

**EASTERN VIRGINIA GROUNDWATER MANAGEMENT
ADVISORY COMMITTEE**

WORK GROUP #2B – TRADING

MEETING NOTES – MEETING #2 - FINAL

THURSDAY, NOVEMBER 5, 2015

DEQ PIEDMONT REGIONAL OFFICE – TRAINING ROOM

Meeting Attendees

EVGMAC – WORKGROUP #2B	
Jamie Mitchell – Hampton Roads Sanitation District	Lewie Lawrence – Middle Peninsula PDC
Terry Blankenship – Aqua Virginia	Kurt Stephenson – Virginia Tech
Eric Gregory – King George County	Shannon Varner – Troutman Sanders/Mission H2O

EVGMAC – WORKGROUP #2B – STATE AGENCIES	
Susan Douglas – VDH - ODW	Scott Kudlas – DEQ – Central Office
Kara Hart – VA Economic Development Partnership	

NOTE: Workgroup Members NOT in attendance: Jeff Gregson – VA Well Drillers Association; Ron Harris – City of Newport News; Britt McMillan – ARCADIS – Eastern Shore Groundwater Committee; Sandi McNinch – VA Economic Development Partnership; Chris Pomeroy – Western Tidewater Water Authority; Dwayne Roadcap – VDH – OEHS; Wilmer Stoneman – Virginia Farm Bureau

INTERESTED PARTIES ATTENDING MEETING	
Brad Copenhaver – VA Agribusiness Council	Barrett Hardiman – Luck Companies
Kristin Davis – Southern Environmental Law Center	Jeff Scarano – Brown & Caldwell
Rhea Hale - WestRock	

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

MEETING HANDOUTS:

- A. Draft Meeting Agenda;**
 - B. Elements and Options for a Groundwater Trading Program**
 - C. Groundwater Allowance Trading Program Strawman**
 - D. Balance of Meeting Schedule**
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1. Welcome & Introductions (Mark Rubin – Meeting Facilitator)

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

He asked for introductions of those in attendance and asked for the organizations that they represented

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 and then went through some general meeting and location logistics.

3. Presentation – Elements and Options of Groundwater Trading Program (Kurt Stephenson – Virginia Tech):

Kurt Stephenson provided an overview of the elements and options of a groundwater trading program. His presentation included the following:

- What makes a “good” water management system? – Management Objectives
 - Achieve resource management goals
 - Cost effective investments
 - Incentives for water efficiency & reliability
 - Maximize value of the resource
 - Minimize 3rd party impacts
 - Equitable
 - Accommodate economic growth
- Achieving Management Objectives with GW Trading Programs
 - Management Objectives (Noted above)
 - Groundwater Trading
 - § Clearly defined “rights”
 - § Closed System
 - § Secure “ownership” interests
 - § Modest transaction costs
 - § Monitoring/enforcement
 - Program Design
 - § Identify Goals
 - § Define Asset
 - § Allocate Asset
 - § Exchange Process
- Elements of a Groundwater Trading Program (A 2-page summary detailing the various options for determining and defining the elements of a Groundwater Trading Program was distributed to the group.)

- Management Goals
 - § Define Cap
- Transferable Asset
 - § Define asset (withdrawal “right”, allowance)
 - § Define conditions on use
 - § Define duration of “right”
 - § Identify who must acquire “right”
 - § Monitor & Enforcement
- Assign Asset
 - § Assign withdrawal “rights”
 - § Identify phase-in of issuance
 - § Define access for new users
 - § Identify mechanisms to modify allocation & cap
 - § Legal mechanism to authorize rights
- Trading Process
 - § Define conditions for trade between users
 - § Define banking conditions (“unused rights”)
 - § Define conditions for supply augmentation
 - § Trade approval process
 - § Accounting and registry
- Groundwater Trading Program: A Strawman Proposal for Virginia – A way to structure a conversation (A copy of the 2-page document “Groundwater Allowance Trading Program Strawman” was distributed to the group.)
 - Management Goals
 - § Groundwater withdrawals capped in 3 regional groundwater zones – zonal caps
 - South
 - Central
 - Northern
 - Asset: Allowance
 - § Allowance = authorization to withdraw 1 million gals
 - § Allowance retired after water withdrawn
 - § Any user withdrawing more than 300,000 gal/month must hold allowances to cover withdrawals
 - § Limits to use: Individual permit est. max daily and annual limits on withdrawals to prevent local adverse impacts
 - § If allowance holder stops withdrawing water, allowances remain with the holder.
 - § State may revoke allowance or allowance allocation for noncompliance
 - Allocation of GW allowances
 - § Initial allocation of allowances to existing GW users based on historical use
 - § Cap phased-in over two ____ year allocation periods:

- Phase 1: Allowance allocation based on ____ % reduction from historical use
- Phase 2: Allowances allocated based on ____ % reduction from historical use
- § By end of phase-in, total allowances issued (average annual) in each GW zone will equal zonal cap.
- § After phase-in, allowances issued by state for 10-year period
- § Allowance allocation will be carried forward to each subsequent allocation period unless:
 - User sells future allowance allocation
 - State modifies zonal caps to protect resource
 - If caps lowered, allowance allocations lowered proportionately
 - If caps raised, state decides fate of the incremental increases
 - New users must acquire allocation to withdraw
- Allowance Trading Provisions
 - § Use of general permit for allowance issuance
 - § Transfer of allowances permissible between any permitted user
 - § Transfer granted as long as within same GW zone and daily/annual pumping limits not exceeded
 - § Unused allowances can be banked for use in future allocation periods
 - § Allowances granted for ASR. Total allowances issued: Allowances = total injected water X 0.95
 - § State shall establish online registry for total withdrawals, injection and allowance holdings. Allowance prices are public information.

Discussions included the following:

- RE: Creating 3 regional zones: The 3 zones were picked for illustrative purposes only and would have to be decided upon in a larger discussion than just “trading”. This is only one way to create zones within the Eastern Virginia Groundwater Management Area. The question becomes one of how large of a management area is feasible and “manageable”?
- RE: HRSD Proposal: If HRSD continues to advance forward with their proposal to re-inject – that would take everything that is indicated in “red” on the model projections and essentially turn it “blue”. So then what would you be trading since this would essentially refill the aquifer at those points? How does that effect the proposal being laid out here today? Maybe this is semantics but this would then become less of a trading question and more of a banking question.
- RE: What is an asset that can be traded? Under the HRSD scenario, what you would be putting into the ground that would be the asset. From a broad economic standpoint the only reason that you put in a trading program is to manage a resource that is scarce. If HRSD can make that

resource less scarce then you have to ask yourself if we really need this type of program. This proposal is operating under the notion that there is a scarce (limited) resource.

- RE: A fee for groundwater withdrawals: The concept was discussed. If the HRSD project moves forward, what it really does is shift the time for this conversation. Because with the HRSD project, as long as use is less than 120 mgd, then we are okay, but once it starts getting beyond 120 mgd then you are going to see the aquifer decline and we really don't know what the rate will be for that decline. The big question for the Phase 2 work at HRSD is what is the sustainability of the aquifer?
- RE: Zones and Caps: If you have 3 zones would there be a separate cap for each zone? Yes and there would also be a trading system for each zone under this strawman concept. From an aquifer system perspective some zonation may work. There are some ways to make 3 zones work but the challenge is to normalize the fact that withdrawal impacts will touch all of those zones. Impacts are system-wide.
- RE: Rural Coastal Area: There are not a lot of withdrawal permits in the rural coastal area. Without a permit, you don't have anything to trade. How would those "silent voices" become heard – become involved – be recognized in the trading system? We have these large rural areas with folks sitting on all of this water with "no straws in the ground" and they are going to be penalized for not using the resource because they can't trade anything. How do you bring in the notion of rural areas that didn't pock holes in the ground early on ought to be rewarded and be able to trade some of that water. It is a question of "allowance".
- RE: Allowance: Addressing "allowances" is an issue in any kind of trading program. One option is that at some point you have to "close the system". At some point, people who want to withdraw from that existing water are going to have to "buy-in". You can get a permit and DEQ says you don't have these localized impacts if you pump 2 million gallons per day you are just going to have to buy those existing rights, those allowances from someone else. They will have to buy into the cap, just like any scarce resource. At some point you just have to "close the system". The state could allocate a certain amount and hold a certain amount or percentage for future municipal water supplies. The state could make the decision on how much of the "cap" to allocate to existing users.
- RE: Notion of a management zone with different values depending on where you were within the zone: Need to make sure that there are no unintended consequences. This and other alternatives need to be thoroughly vetted before deciding that one is any better than another.
- RE: Who has to buy-in? Who gets the allowances? There should be some exchange of value for the commodity/resource. Do you allocate allowances to non-permittees or do you just close the system?
- RE: How do you allocate those allowances? It is a valuable commodity. There are a lot of options. You can auction them off; you can give them based on some kind of historical use formula; you can allocate them on some kind of technology based standard. There are a lot of ways to allocate that scarce resource. What is most commonly done is allocation by some

portion of historical use – because people have made investment over-time regarding the resource.

- RE: How are you going to allocate the resource? Based on some kind of “metric”? Could be based on historic use – that is the option that we have the most information on. The state could reserve some portion of the allocation for use by future users; you could allocate based on a projected population level in a certain year; or you could auction off a portion of the allocation. With “historic use” you have the information available upon which to make a decision – North Carolina took this approach.
- RE: Historic Data: Would you be disadvantaged by being one of the newest areas that came into the Groundwater Management Area because there is no historic data? There is some historic data available for the area. But it is disproportionate compared to the original area of the Groundwater Management Area? Not necessarily because the permitting thresholds and the reporting thresholds are the same – so as long as they have been reporting that requirement is the same and has been in place for the same users over the same period of time.
- RE: What the aquifer can sustain? Historic use is known, but do we know what usage the aquifer can sustain? Rates of replenishment, etc.? We have a number that represents what can be allocated and maintain the water levels above the regulatory threshold level for a certain period of time.
- RE: Phasing in the “cap”: How do you phase in the “cap” over time? Historical use serves as the base-line – then some percentage would be used to phase in the cap – some level of reduction from the historic use figures. Historic use could serve as one possible bench mark for this process.
- RE: Do we know what our usage is and how that relates to the envisioned “cap”. Is it above it or below it? From the permitted side, we would like to see the amount to be somewhere between 40 to 50 mgd (actual withdrawal levels) and on the unpermitted side, we like to see in the neighborhood of 30 mgd – those are the numbers that get us where we are – it is very close to our estimate of what our current use is. So it is that component of “unused allocation” that primarily puts us into an “over-allocation” position.
- RE: What “historic use” are you looking at? Is it total; local; regional; management area; or by section? Based on that how do you allocate it? Do you identify a user’s historic use and use that as an individual base-line for allocation or do you total all historic usage and divide it up among the current and possible future users?
- RE: Historic Use: Is there a difference between “historic uses” versus permitted? Yes, because “permitted” includes some factor of growth.
- RE: Permitted Users: In the original groundwater management area there were about 114 permitted users last year. There were a total of 73 active permitted users at the time the management area was implemented that accounted for 450 mgd of use allocation – by the time we got to the most recent round of permitted allocations there are 114 permitted users who are pumping about 60 mgd. If the cap should be around 50 mgd you could start from the permitted

use figures but you would require huge reductions in the amount to get down to that “cap” versus starting from a “historic use” figure.

- RE: Compensation: How do you compensate or make adjustments or make allowances for somebody/a user who has a permitted use of “X” amount but their historic use is obviously lower? So are you going to take away their “permitted use” amount and replace it with a much lower amount in order to meet the cap or are you going to say that your use is the “historic use” amount and in order to meet the cap you will need to reduce it below that level. That is the way that the program was originally designed to function but it has never been implemented in that manner. The statute already accounts for that – it basically says that if you are not using 60% of your permit by “Year-5” we can take it back.
- RE: NC Program: The North Carolina program started from a “historic use” perspective and some of the users in their critical areas had to go 75% below their historic use figures which was defined as the most recent 3-year period. They had to undertake enormous reductions. We have the benefit that if we are just going from historic use, we probably only have to go 10 to 20% from current use. It is a huge reduction from the “permitted use” figure but it is a more modest reduction when we look at our actual historic use figures. We are not at so critical a level that we have to take draconian measures and cutbacks to manage the resource.
- RE: Management Goal: We only need a 10 to 15% reduction in most cases but there are the “Big 14” who would be facing a 50% reduction in usage. The management goal is to eliminate those exceedences of the water level critical surface, so you have to go to those users that impact those critical cells – so that is why they have a disproportionate reduction. They are the users that impact those cells that are now below the aquifer top.
- RE: Historic Use: What period of time are we looking at as “historic use”? The state typically looks at a “10-Year” period when identifying historic use – used when going from not being in a management area to going into a management area.
- RE: Reductions: Would it make sense to look at “capacity to reduce”? The “capacity to adopt to the reductions”. Industry can adapt technology to accommodate reductions while people need water to drink. Different sectors may have different capacities to achieve and adapt to the needed reductions. That is a legitimate point. From a regulatory perspective, anytime we talk about capacity to reduce, everyone tells us that they don’t have the capacity to reduce. It would be hard to implement, but it is certain worth considering.
- RE: Phase-In Period: Assuming that the “cap” is going to be somewhat lower than your current use, you would have some length of “phase-in” period. People need time to adjust to a new regime, so maybe a 2 period phase-in of undetermined length and then you would reduce down to the historic use amount until you get to your final “cap”. No matter whether you use this type of approach or do it through the permit you still have to address this transition question. You need to have an identified transition period so that everyone knows how long they have to make the necessary reductions to reach their “cap”. There should be a phased approach to the transition. It needs to be a clear; transparent and stable process.

- RE: Allocation period: It is envisioned that the state would use a 10-year period in which the allowances would be allocated. The allocations would be for a 10-year period. Potentially unused allocations could be carried forward to the next 10-year period. The allowances can also get used up.
- RE: Rural allotment/allowance: If rural localities were given an allotment then could they rent that amount to an industrial user, to a business? Could they rent their credits to a business as long as they were in business – they get a rent amount and when that business stops doing business that allowance/credit amount reverts back to the local government? Yes, though what it means is that in order to make that allocation that we would have to take more from the existing users.

ACTION ITEM: Staff will post copies of the Handouts (Elements and Options for a Groundwater Trading Program and Groundwater Allowance Trading Program Strawman) to the EVGMAC Workgroup Webpage.

4. Break

5. Report on Activities of Other Workgroups - Summary (Mark Rubin):

Mark provided an overview on the activities of the other workgroups. He included the following:

- Workgroup #1 – Alternative Sources of Supply:
 - 3 Meetings
 - Criteria by which any alternative supply would be judged
 - § Economics and Money Issues
 - § Affordability
 - § Practicable
 - § Feasible
 - § Minimize the stranding of existing infrastructure
 - § Quality concerns
 - § Protecting public health
 - § Consistent quality
 - § Protecting the quality and integrity of products that rely on water
 - § Assurances of safety to the public
 - § Effective waste management from purification process
 - Alternative Supplies
 - § Adequate
 - § Sustainable
 - § Optimize demand management where practicable
 - § Reliability

- § Adequate quantities in the future for both current needs and future growth
 - § Ensure a balance between the needs of current users and future needs
 - § Availability during emergencies
 - § Ease of monitoring as to quality and quantity
- Consistency
 - § Regulatory – Federal and State
 - § Design standards
 - § Consumption standards
- Future Growth
 - § Regulatory Impediments
 - § Expectations
 - § Unregulated sources
 - § Unpermitted users (every group has identified this as an issue that needs to be looked at)
- Protect the interests of private well users
- Being Sensitive to small and rural localities
- Allow citizens to build and live where they want
- Where to put the water back in the ground – reuse – injection
- Options:
 - § Aquifer Storage and Recovery (ASR)
 - § Desalination
 - § Demand Management and Conservation
 - § Direct Potable Reuse
 - § Indirect Potable Reuse
 - § Increased use of Surface Water in lieu of groundwater – development of the use of reservoirs
 - § Water Trading
 - § Interconnections between localities
 - § Collaborative infrastructure maintenance
 - § Tax credits for updates to infrastructure
 - § Salt water intrusion barriers
 - § Reclaimed water unused under a permit
 - § Converting stormwater BMPs
 - § Rain water harvesting
 - § Grey-water – stormwater reuse
 - § Creating a Framework for small projects
 - § What happens if there is no option?
- Presentations:
 - § Aquifer Replenishment System – HRSD
 - § Hanover County – Aquifer Recharge
 - § Desalination Project – Poseidon Water

- § Demand Management – Southwest Florida
- § ASR Lessons Learned – City of Chesapeake
- § Western Tidewater Water Authority – Legislative Proposal – Regulatory Certainty

ACTION ITEM: Staff will provide a copy of the Western Tidewater Water Authority Legislative Proposal to the Advisory Committee Members and the Distribution List prior to the next scheduled meeting to allow time for their review and consideration of the proposal.

- Workgroup #2A – Alternative Management Structures
 - 2 Meetings
 - Presentation by Andrea Wortzel – Review of Current Statutory Framework
 - § Is there a need to change the existing structure?
 - § Can the current system be tweaked?
 - § Or, is this an opportunity to create something entirely new?
 - § Could you keep the current structure and create an over-lay that would solve the issues within the current system?
 - Looked at the current structure to identify some of the issues.
 - § The current structure which is based on individual permits does not encourage regional solutions. It doesn't impede them but there is no mechanism to actually encourage it. Also, there is no mechanism to manage funding for a regional solution.
 - § The current structure does give the responsibility to DEQ and the capacity to identify resources and problems – that was not the case of VDH.
 - § Unregulated users is a big issue.
 - § Term of the permit and relationship to investments in infrastructure.
 - § Inadequate incentives for efficient use of water.
 - § Funding is an issue for management structures.
 - § There should be more stake-holder involvement.
 - § There are fairness and equity issues in the current structure because of the individual permit reliance.
 - § Doesn't consider the whole picture of surface water and groundwater.
 - § Doesn't consider economic impacts.
 - § Issues in the current statutory authorities that could use clarification.
 - There will be future discusses from permittees regarding perceived gaps in the current process/structure.
 - Presentation by Scott Kudlas on the Interstate Commission on the Potomac River Basin (ICPRB) and their Co-Op Program.
 - § Helped to stimulate a discussion on what needed to be included in a regional program/structure.

ACTION ITEM: Mark Rubin will develop a list of the options and criteria examined by each of the Workgroups and will provide a written summary to the Advisory Committee at their next meeting. Staff will distribute the information to the Workgroups.

6. What do we want to report to the Advisory Group? (Members and Mark Rubin):

It was recommended that we move forward with the proposed strawman document and recommend that to the Advisory Group with the documentation that was provided for today's meeting, with the recommendation that the concept ought to be examined further and refined as a possible option.

It was also suggested that we should also summarize some of the opportunities and challenges of putting together a trading program and present them to the Advisory Committee.

7. What do we want to do at our next meeting? (Members and Mark Rubin):

A concern was noted about the group not meeting during the General Assembly session. We don't have a long period of time in which to try to resolve these issues. We have some momentum going on the process – it would be a shame to stop the process and then have to start it back up months from now. We can meet again – each group can set additional meeting dates, we just may lose a few folks, including Bill Norris if we meet during the session. Are there other topics and information that the group can exchange between meetings to keep the information exchange going and to keep the discussions and idea flowing? Yes, specific topics can be explored and the information distributed as needed.

The group discussed the idea of the workgroup meeting on Monday, December 14th in the morning (9:00 – 12:30) prior to the Advisory Committee meeting at 1:00. The workgroup decided to meet on that date.

The idea for the next meeting would be to continue to flesh out the idea and concept of a “Trading Program”.

ACTION ITEM: Staff will send out a confirmation to the Workgroup for the meeting on the morning of Monday, December 14th.

8. Scheduling and Next Steps (Mark Rubin):

Mark Rubin reviewed the remaining meeting schedule for this Work Group and outlined the “next steps” in the process.

- **EVGMAC Workgroup #2B – Trading - Meeting #3 – Monday, December 14, 2015 – 9:00 – 12:30**

Meeting materials will be provided to the work group and will be posted to the web page – an agenda

will be distributed prior to the next meeting.

9. Public Comment: No Public Comment was offered.

10. Balance of Meeting Schedules:

The current balance of the meeting schedule for the Advisory Group and the various EVGMAC Workgroups for 2015 include the following meeting dates:

- **Eastern Virginia Groundwater Management Advisory Committee Meeting #2 – Thursday, November 19, 2015 – 1:00 – 4:00;**
- **EVGMAC Workgroup #1 – Alternative Sources of Supply - Meeting #4 – Monday, December 7, 2015 – 9:00 – 12:30;**
- **EVGMAC Workgroup #2A – Alternative Management Structures - Meeting #3 – Monday, December 7, 2015 – 1:00 – 4:40;**
- **EVGMAC Workgroup #2B – Trading - Meeting #3 – Monday, December 14, 2015 – 9:00 – 12:30;**
- **Eastern Virginia Groundwater Management Advisory Committee Meeting #3 – Monday, December 14, 2015 – 1:00 – 4:00**

11. Meeting Adjournment: Mark Rubin thanked everyone for their attendance and participation in today's meeting. The meeting was adjourned at approximately **3:30 P.M.**