

**HB 1036 – Water Trading Work Group
Minutes of
May 7, 2019, Meeting
Troutman Sanders Building, Richmond Virginia**

Work Group members present:

HRSD, Represented by Dan Holloway, Jacobs
King George County, Eric Gregory, Hefty, Wiley & Gore
Western Tidewater Water Authority, Justin Curtis, AquaLaw
Eastern Shore Groundwater Committee, Britt McMillan, Arcadis
Mission H2O/Troutman Sanders, Shannon Varner
DEQ, Scott Kudlas
VDH, Office of Drinking Water, Aaron Moses
Virginia Farm Bureau, Ben Rowe
WestRock, Rhea Hale

Work Group members absent:

Aqua Virginia
Newport News Waterworks
Middle Peninsula PDC
Virginia Well Drillers Association
VDH, Office of Environmental Health Services
Virginia Tech, Kurt Stephenson
Virginia Economic Development Partnership, Sandy McNinch

Interested parties attending:

David Jurgens, City of Chesapeake
Whitney Katchmark, HRPDC
Brandon Bull, DEQ
Richard Grossman, VECTRE
Kyle Shreve, Virginia Agribusiness Council
Matt Wells, WestRock
Tyler Cox, International Paper
Ed Snyder, City of Portsmouth

- The meeting began at approximately 2:00 with Work Group members and others in attendance introducing themselves and approval of past meeting minutes.
- Shannon Varner provided an overview of the agenda topics including review of draft statutory language based on the “Groundwater Banking (ASR) Strawman” developed by the Eastern Virginia Groundwater Management Advisory Committee.

- Shannon Varner provided an overview of the draft statute, noting that it was created for discussion purposes based on the existing strawman and the additional information and discussions from the Workgroup’s past two meetings, including the approach to start with a localized injection and withdrawal and then building out spatially, if possible.
- DEQ noted that they would be particularly interested in how the program would be operationalized and discussing the intent of language. DEQ also noted that the agency is taken no position on any legislative proposal and cannot do so until the Governor takes a position. DEQ’s role in this Workgroup process is advisory only.
- The Workgroup proceeded to discuss each section of the draft. Each section is reproduced below in bold, followed by summaries of the discussion.

Discussion of Draft Statute:

§ 62.1-001. Findings and purpose.

The General Assembly hereby determines and finds that actions adding groundwater to the aquifers in the groundwater management areas designated by the Board should be encouraged and that governmental and private entities need regulatory certainty and benefits in order to expend financial resources for these actions. Providing regulatory certainty and benefits will assist in improving the availability of groundwater for all beneficial uses and create opportunities for the regulated community to more cost effectively meet groundwater withdrawal needs.

Discussion:

The Workgroup agreed with the findings and purpose; however, clarity was added that the program being created is limited to the Eastern Virginia Groundwater Management and Eastern Shore Groundwater Management areas. This is consistent with other sections of the proposal and reflects the nature of the geology and aquifers in the eastern portion of the state versus those in other areas of the state. Geology outside of the currently designated groundwater management areas are not appropriate for this program.

§ 62.1-002. Definitions

As used in this article, unless the context requires otherwise:

“Annual water loss rate” means the rate at which injected water is not available as a groundwater storage credit due to water loss through the aquifer boundary related to the injection.

Discussion:

Discussion centered on the proper means to identify and define of water loss and whether loss through the boundary is the appropriate measure. While the definition partially addresses the question “if we put water in, why can we not take it out,” additional discussion is needed to

determine whether the definition is appropriate. Members were generally agreeable to allowing DEQ some latitude in determining annual water loss.

“Groundwater storage account” means a ledger maintained by the Department indicting groundwater storage credits and published annually for any permittee holding groundwater storage credits.

Discussion:

Members questioned what “published” means and what the purpose of the ledger is. Similar to ledgers maintained for wetland, stream and nutrient credits, the purpose is to provide a useful tracking mechanism so that permittees and the public can determine the availability and use of groundwater storage credits. “Published” may not be the appropriate word, the intent is that the information be tracked and available to permittees and the public. The mechanism for creating and maintaining the ledger may either be through data submitted to DEQ in a particular ledger format or by DEQ inputting data received through reporting requirements. [See additional discussion under § 62.1-003 D]

“Groundwater storage credit” means the quantity of injected water that is authorized to be recovered from an aquifer.

Discussion:

Members agreed with this definition, but it was noted that the groundwater storage credits might not equal 100 % of the water that is injected.

“Injected water” means water that is injected into an aquifer in the Eastern Virginia or Eastern Shore Groundwater Management Areas.

Discussion:

Members discussed whether the definition should be restricted to water injected into any particular aquifer or not. Members agreed that the definition should not be restricted to the deeper aquifer but should apply to any aquifer even though injection to the surficial aquifer, while beneficial, is less likely to occur.

“Long term storage” means injected water that may be withdrawn more than 36 months after injection.

Discussion:

Members agreed with this definition.

“Recovery factor” means the annual fraction of the remaining injected water that is available for recovery by a permittee. The recovery factor is calculated as one minus the annual water loss rate.

Discussion:

Members discussed whether this would be permit or site specific. The recovery factor should be included in each permit; however, members did not identify any reason that the recovery factor would differ between the eastern shore and the western shore.

“Recovered water” means water represented by groundwater storage credits and withdrawn from the aquifer.

Discussion:

The Workgroup discussed whether this would represent water withdrawn from the recovery zone or from the aquifer into which the water was injected. Clarification is needed.

“Recovery zone” means the area within the spatial boundary from which injected water is authorized to be recovered.

Discussion:

This topic generated a great deal of discussion since it influences the geographic area from which the benefit of the injected water can be gained whether from short term or long-term storage.

With regard to short term storage, the Workgroup agreed that a default land area would be beneficial to provide certainty. Members noted that the groundwater model resolution is one (1) square mile and that would be a very conservative area to use. Further discussion suggested that the circular land area equal to four (4) “square” miles around the point of injection would be more workable and provide more options to justify the expense of undertaking injection. The four (4) “square” mile area was also considered to be scientifically supportable and sufficiently conservative for a minimum one (1) million gallon per day injection.

In other scenarios, where water may be sought to benefit an area outside of the four “square” mile short term storage recovery zone, additional factors may need to be considered. In the short-term storage scenario that analysis is based on “water in, water out” within a limited timeframe and geographic area. When seeking benefits from outside the short term recovery zone geographic area, then the analysis may need to turn to impact on head pressure and potential intervening withdrawals (both permitted and unpermitted) and the recovery factor. The Workgroup continued its discussions from prior meetings on how the model could account for these variables. While it appears possible to run model scenarios for those participating in an injection and banking program and for a separate scenario, excluding the injected water, for those not participating, significant issues are raised for DEQ. These include the cost to run models, to maintain separate records (or “books”) and long-term implications for model adjustments and calibration.

“Short term storage” means injected water that may be recovered within 36 months of the date of injection.

Discussion:

Workgroup members agreed that this was a sufficiently conservative and scientifically justified timeframe.

§ 62.1-003. Groundwater credits, availability of injected water for withdrawal.

A. Within existing groundwater management areas, DEQ shall annually grant a groundwater storage credit to any party permitted to inject water into [an] aquifer for purposes of using the aquifer for water storage and recovery.

Discussion:

Members discussed the fact that DEQ is not the permitting authority for injections, that role is held by USEPA. Committee members do not intend to create a new injection permitting program run by DEQ and requested clarification in this section. It was also noted that DEQ only permits withdrawals and that the link between the proposed program and withdrawal permits should be clarified.

Members also noted that as drafted, the language “inject water into an aquifer for purposes of using the aquifer for water storage and recovery” could exclude some beneficial projects such as Hampton Roads Sanitation District’s SWIFT project. Members agreed that the language should not exclude that type of a project and that this section should be amended.

A question was raised as to whether groundwater credits could be granted prior to water actually being injected. This is done with wetland mitigation banks where a percentage of anticipated credits may be made available to trade once a bank is approved but not yet constructed. This initial release of credits helps to fund the restoration work. The Workgroup agreed that prospective credits should not be allowed and that credits would only be based on amounts of water injected.

B. The groundwater storage credit shall be increased annually based on the amount of water injected and reduced by the amount of recovered water and by the applicable recovery factor, if any, depending on whether the recovered water is from short- or long-term storage as described in § 62.1-004 and § 62.1-005.

Discussion:

No changes to this subsection were proposed.

C. A groundwater storage credit shall be considered an addition to the permittee's withdrawal limits under a groundwater withdrawal permit and groundwater storage credits shall not be used to reduce the permittee's otherwise allowable withdrawal.

Discussion:

No changes to this subsection were proposed

D. Credit is deposited into the permittee's groundwater storage account maintained by the Department and retired when recovered.

Discussion:

Questions arose as to what would be included on the account tracking, including such items as expired credits, amount of water injected, amount withdrawn, etc. To a large extent this information would include that mentioned in § 62.1-003 B; however additional items may be useful.

E. Unless authorized by the party injecting water, the Department shall not consider the impact of the injected water on the aquifer in making groundwater withdrawal permitting decisions for other permittees or potential permittees.

Discussion:

Members agreed that “potential permittees” should read “permit applicants.”

Concern was expressed by DEQ that this would require DEQ to keep two sets of books. DEQ also raised a concern that it would impact its ability to calibrate the model. The thrust of DEQ's concern with Subsection E does not impact localized withdrawals of short term storage but does play a role when considering withdrawals farther away from the point of injection. Committee members discussed the issue but did not reach a conclusion as to how it can be addressed within current DEQ resources.

F. The Department is authorized to charge a fee not to exceed \$----- to perform the technical evaluation needed to determine the special recovery zone, the water loss rate and / or the recovery factor.

Discussion:

Workgroup members agreed that permittees should pay reasonable fees for the technical modeling and evaluations. However, if a permittee uses the default considerations for localized short-term storage and recovery then a lower fee or no additional fee should be charges. DEQ has a contract with an outside consultant (currently Aquaveo) to conduct the model runs and evaluations. The contract amount may increase in the future, so it would be useful to have a mechanism to reflect increases in DEQ's costs.

§ 62.1-004. Short term storage.

A. The recovery factor for short term storage shall be 1.

Discussion:

The Workgroup agreed with this section.

B. Recovery of the injected groundwater may occur at the same facility as the injection or within [the “bubble”].

Discussion:

This section will need to be revised to reflect the discussion of the short-term recovery zone.

C. DEQ may establish maximum annual limits on the rate of withdrawal from recovery wells.

Discussion:

This provision is already included in groundwater withdrawal permits and therefore is not necessary to include; however, it may be useful for clarity. The program needs to make clear that a groundwater withdrawal permit is needed in order to withdraw injected water (assuming the withdrawal exceeds the amount for which a permit is not needed.)

§ 62.1-005. Long term storage.

A. The recovery factor for long term storage shall be based on an estimated annual water loss rate using the “groundwater model.” Guidelines for estimating aquifer losses will be published and updated by the Department. The long-term storage recovery factor shall be “to be determined” until superseded by guidelines developed by the Department.

Discussion:

Workgroup agreed that reference to a “technical evaluation” by DEQ would be used in place of the “groundwater model.”

It was also suggested and agreed that “Guidelines” in the second sentence be changed to “DEQ shall develop a procedure...” This gives DEQ flexibility to either develop regulations or guidance. It was also agreed that any legislation should allow for a modified administrative process to help speed the development of regulations.

Workgroup members discussed factors that could impact the recovery factor in long term storage situations. Factors include loss through the aquifer boundary, inability of the model to “detect” some levels of inputs and withdrawals, amounts of water going into storage and other

permitted and unpermitted withdrawals. Some states with injection and withdrawal programs take some percentage “for the system.” It was also agreed that some interim recovery factor would be useful, prior to specific recovery factors being developed, in order to expedite implementation of the program. This led to a discussion of Chesapeake’s permit process which included a discussion of a 10% loss factor. Additional discussion of the merits of various percentages determined that a 20% loss factor was workable number, providing some certainty to the regulated community while also being conservative. Under this scenario, 100 percent of water could be recovered within the spatial recovery zone within 36 months of injection, the 20% recovery factor reduction would be applied per year after the date water is injected (e.g. assuming no withdrawals in months 0-36, 80% of the water injected in months 0-12 could be withdrawn in months 37-48).

It was noted that lack of maintenance of the model was part of the reason the system was overallocated and the top 14 permitted withdrawals had to be addressed. It was also noted that through model updates, boundary conditions may change resulting in new conditions in future permit cycles. It’s important that this be recognized. It was also noted that the annual forum DEQ holds on the state of the aquifer will help alert the regulated community to potential changes.

B. A long-term storage recovery factor schedule covering 10 [15?] years shall be established by the Department for a permittee desiring to withdraw water injected more than 36 months prior to the withdrawal. Once established, the 10 [15?] year schedule shall not be modified. Prior to the end of the 10 [15?] year period the schedule will be re-evaluated, and the recovery factor may be revised for the permittee’s next long-term storage recovery factor schedule based on then current Department Guidelines. A long-term storage recovery factor schedule shall remain effective after 10 [15] years unless modified by the Department.

Discussion:

The Workgroup agreed that the recovery factor schedule should cover the possible permit term of 15 years.

C. Annual recovery factors contained in a long-term storage recovery factor schedule may vary across time if annual loss rates are not constant over time.

Discussion:

The Workgroup agreed with this subsection.

D. The Department may establish maximum annual limits on the rate of withdrawal from recovery wells.

Discussion:

The Workgroup agreed that this section is not needed as it is already covered by the required groundwater permit.

§ 62.1-006. Spatial recovery.

The Department shall develop guidelines for defining a spatial recovery zone to the maximum practical extent and subject to reasonable expectations that no adverse impacts will be imposed on the groundwater resource. Recovery can occur off-site of the injection location with a spatial recovery zone delineated during the permitting process. The spatial recovery zone shall be re-evaluated every 10 [15] years.

§ 62.1-007. Credit transfer between permittees.

All or a portion of a groundwater storage credit may be transferred to another party within the special recovery zone.

Discussion:

The Workgroup's discussion on these sections is captured in the recovery zone definition discussion.

Additional General Issues and Discussions Made During the Meeting:

▶ Clarity is needed that the injector and the withdrawer can be separate entities but that the withdrawer needs a groundwater withdrawal permit.

▶ Questions were raised as to whether one could inject surface water and generate a groundwater credit. The Workgroup agreed that there should not be a limit on the source of the water, assuming that one receives the appropriate authorizations.

▶ DEQ may want to conduct modeling even in the localized short-term recovery situation if, in what would appear to be a very uncommon situation, there are other permittees within the recovery zone. This will be used to address the potential for unmitigated impacts.

▶ The program needs to be flexible so that injection is encouraged as much as possible, especially since injection provides benefits to the entire groundwater system.

▶ The question also arose as to what happens to the water that goes into the system, is it "lost" as a credit due to the recovery factor even though it is still in the ground. Does it go to DEQ to reallocate as a credit or is it just a residual benefit to overall head pressure benefiting everyone even though someone went to the expense of injecting the water?

▶ Additional clarification is needed regarding the ability and process by which one who is not injecting water may use the generated groundwater storage credits. The following outline was presented for potential future discussions:

For anyone requiring a groundwater withdrawal permit:

- *An applicant goes through the permit process as normal*
 - o *For the model analysis:*

- *Banked water would not be included*
 - *All permitted use (including use that relies on banked water) will be included in the model analysis*
 - *If they meet the technical criteria they can receive a permit*
- *If they don't meet the technical criteria and still want a withdrawal:*
 - *They purchase an allocation from a water bank*
 - *For the model analysis the withdrawal is evaluated using the banked water*
 - *If they meet the technical criteria they can receive a permit*
- *The DEQ Permit Fee would be structured to cover the base cost (as normal) – and if someone wants to go to the allocation then there would be a second / additional / supplemental fee to cover 1) administration of the banking program and 2) additional technical evaluation*

Separately, anyone wanting to participate as a banking system, would require a permit. The Permit would be similar to a withdrawal permit, except the permit would stipulate minimum injection amounts (in specified aquifers, etc.).

The above can also be expanded to apply to trades in water allocation between existing user.

Future Meetings

The next meeting is scheduled for July 22, 2019, at 2:00 in the Troutman Sanders Building.

Public Comment

There was no public comment and the meeting concluded at approximately 4:45.