

**EASTERN VIRGINIA GROUNDWATER MANAGEMENT
ADVISORY COMMITTEE**

MEETING #9 NOTES – DRAFT

MONDAY, JUNE 12, 2017

DEQ CENRAL OFFICE – 2ND FLOOR CONFERENCE ROOMS B&C

Meeting Attendees

EASTERN VIRGINIA GROUNDWATER MANAGEMENT ADVISORY COMMITTEE MEMBERS	
Jim Baker – City of Chesapeake	Chris Pomeroy – Western Tidewater Water Authority
Nina Butler – WestRock	Nikki Rovner – The Nature Conservancy
Rhu Harris – Hanover County	Kurt Stephenson – Virginia Tech
Bob Hicks - VDH (for Marissa Levine after Lunch)	Mike Toalson – VA Home Builders Association
Bryan Hill – James City County	Dennis Treacy – Smithfield Foundation/Smithfield Foods, Inc.
Marissa Levine – VDH	Brett Vassey – Virginia Manufacturers Association
Sandi McNinch – VA Economic Development Partnership	Ellis Walton – VA Farm Bureau
David Paylor – DEQ	Bob Wayland - Citizen

NOTE: Advisory Committee Members NOT in attendance: John Aulbach – Aqua Virginia; Tom Frederick – VA Water and Wastewater Authorities Association; George Harlow – USGS; Chip Jones – Northern Neck Soil & Water Conservation District; Keith Martin – Chamber of Commerce; John O’Dell – VA Well Drillers Association; Travis Quesenberry – King George County; Paul Rogers – Production Agriculture – Farmer; Curtis Smith – Eastern Shore Groundwater Committee

INTERESTED PARTIES ATTENDING MEETING	
Shannon Alexander – Accomack Planning District Commission/Eastern Shore Groundwater Committee	Chris Harbin – City of Norfolk
Elizabeth Andrews – Virginia Coastal Policy Center	Jonathan Harding – Virginia Agribusiness Council
Ken Bannister – Draper Aden	Jamie Heisig-Mitchell
Jim Beker – City of Chesapeake	Keith Hodges – Delegate Virginia General Assembly
Robert Bohannon – Hunton & Williams/Fairfax Water	Daria Ivanova - VEDP
Arielle Brown – Virginia Farm Bureau	David Jurgens – City of Chesapeake
Preston Bryant – McGuire Woods Consulting	Whitney Katchmark - HRPDC
Jeff Corbin – Restoration Systems	Matt Rowe – Virginia Farm Bureau
Rich Costello – Home Builders Association of Virginia	Wilmer Stoneman – VA Farm Bureau
Robert Crockett - ADVANTUS	Shannon Varner – Mission H2O
Jason Early – CARDNO	Matt Wells - WestRock
Chris Gill – Christian & Barton	Andrea Wortzel – Troutman Sanders
Eric Gregory – King George County	

SUPPORT STAFF ATTENDING MEETING	
Brandon Bull - DEQ	Amber Leasure-Earnhardt – VCU/VA Center for Consensus Building
Drew Hammond - DEQ	Bill Norris - DEQ
Angie Jenkins - DEQ	Mark Rubin – VA Center for Consensus Building
Scott Kudlas - DEQ	

MEETING HANDOUTS (Materials were also distributed via email and/or posted to DEQ EVGMAC Webpage prior to the meeting or made available at the meeting.):

- Transmittal Letter to Advisory Committee;
- Draft Agenda;
- Draft Meeting Notes – EVGMAC Meeting #8 – Monday, May 15, 2017;
- Issues Summary for June Meeting;
- User Fees – Projections/Estimates Document – Summary Information prepared by Whitney Katchmark;
- Definition of Human Consumption – Proposal;
- Recommendation to the Eastern Virginia Groundwater Management Advisory Committee – New Language for Draft EVGMAC Report and Edits to Existing Language in Draft EVGMAC Report RE: Endorsement of SWIFT

In addition the following document was distributed to EVGMAC Members via email and was also made available at the meeting:

- Eastern Virginia Groundwater Management Advisory Committee Report to the Virginia Department of Environmental Quality and Virginia General Assembly – Working Draft

1. Welcome & Introductions (Mark Rubin – Director of the VA Center for Consensus Building at VCU and Meeting Facilitator)

Mark Rubin welcomed the members of the Advisory Committee and members of the Interested Public to the meeting and asked for introductions. He noted that as always we have the “Open Chair” if there is a need for someone other than a Committee Member to provide a comment during the course of the meeting. We have not used this in the past since we have been able to accommodate input from the members of the interested parties into the conversations during the course of the meetings. But it is available if needed.

Today is going to be a fairly busy day. We have gone through all the work of the Workgroups and we have come to a number of tentative decisions but there are some issues where we have not made any decisions about that we still need to discuss.

2. Comments and Proposal (Delegate Keith Hodges):

Mark introduced Delegate Keith Hodges and welcomed him to the meeting of the Advisory Committee. Delegate Hodges extended his thanks to the Advisory Committee; the Workgroups and the Staff for all of their hard work and all that they have done over the past two years. He noted that the Committee was formed through legislative action in 2015 to address a very challenging and complex issue – managing our groundwater resources in the Eastern Virginia Groundwater Management Area. He noted the following:

- The role of the existing committee is very important. Although the Committee officially dissolves because of the sunset provisions in the legislation, he believes that this dialogue needs to be continued in some way, shape or form.
- The Advisory Committee is making progress and that progress needs to continue. Just being able to have and continue to have this type of dialogue means a great deal. He recognized that the group will be making some recommendations as part of their “final” report but there is a need to continue this dialogue and the work that this committee has started in the future.
- The 14 large user permits have officially been settled and that serves to stabilize the aquifer, but he is concerned about economic development in Virginia – short-term/long-term – there is no room for growth – there is no room for existing industry to expand – we are just at the status-quo with our current efforts.

Delegate Hodges discussed a proposal regarding an “alternative source of water” with the Committee. He informed the Committee that Ken Bannister had approached him with an idea for an “alternative source of water for the Commonwealth”. He noted the following:

- This “alternative source” would access groundwater from the crystalline bedrock aquifer of the Virginia Coastal Plain below the Potomac Aquifer.
- Wells drilled into this crystalline bedrock beneath the Virginia Coastal Plain sediments may be a viable source of a groundwater supply in Eastern Virginia.
- Review of existing geological publications, and discussions with Virginia based geologists generally support this concept.
- A copy of the report will be made available to the Committee for their review and consideration.
- There have been discussions with DMME about this concept. This is an option that is probably worth looking at further.
- The available source is likely to be only in the range of a couple of million gallons per day.
- He asked for this committee to consider this alternative and consider including it as an option in their final report.
- He noted that it might be possible to approach the legislature with a request to fund an appropriation for such a study.
- This concept has never been explored in the eastern part of the Commonwealth.

Discussions by the Committee included the following:

- How deep is the crystalline bedrock? It depends on where you are in the state. The range is likely to be 11 hundred to 15 hundred feet. You can find water but it is just a question of how much and where. There is no reason to believe that there is no water down there – it is not going to replace the Potomac – but it is an alternative source that could be considered and could help decrease the pressure on the Potomac.

- What would the study entail? How much would such a study cost? The proposal that has been generated anticipates three different types of studies. One proposal would be to look at the entire Coastal Plain; another would be more of a Regional Study; and the third could be in the form of a Local Study. Very rough cost estimates put the costs for these types of studies range from \$2 to \$6 Million.
- Once you do the study and drill the wells needed for the study – if those wells end up being viable supply wells they then could essentially become a functional source of water at the completion of the well and completion of the study. If the study is successful, you end up with a drinking water supply well.
- How do you know where to drill? What are the chances that you are actually going to find water when you drill? You would have to do some preliminary work to determine the best locations to drill the wells. You would essentially go through the same process you would use to drill a well west of the Fall-Line. You would need geological studies; remote sensing; and geophysical surveys to determine the best locations. It was noted that the USGS did drill wells in the Eastern portion of the state in the 1980's or 90's – so there is likely to be some information – though some of those wells may have been drilled to determine the “crater”. Those wells may have been 2,000 to 3,000 feet deep.
- It was noted that the General Assembly would have to look at the costs and the benefits of such a study – of such an approach – in determining the viability of funding. “Is the Juice Worth the Squeeze?”
- A project or study of this nature would likely need to be a partnership between DEQ and DMME.
- A copy of an updated proposal regarding this “alternative source of water supply for Eastern Virginia” was distributed to the Committee members and the members of the Interested Parties.

ACTION ITEM: A copy of the Proposal for “Alternative Source of Water Supply for Eastern Virginia” developed by Ken Bannister will be posted as part of the meeting materials and reference materials for the Advisory Committee on the DEQ Eastern Virginia Groundwater Management Advisory Committee Webpage (<http://www.deq.virginia.gov/programs/water/watersupplywaterquantity/easternviriniagroundwatermanagementadvisorycommittee/evgmacmaingroup.aspx>).

3. Meeting Notes – May 15th Meeting of the EVGMAC (Mark Rubin):

Mark asked whether there were any comments or edits to the draft meeting notes that had been distributed to the group. Bill Norris noted that he had received one set of edits to the notes from Kurt Stephenson regarding his presentation about the Australian Model and a needed clarification of a reference - those changes have been made in the copies of the meeting notes that were distributed.

The Advisory Committee accepted these edits and approved the meeting notes as revised. The meeting notes will be marked as final and will be posted to Town Hall.

ACTION ITEM: Staff will post the Notes from the May 15th meeting of the EVGMAC to Town Hall as “Final”.

4. Review of Ground Rules for the Advisory Committee (Mark Rubin):

Mark noted that sense we will be trying to reach consensus on a number of items prior to finalization of the report that it is probably worthwhile to revisit the “Ground Rules” that we started this process with to remind everyone of what we agreed to previously.

• OBLIGATIONS OF COMMITTEE MEMBERS

- Members shall act in good faith and in a respectful manner in all aspects of these discussions whether during meetings or during communications with others, including the media outside of meetings. They shall also keep the long term interests of the Commonwealth in mind as they participate in the process. If an article appears in the media that misquotes or inaccurately represents an individual’s position, that individual should inform the Committee members of it.
- Members will maintain contact with constituencies throughout the process to obtain feedback on proposals and to provide information about tentative agreements reached.

• DECISION MAKING:

- The Committee will make every effort to reach unanimity on all issues related to the proposed strategy, meaning that there is no dissent by any member. However, if the facilitator determines that additional discussions are not likely to lead to unanimous consent, the Committee will consider consensus to have been reached when there is no dissent by more than two members.
- Upon the request of a dissenter to the strategy, DEQ will include the dissenter’s reasons for dissenting in any report provided pursuant to Section 62.1-256.1 of the Code of Virginia.
- During the course of the facilitation, the facilitator may propose a test for consensus on any given issue or on the entire proposal utilizing a 4 level scale to determine gradients of agreement. The scale to be used is as follows:
 1. I fully agree and support the proposal.
 2. I can live with the decision. It is okay and I can support it.
 3. I have reservations but will not oppose the proposal.
 4. I think there are major problems with the proposal and am unable to live with it or support it. More work is needed
 5. If consensus is not present, the Group’s discussion continues to determine if the interests of those who could not support the proposal can be met.

5. General Review of Draft Report (Mark Rubin):

Mark noted that the Draft Report had been sent out to the Committee members for them to look at prior to the meeting and hard copies of the report have been made available at the meeting. He asked whether there were any comments from the Committee members at this point. No comments were offered at this time.

He noted that the next and last meeting of the Advisory Committee is currently scheduled for Friday, July 7th. Given this fast approaching date and the 4th of July Holiday, our time schedules for getting comments back from members of the Committee and getting those incorporated into the report document are going to be short. He suggested that by Wednesday, June 21st that all comments and suggestions for modifications to the report should be submitted to Bill Norris so that they can be incorporated into the “final report” for consideration at the July 7th meeting. The plan is to review the entire report document during that final meeting of the Advisory Committee to make sure that we are accurately documenting and reflecting what the Committee is coming up with.

Mark noted that according to the statute that the Advisory Committee makes a report that is submitted to Director Paylor, who then will issue the “Final Report” to the State Water Commission and to the General Assembly. This report is anticipated to be this Committee’s recommendations to Director Paylor about what should be in the report.

Dave Paylor noted that his view is that the “report is what it is” – it is what this group says it is. He noted that his submission may comment on the “report” but the plan is not to do anything other than report on what this committee comes to and note where there was consensus and where there wasn’t consensus and what the reasons for that were.

ACTION ITEM: Members of the Advisory Committee are requested to submit any comments and suggestions for modifications to the “Final Report” to Bill Norris by Close-Of-Business on Wednesday, June 21, 2017. These comments can be substantive comments or grammatical; whatever you see as possible changes that will help us to develop the best report possible that accurately reflects the deliberations of the Advisory Committee and its Workgroups.

It was noted that the final meeting of the Advisory Committee will take place on **Friday, July 7th from 9:30 AM to 4:00 PM** at the DEQ Central Office 2nd Floor Training Room.

6. Draft Report Input: Unpermitted Users (Mark Rubin/Whitney Katchmark):

Mark noted that based on the last EVGMAC meeting, that a set of estimates of the number of households and business that would pay a fee for groundwater management under a couple of scenarios was developed. Whitney Katchmark reviewed those projections with the committee. Using a flat-fee rate of \$5 per household per year the calculations result in the following revenues based on the various scenarios:

- Scenario 1: Entire population of Localities completely or partially in the EVGWMA (Easier to collect since GWMA boundary is not well defined at street level)

- Households: 1,901,581 Revenue from Households: \$9,507,905
- Businesses: 145,226 Revenue from Businesses: \$726,130
- Scenario 2: Portion of Population of Localities in EVGMA
 - Households: 1,370,706 Revenue from Households: \$6,853,530
 - Businesses: 100,885 Revenue from Businesses: \$504,425
- Scenario 3: Population with Private Wells in EVGMA
 - Households: 208,963 Revenue from Households: \$1,044,815
 - Businesses: 14,498 Revenue from Businesses: \$72,490

Discussions included the following:

- The flat-rate fee used for these calculations was \$5 per year.
- How many households were there? About 1.4 million households in the EVGMA – this is all users not just the unpermitted users. It was noted that the latest census indicated that there were only 3.3 million households in Virginia – this is based on a population of a little over 8 million.
- The rate was \$5 per household or \$5 per business whether or not they are using groundwater or not.
- Based on the previous discussions of the group it was the general consensus that we wanted to have a fee apply, if we were going to have a fee, to both permitted and nonpermitted users.
- These estimates were just a way to show what could be generated with a fee of some amount (\$5).

Mark posed a couple of questions to the Committee related to the imposition of a “user fee”. Should there be a user fee? If there is a fee, what should it look like?

Discussions of the Committee related to the imposition of a “user fee” included the following:

- A basic premise that the committee agreed upon was that “everybody permitted and nonpermitted has a duty to the aquifer”. How you implement that was the question.
- What do we need to generate in order to accomplish the objective? How much is needed? Numbers have been generated in terms of what DEQ needs are. There are some funds that are generated through the existing permit fees. Page 29 of the “Report” contains information about program costs that have been identified by DEQ. Staff noted that at some point there were conversations among the group about perhaps generating money to help cover the costs of conversion of groundwater to some other alternative source. Permit fees on average represent less than 10% of the costs of implementing the existing program – in most years it is quite a bit less than that. Page 22 of the “Report” contains language referencing “additional costs estimates for DEQ with regards to data needs for injected groundwater banking and/or trading” – but there are currently no actual estimates for this included in the “Report”.
- The group has generally talked about a number of purposes for the use of a fee. Part of it was DEQ and part of it was to encourage any of the incentives that have been discussed in terms of getting users off of groundwater and onto surface water or onto public supplies.

- There have been a number of recommendations made during the course of our discussions that are included in the “Report” that will require some resources and for some of them a lot of resources. The idea in general was to have a fund to start addressing those types of issues. There is no absolute number of what we are shooting for. The need is very high.
- Would the fee be based on “parcels of land” or “households”? The way that it is projected on it is based on number of “households”.
- Is agriculture included in this approach? Where does agriculture fit into this? Our discussions thus far have been including everybody because a number of the unpermitted users are clearly agriculture. For the purposes of these calculations and estimates, agricultural users would have been included in the estimates for businesses.
- So should there be a fee? Should this committee recommend a fee?
- To the extent that the Committee is going to recommend that the Commonwealth ought to undertake a number of programs, whether it is some of the testing efforts that we have discussed or whatever, then we have 2 choices, we can either punt and tell the Legislature that we think you ought to spend more money on this effort and go find it or we can recommend one or more possible sources for the needed money. If we are going to recommend the one that we ought to be willing to come up and recommend at least the parameters of some other sources. It is realistic to say that if we are going to recommend that the Commonwealth undertake some programs that are going to have additional costs that we try to come up with some suggestions about how that can be addressed.
- There is another step that needs to be considered that goes back to the conversation at the last meeting of the Committee about the fact that people see water as theirs. We also don’t really have a feed-back process in terms of the health of the aquifer. There has been a lot of discussion about some form of “dashboard” or feed-back process. In addition to recommending some way to find funding, we should make sure that we include some process to make sure we have full transparency about what is going on. People might rise to the occasion if they understand through an appropriate feed-back mechanism or “dashboard” or a state of the aquifer report what is going on and why a user fee makes sense.
- We pretty much agreed at the last meeting that we wanted to have “a state of the aquifer” as an annual event. That there would be a lot of information put out on an annual basis to inform the public about the aquifer and current issues.
- We need to make sure that there is a clear connection between the need for a user fee and the use of such fees as they relate to the “state of the aquifer”.
- There should be a cap at some point to the user fee. If you own a hotel or a motel and you have 50 or 100 or 150 rooms that are occupied shouldn’t they pay more than a single household? Shouldn’t there be some formula, some reasonable formula that gets to a number that we need? A number that would be different for businesses and single family households? Businesses as a whole have the ability to pass on those costs.
- So should there be a fee? We did not reach a consensus at the last meeting that there should be a fee.

- On page 10 of the “Report” it appears that the suggestion is that the “user fee” be included as part of the real estate tax assessment. If the “user fee” looks like a tax at any level and it is associated with the way that taxes are collected it is DOA in the General Assembly. We have all talked about a “fee” – a “fee” is probably the right conversation to be having, no matter what that looks like. If this concept is saleable then throwing it over the fence and seeing if the General Assembly gets it is probably not the right approach. It has to be structured with a “cap” and it is going to need a very clear allocation. It was suggested that the WQIF is the model to use. The development of the WQIF was a very complicated process and it only funds a share of the total costs and that is very clearly outlined every year by DEQ. Under the WQIF we all know those 140 facilities and we knew the ceiling and the state knew that it capped its liability – the state was only going to fund a share of that. If we could follow the same path as that taken for the WQIF, since the General Assembly never likes to do things new. If the goal is to actually to make this work so we don’t have to repeat this effort in ten years, then we should do a fee and have it track the same nomenclature as WQIF then we would probably be a little ahead of the game.
- In terms of how this concept of a “user fee” would be included in the “Report”, we would start with the approach that “these are things that need to be done” - “things that we all agree need to be done to manage the aquifer” and then include identification of a number of ways that they could be paid for. You could structure some sort of “user fee” or it could just be taken out of the “General Fund”. The more important thing coming out of this committee is “if we are going to manage the aquifer here is what we all agree has to happen”.
- The fee needs to be equitable. It needs to be fair and reasonable.
- A question about how “summer homes” would be addressed in the assessment of a fee since they are not in use year round?
- We had the discussion at our last meeting that the perception is that anybody can drill a well on their property and take the water – it is theirs. The notion of charging a fee goes against that general perception. We have also had discussions that actually the water belongs to the Commonwealth pursuant to the Code and the Constitution.
- The notion of a fee is somewhat like an insurance policy. We need to look at this as an insurance policy so that if you need water at a certain point in the future it will potentially be there.
- The concept of an annual state of the aquifer is a great way to distribute information about the aquifer and the concerns and issues involved – it is getting depleted; is there a danger of salt water intrusion; etc. This goes back to having transparency issue.
- Mark raised the conceptual issue of whether there should be a fee or not.
- It was suggested that we have two radically different buckets of cost that we are dealing with: one is for some basic operational support for DEQ and the other is a widespread capital program for some undefined projects for a number of potential recipients. Those are two very different activities and might lead to different answers from different committee members as to their level of support for a fee to meet those different needs. It was suggested that there is likely

to be more in favor of a fee for support for DEQ program necessary to support this activity, but that the support for a fee for widespread capital funding on a competitive basis, where currently unknown projects are basically subsidized through this fee mechanism would be much more difficult to support.

- The question goes back to how much are we talking about that would be required to be collected through a “user fee” process? There has been some attempt to identify the DEQ needs numbers. The other “bucket” of needs is still very open-ended.
- In one sense, part of this might work itself out as we see what we have a consensus for. Don’t want to presume the outcome but it could very well be that the “Report” is saying that here are some things that we think are essential for this program to go forward and a lot of those are the DEQ things/needs. There may be some other elements that we are saying that these are some things that the Legislature ought to consider too and if they were to adopt any of those other items then there will need to be funding for them. Rather than being in a position where we are buying into each and every one of those possibilities maybe we can take this approach and reach consensus on an approach to a user fee.
- We will likely end up with a cap on the amount of the “user fee”. Maybe that is \$5 or maybe it is “not to exceed \$5”.
- If we were to take the approach of recommending a user fee that would be used to pay for the DEQ program needs that have been identified would we have a consensus? The caveat for this is that as always “the devil is in the details”. It appears that we would likely have a consensus with this approach.
- We are dealing with this concept in very broad details at this point. Even DEQ’s potential needs and expenditures there are items that staff had identified as more important or more urgent with a very broad cost swing on the list of possibilities. Somewhere this wish list will have to intersect with what a fair and reasonable fee is. It was agreed that the current list of DEQ needs would have to be prioritized – staff noted that the list as had been presented to the Committee was presented in order of priority. The question for this group is what you consider as a priority – what is important – from the perspective of the chair you sit in that you agree that these are the things that need to happen for us to be able to adequately manage the aquifer.
- The concept of a user fee also needs to be looked at from the perspective of the logistical and administrative barriers associated with the implementation and collection of such a fee.
- From a political perspective it is no small thing for this group to come out and suggest and recommend that this is important enough that there should be a user fee. This is the political question that is outside the details. If this group is willing to say, yes there should be a fee then that is a pretty big deal. Then we get into the details about how to make it make sense.
- It should be remembered that what we think of as a small fee that is reasonable and manageable may not seem so to others. We need to go into this with our eyes wide open.
- It appears that there is a consensus that at least on a conceptual basis that the “Report” should say that the Committee recommends that we look at the implementation of a “user fee” that is tied to the needs of DEQ and that the “report” should identify the priorities that have been

identified by DEQ for this program – to properly manage the aquifer. There will also need to be a cap on the “user fee” that would be an “up-to” cap based in terms of what the need is.

- A question related to the SWIFT Project impact was raised: in this report are we going to say that the SWIFT project alone, if all other barriers are controlled like we have been talking about, has the potential to recharge the aquifer? Are we going that far in this report? This is a topic that will be discussed later in the meeting.
- We keep talking about a user fee and what the fees are. Farmers don't pay permit fees for drilling wells and that type of thing. What we don't want to have happen is for this consensus that is appearing around the table to imply that farmers are interested in paying a permit fee to access water, but there is an understanding that farmers would be “penny wise and pound foolish” to say that they would be opposed to paying a \$5 user fee that would keep them from paying a \$6,000 fee for drilling a well. Don't want to go down the track that just because we have consensus and Agriculture is kind of going along and saying that it is okay to support health and welfare of the aquifer by supporting these DEQ needs at \$5 per shot that doesn't mean that Agriculture would support a \$6,000 fee for drilling a well to access water. The concept is that if you get down the path of collectability and everybody (finding out who “everybody is” is a daunting task) pays \$5 or some across the board fee amount – every breathing human being in the Groundwater Management Area pays something – if you can meet all of those goals and at the same time take the heat off those who pay minimal fees or no fees then that is a wise thing. We don't want to take the notion that because Agriculture is saying yes to this fee that they are okay with some others.
- Now that we have narrowed down the concept of a user fee, what kind of parameters would we want to put on such a fee? The fee would be tied to the DEQ list of needs for this program that will be in priority order. What should it look like? Is there agreement with regard to a cap? There is a consensus that there should be a cap. What should the cap be? A cap could be uniform across the board or it could be based on water usage – in that case there may be more than one level of cap. There are some practical limitations that will need to be taken into consideration. A notion was discussed that a business, like a hotel, that uses more water would pay a little more, but the problem is whether we are going to apply that concept across the board and charge residential users who are heavy water users and agricultural users who are withdrawing significant amounts of water more for their water use through a larger user fee. It may be difficult to accomplish that. Even we if accept the concept it may be impracticable to find a way to do that. It has to be practicable in addition to being fair.
- The notion is that it needs to be fair; practicable; and efficient to collect.
- It was suggested that the types of things that the user fee would be paying for are DEQ monitoring and their other program needs related to management of the aquifer. It is difficult to associate these activities to the amount of water that someone is withdrawing from the aquifer. It is more all about “what is the state of the aquifer” and how we are going to go about judging the “state of the aquifer”? It has nothing to do with how much you did or didn't take out of the aquifer. It makes sense to have a flat fee among all users – maybe \$5 per user with maybe \$10

per business. A flat fee seems to make the most sense and make it easier to implement. It was suggested that the user fee should be a flat fee with two tiers, residential and commercial. Summer use (weekend homes) would be treated the same as residential. The fee would be based on household and/or business not per well.

- We are talking about everybody in the Eastern Virginia Groundwater Management Area paying a user fee not just the users because it impacts everybody.
- It would make sense to have the fee apply to only those within the Groundwater Management Area. It may be difficult to justify charging a fee for folks who are not using or impacting the aquifer. The “who” would this apply to question is answered by “all those within the Groundwater Management Area”.
- Conceptually we have a cap; we have a user fee that is efficient to collect; within the Groundwater Management Area; we have a two-tiered fee; and it is small and regional; and we are applying the fee based on the two-tiers of households and businesses.
- Back to politics: If this ends up in the “Report”, DEQ did not ask for it. The Committee discussed and identified what is needed and decided that this was the approach to move forward with and now we have to find a way to pay for it.
- Director Paylor noted, when asked, that the top priority things that have been identified by DEQ staff need to happen. One of the challenges that DEQ has, especially since they regulate, is what is the quality of the data? DEQ can only provide the quality of the data that they can afford. The assumption is that you want to have good quality data. DEQ strives to do the best they can with the resources that are available. There are public expectations that the current DEQ resources might not match but those expectations do not change. The role of the Committee as saying that these are the expectations that we have and we accept that DEQ can afford it or not.
- There is also a possibility that the state could agree to provide more funding to DEQ to help them meet these expectations.
- The General Assembly has asked for guidance from this Committee, would you like to say that this issue is significantly important that there should be General Appropriations support and that if that is not there then here is a way to fund it – through user fees? This is significantly important to come out of the General Fund. But, the idea of a fee counteracts the notion that this is somehow a “free and unlimited” resource that everybody gets at no cost. This should be noted in some fashion in the “Report”. It is fine to say it in the “Report”. It also needs to be noted that in addition to state investment in this effort that localities might also invest and contribute to this effort – if a locality had a group of consumers that they wanted to protect then they could buy their \$5 fee out, such as retirees and veterans. It needs to be as flexible as we can make it.
- As noted it is an important step for this committee to be able to say that they think that a fee is a good idea and here are some parameters that need to be included and considered. The group was reminded that when do this and it comes up in the General Assembly that everyone on the Committee is willing to stand up and say that it is important and that they support the idea and concept.

- There appears to be consensus that DEQ has identified that they don't have everything that they need but they have some priorities needs that need to be met with regard to management and protection of the aquifer and that the General Assembly should devote more resources to the agency for this effort. If that is not possible in any given year that there are alternatives that could be considered to get these additional funds, including a user fee.
- If DEQ is going to take these 14 facilities and say that they have to cut back the amount of water that they are allowed by 50%, we better know what we are talking about. And not only do we need to determine that have we not done too much but is it in fact going to be true that those cut-backs are going to level the aquifer? The question for the Committee is have you become convinced that these things need to be in place and that they need to be paid for in some way? There appears to be a consensus on this approach/concept.
- The "Report" should also reflect on the uniqueness of this request. Everybody who has an environmental bone in their body wants a fee to pay for their program. The "Report" should reflect that this is important to the business community; it is important to the Agricultural Community; it is important to the economy of Virginia; as well as the health of the aquifer through some kind of lead-in statement that makes this across the board, not just a fee for the heck of it.
- This Committee would not have been organized by the General Assembly without the fact that they understood that we were nearing a crisis, if not immediately then in the near future. With the stormwater program, everybody agreed that we needed to do something about water quality so the General Assembly gave localities the authority to impose a fee for stormwater. If we can come up with a fee that is modest, fair and equitable and that everyone pays into it then it should be acceptable.
 - Delegate Hodges suggested that asking for a fee is going to be very difficult to get passed in the General Assembly. It would probably be more appropriate and more realistic for the Appropriations Committee to fund this type of activity/project. There may be a recommendation from this committee that a fee be considered but it is probably much more realistic to get funding from the General Assembly through appropriations.
 - There were recommendations in the JLARC report that the state really should consider get behind these efforts and to find ways to incentivize to help with funding to solve this problem.
 - Thanks to discussions by this Committee we have been able to tie the need not just to a project but to specific programmatic and management needs.
- The fee needs to be equitable.
- Do we really want to expend political capital to push for a fee? Or to recommend a fee that might fund a few million dollars a year to help DEQ with logistics when you are missing the big bite of the apple – How do you replenish the aquifer? How do you reduce demand on the aquifer? Which is why we are all here? Administratively, you are going to pay a lot of political

capital and administrative costs trying to collect a \$5 fee to build water monitoring wells. Maybe we should be looking at a broader goal in terms of more money and a larger effort.

- We have been trying to be as practicable and as realistic in our expectations as possible in our deliberations in the Committee.
 - Delegate Hodges noted that to expend that political capital on a “fee” to the public when there is a public perception that they own the property; they drilled the well; the water is theirs. For this to be successful, you have to overcome that public perception that the water belongs to them.
- It was suggested that the imposition of a \$5 fee might emphasize that this might be for the common good but it more so it reemphasizes that “this is my well and I can use it for what I want”. It does not incentivize at all being more responsible users of the water that you are withdrawing and using in your own home and it won’t generate a huge amount of funds.
- It was suggested that an alternative source of funds might be a change/an increase in the fees charged to withdrawers who have violations – to have a fee in an amount that would be more appropriate to actually cover the costs and might free up other available funds for use in managing the resource.
- It was suggested that perhaps in the current version of the final report we are missing something – the consequences of inaction by a certain date – a sense of urgency needs to be included. The “Report” should include a statement that there are real consequences of non-action that need to be addressed.

Mark noted that the current discussions have the “Report” recommendations leading with the recommendation that the General Assembly fund this effort through General Appropriations and that the fallback option would be the imposition of a “user fee” as the source of the needed funding.

7. BREAK – 11:05 AM – 11:13 AM

8. Draft Report Discussions – Questions to Resolve (Mark Rubin):

Mark Rubin noted that there were some issues/questions related to the Draft Report language from our discussions at the last meeting that need to be reviewed and addressed. He presented the following from the Draft Report for discussion by the group:

- **Pages 13 – 15: Incentives for converting from groundwater to surface water** – The question is “have we addressed or said what we want to say in the “Report” or do we want to be more specific in stating how to do the incentives and what the incentives might look like?” We generally said that it was a good idea to create incentives for it but we did not say what the incentives were. Do we want to do anything more specific than that in the “Report”? The recommendation contained on Page 15 reads:

“Committee recommends that the General Assembly create incentives for existing agricultural and residential well owners to connect to public surface water supplies when available, with a possible

credit to localities to help lower connection fees or provide low cost financing.”

Discussions by the group included the following:

- What is meant by “credits to localities”? Who has something and what are they crediting? Some uncertainty as to what this means was noted. It was suggested that the incentives might not necessarily have to be dollars, one of the things that might be of value to local jurisdictions was if the local jurisdiction was given the “capacity” that they were transferring for expanding businesses – that might give local governments the incentive to lower the connection fees because by moving someone from well water to public water they gain that additional capacity – that capacity that was being used by the private well owner. That would be a non-cash incentive that might generate a credit. It would be a credit with regard to what you are allowed to withdraw. It might be credit that might apply to permit capacity. Probably not an option.
- If you think about converting from a private well that is adequate for you and of the quality you need there are two deterrents – one obviously is the connection fee and the costs associated with that connection and the second is paying a water bill, that you would otherwise not have to pay. There are probably some folks around the Commonwealth who would say that they want to do the right thing but there aren’t many.
- It was noted that there are a number of localities where connection to the public system becomes a requirement when a public system comes close to a private well user, but there is a significant cost involved. The system can provide some long term payment options in those instances.
- If we are looking for an incentive that doesn’t cost cash to the Commonwealth or anyone else providing some kind of credit could be something that would incentivize people moving from groundwater to surface water.
- In a lot of cases, if you have that water line in your yard and you also still have a private well, if you go to refinance or you go to sell your property the banks in many instances require you to hook to public water because that gives them a level of comfort over having that private well.
- Does the law about the mandatory connection to public water vary by locality? Yes, it does vary by locality. Is this something that should be uniform?
- There should also be incentives to encourage local governments – there used to be any number of federal and state resources available for local governments to expand both water and sewer but they are no longer available.
- Do we want to include the notion of some sort of credit in the recommendations?
- If we could include local governments in the list of those that could receive credits, those that might be eligible to receive credits, the specifics about how that would be done could be worked out later. We are talking about incentives for agricultural and residential well owners and there is nothing to indicate that the incentive program could also apply to public water suppliers as well.
- Instead of specifying credits, the recommendation could say that incentives could also apply to local government water providers. It was suggested that before agreeing to this concept that the

committee should have an opportunity to see how it is ultimately written out for possible inclusion in the “Report”.

- Are we certain that there is sufficient surface water supplies that this is a good tactic? To say that we want to take surface water and use it in lieu of the groundwater?
 - Yes, but it is very expensive to treat.
 - Surface water is stressed at many times of the year. There are regulations where we restrict the use of surface water at certain times.
 - The concern is that we are just not moving our problem from groundwater to surface water by making this recommendation.
 - As a general rule, you are dealing primarily with tidal systems, so there is more availability in the tidal system that is in effect recharged multiple times during the day then we currently have in the groundwater system. But the point is taken that it is not universal depending on the scale of the withdrawal and the scale of the source that you are pulling it from. So there may be smaller tidal creeks that can’t support a withdrawal of the scale that is being proposed without creating a problem. But you don’t have the situation that you have west of the Fall-Line where you have annual low-flow periods because of the annual climatic cycle.
- You would not want to have these types of incentives in areas where you are going to stress the surface water.
- Is what we have for this recommendation with the amendment of taking out the word credit and putting in the general notion that the incentives could apply to local government providers – is that enough to put in the report? Do we need to put more in the “Report” in terms of incentives?
- Should the wording refer to “connecting to public surface water systems” instead of “connecting to public surface water supplies” that are reasonably available? Yes.
- On the recommendation regarding existing agricultural and residential well owners, is it purposeful to have no other commercial entities identified? It was suggested that commercial entities should also be eligible for this type of incentive. It should include all users.
- When you start talking about connecting to surface water supplies and incentives, is there an incentive big enough to cover an agricultural operation hooking to a public water supply or system of any kind? Instead of including some of the larger agricultural users in this recommendation, that this recommendation, as was discussed in the workgroup, should be strictly about residential folks connecting to surface water supplies whether they were public or private and then taking agriculture and bringing it down to its own bullet point and talk about incentives for agriculture to use surface water and also connect to the pond discussion that we have been having.
- There should be separate recommendations for agriculture; residential and commercial well users in order to recognize things that each group might need to do differently.
- The current recommendation related to using reclaimed water and/or stormwater really does not have a direct connection to the use and development of irrigation ponds for agricultural purposes. For agricultural purposes, the ponds would be either storage for rain water or surface

water that is collected. It was requested that agriculture be separated out and connected to the recommendation related to the use of ponds.

- The difference in the need for potable versus non-potable water was discussed.
- It was suggested that maybe the distinction could be the need for different or certain water standards.
- On the pond issue, maybe this committee recommend to the General Assembly that they encourage the use of ponds for irrigation purposes for agricultural purposes which would include remedying regulatory barriers – a statement of General Assembly intent.
- From an agricultural perspective, the concern is having adequate water when and where it is needed and if we can go down the path of storing adequate water in some sort of impoundment for when it is needed then agriculture can be more quiet on this particular subject.

Discussions resulted in the following proposed revisions to the recommendations currently listed on page 15 of the “Report”. These changes included:

- Recommendation # ____: Committee recommends that the General Assembly create incentives for existing residential well owners to connect to the public surface water systems when reasonable available.
 - Recommendation # ____: Committee recommends that the General Assembly create incentives for existing commercial/industrial well owners to connect to the public surface water systems when reasonable available.
 - Recommendation # ____: Committee recommends that the General Assembly create incentives for local government and locality well owners to connect to the public surface water systems when reasonable available with possible credits to localities to help lower connection fees or to provide low cost financing.
 - Recommendation # ____: Committee recommends that the General Assembly require irrigation wells only from unconfined aquifers where available and adequate, exempting food production irrigation wells.
 - Recommendation # ____: Committee encourages the General Assembly to continue to evaluate using reclaimed water and/or stormwater for irrigation purposes where practicable.
 - Recommendation # ____: Committee recommends that the General Assembly create incentives for existing agricultural well owners to connect to the public surface water systems when reasonable available.
 - Recommendation # ____: Committee encourages the General Assembly to develop a statement of regulatory intent to encourage the use of ponds and to work to remedy the regulatory barriers in the development of irrigation ponds for agricultural purposes.
-

Mark presented the next question related to the “Report” that needs to be further discussed by the Committee. He noted that this was a question related to the HRSD SWIFT Project:

- If SWIFT injects water into the aquifer and creates a bigger head would that increased head be reallocated and if so how that would be done? Do we need to be more specific about who and how that reallocation would happen? Typically, the general sense from DEQ is that they have the ability to do that based on modeling and science and they welcome the opportunity to continue to perform that service. Does that need to be spelled out in the “Report” in terms of being a little more specific?
 - This was a topic that is not currently addressed in the “Report”. This was an issue that came up during the “Top Three” conversations and correspondence from Committee Members when they were asked to identify their “Top Three” Issues or Concerns. The conversation was related to “if SWIFT works the way that it is designed and there is this increase in water levels and available head does that get doled back out as part of the normal operations of the program?”
 - Part of the conversations/recommendations were also related to the development some kind of governance structure for the region going forward. These types of questions could be addressed by that governance structure. It was noted that currently we are not coming up with any kind of alternative governance structure, it was more related to having a “State of the Aquifer” Report/Conference.
 - There was some conversations about the use and development of a “monitoring lab concept/framework” and an over-sight concept/approach. There will be a recommendation included in the “Report” related to an over-sight mechanism.
- It was noted that the SWIFT project is so important for success on this that it overlaps with many of the topics. This reallocation concept relates to the banking discussions and the banking and crediting concepts that we loosely call trading and banking.
- We have talked about reallocation but we have also talked about creating opportunities for growth and new users and new economic and population growth opportunities. At some point do we say that there is a recommendation that room for growth be created through a replenishment effort? The question is “how do we accommodate growth in this process?”
 - Staff noted that in the “Top Three” discussions there were both the reallocation concept gets incorporated into the Trading Scheme and then there was a comment that it should be on a first come – first served approach or any additional head for future growth.
- Do we want to have a statement in the “Report” to create a cushion or space for new/future economic growth?
- It was noted that SWIFT is in fact a replenishment project, it is not a storage and recovery project. HRSD is not going to recover any of the water themselves, unlike an ASR project.
- So does the Committee want to be specific about reserving/preserving water for future economic growth? What should we say in the “Report”?
 - Right now there is an explicit limit that has been established by DEQ.

- Should we as a committee say something about what should be the state policy when somebody comes in and wants a 5 million gallon a day permit? What is or what should be the state policy on that?
- The future economic growth concept needs to also include the concept of new businesses and the expansion of existing businesses.
- It is either going to be implied or it is going to be explicit.
- The SWIFT project, if successful, is going to create an excess over time.
- Should we be explicit about the SWIFT project in creating some additional room for new and expanded existing economic growth?
 - It was recommended that it needs to say it clearly in the “Report”.
- Conversely, are we also saying that if we implement some of these alternatives and we create some head room are we also saying that it is not our expectation that DEQ go out and reallocate any addition head-room or capacity? That is correct. There are lots of places that this concept could be addressed/included in the “Report”.
 - It was suggested that it could be included and probably should be included in multiple places in the “Report”.
- In looking at the recommendations upfront, we address some of the concepts included in the SWIFT project and it looks like we are assuming that the SWIFT project moves forward, but the Committee has not officially supported SWIFT and there is no recommendation related to SWIFT in the “Report”.
- Who should be responsible for reallocations?
 - DEQ currently does it and should continue in that role.
 - A policy statement related to reallocation could be developed indicating that DEQ should be the one responsible for reallocation.

9. Discussion of SWIFT – Support for Project (Mark Rubin/Dennis Treacy):

Mark noted that as we have discussed the Committee has not specifically endorsed the SWIFT project.

Dennis Treacy noted the following related to the SWIFT project:

- We have been doing this work as a committee for about two years. SWIFT has been around since Day One. It is now built into almost every discussion that we have.
- This concept has been accepted in Orange County, California and in other places. It seems to be a proven concept and there seems to be a lot of energy around it.
- Since all of the Committee’s discussions tend to hinge on the successful implementation of the SWIFT project, it is time for us to take a really hard look at formerly endorsing it so that we can move the process along and get to the point where we can focus on some of the other issues like what happens in the short term – in the next 10 or 15 years and how are we going to deal with that.

- A letter from Dr. Cole has been received that identify some concerns that he has about injecting wastewater.
- DEQ and VDH have regulatory roles to play in this process moving forward so concerns like Dr. Cole’s will be examined and addressed.
- We should try to resolve this issue today as to whether this committee is going to formerly endorse and recommend the SWIFT Project today.
- An “endorsement” document prepared and submitted by Preston Bryant on behalf of the Hampton Roads Sanitation District containing proposed language related to the EVGMAC Final “Report” and SWIFT, with proposed edits to the existing “Report” was introduced and is included below:

***Recommendation to the
Eastern Virginia Groundwater Management Advisory Committee***

***New Language for Draft EVGMAC Report
and
Edits to Existing Language in Draft EVGMAC Report
RE: Endorsement of SWIFT***

***The Following is Proposed
New Language
(Discussion of SWIFT)***

HRSD’s proposed SWIFT project proposes to inject at seven of its existing treatment facilities across Hampton Roads a total of 120 MGD purified wastewater to recharge the aquifer.

The Committee believes that the SWIFT project meets the five goals it has set for any potential solution.

- *The project injects approximately 20 MGD more water into the aquifer than is currently being withdrawn on a daily basis. This provides a solid basis for sustaining the aquifer into the future and, in conjunction with other measures, minimizes its potential for returning to its current declining condition.*
- *The project reduces – and may possibly reverse – the rate of land subsidence, an important goal given sinking land accounts for approximately half the sea-level rise recorded in Hampton Roads.*
- *The project provides protection to the groundwater from saltwater intrusion through re-pressurizing the aquifer along the coast, reversing the existing negative pressure gradient that has been created by the significant withdrawals for the past century.*

- *The project stabilizes the aquifer such that, in conjunction with other measures, groundwater availability is maintained for all users – residential, commercial, industrial, and agricultural – into the future.*
- *The project is inherently a regional-based water-quantity solution with additional water-quality and financial benefits across Hampton Roads. In addition to the injection sites being located across Hampton Roads, thereby broadly increasing the aquifer’s volume, it will reduce HRSD’s wastewater discharge by some 90% to the York and James rivers. Elimination of such significant wastewater discharge will allow for no-cost nutrient-reduction credits to nearly a dozen localities, thereby saving hundreds of millions, if not billions, of dollars in localities’ Chesapeake Bay TMDL compliance costs.*

While the Committee recognizes SWIFT is still in the developmental stage with several hurdles to overcome, the technologies to purify wastewater to meet drinking water standards are well proven across the U.S. and around the world and recharging aquifers for locally available storage and groundwater augmentation has been successfully accomplished for decades, including in the Potomac aquifer by the City of Chesapeake. Based on SWIFT’s proposed implementation of these proven technologies, the Committee recommends SWIFT be supported by the Commonwealth as a significant part of the set of solutions pursued to improve groundwater sustainability in the Eastern Virginia Groundwater Management Area, subject to appropriate public health and environmental conditions.

While highlighting SWIFT as a significant part of the solution to improving groundwater sustainability, the Committee acknowledges that the SWIFT project will be subject to certain regulatory approvals. The Committee also recommends that in addition to regulatory approvals, the Commonwealth develop an oversight and monitoring program for any aquifer augmentation project (as was done with the Occoquan Watershed) to ensure long-term protection of the water quality within the Eastern Virginia Groundwater Management Area, ensuring environmental and public health safety for future generations.

Recommendation #__: Based on SWIFT’s proposed implementation of these proven technologies, the Committee recommends SWIFT be supported by the Commonwealth as a significant part of the set of solutions pursued to improve groundwater sustainability in the Eastern Virginia Groundwater Management Area, subject to appropriate public health and environmental conditions.

***The Following are Proposed
Edits to Existing Language
(Clarifying)***

Aquifer Recharge – Purified Wastewater (p.6)

Aquifer recharge projects, where ~~treated~~ wastewater purified to drinking water standards is injected into an aquifer, can create many benefits for the groundwater resources, including: (1) recharging the aquifer; (2) using a readily available source in most communities (i.e., wastewater); (3) potentially reducing nutrient loads currently being discharged into surface water; (4) potentially reducing land subsidence; and (5) utilizing the natural structure (the aquifer itself) for distribution and storage. The cost associated with this type of project would be in the high-level range. Additionally, the feasibility of an aquifer recharge project using purified wastewater is based on the proven technology in other areas (such as ~~in the Southwest of the U.S. and~~ Texas, California, and Florida) and a proven demand. ~~On the other hand, there needs to be a means to recover the costs since it is a significant investment both in terms of capital costs and operation and maintenance, along with the issue of public acceptance because this type of project has never been implemented in Virginia.~~

Actions needed to move forward with this type of project include: (1) pilot/demonstration study that could demonstrate the feasibility of operating this type of project, along with determining the potential success to recharge the aquifer; (2) completion of a risk analysis; and (3) coordination of government approvals and standards since there are no current state-permitting criteria for this type of project, along with posing significant health concerns the permitting for this type of project is currently done at the federal level. Hampton Roads Sanitation District’s Sustainable Water Initiative for Tomorrow (HRSD SWIFT) regional project is a purified wastewater aquifer injection project that is currently underway as a pilot project in Virginia (see more detailed discussion below), and other potential local projects are in New Kent and Hanover.

Mark noted that with this introduced document that there is a suggested recommendation and there is suggested language with some amendments to the section of the “Report” related to “aquifer recharge” language that is already in the report. The suggestion is that we would adopt this language to put into the report which effectively endorses the SWIFT Project.

Discussions by the Committee included the following:

- What does the language mean that says “...the Committee recommends that SWIFT be supported by the Commonwealth...”? Supported how? Financially? Intellectually? Spiritually? Legislatively? Regulatorily? ETC.

- The SWIFT Project will still have to go through any number of processes as it moves forward – those various processes cannot be pre-judged.
- We could simply say that the Committee supports the SWIFT project rather than calling on the Commonwealth to support it.
- It was suggested that instead of the use of the term “supported” that the statement/recommendation should say “...the Committee recommends SWIFT be **recognized** by the Commonwealth...” This could serve as guidance to the Commonwealth for future processes.
- Would it also be useful to have a statement that says that the efforts for recharging the aquifer in general that it is in the Commonwealth’s interest to support recharge types of projects not just storage and recovery but recharge for a variety of state interests, including growth and land subsidence, etc.? There are a variety of state interests in these types of projects that are worth supporting and the SWIFT Project is an example of that. There was agreement that this would be a good addition to the recommendation.
- Should we say SWIFT and similar projects?

Proposed Revision of Recommendation: Based on SWIFT’s proposed implementation of these proven technologies, the Committee recommends that SWIFT and similar projects including storage and recovery as well as recharge projects be recognized by the Commonwealth as a significant part of the set of solutions pursued to improve groundwater sustainability in the Eastern Virginia Groundwater Management Area, subject to appropriate public health and environmental conditions.

10. Alternative Source of Water Supply for Eastern Virginia Proposal (Mark Rubin):

Mark referred the Committee to the report that Delegate Hodges had referenced that had been prepared by Ken Bannister entitled “Alternative Source of Water Supply for Eastern Virginia – Groundwater from the Crystalline Bedrock Aquifer of the Virginia Coastal Plain”. (Copies of the report were distributed during the meeting and will be made available on the EVGMAC Webpage.)

The question for the Committee is do we want to include it as a potential alternative source in the “Report”? And, do we want to recommend that the General Assembly study this concept/approach or do we just list it as a potential alternative source in the “Report”?

Discussions by the Committee included the following:

- Is this a new concept? Yes.
- Staff noted that they have been aware of the proposal for a few days but they have been aware of Ken Bannister’s interest in looking at something like this for about a year. Any of the specifics about how such a project might be carried out and what the expectation might be,

DEQ has been aware of probably about a week. Technical staff has looked at the proposal very quickly over the last several days. Some of the things that staff concluded were:

- In fact yes, we would expect there to be some available water; we would expect that because the rock unit that is being discussed is the same rock unit that we have in the Piedmont that there is a reasonable expectation that you might find volumes equivalent to what you would find in the Piedmont.
- What we find in the Piedmont is that you might get 200 gallons per minute or you might get nothing.
- The issues that this raises is “are the costs associated with doing some of the proposed investigation likely to yield a reasonable supply”? There is a lot of uncertainty about that.
- This is something that ought to be systematically looked at.
- It probably could yield some water. The process to go about finding that water and actually determining how much might be available is somewhat uncertain and you may not find any water when you look.
- There is a cost-benefit question to the Commonwealth regarding this proposal.
- Does DEQ need time to go into the records and research other wells, such as the USGS wells that have been drilled in the area, to see if this is feasible and if this could deliver a reasonable amount of water?
 - Staff noted that they had been in touch with USGS regarding wells that they had drilled. That conversation and that understanding lead to the current perception and recognition that there is a certain “hit or miss” quality to this type of investigation and everyone should appreciate that up front.
- Is this type of proposal worth further exploration? Yes.
- It was agreed that this is just another piece of the puzzle that DEQ should be asked to investigate further. Is there more that DEQ can say at this point? Is there more that they can investigate and determine at this point?
 - Probably not.
- The real question is should the Committee put it in the “Report” as a potential alternative source that ought to be explored? It was suggested that the Committee to ask DEQ to advise them on the feasibility of such a proposal/investigation and determine the merits of the approach.
- It was suggested that it could be noted in the “Report” as a potential alternative source that was introduced to the Committee very late in the process and an alternative that needs to be investigated further to determine its merits.
- It was suggested that the “Report” could include another paragraph/statement at the end of the discussion on “alternative water sources” looking at the recommendations at the end that says that the Committee is recommending that the General Assembly consider the list of alternative water sources and solutions, including solutions for public/private partnerships and/or potential funding for further evaluation and study. This could apply to the other items on the list as well.

- It was agreed that there should be a new paragraph added to the end of the “Short-term and Long-Term Alternative Water Sources and Solutions” section of the “Report” that would contain information about the proposal related to “groundwater from the crystalline bedrock aquifer” and that the recommendation for the section should be modified in some manner to acknowledge the possibility of funding further evaluation and study of alternatives.

Proposed Revised of Recommendation: Committee recommends that the General Assembly consider the list of alternative water sources and solutions included in this report, including solutions for private/public partnerships and/or potential funding further evaluation and study of short-term and long-term alternative water sources and solutions.

11. BREAK – 12:00 NOON – 1:10 P.M.

12. Draft Report Discussions – Groundwater Trading and Banking (Mark Rubin):

Mark raised a few areas in the “Report” that the Committee needs to consider and take some action on related to the materials and recommendations related to “groundwater trading and banking” contained on pages 18 – 21 of the “Report”. He asked the Committee members to look at that information and decide whether we need to be more specific about the “who” and the “how” in the “Report”. He asked the group to specific look at the recommendations found on Page 19 and Page 21 of the “Report”.

Page 19: Recommendation # ____: Committee recommends that the General Assembly implement an injected groundwater banking system.

Page 21: Recommendation # ____: Committee urges the General Assembly to continue to evaluate groundwater trading systems, since the Commonwealth recognizes that a trading system is an important concept that will take time to develop.

Page 21: Recommendation # ____: Committee recommends that the General Assembly establish a timeline and resources to create a body that would explore the concepts of groundwater trading in Virginia, along with giving DEQ the appropriate authority and resources to work out the modeling to initiate such a trading program.

Is this what we want to say? Is there more we want to say or is this sufficient?

Discussions by the Committee included the following:

- The General Assembly wouldn't implement a trading and/or a banking program, they would enact legislation authorizing DEQ to develop and implement a trading and/or a banking program.
 - Yes.
- We had an example that the Committee discussed that was draft regulatory language for a trading/banking system. Using that as an example is there something that needs to be authorized in statute to allow something like that happen?
 - There was a draft of a strawman on the banking concept. Should that be included in the "Report" as an example of something that could be done?
 - Should we reference it in the recommendations?
- With the example like the "strawman" does that need any statutory authorization language to allow DEQ to do that?
- With the existing Nutrient Trading Program, that came out of a recommendation from somebody and went to the General Assembly for authorization – is there sufficient details in these recommendations to mirror what happened with that program?
 - The legislation authorizing the Nutrient Trading Program turned out to be quite elaborate because there was a very active regulatory process at the time that the legislation was woven into, so there were a lot of particulars on the table. It is probably not necessary to have any authorizing legislation for this concept that would go into the level of detail that was required for the Nutrient Trading Program.
 - A more fundamental question that needs to be addressed is checking back to the Groundwater Management Act to ensure that there is statutory authority for authorizing trading in the first place – whether it is a simple form or an elaborate form or authorization.
- Regarding the first recommendation on Page 21 of the "Report" which says: "Committee urges the General Assembly to continue to evaluate groundwater trading systems". This could lead to the General Assembly questioning what the Committee has been doing for two years because they had directed the Committee to do that.
 - The reason that this recommendations is included in the vague form that it is currently in is that there is a lot of information related to the concept of banking in the "Report" but very little related to trading. No real conclusions or recommendations related to trading had been developed by the Committee at this point.
 - A recommendation was made to delete the first recommendation on Page 21 and just go with the second recommendation. This was agreed to.
- Going back to the strawman document for ASR – should we ask for authorization to create a system of credits so that you can keep track of the volume of water that you have injected so that you have some claim to that volume of water? There was also a small provision there that those credits (the volume injected minus the loss rate) are transferable within a certain

geographic space, so there was an element of being able to transfer those credits between users. Does even that small piece need authorization?

- Staff noted that the Groundwater Management Act is silent on any kind or level of credit concept. It would be best if there was some Policy Directive from the General Assembly to move us in that direction if that is what the Committee is recommending.
- The question is should we have something specific in the “Report” in terms of seeking legislation that would authorize the credit concept and the trading of those credits.
 - If the Committee makes the recommendation, the General Assembly needs to know that they need to do something for this to happen. This is not just a DEQ thing that they can promulgate some regulations to address.
 - Could it be as simple as putting “trading” in the statute somewhere?
 - § Maybe. Suggestions as where it could go were requested.
- During the discussions related to trading, was the concept of being able to generate credits using water efficiency and conservation projects. That notion doesn’t seem to be addressed in this section of the “Report”. There were some conversations regarding using conservation and being able to capitalize on those approaches. We had discussed the concept of “motivating good behavior”.
- The suggestion is that we add into the language of the “Report” the concept of “encouraging conservation” and the development of a system where you would be able to quantify and get credits for conservation projects and efforts.
 - It was noted that we might want to keep those issues separate – one is a permitting issue about what do you do with unused allocations and the other is about a very specific injection recovery type of system/approach.
- The notion of how you generate credits is very narrow as it is currently drafted in the trading section of the “Report”.
- The other thing that is important and however we organize it in the “Report” is fine but you really have two very different recommendations in the section. On Page 19, you have a recommendation that the General Assembly implement “injected groundwater banking” and on Page 21, we have them studying it. We have talked today about dropping that recommendation and just going with the 2nd recommendation on the page which talks about “initiating a trading program”. Unless we are going to get a lot more specific than we have in the past, we are nowhere near having the framework to recommend initiating something, because we have not even flushed it out yet. We probably need to keep these two concepts separate.
- We did discuss the concept at a previous meeting about the potential of doing something to recognize and encourage certain types of conservation but we didn’t flush it out much at all. Unless we have something much more complete, a level of discomfort was noted if we were to say we were going to implement something that we talked about without more details about how we would do that.
 - It was suggested that it could just be a recommendation to study the concept of recognizing and encouraging conservation but it does need identified in the “Report” so

that the concept doesn't get lost in the discussion of credits: How they can be generated? How are they accounted for? How do you permit them? How do you make them tangible enough to trade?

- They are definitely two different topics: The concept of the injected groundwater banking system is clearly different than the trading system, so they do need to be kept separate.
- The question then would be to make the last recommendation (Page 21) a little more explicit with some notions of concepts of conservation and the idea that you have to figure out the process by which the "credits" would be done.
- Back to the "banking" recommendation on Page 19: the term "implement" is going to be replaced with "authorize DEQ to develop and implement".
- Regarding the concept of the Nutrient Trading Program and background on the program information identified on Page 20 of the "Report": Chris Pomeroy will provide draft language for that section of the "Report".

ACTION ITEM: Chris Pomeroy will provide background information and draft language related to the existing Virginia Nutrient Trading Program for incorporation into the "Report". He will work with Amber Leasure-Earnhardt in the development of that language.

Proposed Revision of Recommendations:

Page 19 – Recommendation # ____: The Committee recommends that the General Assembly authorize DEQ to develop and implement an injected groundwater banking system.

DELETE - Page 21 – Recommendation # ____: Committee urges the General Assembly to continue to evaluate groundwater trading systems...

Page 21 – Recommendation # ____: The Committee recommends that the General Assembly establish a timeline and resources to create a body that would explore the concepts of groundwater trading in Virginia, along with giving DEQ the appropriate authority and resources to work out the modeling to initiate such a trading program. These concepts could include how credits would be generated; what activities would be eligible for credits; how they would be accounted for; how would you permit them; how they would be traded; and how do you make them tangible enough to trade?

13. Water Quality Issues related to Injected Water (Mark Rubin):

Mark noted that the last time this group met, we talked about the fact that there are some questions about water quality issues regarding the injected water and that VDH is looking at coming up with some ideas about how that would be done. But VDH has not completed that work and is not ready to present any suggestions at this time.

Discussions by the Committee included the following:

- This is something that should be noted in the “Report” as something that needs to be worked in case the work being done by VDH is not completed in time for inclusion in the “Report”.
- Why is this issue something that this Committee needs to address at this stage of the process?
 - The way that this concern came up was during our conversations about alternative governance concepts and that DEQ does some of that already but there was a piece that VDH was very concerned was not covered. What their real concern was EPA would be looking at this and addressing the type of water quality issues associated with injected water and that right now there doesn’t appear that there will be an appetite for them to address those concerns or to be engaged in this process. VDH was concerned that we would be having a project that might not include mention at all of the water quality concerns. It is a quality issue and not a quantity issue. The concern was to make sure that we had established something in the “Report” that recognized that there were water quality concerns needed to be addressed.
- The concern was that there was a gap in the regulatory process that might result in water quality issues not being fully addressed in regard to injected water – that didn’t cover everything
- The concern is that the injected water is being put into a potable aquifer and there is no regulatory structure in place to assure that water that goes into that aquifer is potable.
- Why is this an issue for this particular “Report”? Agree that it is an issue but why does it need to be included in the “Report”?
 - From a political perspective we are going to have to address that issue in the “Report”. We already have received comments from an individual that is concerned about this issue and there are likely to be more concerns voiced as we move forward. The stronger we can be then the better off we will all be. If we say we don’t really know yet what is going to happen, it weakens our position to get this whole thing through.
 - In the workgroups we described this as the potential “ick factor” that we would have to address. The question was if there were concerns could you inoculate the project by coming up with a regulatory structure that might respond to concerns about putting the water into the aquifer.
- For injection, isn’t there a requirement that the chemistry of the two waters blend? That is not a regulatory requirement, it is a practical requirement.
- The Federal UIC permitting program for Class V injection wells, which is what the HRSD is applying for to do the SWIFT project, is specifically designed to protect the underground sources of drinking water. However that is at a Federal level as the UIC is not delegated to the state and the state would like some level of state oversight. HRSD has been talking about the creation and use of some form of Third-Party Oversight to address this need – to create this state-level of oversight to supplement the Federal oversight provisions.
 - Would the Federal waive their responsibilities to the state or would there have to be two permits? We are not really talking about a permitting structure necessarily for the state

side, so there will be a Federal permit for sure. HRSD is still exploring with the state how they want to handle the process on the state level.

- The bottom line is that this concept/concern needs to be addressed in the “Report”.
 - There is ongoing discussions as to what roles DEQ and VDH would plan in this process moving forward.
 - There may be some options available that wouldn’t require legislation, but that would mean that DEQ was in the lead and that may or may not cover all of the other concerns. One of the number of options that has been kicked around it that maybe since the issue is what’s the quality of the water that is being injected and does it meet certain minima that it might be possible to address this in the current HRSD VPDES permit.
- It was agreed that there need to be appropriate environmental and health conditions met and those are being worked on now. The concern needs to be noted even if the work on these areas is not completed by the time for inclusion in the “Report”.

14. Comments Received from Dr. Stuart Cole (Mark Rubin):

Mark noted that there had been some comments received from Stuart K. Cole PH.D, P.E., representing the Fernbrook Homeowners Association. As noted previously Dr. Cole has raised concerns regarding the quality of water injected into the aquifer. His comments were distributed to the Committee and were also made available as a handout and are included below:

Comments to Draft Notes – Meeting 8 May 15th Meeting of the EVGMAC

“The comment pertains to the continued misconception that wastewater can be treated to the drinking water standards. This comment was made by the committee member(s) at least once, if not twice. Those standards as they pertain to drinking water are as set forth in the Safe Drinking Water Act (SDWA). Wastewater was not used as “source water” during the development of the very rigorous approach used in the promulgation of the Primary and Secondary Drinking Water Contaminants regulated under the SDWA and therefore by merely removing those contaminants does NOT make it safe to drink.

The accuracy of the Committee Members must be checked to the usage of their language as it is not safe to drink treated wastewater. Further, a briefing by knowledgeable persons to the committee members related to the tenets of the SDWA Act appears to be in order to further deliberations on the matter of what is classified as potable (drinking) water and what is not.

We trust that the decisions made by this esteemed body do not get based on incomplete information or misinterpretation of the SDWA Act.

We support the important work being accomplished and look forward to your renewed information in the matter.”

*Stuart K. Cole, Ph.D., P.E.
Fernbrook Homeowners Association*

Discussions by the Committee included the following:

- It was noted that HRSD has been attempting to get in touch with Dr. Cole to speak to him more about his concerns, but have been unsuccessful. HRSD offered to provide the Committee with a formal response to his comments/concerns if needed.
 - This was a public comment that was made; it has been received and has been distributed to the Committee – at this stage that is probably sufficient and no additional response is needed at this time.
 - It was noted that Dr. Cole had met with representatives from James City County on two occasions. He did at least respond once to Ted Henifin with HRSD but there was only that one response, there has been no further communication between them. Once the parties start talking there may be something else for this committee to discuss but until then we are not sure what else can be done.

15. Definition of Human Consumption – Discussion and Review of WestRock Proposal (Mark Rubin/Nina Butler:

Mark noted that at the March meeting of the Committee a number of people raised the question of looking at the law that talks about “human consumption”. West Rock has generated a draft proposal based on those questions for the Committee to review and consider – giving us a vehicle for discussion (which has been distributed to the Committee electronically and in hardcopy) which is presented below. Nina Butler noted that their take away from the March meeting was that any committee member with thoughts regarding the concept of “human consumption” should prepare and provide their suggestions. This is what WestRock has prepared in response to those previous discussions. This is an effort by WestRock to incorporate/embody the concept and idea of sustainability of the aquifer and balancing all of the factors rather than to express a preference that is out there and articulated but is very difficult to administer. This is an example of how the notion of sustainability could be incorporated into the Code Section.

§ 62.1-44.36. Responsibility of State Water Control Board; formulation of policy.

(2) Adequate and safe supplies should be preserved and protected for the general health, safety, and welfare of the people of the Commonwealth human consumption, while conserving maximum supplies for other beneficial uses. When proposed uses of water are in mutually exclusive conflict or when available supplies of water are insufficient for all who desire to use them, groundwater resources shall be managed to allow for the maximum social, economic, and environmental benefit of the Commonwealth. ~~preference shall be given to~~ human consumption purposes over all other uses

Discussions by the Committee included the following:

- This is something that the Committee has decided it wants to do or doesn't want to do. If we decide this is something that we want to do then we will need to decide how we want to do it.
- The takeaway from Committee support for this concept would be the wrong message.
- How can you have anything other than human consumption as a priority for water? It is a fundamental requirement for basic life. The notion that the General Assembly would adopt a policy statement that would suggest that anything would be a priority over human consumption.
- The proposed language is modeled after language that appears in several other states that articulates in just that same way about the broad protection of public health and welfare.
- If you were writing on a blank canvas and you wrote this as a proposal it probably would not be as problematic as when you have an existing state policy that says very clearly that human consumption is the highest priority and then you change that to something that appears to eliminate that concept.
- It is difficult to pull out the concept of "human consumption" as a priority after it is already in Code. As this group has previously discussed "human consumption" as it exists in the Code is very problematic, for example, what happens if a company comes here that is a major water user – they convert well water to spring water and sells it – that is "human consumption" even though most it will not be going to the state of Virginia, so does this use take priority? We also talked about it in terms that it was a major concern of the JLARC report – the reaction was that we need to shut existing businesses down in order to align with this priority of "human consumption". It is going to be an administrative nightmare no matter how it is written. One way to start to address this would be to try to define human consumption – a draft definition was distributed to the Committee and is included below:

As used in this section, the concept of **Human Consumption** is not intended to be limited to the amount of water actually ingested by human beings. Instead, this term is expressly intended to include the water resources necessary to produce a sustainable environment for the existing population that fully supports their needs for health, an adequate food supply and employment. The preference for **Human Consumption** is not intended to elevate any future demand for population growth over the needs of existing residents.

- Don't know whether this would make it better or worse? This is just an alternate way to describe "human consumption". There is a real problem with how you are prioritizing population growth versus the sustainability of the existing population.
- Human consumption is an important concept. What we have been discussing is a general fear that we are picking and choosing what takes priority and how that priority is addressed. In

looking at the Code of Virginia and trying to see how it is addressed in other areas, there may be a simpler approach that could be taken. We usually look at things from the perception of “beneficial use” mostly as it relates to surface water. The existing definition that has been in Code forever – especially for offstream beneficial uses reads as follows:

§ 62.1-242. Definitions.

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

"Beneficial use" means both instream and offstream uses. Instream beneficial uses include but are not limited to protection of fish and wildlife habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values. Offstream beneficial uses include but are not limited to domestic (including public water supply), agricultural, electric power generation, commercial, and industrial uses. Domestic and other existing beneficial uses shall be considered the highest priority beneficial uses.

- “Domestic and existing beneficial uses shall be considered the highest priority beneficial uses” – meaning that it is shared. It is a shared value but “domestic” is first in all of the lists. This would not be as strong a statement as the one that is there now related to “Human Consumption”. It appears that we are worried about particular language in a particular Code section, especially in 62.1. Maybe it is time to take a broader look and try to conform the definitions, so that we are talking about the same thing for surface water and groundwater. It may not be practical, but it might be worth looking at. It looks like it protects the human consumption argument but it also broadens it enough to get to the point of agricultural and industrial uses, meat production and food production and things like that.
 - During the last amendments to the Groundwater Management Act Regulations, the definition of “Human Consumption” that the group chose to use was the one in the Safe Drinking Water Act and that is the one that VDH uses as well. It is defined in the Code of Virginia under 32.1.
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§ 32.1-167. Definitions.

As used in this article, unless the context clearly requires a different meaning:

"Human consumption" means drinking, food preparation, dishwashing, bathing, showering, hand washing, teeth brushing, and maintaining oral hygiene.

- We are trying to balance these values of “human consumption” and “beneficial uses”. The JLARC report so highlighted this by them stating the phrase “Human Consumption is the proxy for the water authorities at the local level”. They made no differentiation that those water authorities are providing water to not just individuals but businesses as well. JLARC went on to say that other sources are “crowding out other uses”. That seems to be a fundamental misinterpretation of this Code Section – maybe because this Code section is not written as clearly as it could be. If we are going to solve this going forward as some sort of statement of balancing everything against human consumption, whatever that is, we ought to be able to write it better than it is right now – so no one has to go through this again 2 years; 5 years or 10 years from now and so that JLARC doesn’t write that some uses are crowding out other uses.
- It was noted that the Code does state that it does say that the top priority is human consumption while conserving maximum supplies for other beneficial uses. That clearly allows for the use of this water for other people. This does provide for alternative uses and the General Assembly has spoken. **An objection to any changes in the definition was voiced.** The current language is clear’ everybody understands what it means; there is an existing regulatory framework around it and to suggest that humans shouldn’t have priority for water is not an acceptable concept.
- Tom Frederick, who couldn’t be at today’s meeting sent the following comments regarding this question of addressing “human consumption”:

“...my one comment about the draft definition to remove “human consumption” and replace it with “general health, safety, and welfare of the people of the Commonwealth” leaves a lot of ambiguity and therefore concern. I would be willing to recognize the need for a broader definition that incorporates the previous expressed concerns from Smithfield Foods, such as priority be “given to water uses that provide for direct or indirect human consumption” or priority be “given to water uses that provide for human consumption, and other uses where public health is paramount and no other acceptable alternative source is present”. As I am on the committee to represent the Virginia Water and Waste Authorities Association, **I will need to oppose language that removes “human consumption” entirely from the definition.**”

- There were some thoughts and comments made about the need for clarification in how human consumption is currently addressed.
- There were discussions and comments about leaving the existing statute and language related to the priority for human consumption alone. It was noted that the current language is pretty clear and pretty narrow. It applies when there is a conflict – a mutually exclusive conflict – or when available supplies are insufficient for all of the desired uses. It is fine the way it is. This is not a problem. This is not something we need to solve. It was suggested that JLARC going down the path of saying that we need to do more to implement this was misguided.

- It was suggested that if we took a closer look at this entire Code Section and not just paragraph (2) that a lot of the concerns and issues that have been raised are already addressed in the balance of the section:

§ 62.1-44.36. Responsibility of State Water Control Board; formulation of policy.

Being cognizant of the crucial importance of the Commonwealth's water resources to the health and welfare of the people of Virginia, and of the need of a water supply to assure further industrial growth and economic prosperity for the Commonwealth, and recognizing the necessity for continuous cooperative planning and effective state-level guidance in the use of water resources, the State Water Control Board is assigned the responsibility for planning the development, conservation and utilization of Virginia's water resources.

The Board shall continue the study of existing water resources of this Commonwealth, means and methods of conserving and augmenting such water resources, and existing and contemplated uses and needs of water for all purposes. Based upon these studies and such policies as have been initiated by the Division of Water Resources, and after an opportunity has been given to all concerned state agencies and political subdivisions to be heard, the Board shall formulate a coordinated policy for the use and control of all the water resources of the Commonwealth and issue a statement thereof. In formulating the Commonwealth's water resources policy, the Board shall, among other things, take into consideration but not be limited to the following principles and policies:

- (1) Existing water rights are to be protected and preserved subject to the principle that all of the state waters belong to the public for use by the people for beneficial purposes without waste;
- (2) Adequate and safe supplies should be preserved and protected for human consumption, while conserving maximum supplies for other beneficial uses. When proposed uses of water are in mutually exclusive conflict or when available supplies of water are insufficient for all who desire to use them, preference shall be given to human consumption purposes over all other uses;
- (3) It is in the public interest that integration and coordination of uses of water and augmentation of existing supplies for all beneficial purposes be achieved for the maximum economic development thereof for the benefit of the Commonwealth as a whole;
- (4) In considering the benefits to be derived from drainage, consideration shall also be given to possible harmful effects upon ground water supplies and protection of wildlife;
- (5) The maintenance of stream flows sufficient to support aquatic life and to minimize pollution shall be fostered and encouraged;

(6) Watershed development policies shall be favored, whenever possible, for the preservation of balanced multiple uses, and project construction and planning with those ends in view shall be encouraged;

(7) Due regard shall be given in the planning and development of water recreation facilities to safeguard against pollution.

The statement of water resource policy shall be revised from time to time whenever the Board shall determine it to be in the public interest.

The initial statement of state water resource policy and any subsequent revisions thereof shall be furnished by the Board to all state agencies and to all political subdivisions of the Commonwealth.

- It was suggested that the statute as a whole addresses all of the types of concerns that have been raised.
- A “scope” question was raised – The group as convened today is the Eastern Virginia Groundwater Management Advisory Committee and we are talking about primarily groundwater and not surface water and this is maybe a 1/3 of the state that is the subject of this committee, that leaves 2/3’s of the state that is not represented or at issue in the proceedings of the committee. There is some potential disconnect with the scope of the overarching statute and what the Committee has been assigned to do.

Mark asked the Committee whether they thought that there should be a change in the law as it exists now. There was a split of the committee on whether there should be or not – so the chance of reaching a consensus on this topic are not looking good.

- A suggestion was made that maybe a closer look at the uses of the term “beneficial use” in the Code might be a worthwhile exercise and might provide an example of how this might be addressed. It would be a useful exercise for DEQ to look at the definitions of “beneficial use” as they currently exist in various sections of the Code. The Committee could then use them as an example of a workable definition use that would also include the concept of “human consumption”/“domestic use” that might find its way into this section of the Code relating to groundwater.
- It was suggested that the “Report” could include a statement to the effect that the Committee was divided on this particular issue and maybe note that the majority felt that the current statute was adequate. If those in the minority could agree on some language then perhaps we could include it as an alternative view point.
- It was noted that the section of the Code that JLARC was looking at when they reviewed the program and the groundwater management efforts was Section 62.1 -263 so when we are looking at whether an alternative approach or alternative wording is needed, we should make sure we are looking at the same provision.

§ 62.1-263. Criteria for issuance of permits.

When reviewing an application for a permit to withdraw ground water, or an amendment to a permit, the Board may consider the nature of the proposed beneficial use, the proposed use of alternate or innovative approaches such as aquifer storage and recovery systems and surface and ground water conjunctive uses, climatic cycles, unique requirements for nuclear power stations, economic cycles, population projections, the status of land use and other necessary approvals, and the adoption and implementation of the applicant's water conservation and management plan. In no case shall a permit be issued for more ground water than can be applied to the proposed beneficial use.

When proposed uses of ground water are in conflict or when available supplies of ground water are insufficient for all who desire to use them, preference shall be given to uses for human consumption, over all others.

In evaluating permit applications, the Board shall ensure that the maximum possible safe supply of ground water will be preserved and protected for all other beneficial uses.

In evaluating the available ground water with respect to permit applications for new or expanded withdrawals in the Eastern Virginia or Eastern Shore Groundwater Management Areas, the Board shall use the average of the actual historical ground water usage from the inception of the ground water withdrawals of a political subdivision or authority operating a ground water and surface water conjunctive use system and shall not use the total permit capacity of such system in determining such availability.

- Beneficial use is addressed differently and defined differently, depending on what Code section you are in.
- How do we want to address this?
 - Leave it alone.
 - Try to change it.
 - Address and counter the JLARC report with a clear statement.
- It was suggested that the JLARC report findings should be addressed regardless of what is decided on the whether we should change the statute or not. There seemed to be an agreement and consensus that the “Report” should include a response to the JLARC report findings.
 - How would that be done?
 - It could be as benign as saying that JLARC overstated the prioritization based on their read of the statute and the presumption that there was a lack of groundwater for human consumption today.

- We could also emphasize Code Section 62.1-242 related to “beneficial use”.
- The statement could say that the Committee does not agree with the JLARC statement/interpretation that other uses are crowding out human consumption.

ACTION ITEM: Staff was asked to look at “beneficial use” definitions as they appear in the Code and provide their analysis of those definitions and any differences to the Committee for their review and consideration.

16. BREAK – 2:05 P.M. – 2:20 P.M.

17. Infrastructure Repair of Leaking Pipe Systems (Mark Rubin/Drew Hammond):

Mark noted that one of the issues that we had talked about in the workgroups but we have not talked about in the Committee at all is the notion that the transmission system for the water, not the aquifer, but the manmade pipes has a significant “leakage” issue. A large percentage of the water in the system is lost because of this “leakage”.

Drew Hammond briefed the issue of “leakage” in the water transmission system. He presented as a basis for his information the American Society of Civil Engineers (ASCE) 2017 Infrastructure Report Card for Drinking Water, which had been distributed electronically to the Committee and was also made available in hardcopy as a handout. He noted the following in his presentation:

- The report card only looks at the drinking water industry. It does not take into account industrial, commercial or other entities that are not regulated by the Safe Drinking Water Act.
- According to the Report Card, the County as a whole got a “D”. In Virginia, we did a little bit better; we were a “C” or a “C+”.
- Page 2 of the Report Card indicates that as a Nation we have nearly six billion gallons of treated drinking loss per day due to leaking pipes.
- According to the report card, approximately 14% to 18% of the water produced is lost to leaky, aging pipes across the US.
- An appropriate percentage for an appropriate water loss could be 30% or less – this should be the target loss amount to stay under.
- There is not a standard for what an acceptable water loss rate is anywhere in the Code of Virginia. There are some industry documents available for estimating water loss.
- With a 14% to 18% loss factor and a total loss of 6 billion gallons per day and a split of 80% surface water and 20% groundwater that results in approximately 1.2 billion gallons of water originating from groundwater aquifers.
- Looking at 2011 to 2015 average water usage data for Virginia from the latest Annual Water Resources Report for Public Water Supplies just across the state the ratio is about 93 ½% from surface water and 6 ½% from groundwater for drinking water purposes.

- Using 14% to 18% as a baseline and looking at the total permitted withdrawal for last year in the Annual Water Resources Report – from 2011-2015, the average groundwater withdrawal over the course of that 5 year period was about 135 million gallons per day – this is what we were pulling out of the aquifers – just from permitted users (14% of that number is about 19 mgd, while 18% would be about 24 ½ mgd). So about 24 ½ mgd is coming out of the groundwater aquifer that we are potentially losing straight to the groundwater – back to the shallower surficial aquifer.
- From 2011 to 2015, the average withdrawal for public water supplies was about 50 mgd – 14% is about 7 mgd and 18% is about 9 mgd. About 9 mgd from public water supplies is lost.
- For manufacturing, we are looking at 65.5 mgd for the same period with a loss of about 9 mgd at 14% and about 12 mgd at 18%.
- Given these loss rates and amount of loss, the question is what do we do with our aging infrastructure here in Virginia? What is the state of the current aging infrastructure in Virginia?
- Water replacements are being done in Virginia and across the nation on the average of about ½% per year. To be able to replace the infrastructure that we have in Virginia that is aging and leaking, it would take us about 200 years. The service life of a lot of the infrastructure is only 50 to 75 years, which creates the potential for additional leakage to occur.
- When EPA starts looking at drinking water infrastructure maintenance and replacement issues to determine how much funding is needed and the funding splits necessary for the Drinking Water State Revolving Loan Fund – the dollars that they pass down to the states for the revolving funds – they do a needs assessment. The needs assessment is a fairly extensive document – they are getting ready to release a new needs assessment this year based on 2015 dollars. The most recent needs assessment is based on 2011 dollars. EPA said in that needs assessment that in 2011 dollars that Virginia needed over the next 20 years \$6.7 billion just to maintain its drinking water infrastructure throughout the Commonwealth. About 67% of that total or about \$4.5 billion was necessary just for transmission and distribution mains.
- In the transmission and distribution section of the needs assessment EPA noted:
 - “Although the least visible component of a public water system, the buried pipes of a transmission and distribution network generally account for most of the system’s capital value”. The majority of the money that localities and private entities spend for drinking water purposes is for transmission and distribution and it is all out of sight – out of mind.
 - “The majority of the need is for replacing or refurbishing aged or deteriorating transmission and distribution mains.”
- This is definitely an issue that will need to be taken into consideration.
- One of the things that Virginia currently has in State Water Control Law and in our Groundwater Withdrawal Regulations is the requirement for entities to have to put together and implement a Water Conservation and Management Plan. Permittees are required to do a water audit within the 2nd year of a permit or for a reissued permit for an existing user. The second

part of that is that they have to implement a “leak detection and repair program”. The regulations are very general and they don’t have very detailed specifications.

- The Waterworks Regulations implemented by the Health Department don’t really speak to leak detection and repair and don’t address water audits – they don’t have a standard for that promulgated in their regulations.
- The Environmental Defense Council actually did a study of all of the states for water conservation and management and they found that there were two states that actually had laws on the books that specified specific standards for water conservation and water loss and how to calculate and deal with that - one of the states was California and the other was Georgia.

Discussions by the Committee included the following:

- How does the Georgia program work? Does it take the form of the state telling municipal water suppliers what they have to do in terms of their systems? Or is it more of a funding mechanism?
 - In general, based on the current research, they actually tell the public water supplies, the entities, here is what you have to do for water loss and here is the maximum acceptable water loss that is allowed and this is what you need to do in order to be able to meet those numbers.
- On any given day, we could potentially be pumping 25 mgd out of the aquifer and losing it to the shallow/surficial aquifer – this is water that may be drawn out by some irrigators or those that are using that surficial aquifer. We are pulling the water out of some of the lower confined aquifers where we are starting to see some significant issues.
- Is this issue about water loss primarily a local government responsibility as opposed to a state responsibility? Does the state provide funds to the local government to address this type of issue? It is primarily a local government and private entity concern and responsibility.
- Is there new technology that is used when repairs and maintenance and replacement is done? 35 years ago ductile iron pipe was not made over 18 inches, so they used concrete pipes with wires (which are subject to corrosion) in them for support. Any of the big water mains (20”; 24”; 36” 48”; 60”) are all concrete and they all corrode and ultimately have to be replaced. Ductile iron pipes in the smaller sizes have lasted “forever” and have not had to be replaced. Ductile iron pipes are now available in 48”, but no larger than that. There is a lot of infrastructure in the cities that is concrete or cast iron (cast iron is not as strong as ductile iron). EPA worries about Sanitary Sewer leakage so all the available money is spent on and all the emphasis is on sewage not water.
- It was noted that Petersburg actually still has some wooden pipes.
- This has been low on the priority list.
- What is found in the industry a lot of times is that as systems age and the leakage starts to go up and they have to meet minimum working pressures to meet the needs of their customers so the thought is let’s just pump and treat more water and put it out there which results in increased leakage. Leakage has reached 110% in some systems due to this overcompensation pumping to meet the needed pressures within the system.

- You can't line water pipes (which are under pressure), like you can with sewer pipes (which are not under pressure), you have to replace them.
- The loss rate on average across the country is 14% to 18% on a daily basis. In some instances in Virginia the loss rate has been larger. The majority of the larger loss rates in Virginia were typically smaller water systems – ones that serve a population of 3,300 people or less. Those are the systems generally where you may have a small Home Owners Association (HOA) that has a “community water system” that serves 30 homes. The HOA doesn't have money put away for infrastructure repair or well replacement or line break repairs so you end up with a loss to the system.
- With regard to funding, the Health Department runs the State Drinking Water Revolving Fund under the Safe Drinking Water Act. Their awards under this program were a total of \$16 million. At least \$3 million of that was “state match”. So they received \$13 million from the federal government to implement the State Revolving Fund. There were a record number of applications for these funds this year – 70 to 75 applicants requested a total of about \$75 million.
- For a lot of these infrastructure type projects the state will often sell bonds with a matching type program.
- Primarily this is addressed at the local level. The flip side of this issue is that it is not just a question of having the funding to do the projects because in many cases that becomes part of your rate base. The problem is that currently the water and sewer rates nationwide and especially here in Virginia are going up dramatically. With HRSD SWIFT Project and other responses to the Consent Agreement with EPA they are looking at annual 9% increases just in that program. So what is happening is that the customers, especially the low-income customers are quickly being priced out of the market place. The concern is the ability of the citizens to be able to pay their bill. Recent projections have shown that the percentage of income that is going to have to go to paying for water and sewer is going to increase dramatically.
- There is always going to be a need for infrastructure renewal.
- Do we think that the national rates apply broadly across Eastern Virginia Groundwater Management Area? A lot of the cities have major surface water supplies. The Groundwater supplies are some of the newer systems so maybe those are the tighter systems. The folks at Western Tidewater project that their loss rate is around 5% right now. It might be that our experience in Virginia is better than the national average. Also the concept doesn't apply to the same degree to our major industrial facilities, because the efficiency losses generally occur where there are many miles of transmission and distribution lines which are not normally associated with industrial facilities.
- Looking at this issue from the perspective of the City of Chesapeake: there are 1200 miles of water mains, if you figure a 50-year design life, and over the course of how many feet of pipe that is at \$200 per foot, the requirement to reinvest on a 50-year design life is \$25 million per year to replace water lines only - that doesn't count water plants, water pump stations, the 270 sewer pump stations, the same amount of sewer lines. It should be noted that ductile iron pipes

normally last a long time but if they are located near the Elizabeth River or any salt water body, it is going to corrode out in 2 to 3 years. It is very problematic about how you solve the problem exactly where you are – it is site and location specific. The math equation that we are going through right now is only going to continue to get worst both for customers as well as for the utilities paying for maintenance and replacement costs. For a 50 year replacement schedule, the revenue is only about \$65 million per year, which requires an investment of \$25 million per year of that goes solely to replacing water lines. The oldest lines in the City of Chesapeake are over 100 years old – which results in a “not ever going to win” proposition and it is only going to get worst over time. This situation is common and is important and will have to be addressed. It should also be noted that a lot of the current water loss is simply because you have old water meters and you are not reading or measuring all of the water that is going to customers therefore it is water loss but it is not water going into the ground, it is water going through a meter and not being measured. With 65 thousand meters in the City of Chesapeake, probably about ½ of the “unmetered” water rate (rather than “water loss” rate) is going through meters and not being billed for.

- How much is loss through flushing of lines? Less than 1%.

Mark asked the Committee whether this is something that we want to address in the “Report” and if so, in what way? Do we want to raise this issue in the “Report”? Do we want to note it in the “Report” in some way? Do we want to make a recommendation about it?

- Acknowledging that there is likely more that can be done to prevent water loss when our infrastructure is aging is probably something that could be addressed in a paragraph in the “Report”.
- It could be addressed in a discussion of conservation measures.
- It was agreed that this should be referenced and mentioned in the “Report”.
- It was suggested that additional water loss data for inclusion in the “Report” can be found in the Water Supply Plans. In the Eastern Virginia Groundwater Management Areas water loss ranges from less than 10% to 50%.

18. Public Comment: No public comment was offered.

19. Plans for the Next Meeting of the Advisory Committee/Next Steps (Mark Rubin):

Mark reviewed a number of items that would be discussed at the next meeting of the Advisory Committee:

- We are going to take what we have discussed and learned today and draft it up as revisions to the “Report”.
- Comments on the current “Draft Report” are due from the Committee by June 21st.

- Those comments will be taken into consideration for the generation of a new version of the “Draft Report” by June 28th or June 29th for distribution to the Committee prior to the 4th of July holiday for their review and for discussion at the meeting of the Advisory Committee on Friday, July 7th.
- The plan for the meeting on July 7th is to go through the “Draft Report” pretty much paragraph by paragraph to make sure that we have agreement or consensus that we think that we have on the “Report”.

20. Other Items (Mark Rubin):

Mark asked if there was anything else that the Committee members wanted to note.

- **Kurt Stephenson - Regarding Page 17 of the “Report” and the options and recommendations for an Annual “State of the Water Resources” forum and report:** The Committee has had discussions about the Groundwater Management Act and being more explicit about articulating what the objectives were which resulted in the recommendations found currently on page 17 of the “Report”. Kurt looked at the Groundwater Management Act between the last meeting and this meeting to see what it says about planning and objectives and about what you would report on in the State of the Water Resources report. The question is whether it is too late to suggest ideas about what could be included in the Groundwater Management Act in terms of articulating/making an inventory – looking at a planning process within the Groundwater Management Act Area to achieve aquifer goals and articulating aquifer goals? Is it too late to suggest draft language for the Groundwater Management Act related to that specific issue?
 - It is probably not too late, because this is sort of broad policy type language that is being suggested.

ACTION ITEM: Kurt Stephenson offered to provide some broad policy type language to address a planning process within the Groundwater Management Act to achieve aquifer goals for inclusion in the “Report” to create a little more context around what the specifics are. Other members of the Committee were also invited to provide their input to this process.

- **21. Meeting Adjournment:** Mark Rubin thanked everyone for their attendance and participation in today's meeting. The meeting was adjourned at approximately **2:55 P.M.**