

**EASTERN VIRGINIA GROUNDWATER MANAGEMENT
ADVISORY COMMITTEE**

WORK GROUP #2B – TRADING

DRAFT MEETING NOTES – MEETING #4 - FINAL

FRIDAY, MARCH 25, 2016

9:00 A.M. – 12:00 P.M.

DEQ PIEDMONT REGIONAL OFFICE – TRAINING ROOM

Meeting Attendees

EVGMAC – WORKGROUP #2B	
Jamie Mitchell – Hampton Roads Sanitation District	Britt McMillan – ARCADIS – Eastern Shore Groundwater Committee
Brett Hutchinson – Aqua Virginia/Aqua America	Kurt Stephenson – Virginia Tech
Eric Gregory – King George County	Shannon Varner – Troutman Sanders/Mission H2O
Lewie Lawrence – Middle Peninsula PDC	

EVGMAC – WORKGROUP #2B – STATE AGENCIES	
Scott Kudlas – DEQ – Central Office	Roy Soto – VDH-ODW (Alternate for Susan Douglas)
Sandi McNinch – VA Economic Development Partnership	

NOTE: Workgroup Members NOT in attendance: Jeff Gregson – VA Well Drillers Association; Ron Harris – City of Newport News; Chris Pomeroy – Western Tidewater Water Authority/AquaLaw; Dwayne Roadcap – VDH – OEHS; Wilmer Stoneman – Virginia Farm Bureau

INTERESTED PARTIES ATTENDING MEETING	
Ken Bannister- Draper Aden Associates	Chris Gill – Christian & Barton
Robert Crockett - Advantus	Barrett Hardiman – Luck Companies

SUPPORT STAFF ATTENDING MEETING	
Brandon Bull - DEQ	Bill Norris - DEQ
Craig Nicol - DEQ	Mark Rubin – VA Center for Consensus Building

1. Welcome (Mark Rubin – Meeting Facilitator)

Mark Rubin, Executive Director of the Virginia Center for Consensus Building at VCU, opened the meeting and welcomed everyone.

2. Review of Agenda; General Sense of the Process and Introductory Comments (Mark Rubin):

Mark Rubin reviewed the agenda for the meeting and the plan for conducting the meeting.

3. Workgroup Updates (Mark Rubin):

Mark provided a brief update on the activities of the other EVGMAC Workgroups. He noted the following:

- In the Alternative Sources of Supply Workgroup (Workgroup #1) the decision was made to divide the management area into geologic regions to evaluate the alternatives. The next step in the process was then to determine which of the available alternative sources of supply that we have been discussing would be most appropriate for each of those geologic regions. The management area was divided into three regions for the sake of this exercise. These included: the “Fall-Line”; “Central”; and “Eastern”. There has been no resolution yet as to any recommended alternatives. There are different impacts that will need to be taken into consideration depending on the alternative or alternatives selected. The first question is what alternatives are most appropriate for each of these regions. The next question that was taken under consideration was two-fold: If you are using your own local funding which projects or alternatives would you select? And if there is state or alternative funding available which projects or alternatives would you select?
- We have a meeting of the Alternative Management Structures Workgroup (Workgroup #2A) this afternoon. One of the questions that will be raised in that discussion is if we divide the management area into those three distinct regions, do different supply sources require different management structures.
- We are starting two other committees. One is the “Funding” committee, because as the other workgroups get closer to identifying alternatives then the question becomes where is the money for those projects coming from? How do you pay for it? The other committee will be looking at “Alternative Permitting Criteria”. Are there other ways we should be looking at for permitting in the future? We are just starting populating these two committees so they have not met yet. We hope to identify the members of these committees in the near future and hold their first meetings soon there-after. It is anticipated that we will discuss the concept and concerns related to “unpermitted users” in the “Alternative Permitting Criteria” workgroup.

Discussions by the Workgroup included the following:

- It was recommended that since “unpermitted users” are potentially a stakeholder in any trading program concept so they shouldn’t be excluded from the discussions by any of the workgroups.

4. Discussion – How Do You Get An Allowance or Credits for Aquifer Storage and Recovery in a Trading Program? (Mark Rubin)

Mark noted that allowances for aquifer storage and recovery had been discussed during the group’s previous meetings and in going back through the meeting notes it appears that the initial question that we asked was “under what conditions do local users receive allowances or credits for temporarily storing treated drinking water in the aquifer?” The interests that were identified included:

- To provide users with management options; &
- To minimize third party impacts.

We had identified three options:

- Assign additional allowances for stored water;
- Apply uncertainty or recharge ratio on recoverable water; &
- Are credit allowances “time limited”?

The question then is under what conditions can local users receive allowances or credits for temporarily storing treated drinking water in the aquifer? The group’s discussions included the following:

- This is specifically for aquifer storage and recovery not for aquifer replenishment.
- Are there other options or interests that we need to be looking at?
- It was suggested that the first identified option “assign allowances for stored water” is really a question and should be restated as “Should we assign additional allowances for stored water?” and then the other “options” listed are essentially “what are the allowances for” and “what are the conditions under which allowances or credits would be granted”.
- Are there other conditions that we need to be considering? The initial question should be “Should they get an allocation?” Then the question is “should they get a benefit?” Someone should get the benefit.
- Under the City of Chesapeake example, they do have an allocation but it is not permit specific. It is not in the regulations. While the regulation and the statute both reference the potential of aquifer storage and recovery, they provide no guidance as to how to do it. Up until recently, when we created the new model there really had not been an agency effort to try to figure out how to technically evaluate and how to analyze and make those allocations and what those ratio of credits might be. Discussions are currently underway between Chesapeake and DEQ regarding allocations and the possible ratios that would be appropriate.
- The question is should we grant allowances for aquifer storage and recovery?

CONSENSUS OF WORKGROUP MEMBERS PRESENT: We should grant allowances or credits for temporarily storing treated drinking water in the aquifer.

If the answer is “yes” then under what conditions allowances or credits would be granted?

- Do geographic restraints impact the recharge ratio? That is kind of an open question that will need to be considered. The uncertainty or unknown might relate to “north’ or “south” of the James in terms of the transmissivity of the system. It is a lot more transmissive south of the James – it gets tighter as you go north. The relative significance of that geologic difference is unknown as to what might be reasonable as a credit.
- It was suggested that the structure under which you would determine a ratio could be fixed, but the ratio itself may vary depending on where it is being done.

- It was suggested that we not bundle everything up into the ratio. A separate issue is whether we need an uncertainty ratio or not. Do we need a “tax” on recharge? If you are withdrawing in a different area than you are discharging is there a potential that needs to be considered? Is there a difference?
- Even if you are withdrawing and “putting in” at different spots or at the same location, there is some loss of water that will need to be taken into consideration. The loss is due to inefficiency in the system, for example, you put in 100% but you only get 80% back out of the aquifer.
- How do you address, other users pulling water out of the same system/aquifer? How to you identify and allocate rights to use of that water? It would involve a fairly rigorous accounting process but it can be done.
- There can be multiple purposes or reasons to have a “ratio”.
 - If you are withdrawing and injecting in the same area you end up with loss of water because of inefficiencies in the system – similar to a surface water reservoir where you lose water due to evaporation. The loss is site specific because it depends on the characteristics of the aquifer at that site and the characteristics of how the injection is done. The larger the bubble that you try to create the greater the loss that you are going to have. The loss can go up into shallower aquifers and it can go out from the injection site. There can be both vertical and horizontal (both up and down) leakage through the aquifer system. It is a pressure loss. The aquifer is not uniform so there will be variations in the loss of pressure. It was suggested that we may also have to address a “double-counting” risk because you are tracking pressure both in the aquifer and the overlying aquifer – allocating to two different people the same water. It is a net-loss to the system. It becomes a “pressure” versus “a fixed amount” allocation question. We are essentially using the figure of “40 mgd” as a surrogate for pressure. It all comes down eventually to a question or issue of “pressure”. Generic rules of thumb for recovery for the system indicate 80% or 70%. There needs to be a methodology to define what the level of loss within the system is. Consideration should also be given for a credit for “beneficial” impacts from increasing the level (pressure) in another aquifer.
 - Uncertainty: In some areas there is a “cut to the aquifer” – a replenishment ratio that can be taken into consideration. This would essentially be a tax – you put in 100 gallons, you get to pull out 90 gallons plus another 5 that would be to replenish the aquifer. You could use this consideration to cover the uncertainty of the benefits to the other aquifers. Another way to look at this is that you don’t compensate anyone for loss due to evaporation from a surface water reservoir.
 - The group discussed the possibility of having to condition permits based on local conditions – would require an accounting process to keep track of the volumes that are being injected versus those being withdrawn by each withdrawer – there could be localized impacts that would need to be taken into consideration depending on the separation distance between the injection point and the withdrawal point.

- Temporal considerations: Temporal and space ratio could be used – it is an option but should not be the only tool. Are allowances time limited? Yes.
- The group discussed the use of a “water balance” as a means of identifying the appropriate ratios or some other tracking/management tool. It is an accounting of what the inputs are and what the withdrawals (outputs) from the system are. We are using a “water balance” as a surrogate for a “head balance”.
- The question was raised as to how would this approach apply to a rural community – if a rural locality is sitting on millions of gallons of water in borrow pits, could that water be injected back into the aquifer? If you treat that water as a commodity then is that water more valuable in the borrow pit or do you commoditize it and inject it back into the aquifer for some type of rural credit? Does DEQ consider “clean water” that is in a borrow pit as treated water that can be reinjected? Or would “treated water” be only that water that is coming out of some commercial pipe? Because you would need a UIC permit to inject that water – that’s where the determination would be made about what is “clean water” or not. Any type of water that can be reinjected would be considered – it is a volume or pressure issue – it would just have to meet the water quality requirements to be injected.
- The group discussed the concepts of storage versus recharge and the idea of temporarily “recharging storage”.
- The concept of having to account for some form of “cost-recovery” mechanism was discussed – this is an economic issue not a resource issue.
- There has to be accountability. Need to be able to maintain flexibility.
- Have to be able to track “what is coming out” (being pumped out) and “what is going in” (being pumped in).
- It was noted that the current sites where reinjection is being done are not at the most effective or efficient locations.
- A ratio changes over time and would be part of a negotiation process – it would be variable – it is currently addressed on a case-by-case basis.
- The question was raised as to whether the allowances would be time limited. How long can you have it and still get credit for it? Does it expire with the permit? Is it perpetual? How would you address it if you were in the 9th year of a 10-year permit?
- A concern regarding “expectations” was raised that could be affected by localized impacts due to additional users. New users in the area of impact of an improved head amount could affect the expectations from the original “injection” site and critical area. Localized impacts due to additional users need to be considered.
- This is a highly localized issue. Need to incentivize additional input locations/points. There needs to be a mechanism to monetize the credits. The group discussed the possibility of creating a consortium/investment system to provide for/encourage inputs in multiple locations.
- FLIP CHART NOTES: Are allowances time limited? Yes. 1) Could use a degradation principle – using a ratio – a discount rate; 2) Could factor in space issues – proximity of

- injection site versus withdrawal site – consideration of drawdown effects; 3) Could use existing permit to support trading; 4) Banking Concepts Trading is how to incentivize banking.
- Support the trading concept under caveat of looking at a localized drawdown criteria.

5. BREAK

6. Discussion – Unpermitted Users (Mark Rubin):

The issue of “unpermitted users” was raised. Questions raised included: How do “unpermitted users” fit into the discussions that the group just had? What effect does that piece of our current structure play here? The group’s discussions included the following:

- Is there any situation where an “unpermitted user” would be injecting? Not likely.
- “Unpermitted users” are a loss from the system. When you are putting water into the system how is that kind of loss from the system accounted for? One way is to come up with a number and take it off the top and say that they are unpermitted users and they will be using “x” amount of water from the aquifer – and that amount would come out of the ratio, but that approach is probably not equitable. It is also an “increasing loss” that would need to be taken into consideration.
- How much certainty do we want to provide for a water allocation?
- Could DEQ issue permits for the current “unpermitted users”?
- What are we trying to get out of the “unpermitted users”? For the benefit of the aquifer? To monetize the resource? Do we need to consider a fee for “unpermitted users”?
- The group discussed the VDH permit fee system and the new well registration law that was passed recently.
- In our current technical resource evaluation, we are not doing anything to control it - we are currently just accounting for magnitude.
- The new well registration requirements will provide a reasonable data set moving forward.
- The group discussed the options for addressing “unpermitted users”. You could 1) Let them slide or 2) Charge them a fee – through the existing VDH program or the registration program. Or, you could 3) Treat them as a permittee – similar to a stormwater general permit or a permit by rule. You could charge an annual fee – like a stormwater fee.
- FLIP CHART NOTES: Unpermitted users – loss from system – how is it addressed? A) Take off top re: ratio-equitable? B) Permit them – regulate? C) Pay a fee to contribute to a banking system. D) Already “accounted for” in the model – improve with well registration legislation – new wells only. Or D) Stay the same.
- The group discussed the use of a severance tax or a fee for service. It would have to be a groundwater replenishment fee – tied to the cost of replenishing groundwater. The group noted that there would be water rights issues that would need to be taken into consideration.

7. Refinement of the Groundwater Trading Program Strawman (Mark Rubin):

Mark led the discussion on further refinement of the “Trading Program” Strawman. The group discussed the following:

- We have talked about a “cap” that we have to establish to begin with if you are doing trading – the cap would be the sum of the groundwater allowances.
- How should that cap be determined? Do you take what you have now? How do you determine the cap to begin with?
- Two factors that should be considered are 1) what are the resource needs? & 2) what is the goal for the resource? Goal for resource – resource to use; resource to replenish. How much do we need to replenish?
- The current state effort/goal is to raise the head above the regulatory surface and maintain that level for 50 years – based on historic use.
- The concept of starting with the state’s current approach (current reduction scenario) and then adjusting that approach geographically and by aquifer for trading purposes.
- The purpose of the cap is to maintain the availability and the productivity of the groundwater resource supply for “X” number of years.
- Right now the resource is over-allocated so that there is no “excess” to trade unless the state allowed a user to trade the permitted amount that he is currently not using.
- The system would have to account for local drawdowns.
- The cap could establish the total amount that could be withdrawn from the system – but it might not be a very useful or accurate number for the resource available today.
- Do we want to establish the allocations geographically? Because of different impacts? Difference in aquifers?
- Under what conditions/considerations can a user/provider trade allowances with each other? A) Providers with water – small use – wide open; B) N.C. concentric zones or just zones – “where you are” impacts – amount of credit (value). Spatial limits/levels of review based on distance or zones. “Providers” and “consumers” were discussed as the more appropriate terms for this discussion.
- The group discussed the arbitrary construct of dividing the management area into three distinct geologic areas: Fall-Line; Middle: Coastal (Eastern).
- Instead of looking at potential “limits” the group decided that a more appropriate concept would be to look at distinct “considerations” for different areas of the state.
- What kind of monitoring and enforcement system/approach do you need for a trading system? The group discussed the idea that we have what we need with the current permitting structure. You would need to account for injections and the unused withdrawal amounts. There would need to be financial accounting but not at the state level – needs to be market based. The question was raised as to whether the “prices” would be made public? It was noted that in the wetland banking system that the prices are not reported – it is a market based system. It was

suggested that the current wetlands banking system might serve as a good model for a groundwater trading system.

8. Scheduling and Next Steps (Mark Rubin):

Mark Rubin thanked everyone for their input to the process today and reviewed the “next steps” in the process. He noted a number of things for the group to consider. Discussions included the following:

- Where do we go from here? When the concept of trading was presented to the main advisory group, we did not get a “warm and fuzzy” feeling about how interested they were in a trading system. We did not have a product to give them at that point – so our presentation sounded pretty vague.
- We have some potential resource issues with having too many workgroups going at the same time.
- Should this group potentially suspend its activities temporarily until the other groups have a chance to meet and develop some products or concepts to move forward with or that this work can work with them to further develop them?
- Are there other ways that this group can get through additional issues without actually meeting?
- Is there a way for this group to move closer to a product resolution that we could move upward to the main advisory group? How can we be more efficient in meeting our charge and ultimately delivering the required products?
- We are trying to get to the point where each of the workgroups has a defined task that they are working on to feed into the main advisory committee to help them meet their legislative mandate in the time remaining for delivery of a final product.
- This group had a good and productive discussion today – we should try to develop and deliver the concept of a consistent state policy to at least address producers who want to inject and store new water into the ground. If we could take that piece and come up with a recommendation for consideration by the main advisory group that this could be the state policy that if you put water into the ground, you can use it this way and you can withdraw it in this way, etc. This would help open the door to this concept and process. We could all learn the process from taking this initial “baby” step. It would help identify and clarify the concept of banking and transferring water under given circumstances. We have very direct applications for implementing that type of system with the HRSD and Chesapeake projects. We have to create incentives for people to put water back in the aquifer.
- Need to consider narrowing the focus of this group to the concept of “incentivizing banking”. We need to develop specific language to address this concept and be able to present that to the main advisory group for consideration. This could be the most important first step that this group could take. It was noted that this sounded like a good concept and approach but that we need to make sure that we don’t lose the rest of the group’s discussions and concepts to get lost. This could be the first step to get us to the next step in the process.

Mark noted that we will identify some possible dates for a follow-up meeting so that the group can work on specific language for refinement of this concept. A “Doodle-Poll” survey will be developed and sent to the group as soon as available dates and times have been identified.

- A request was made for the staff to develop some form of a strawman or a draft document fleshing out this concept in greater detail so that the group could have some example language to consider prior to the next meeting. Can there be some technical work done in the interim? Could a structure be developed to work on the issues/language? Could any of the preliminary work with Chesapeake be useful to further develop this concept?
- The question now is how to move us forward in the most efficient way? What questions do we need to further answer? Can we move forward by how this would apply in the Coastal Plain of Virginia?
- What can the group do to help further this task? This is an add-on to the process that needs additional input from each of you. Is there a way for us to make use of the additional knowledge base in the room?
- There may be some useful information from the HRSD project that might be useful to consider if it could be shared with the group.
- We could either develop a strawman at the next meeting or have DEQ flesh something out for consideration by the group.
- The group discussed the APA requirements for conducting business as a public meeting. They discussed sending information via email to Bill and then back out to the group.

The group discussed the timing of the next meeting and the possibility of sending out a draft document (strawman) for consideration by the group. Mark and Scott will get with individual members of the group to flesh out a strawman for consideration by the full group through a future email distribution and a future meeting. In looking at the availability of the group, the next meeting will likely be scheduled for some time in May. The suggestion was made that this is really a two meeting task – but we are looking to May before we have a product for consideration by the group.

ACTION ITEM: Staff will work on developing draft language as a strawman for consideration by the group through individual conversation and email exchanges with individual members during April. A Doodle-Poll will be developed and distributed to the group for a meeting in May to flesh out and finalize a recommendation regarding “incentivizing banking” for submittal to the Advisory Group.

9. Public Comment:

No Public Comment was offered.

10. Meeting Adjournment: Mark Rubin thanked everyone for their attendance and participation in today's meeting. The meeting was adjourned at approximately **12:00 P.M.**