change?

4. Additional Comments from the Group (Angela Neilan and All):

Angela Neilan asked for additional comments from the group. Additional comments from the Advisory Group included the following:

- This group should at least, if it is at all possible, encourage the concept of the use of Rapid Infiltration Basins (RIBs) and anything that puts water back into the ground. We want to discourage discharges and encourage holding the water back and allowing it to percolate through the soil and down to recharge the Middle Potomac Aquifer. If we want to get nitrogen and phosphorus credits, where is that program to go to a farmer's field and install a berm to capture that runoff? Is that a DCR program that would be more related to DEQ in terms of relating to the nitrogen and phosphorus issues? Wouldn't be good if this program was encouraging the entrapment of the water and encourage the creation of percolation sites. Need to streamline the process to make sure that the aquifer is protected and the options of dealing with groundwater recharge are clearly identified. Need to encourage "recharge". Need to make the program more business-like. Need to clearly identify how we deal with and what options are used to deal with the discharge from a wastewater treatment plant.

5. DEQ Water Division Regulations that may be part of a regulatory action for groundwater recharge and discussion (Valerie Rourke/Angela Neilan and All):

Continuing from her presentations made at the last meeting, Valerie Rourke presented additional information about the potential regulatory actions or approaches that may result from this current pre-regulatory action. Her summary included the following:

- a. **Water Reclamation and Reuse Regulation (9VAC25-740)** - Page 9 of the document entitled "Potential Regulatory Actions for Groundwater Recharge":

Existing Language

9VAC25-740-10. Definitions.

"Indirect potable reuse" means the discharge of reclaimed water to a receiving surface water for the purpose of intentionally augmenting a water supply source, with subsequent withdrawal after mixing with the ambient surface water and transport to the withdrawal location, followed by treatment and distribution for drinking water and other potable water purposes.

9VAC25-740-50. Exclusions and prohibitions.

A. *Exclusions. The following are excluded from the requirements of this chapter:*

6. *Land treatment systems defined in the Sewage Collection and Treatment Regulations (9VAC25-790). Such use of wastewater effluent, either existing or proposed, must be authorized by a VPA or VPDES permit and must be on land owned or under the direct long-term control of the permittee.*

9. *Direct injection of reclaimed water into any underground aquifer authorized by EPA under the Safe Drinking Water Act, Underground Injection Control Program (UIC), 40 CFR Part 144; or other applicable federal and state laws and regulations.*

Comments

The Water Reclamation and Reuse Regulation is primarily a technical regulation, the requirements of which are implemented through either a VPDES or VPA permit. As a result of how reclaimed water is defined in State Water Control Law and subsequently this regulation, requirements of the regulation apply to only the reclamation for reuse of domestic, municipal and industrial wastewaters, specifically excluding gray water.

Per the Water Reclamation and Reuse Regulation, recharge of potable groundwater supplies with reclaimed water is not considered indirect potable reuse (or IPR). This is due to the fact that IPR, as defined in 9VAC25-740-10, does not recognize groundwater recharge as a means of "intentionally augmenting a water supply source". Should the definition of IPR be changed to recognize groundwater recharge as a means of "intentionally augmenting a water supply source"?

Group discussions included the following:

- How would a change to the definition impact either the VPA or the VPDES programs? The definition change would be made in the technical regulation and would not impact the implementation through either the VPA or VPDES permitting regulations.
- It would put another layer of regulatory responsibility over the use of that water as a source of

water for potable use. It would recognize this use as a means of intentionally augmenting a water supply.

- It would add another layer of oversight to the process.
- Already have the authority to inject it but not the standards to provide the necessary protections.
- Why didn't this get included in the previous regulatory action to develop the Water Reclamation and Reuse Regulation? It, along with all references to groundwater recharge, was removed from the past regulatory action because the agency did not have enough information to proceed. The original NOIRA was written such that we couldn't bring all of the other regulations that could be impacted by including the use of groundwater recharge into the regulatory process at the time.
- The recommendation from the group was to include it in the definition but the agency decided to pull it from the previous regulatory action. Now, if we do not acknowledge it somewhere in the regulations then we are not promoting it. There is nothing in the regulations that are coming out and saying that this is something that can be allowed. The conditions under which it could be allowed are a different matter. We can talk about standards and all of the performance issues after we acknowledge that it is a form of potable reuse.
- Should make it clear that it is an allowed use. Then need to identify the process and under what conditions it can occur.
- It appears that the law allows it to happen but how it can be done still needs to be clarified.
- The answer is yes.
- When we were working on the Water Reclamation and Reuse Regulation, we should have just included this in the definition.
- Does making this change require additional changes to the regulation? Yes. If we make this change, DEQ would then need to consult with VDH on this as an unlisted reuse. Would consult with VDH to ask about human health impacts and would be dealt with on a case-by-case basis.
- Would this result in lessened review? This would actually result in projects having to meet a higher standard and more review.
- Any type of beneficial use or reuse would go through the VPA or the VPDES Permitting Process.

CONSENSUS: Revise the definition to acknowledge groundwater recharge as a means of intentionally augmenting a water supply source.

Although DEQ can permit GW recharge with reclaimed water, 9VAC25-740-50.A excludes most groundwater recharge with reclaimed water from the requirements of the Water Reclamation and Reuse Regulation as follows:

- 1. Land treatment as described in 9VAC25-790-880 of the Sewage Collection and Treatment (SCAT) Regulations, is specifically excluded by 9VAC25-740-50.A.6. Per the SCAT Regulations, land treatment includes rapid infiltration basins (RIBs) that are also used for groundwater recharge. Therefore, 9VAC25-740-50.A.6 excludes RIBs. Should 9VAC25-740-50.A.6 be changed so that RIBs are not excluded from the requirements of the Water Reclamation and Reuse Regulation? Alternatively, should RIBs be moved into a new section of the SCAT Regulations for methods of groundwater recharge?*

Group discussions included the following:

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- This seems to be an "exception" to an "exclusion".
- In the '70's RIBs were primarily used for treatment. RIBs are now considered as a means of groundwater recharge.
- Are there any sites in Virginia where a RIB is being used for groundwater recharge? There are only a few RIBs that have been permitted in Virginia and most of them are no longer operating.
- The types of RIBs that are being discussed have entirely different design standards and requirements. One that is designed for use as a recharge basin (i.e., disposal) is different from those designed for land treatment. The purpose of the RIBs should be clearly defined: treatment versus disposal.
- Where in Virginia could we have a RIB with enough recharge to make a meaningful impact on water supply in the surface aquifer? You would be talking about huge structure to do this? Why would we want to do this? Where would you use a RIB where it would have a significant impact on surface water? What is the impact on surface water quality? What is the purpose?
- In other states with wedge type coastal plain aquifers where there is an up-dip outcrop area, recharge in the upper aquifer is encouraged by state regulations. It is encouraged in land-use planning. It is encouraged to provide for more recharge in these upgradient areas. Large recharge areas in these outcrop areas would theoretically have an impact, even though it would be in the real long-term. In shallow aquifer systems these systems would discharge primarily to streams and wetlands. Putting these systems in the highest topographic areas (vertical recharge areas) would recharge through the confining units even though it will be very minuscule. There will ultimately be some benefit by having a vertical head to promote recharge.
- Who is going to build a structure whose primary purpose is recharge and not disposal? It is probably not its primary purpose; it is more of a secondary benefit of the structure. You shouldn't be doing something that you might ultimately end up regretting. If it is a secondary benefit then that could be considered a check mark plus for the project on the application for disposal. Don't see anywhere in Virginia where you could do a large scale project that would have more than a minimal impact on recharging the groundwater aquifer. Is it really worth adding another layer or regulations when they are already covered in the disposal regulations? If you can get extra credit on your application for disposal for this secondary benefit that's good. We shouldn't be creating something that complicates things and gives no measurable benefit. If you were getting measurable benefit then that would be great.
- If we don't make this change does it stop us from doing this? It would mean that such a project would not be evaluated under this regulation. Basically it would be considered a Rapid Infiltration Basin subject only to the requirements of the SCAT regulations and that's looking at projects that are truly disposal projects, whereas the Reclamation and Reuse regulation could look at such a project and evaluate it from the perspective of any groundwater recharge benefits for those projects that go beyond disposal.
- If Virginia wants to evolve in terms of how it manages its water resources, there will be a time when we will be moving water from where we have excess and don't need it to areas where we have a shortage and need it. The water that we put back in the ground may not be going where it needs to be. It needs to be moved. There will likely be a time when select

placement of large quantities of water would be part of a large scale plan for Virginia to maintain its aquifers; and restore aquatic habitats and various streams and rivers; etc. Virginia is heading for a train wreck regarding water availability unless we take some action in the not so distant future. At some point we need to make some hard decisions about what we are going to do about it. HRSD is discharging 165 million gallons of fresh water every day into the Chesapeake Bay and the Atlantic Ocean - that is not doing anybody any good. The more things that we can put into regulations that support this concept, you will get people in management positions to consider it as an option. Yes, it may be more expensive, but if it is part of this bigger plan and it is something that DEQ and all the state wants and the public supports, then we are going to do it. If there are issues in current regulations that need to be fixed to allow us to do this then they need to be fixed now so that we don't have to come back to talk about them again. We need to be able to allow for viable options.

- The change in the definition should go forth.
- It would be clearer and a more direct process to say that RIBs are not excluded from the requirements of the Water Reclamation and Reuse Regulation rather than to change the SCAT Regulations to create a new section for groundwater recharge methods that include RIBs.
- This is appropriate as long as it is NOT a treatment RIB.

GENERAL AGREEMENT BUT NOT CONSENSUS: RIBs should not be excluded from the requirement of the Water Reclamation and Reuse Regulation.

2. *Direct injection of reclaimed water into an aquifer that is authorized by the EPA UIC Program or other federal and state laws and regulations is excluded by 9VAC25-740-50.A.9. Because all groundwater recharge with reclaimed water by direct injection wells must be authorized by the EPA UIC Program, this exclusion applies to all direct injection of reclaimed water in Virginia. Groundwater recharge with reclaimed water by methods other than rapid infiltration basins and direct injection wells (e.g., vadose zone wells) are not excluded from the requirements of the Water Reclamation and Reuse Regulation, but would not be issued a DEQ permit where they are issued a permit or rule authorization by the EPA UIC Program.*

Group discussions included the following:

- There needs to be a state regulatory program to compliment the EPA UIC program.
- It is important that we maintain some state level control over the injection process.
- Would like to see some oversight over injection wells from wastewater treatment plants. There ought to be more regulations other than the UIC program to manage these projects. That is where the focus needs to be.
- Need to revisit and revise this recommendation.
- What regulations would address this if it isn't included in this regulation? Can there be multiple permits for the same facility for two different discharges. It might be possible to include conditions in either a VPA or a VPDES permit to cover discharges to groundwater.
- The Groundwater Standards are relatively new - they were split out of the Surface Water Quality Standards in 2004. There are lots of things that we are still trying to get our arms

around with this whole issue of recharge, not just with reclaimed water. We have not used a VPA permit to cover groundwater recharge. Don't know if this is the right vehicle to use.

- Some states use VPDES permits to permit discharge to groundwater (i.e., Mass.). That might be another vehicle to consider. A VPA or a VPDES permit it is under would be stronger than a technical regulation. The Water Reclamation and Reuse Regulation is an example of a technical regulation that is implemented through either the VPA or VPDES permitting regulations. The VPDES permit regulation deals specifically with discharges to surface waters.
- This may take some type of guidelines or guidance as to how this would be handled. There needs to be a mechanism to encourage disposal options. Need to know how the standards for Antidegradation will be met.
- This exemption needs to be re-examined and re-considered.
- From the previous EPA presentation it appears that there are no Class I wells in Virginia. It would seem then that this is a difficult program to get through - it is definitely not encouraged.
- There should be a regulation in Virginia that would parallel the EPA UIC regulations for Class I wells. There needs to overlay between the two programs. A mechanism needs to be in place to clarify the process and allow for these activities to occur and to provide local protection of the resource. Without primacy for the UIC program, you would still have to seek the federal EPA UIC permit or rule authorization even if there was a parallel state program. A state program doesn't make those requirements go away. A state program would have to be as stringent as the federal requirements and the requirement is for it to be into a non-potable aquifer.
- Need to have a mechanism that is not convoluted and is practical.
- Need to protect the aquifer and make sure that there is adequate water in it to meet the needs. Seems that recharge is an appropriate method. Need a mechanism that would provide for the injection of large amounts of water.
- If the state had a regulatory program, you would still have the federal EPA UIC program for Class I wells since it is wastewater. The UIC standards for construction of Class I wells are very stringent. If the state also had a program that was regulating this for beneficial recharge reuse, even though EPA would maintain primacy, they would probably permit it but there may be some flexibility because of the existence of a state program with standards and requirements. Maybe something along the line of "if you meet groundwater standards then we will allow it". If there is no state standards/program then it would default to the EPA standard template.
- This seems to be one place where you do need to include groundwater recharge in the definition of reuse and it should include the most likely option, injection. That puts us in the business of regulating UIC wells. It is clear from the discussions that the Stakeholders believe the state may need to provide more oversight of these activities, even groundwater injection wells.
- If you are not directly regulating the UIC Class I well program and the actual injection activity, is there a way for the state to regulate the impact of that activity on the resource? Could monitoring wells and sampling be required by the state to ensure protection of the resource and to make sure that no one is damaging the aquifer?
- A vast majority of the states have primacy. What are they doing? How are they handling

this? Do they have indirect potable reuse? Yes, they are using Class V wells for aquifer storage and recovery.

- Does DEQ want to get into UIC primacy? There would be a major resource issue/concern.
- The concern is that EPA is not really doing anything - they only have one person handling the UIC program in the region. They are just maintaining a list of the Class V wells because there isn't anything else.
- A comment was made during the previous EPA presentation that if you were going to the expense of treating the wastewater to drinking water standards then wouldn't you want to do something else with the water other than putting it in the ground. California is currently doing just that - they are injecting water treated to drinking water standards into the groundwater and having to add chemicals back into it to make it less reactive because it is so highly treated.

b. Water Resources Policy (9VAC25-390);

Existing Language

9VAC25-390-30. Policies.

Governed by these precepts and in order to fulfill its statutory responsibilities in the development of the Water Resources Policy, the board will observe the following specific policies in preparing Water Resource Management Plans, advising on the adequacy and desirability of water resource projects, and authorizing specific water resource projects or in commenting on projects which affect water resources.

4. Pollution and wasteful use.

- e. The discharge of pollutants into ground water aquifers shall be contrary to board policy except that brine derived from naturally saline aquifers may be returned to these aquifers and chemicals and water may be used in connection with the exploration for and development of water, brines, oil and natural gas to the extent that such uses do not result in pollution of groundwater.

5. Water supply and storage.

- e. Subsurface storage and groundwater recharge should be encouraged subject to the provisions that such practices do not cause pollution of underground water resources.

Comments

Policy 9VAC25-390-30.5.e can allow the discharge of “pollutants” to groundwater up to but not causing “pollution” of groundwater, while policy 9VAC25-390-30.4.e would not allow the addition of any “pollutants” to groundwater resulting from, for example, groundwater recharge with reclaimed water. Because these two policies appear to be inconsistent on acceptable pollutant loads to groundwater, the Water Resources Policy does not provide distinctive direction regarding groundwater recharge with reclaimed water.

Group discussions included the following:

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- How will this inconsistency be fixed? This policy statement will need to be reevaluated based on possible subsequent reuse of the water. Need to consider the implications of this apparent inconsistency to determine possible fixes.

c. Fees for Permits and Certificates Regulation (9VAC25-20)

Comments

Although not required by statute, fees are recommended to recover the expense of processing applications and permits for activities authorized by the DEQ Water Division. These fees should also be sufficient to cover the cost of any groundwater modeling performed or site-specific groundwater standards established by DEQ for a groundwater recharge project.

If an existing permit regulation is used to authorize a GW recharge project, the existing fees for that permit may be used or amended to recover additional expenses incurred by the agency to review applications and draft permits for these projects.

Group discussions included the following:

- The fee regulations may need to be changed to add new categories related to fees to cover modeling costs for groundwater recharge projects.
- Over the past few years DEQ has gotten away from doing modeling - it is more frequently done by consultants. If we did have to do the modeling, it would be expensive.
- We do not have a lot of experience with Rapid Infiltration Basins so there is a lot to learn. There might also be water quality modeling required for Rapid Infiltration Basin projects and the cost of the modeling would need to be accounted for.
- Why would DEQ charge a fee if it is something that the Governor says you have to do? Can understand why DEQ would charge a fee for some kind of discharge because it is a negative but why would you charge a fee if there was a benefit from the project? The cost of the program and modeling will be part of any regulatory action that may occur.

d. Groundwater Standards (9VAC25-280) and State Water Control Law (§62.1-44.2-4);

Comments

Section 62.1-44.2(1) of the Code of Virginia sets out the anti-degradation requirements for state waters. As long as potable water supply is considered a “reasonable public use” for all groundwater in Virginia, § 62.1-44.2(1) does not appear to support a use-based groundwater classification system if all groundwater must meet the highest quality (i.e., suitable for potable water supply). However, § 62.1-44.15 gives the State Water Control Board (and DEQ) the authority “To establish such standards of quality and policies for any state waters consistent with the general policy set forth in [State Water Control Law], and to modify, amend or cancel any such standards or policies

established and to take all appropriate steps to prevent quality alteration contrary to the public interest or to standards”. Section 62.1-44.15 provides the statutory basis for “Use Designations” contained in only the Water Quality Standards (9VAC25-260), which function like a use-based classification system for surface waters. Use Designations include aquatic life, public water supply, and all other surface waters. Previously, the Ground Water Standards (9VAC25-280) were a part of the Water Quality Standards. However, the EPA Clean Water Act program that requires states to develop water quality standards for surface waters does not have similar authority to require states to develop standards for groundwater. Therefore, the Ground Water Standards were removed from the Water Quality Standards and made into a separate regulation effective February 12, 2004. Despite this, § 62.1-44.15 also provides the statutory basis for the Ground Water Standards at the state level, and would appear to allow Use Designations similar to those contained in the Water Quality Standards (for surface waters) to be established for the Ground Water Standards.

Water used to recharge drinking water aquifers authorized by the EPA UIC Program must meet the Safe Drinking Water Act (SDWA) MCLs. GW recharge projects authorized by DEQ water permits must comply, at a minimum, with the Ground Water Standards (9VAC25-280), which include narrative and numerical standards for the protection of groundwater quality. If a use-based classification system for the Ground Water Standards is established, should the Groundwater Standards incorporate the SDWA MCLs by reference for all groundwater in Virginia or for groundwater with a designated use of public water supply?

Instead of or possibly in addition to the establishment of a statewide, use-based, groundwater classification system, groundwater standards could be established for each DEQ permitted groundwater recharge project within a treatment unit boundary (TUB) that is unique to each project. This approach could be similar to the procedures used to establish groundwater protection standards within the disposal unit boundary of a solid waste landfill under 9VAC20-81-250.A.6. This approach also appears to be consistent with zones for mixing wastes with groundwater that are allowed on a case-by-case basis under 9VAC25-280-20. Procedures to establish groundwater standards within the TUB of a groundwater recharge project could be addressed under 9VAC25-820-20 by expanding upon groundwater pollutant mixing zones, or separately within the Ground Water Standards where each TUB will be unique to a specific groundwater recharge project. Alternatively and determined by the information that would be required to determine such standards, it may be possible to include all or a part of the procedures in guidance.

The Board has designated uses (aquatic life; public water supplies; all other surface waters) for surface waters - some of the same provisions could also be used for groundwater. There appears to be a basis to develop classification (designated uses) for groundwater. Another option (in lieu of or in addition to designated uses) would be to establish a treatment unit boundary for each groundwater recharge project. Groundwater standards unique to the treatment unit boundary of the project could be established on a case-by-case basis. This approach is similar to what is done in the Solid Waste Management Regulations where disposal unit boundaries are established for landfills. The option to establish mixing zones already exists in the Ground Water Standards and may be used in a manner similar to the concept of treatment unit boundaries to establish project specific groundwater standards.

Solid Waste Management Regulation (9VAC20-81)

9VAC20-81-10. Definitions

"**Aquifer**" means a geologic formation, group of formations, or a portion of a formation capable of yielding significant quantities of groundwater to wells or springs.

"**Disposal unit boundary**" or "DUB" means the vertical plane located at the edge of the waste disposal unit. This vertical plane extends down into the uppermost aquifer. The DUB must be positioned within or coincident to the waste management boundary.

"**Groundwater**" means water below the land surface in a zone of saturation.

"**Uppermost aquifer**" means the geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility boundary.

9VAC20-81-250. Groundwater monitoring program

A. General requirements

2. General requirements.

a. Purpose. Owners or operators shall install, operate, and maintain a groundwater monitoring system that is capable of determining the landfill's impact on the quality of groundwater in the uppermost aquifer at the disposal unit boundary during the active life and postclosure care period of the landfill.

6. Establishment of groundwater protection standards.

a. Requirement. Upon recognition of a statistically significant increase over background and while monitoring in the Assessment or Phase II monitoring programs defined under subdivision B 3 or C 3 of this section, the owner or operator shall propose a groundwater protection standard for all detected Table 3.1 Column B constituents. The proposed standards shall be submitted to the department by a qualified groundwater scientist and be accompanied by relevant historical groundwater sampling data to justify the proposed concentration levels.

b. Establishment process. The groundwater protection standards shall be established in the following manner:

(1) For constituents for which a maximum contaminant level (MCL) has been promulgated under § 1412 of the Safe Drinking Water Act (40 CFR Part 141), the MCL for that constituent shall be automatically established as the groundwater protection standard upon submission of the proposed standards.

(2) If the owner or operator determines that a site-specific background concentration is greater than the MCL associated with that constituent under subdivision 6 b (1) of this

subsection, the background value may be substituted for use as the groundwater protection standard in lieu of the MCL for that constituent upon receiving written department approval.

(3) For constituents for which no MCL has been promulgated, site-specific background concentration value(s) may be used upon receiving written department approval.

(4) For constituents for which no MCL has been promulgated, a risk-based alternate concentration levels may be used if approved by the director as long as:

(a) The owner or operator submits a request to the department asking for approval to use risk-based alternate concentration levels for a specific list of constituents and identifies that these constituents lack an MCL. In the request the owner or operator shall specify whether site-specific, independently calculated, risk-based alternate concentration levels will be applied, or if the facility will accept the default department-provided limits.

(b) The alternate concentration levels that may be provided as default values by the department and those independently calculated by the owner or operator are demonstrated to meet the following criteria or factors before they can be used as groundwater protection standards:

(i) Groundwater quality - The potential for adverse quality effects considering the physical and chemical characteristics of the waste in the landfill, its potential for migration in the aquifer; the hydrogeological characteristics of the facility and surrounding land; the rate and direction of groundwater flow; the proximity and withdrawal rates of groundwater users; the current and future uses of groundwater in the area; the existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality.

(ii) Human exposure - Potential for health risks caused by exposure to waste constituents released from the landfill using federal guidelines for assessing the health risks of environmental pollutants; scientifically valid studies conducted in accordance with the Toxic Substances Control Act Good Laboratory Practice Standards (40 CFR Part 792); or equivalent standards. For carcinogens, the alternate concentration levels must be set based on a lifetime cancer risk level due to continuous lifetime exposure within the 1×10^{-4} to 1×10^{-6} range. For systemic toxicants, alternate concentration levels must be demonstrated to be levels to which the human population (including sensitive subgroups) could be exposed to on a daily basis without the likelihood of appreciable risk of deleterious effects during a lifetime.

(iii) Surface water - The potential adverse effect on hydraulically connected surface water quality based on the volume, physical and chemical characteristics of the waste in the landfill; the hydrogeological characteristics of the facility and surrounding land; the rate and direction of groundwater flow; the patterns of rainfall in the region; the proximity of the landfill to surface waters; the current and future uses of surface waters in the area and any water quality standards established for those surface waters; the existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality.

(iv) Other adverse effects - Potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; the persistence and permanence of the potential adverse effects; and the potential for health risks caused by human exposure to waste constituents using factors shown in subdivision b (4) (b) (ii) of this subsection.

(5) In making any determination regarding the use of alternate concentration levels under this section, the director will:

(a) Consider any identification of underground sources of drinking water as identified by EPA under 40 CFR 144.7,

(b) Consider additional or modified monitoring requirements or control measures,

(c) Include a schedule for the periodic review of the alternate concentration levels, or

(d) Approve the alternate concentration levels as proposed or issue modified alternate concentration levels.

Ground Water Standards (9VAC25-280)

9VAC25-280-20. Ground water standards; general requirements.

Except where otherwise specified, ground water quality standards shall apply statewide and shall apply to all ground water occurring at and below the uppermost seasonal limits of the water table. In order to prevent the entry of pollutants into ground water occurring in any aquifer, a soil zone or alternate protective measure or device sufficient to preserve and protect present and anticipated uses of ground water shall be maintained at all times. Zones for mixing wastes with ground water may be allowed, upon request, but shall be determined on a case-by-case basis and shall be kept as small as possible. It is recognized that natural ground water quality varies from area to area. Virginia is divided into four physiographic provinces, namely the Coastal Plain, Piedmont and Blue Ridge, Valley and Ridge, and Cumberland Plateau. See Figure 1. Accordingly, the board has established certain ground water standards specific to each individual physiographic province.

Group discussions included the following:

- There may be a higher comfort level with the concept of a treatment unit boundary approach rather than a blanket classification system. Worried about the surface aquifers. A treatment unit boundary approach would provide a mechanism to keep things within the site.
- Monitoring would be needed to determine the impact on the surface aquifer - similar to what is required under the Solid Waste Management Regulations.
- Are we limiting our conversations based on our earlier discussions? Are we just talking about RIBs or are injection wells still being considered part of this discussion? You can't be less stringent than the federal requirements. The current options on the table are definitely applicable to RIBs. We are looking for recommendations from the group as appropriate courses of action.
- What kinds of water are we talking about as being degraded and would fall into a classification system as being a lesser quality water? Water can be treated to drinking water quality.
- We have to protect our resources. Still have the Antidegradation policy and the federal requirements that you can't put "junk" into an underground source of drinking water. We are looking at options. A more applicable approach here is how we design a RIB or a shallow

- well system and what standards they would need to meet.
- How does this relate to surface water discharges to waters that are designated as drinking water sources and those that are not? The standards are based on the source of the discharge water. The water quality standards for surface waters include use designations - the standards are more stringent for those waters that are designated as public water supplies.
 - The reality is that there are a lot of Class V wells in Virginia that EPA regulates. They look at the "potential for endangerment" through a risk based approach. They consider what receptors are in the area and whether it is close to a drinking water well, etc., but not that all waters of the Commonwealth are considered to be of drinking water quality. They currently can permit Class V wells that don't necessarily comply with Virginia's groundwater standards. They don't necessarily comply with the Antidegradation policy or Virginia's numerical standards.
 - If the UIC program is going to be the overriding factor for regulating injection wells, aren't we stuck with it? Yes, primarily because of the concept of EPA maintaining primacy that we are essentially looking at Rapid Infiltration Systems and the shallow groundwater system based on the groups earlier conversations.
 - Rapid Infiltration Systems don't typically intersect the groundwater table.
 - Whatever you call it, either recharge or discharge, ultimately that water reaches the groundwater aquifer. The overarching question becomes "What quality does the water need to be?"
 - This would have to be considered and evaluated on a case-by-case basis for each of the proposed systems. It would be very site specific.
 - The surface water program allows both mixing and different uses to be set for different waters.
 - The solid waste regulation model is not a bad place to start but would not like to see us model it too closely after the implication process for the solid waste regulations. The implication of the solid waste regulations has been a lot different than what it appears on paper. Setting the site specific protection standards has proven to be cost prohibitive. Most facilities have gone to the default list of site specific standards that the waste division puts out and that changes each year. If we are setting up a recharge and are setting limits for a site specific recharge we would want to set those standards and have them remain the same. Typically for solid waste facilities the constituents that are being released into the aquifer are pretty similar from site to site. For recharge projects in potable aquifers, the geochemistry of those aquifers is going to be different site by site so that site specific characterizations will be needed on a site specific basis. This is a fine framework to begin with but it will need to be adjusted to consider site specific conditions.
 - Different water sources have different water quality. The potential use is drinking water if you treat it. The law says that we have to protect all reasonable uses - that includes drinking water, so all waters have to be maintained as drinking water quality.
 - Not all groundwater currently meets drinking water standards. If that is the case then you need to go to a classification system.
 - Does the law say that it has to "meet drinking water standards" or "be reasonable as a source of drinking water"? The law says that it is the policy is to "permit all reasonable public uses" which includes drinking water.
 - It does not say that it has to meet drinking water standards; it says that it has to be protected

as a reasonable source of drinking water. There is a difference between protecting it as a reasonable source of drinking water and drinking water quality. There are areas of the state where treatment of groundwater is required to meet drinking water standards. We are to endeavor to protect it as a source of drinking water, not as drinking water standards.

- The standard for and quality of the recharge water should match the existing quality of the groundwater into which it is being discharged. The water would basically need to be finger printed to match the receiving water. Would a change in classification change how EPA looks at it? This may be more of a discussion to have on the federal level regarding reclassification of groundwater standards. What we would seek at the end of a regulatory process is to answer the question of "What does it mean to protect that water as a source of drinking water?" If the groundwater standard doesn't mean that you are always putting drinking water back into the ground then what does it mean in so many words to protect as a source of drinking water?
- All surface waters are not meeting standards - there are mixing zones allowed.
- There may need to be higher standards for RIBs. May only need to match the water quality to what is there. For deep injections, may not need to treat to as high a level.
- How do you determine whether the case of an exceedance is "natural" or is it "manmade"? There are "natural" versus "non-natural" exceedance. There may be ways to enhance the quality of the groundwater.
- It appears that we do need to look at the groundwater standards.
- When we are looking at groundwater standards we need to look at specific chemical constituents so that we don't change the geochemistry of the aquifer.
- May need to have a characterization of the aquifer as a way to identify the geochemistry of the aquifer.
- A classification system is problematic. Water quality is both spatial and temporal that changes daily.
- Need to look at the sources on both a spatial and temporal basis.
- Problem with not bringing injection into the groundwater recharge arena. We are only going 1/4 way if we aren't attacking or addressing underground injection. Don't know how to address but we need to have some kind of program to address it.

6. Review of New Key Points from Previous Meetings of the Advisory Group and Discussions (Valerie Rourke & Angela Neilan)

Valerie Rourke presented the new key points that DEQ staff identified and consolidated from the previous meeting notes. She asked the group to verify that the key points were clearly and appropriately captured. The key points included:

- a. There should be some kind of regulation or program that would combine parts of other regulations as a kind of one-stop regulatory process for groundwater recharge.**

Group discussions included the following:

- There are diverging paths here; there is waste disposal and resource protection. You would not want to put waste disposal into the recharge and groundwater withdrawal program.
- We do have regulations that cover a lot of this already. What we really need is a program that would provide outreach to the regulated community to walk them through this process. We need to make it easier for them to understand that when they want to do a certain project that they need to provide what information to whom. There needs to be outreach that explains all of the complexities of the issue rather than regulatory in nature.
- If there is not a program that is put together that explains and clarifies the process and program, what happens when the current personnel changes and the implementation and interpretations changes. There needs to be a program in place that explains the process and lays out what needs to be done.
- Guidance is also needed to address the process. Guidance does not carry the force of law but it puts on paper the direction of the agency and identifies the process that will be used. It addresses the concept of this is how a program will be implemented. It can be used to clarify how a process needs to work.
- If we have already parceled out the EPA UIC program and VDH has all of the domestic discharges and DEQ has RIBs, is there a need for a regulation. If we are only talking about RIBs then maybe a guidance document might be sufficient. But it appears from today's discussion that DEQ may need to have a program that meshes with the EPA UIC program. There appears to be an interest in having additional state oversight for underground injection.
- The benefit of a separate technical regulation would be the possibility of getting credit for the recharge. Credits for groundwater withdrawal could be linked into the permit regulations through the use of a separate technical regulation - may encourage going forward with a project.
- The most effective way is for Virginia to take primacy for the UIC program, if we really want to manage our resources. If money and other resources was not an object, this would probably be the best way to go. The reality may be totally different.
- Do other states that have UIC program primacy regulate their discharges? What do other states do?

ACTION ITEM: Brent Waters indicated that he may have a list of other states that have primacy and information about the way that they handle their ASR well programs. He will try to compile some information and route it to Bill Norris for distribution to the group.

- From a big picture view, what is the EPA UIC program really doing to monitor the Class V wells in Virginia? It is a train wreck with regard to withdrawals. We have an unsustainable amount of withdrawals. DEQ has to say that we can't renew permits because of the unsustainable nature of the resource. Reinjection of treated wastewater into the ground is extremely hazardous. What will it do to the groundwater source? Need to protect the resource. Need to encourage the use of RIBs.
- Don't rule out anything. Stick with defining the standards and the uses. Don't sell ourselves short on what we can or can't do. We have limited resources. We have to have the water. RIBs take a lot of land. Need to look at possible changes that can occur over a very short period of time. Need to look at changes to the groundwater standards. Should consider the

use of a "risk based approach" similar to what EPA uses. Should consider use of classifications and the concept of mixing zones like what is used in surface water for the groundwater program. It all goes back to the standards.

- In addition to standards we may also want to consider technology based treatment options as a minimum for certain types of discharge wastewater.
- b. If the Groundwater Recharge Regulation were to be a technical regulation, it would need to be implemented and enforced through permit regulations (e.g., VPDES, VPA or Groundwater Withdrawal). The technical regulation should address groundwater recharge with multiple sources of water (e.g., reclaimed water, surface water, treated drinking water and stormwater - if and only when stormwater permit programs are transferred from DCR to DEQ). Consequently, the SCAT Regulations and the Water Reclamation and Reuse Regulation cannot be used as the technical regulation because they apply to only sewage and specific types of wastewater (domestic, municipal and industrial) reclaimed for reuse, respectively.**

Group discussions included the following:

- Makes sense.
 - Would prefer that DEQ have all of their regulations in one book - just another chapter.
- c. The Groundwater Standards (9VAC25-280) should be revised to better address groundwater recharge. The EPA UIC Program uses SDWA Maximum Contaminant Levels (MCLs) to determine "potential endangerment" and subsequent permit requirements for a project that involves underground injection into a water supply aquifer. The Sewage Collection and Treatment Regulations require RIBs to comply with the Ground Water Standards. Therefore, should the Ground Water Standards be comparable to the SDWA MCLs if all groundwater in Virginia is considered drinking water?**

Group discussions included the following:

- Shouldn't this read "if all groundwater in Virginia is considered as a source of drinking water"? The EPA UIC program refers to an underground source of drinking water - considered drinking water.
- What would be the point of compliance for a RIB? The points of compliance would be at the monitoring wells.
- Probably not. DEQ should take a risk based or a constituent based approach. UIC program considers it as a source of drinking water, unless it is exempted. The state cannot be less stringent than the federal requirements. This is almost a legal question.
- Would have to meet MCLs in surface water. Would need to meet MCLs in groundwater.
- Regarding RIBs, discharges in the coastal plain from these facilities would not likely reach the confined aquifers, so the Antidegradation policy does not need to be changed in this case.

- d. Standards for groundwater recharge should apply to any water used for recharge,**

regardless of source. Standards should be established for each end use or categories of end uses, not for the source water. Where developed on a case-by-case basis, the standards should be established for the protection of the existing use and existing systems. This relates to the discussion of a groundwater classification system.

Group discussions included the following:

- The receiving groundwater quality should be considered not just the end use. Need to look at the quality of the water before it gets treated.
 - May need to think about where stormwater would go based on quality, if stormwater becomes part of this program.
- e. What level of treatment is needed for water used to recharge groundwater?** Treating to drinking water standards would be expensive.

Group discussions included the following:

- The treatment should be based on standards that are risk based; constituent based; and technology based. All three may need to be considered on a case-by-case basis.
- f. Should the purpose of RIBs be considered disposal, recharge or both? Aside from public perception considerations, does such a designation of purpose matter when RIBs must comply with the same groundwater standards regardless of the purpose?** Designation of purpose would be more critical for RIBs if a use-based classification were established for groundwater.

Group discussions included the following:

- It should be both disposal and recharge.
 - The purpose has a potential effect on the design of the RIB. The purpose may also affect the quality of the water that can be discharged into the RIB and the amount of treatment needed.
- g. Ensure that groundwater recharge does not result in nutrient loads to surface waters** where the two are hydrological connected, particularly where the surface water has TMDLs for nutrients.

Group discussions included the following:

- It would be better to reword this to say "does not result in unacceptable nutrient loads to surface water".
- Waste load allocations would have to be met or offset.
- Do need to offset nutrient loads.

7. Public Input; Next Steps and Meeting Wrap-Up (Staff)

Staff asked members of the stakeholder advisory group and the public for any additional thoughts or ideas for the good of the Advisory Group's discussions.

No public comment was offered.

Valerie Rourke thanked the group for their participation and noted that there had been a lot of information discussed today. Staff will need to assimilate these conversations and then come back to the group with what we heard.

8. Next Meeting Date:

We will be scheduling a 4th meeting of the group to refine the group's recommendations. We may also try to schedule a speaker at that meeting to discuss Rapid Infiltration Basins in the state of Delaware, probably in late April or early August.

The next meeting of the Groundwater Recharge Stakeholders Advisory Group will be scheduled in the near future. Notification of the date of the next meeting will be forwarded to the Advisory Group and Interested Parties once a date has been set. A meeting agenda and meeting materials will be distributed closer to the meeting date.

Request from group: At the next meeting, can DEQ tell the group what they would propose coming out of this process? Are you going to propose groundwater standards? Are you going to propose a regulation or guidance? An outline of the options that are being considered would be helpful to further define the group's workload and plan of action. Need to capture the universe of what we are going to do.

9. Meeting Adjournment:

DEQ staff thanked the Advisory Group members and the members of the interested public for their participation and contributions to the process. The meeting was adjourned at approximately 3:30 P.M.

ATTACHMENT 1: MEETING FLIP CHART NOTES

Underground Injection:

- EPA UIC + DEQ Groundwater Withdrawal Permit
 - DEQ Permit can reference "math" associated with UIC
- Groundwater Recharge can still occur through EPA Program

Onsite Sewage:

- VDH will examine which systems fall under VDH Regulations
- "Backup" systems could have different permit (VDH + DEQ)

Stormwater:

- Uncertainty

Permitting Recharge:

- Ensure No Barriers to promoting reuse – recharge
- "Silence" versus Regulation Language
 - Role of Guidance
- Regulatory Template versus Guidance Only
- Non-potable aquifers and disposal
 - Class V wells

Reclamation and Reuse Regulation:

- Definition of "indirect potable reuse"
 - Include Groundwater Recharge – Acknowledge! Yes
- Exclusions/Prohibitions – Section 50
 - RIBs – Remove from Reuse Exclusions? Yes
 - Land Treatment is excluded.
 - Can RIBs significantly affect recharge?
 - Groundwater recharge to be included in Reuse Regs.

Injection Wells:

- Currently exempted if covered by UIC Program.
- Additional State level oversight is desired.
- Would State Program in addition to EPA UIC help promote recharge? Would it make it easier?

Water Resources Policy:

- Clarification Needed.

Fee Regulation:

- Modeling costs.

Groundwater Standards:

- Classification system (Use Designation) and/or Treatment Unit Boundary (e.g., Solid Waste Approach)
 - Mixing Zones
 - Solid Waste Approach – Site Specific and Cost-Prohibitive
- How to protect Groundwater as source of drinking water?
 - Different level of drinking water.
 - Not always recharging with drinking water.
- What is the cause of exceedances in groundwater?
 - How to address?
 - Could Recharge help improve?
- Examine specific constituents, not broad categories like TDS.
- Problem with classification system - groundwaters vary spatially and temporally.

Key Points:

- Outreach/education needed versus regulation change.
- Establish a program that is not subject to interpretation.
- Role of guidance
 - Flexibility versus predictability
- State program could evaluate resource impact of injection allowed by UIC permit.
- Best Scenario – DEQ controls UIC
 - Cost/Resource limitations exist.
- Standard should match use.
- EPA's Risk-Based Approach.
- Technology – Based Treatment as minimum in some cases.
- Modifications to Anti-Degradation
 - Not for confined aquifers
 - Address water table
 - Standards – should be based on End Use and Quality of Existing H₂O
 - Consider standards that are based on
 - Risk
 - Constituents
 - Technology
- RIB – purpose may affect design, but not end-point.
- No unallocated nutrient load to surface waters.

