A-NPDC
ACCOMACK-NORTHAMPTON PLANNING DISTRICT COMMISSION
P.O. BOX 417 • 23372 FRONT STREET • ACCOMAC, VIRGINIA 23301
(757) 787-2936 • TOLL FREE (866) 787-3001 • FAX: (757) 787-1221
WEBSITE: www.a-npdc.org

Eastern Shore of Virginia Groundwater Committee
March 19, 2024 10:00 a.m.
ESVA Chamber of Commerce
19056 Parkway; Melfa, Virginia 23410

The committee's mandate is to "assist local government and residents of the Eastern Shore in understanding, protecting, and managing groundwater resources, to maintain a groundwater resources protection and management plan, to serve as an educational and informational resource to local governments and residents of the Eastern Shore, and to initiate special studies concerning the protection and management of the Eastern Shore groundwater resource."

Virtual Attendance:
For Joining via Computer:
1. Click this link: https://zoom.us/j/7577872936?pwd=QTNJdmhCc3pWdVNUZ0ZWYnVJdWpWUT09
2. If prompted, enter the Meeting ID: 757 787 2936
3. If prompted, enter the Passcode: 7577872936

For joining via Phone (calling in):
1. Dial 1-646-558-8656
2. When prompted for meeting code enter 7577872936#
3. When prompted to identify as host or participant, enter #
4. When prompted for password, enter 7577872936#

Translation services available: Call 1-718-838-9317... #6980900. Press 1 for Spanish. Press 2 for Haitian Creole.

Servicios de traducción disponibles: Llame al 1-718-838-9317 ... # 6980900. Presione 1 para español.

Sèvis Tradiksyon Disponib: Rele 1-718-838-9317 ... # 6980900. Peze 2 pou kreyòl ayisyen.

Eastern Shore of Virginia Groundwater Committee
Proposed Agenda

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March 19, 2024 Meeting

1. **Call to Order**
2. **Public Participation**
3. **Minutes of the February 20, 2024 Meeting**
4. **February Financial Status Report**
5. **March 19, 2024 Staff Report**
6. **Residential Well Testing Programs**
7. **Groundwater Outreach and Education**
8. **Groundwater Sustainability: Regulatory Policies and Updates**
9. **March 19, 2024 Ground Water Consultant Report**
10. **Committee Attendance Record FY2024**
11. **Attachments**
12. **Schedule Next Meeting for April 16, 2024 at 10:00 a.m.**
    Eastern Shore Chamber of Commerce / Board Room
13. **Adjournment**

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MEMORANDUM

TO: Eastern Shore of Virginia Groundwater Committee

FROM: Kellen J. Singleton
Interdisciplinary Planner, A-NPDC

DATE: March 19, 2024

SUBJECT: February 20, 2024 Meeting Minutes

Minutes of the February 20, 2024, Eastern Shore of Virginia Groundwater Committee Meeting are attached.

Committee approval of the February 20, 2024, minutes is requested.

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Minutes of the February 20, 2024 Meeting
Eastern Shore of Virginia Groundwater Committee

The meeting of the Eastern Shore of Virginia Groundwater Committee was held at 10:00 A.M. on Tuesday, February 20, 2024. It was held in the hybrid format - virtually on the ZOOM Platform and in person at the Eastern Shore Chamber of Commerce's board room in Melfa, Virginia.

Member's Present	Member's Absent	Others Present
Calvin Washington Sr. / Vice Chairman	John Coker / Chairman	Kellen Singleton / A-NPDC
Sue Mastyl	Mike Mason	Faith Lewis / A-NPDC
Ann Hayward Walker		Paul Muhly
Paul Grossman		Benjamin Young / NRCS
Daniel Hershey		Jason Pope / USGS *
Grayson Chesser		Ann Violi *
Steve Sturgis		Maggie Herrmann / NRCS
Charles Kolakowski *		Britt McMillan / ARCADIS *
Elaine Meil /A-NPDC *		Dr. David Dalessio *
		Eric Seavey / DEQ *
		Peg Volt *
		Sandra Beerends
		Ken Dufty
		Marion Narr
		Curtis Consolvo / Geo Resources *
		Wendy Martin *
		Leah *
		Ann Winston Pinder Batchelld
		Heron Point VA *

Signifies Zoom participant

1. **Call to Order**
   Vice Chairman Washington called the meeting to order at 10:02 A.M.

2. **Public Participation**
   Ken Dufty from Northampton County addressed the committee with concerns about the protection of our future groundwater resources. It was requested the committee take in consideration A-NPDC promoting a public outreach campaign / "Water Watchers".

   Sandra Beerends stated in 2015 the General Assembly ordered the VDH to monitor and record all the wells drilled. She asked if this was still currently being done. She knew the VDH was converting their paper records to digitized records. Member Sue Mastyl responded this was still an ongoing requirement. The VDH is to be involved with any

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request of a well being dug and its location. GWC Advisor, Britt McMillan, stated in the 1980s VDH was keeping the records but there was need for improvement. Since 2015 VDH is required to register electronically the records of any request for wells. These records are not only required for VDH but also DEQ. They have a joint system.

After discussion of the above concerns, Member Ann Walker spoke about the initiative regarding the Residential Well Testing Program. This initiative has two components which are drinking water quality data and secondly, education and outreach using our local schools on the shore.

Member Walker spoke about another initiative being addressed. It is the technical issues regarding improvement of the quality between the old website and the new website. This will benefit the new members in seeing their committee roles and the resources available to them.

Jason Pope, from USGS, stated they monitor water levels at 71 wells across the Eastern Shore of Virginia. Some of the water level monitoring extends back to about 1980.

There was further discussion regarding the above matters. Member Mastyl said there was a lot of confusion regarding some of the numbers produced around our aquifer. She asked the committee to wait for information presented later in the meeting regarding the current status of the aquifer.

Member Elaine Meil presented an article sent to her from Marion Narr, a resident of Northampton County. This was an article from the New York Times regarding Subsidence on the East Coast Related to Groundwater Withdrawals. Ms. Narr thought the article would be of interest to the committee.

Mr. McMillan mentioned, in a related matter, (the last subject bullet of his presentation last month), the research conducted by VA Tech and USGS. It should be reviewed when reading the Subsidence article.

Mr. Pope wanted to clarify the article was not associated with work from his office. It was done by a researcher who is based in California. The rates of vertical land motion sites using satellite data include not just land movement that is presumed to be the result of groundwater pumping but land movement from crustal motion. Anyone who is reading or trying to interpret the information in the article should look at very carefully the rates of uncertainty associated with those measurements.

Mr. McMillian also stated when referring to the crustal motion, there is strong evidence that some subsidence as a result of rebound from the last glacial period.

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3. **Minutes of the January 16, 2024 Meeting**
   Adoption of the minutes for January 16, 2024, were presented.

   Member Paul Grossman moved to approve the minutes of the January 16 meeting as presented. It was seconded by Member Walker; the motion was carried.

4. **January Financial Status Report**
   The January Financial Status Report was presented.

   Total Bills Payable equaled $2561.22; Balance equaled $82,972.03

   Member Grossman moved to approve the Financial Status Report as presented. It was seconded by Member Mastyl; the motion was carried.

5. **February 20, 2024 Staff Report**
   Staff updated the committee on the Groundwater Withdrawal in Accomack County, VA.as well as several upcoming State Water Control board events/meetings

Public Comment period: February 2, 2024 - March 4, 2024
Applicant name, address and permit number: Kuzzens, Inc.; 3769 Grapeland Circle, Exmore, VA 23350;
GW0070001
Name and location of water withdrawal: Walker Farm; Tax Parcels IDs: 110-9-A, 110-9-B, 110-9-C,
Pungoteague Island, VA 23420

Staff updated the committee on a scheduled Earth Day event, which will be held on 04/20/2024, in Exmore Town Park. There will be several participants and it will be an opportunity for the committee to get outreach and information to the public. Member Mastyl announced there will be 18 different organizations participating in the event. This would be an opportunity for the GWC to have a booth/table or piggyback with another organization at the very least to have short to the point factsheets or handouts to give to the public. The committee discussed this matter. Volunteers would be needed to assist in sourcing informational material and participation at event. Member Mastyl will look into this further and will communicate with the committee through email. Member Walker suggested an update to past handouts informational material located on old and new websites. Member Mastyl and staff will contact DEQ and explore feasibility of joint effort. Member Walker volunteered to assist in creating factsheets.

Staff reported that planning and administrative staff has met with the website manager in concern to the new website. Staff has initiated a plan of action in getting new website updated. The website manager has requested detailed forward guidance before providing cost estimates.

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There was extensive discussion regarding the lack of the ability to use the old website and the new website, specifically - user friendliness and content updates. Members note that links do not work on either website and that the public is not able to search and readily find information. Member Meil told the committee the old website is controlled by Tom Henderson. Since January A-NPDC has asked two times for the old website to be shut down. Mr. Henderson has failed to unpublish the website.

Staff updated briefly updated the committee about new business, including the Groundwater Committee Plan and the Gene Hampton Groundwater Committee Award for this year. Member Mastyl reminded the committee that nominations for the award were usually made in the Fall.

6. **Residential Well Testing Program**
   A program scope has been drafted by the program subcommittee. The subcommittee advises retaining an outside contractor for the work. The committee discussed the testing parameters. This would be a multi-year program. Mr. Pope advised the committee to utilize DEQ records. Records indicate that 10-15% of ESVA private domestic groundwater is sourced from the surficial aquifer. Mr. Pope and McMillan emphasized the importance of testing a variety of well depths and locations. DEQ and USGS can aid in this effort. Member Mastyl reiterated the committee mandate to monitor and preserve groundwater sources.

7. **Groundwater Outreach and Education**
   Member Mastyl clarified water usage data based on Mr. Pope's with USGS and Mr. McMillian's work with DEQ. Mr. McMillan advised the group to look at the 2023 VA Annual Water Resources Report total. The surface water ponds used on average 7.5 million gallons a day. The ponds replenish by direct precipitation which falls in the pond, storm water that runs in the pond, and groundwater recharges from the surficial aquifer. The committee discussed this topic and requested Mr. McMillan's packet to be attached to the minutes.

8. **Groundwater Sustainability: Regulatory Policies and Updates**
   Member Grossman updated the committee on proposed irrigation pond legislation sponsored by Delegate Robert S. Bloxom. The proposed legislation, House Bill #1466, has passed the House. The proposed legislation will take reform mines and minerals regulations. Member Grayson Chesser reiterated the importance of the above legislation. This would cut down on the need for borrow pits. Discussion ensued on the relevance of this legislation. The bill was modified to be a one-time exemption only per land. Member Mastyl states there is a bill in the Senate presently that includes DEQ initiating a review of the Groundwater Management Act. The whole state would be affected by this review.

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9. **February 20, 2024 Groundwater Consultant Report**

Mr. McMillan requested that the committee to review the 02/20/2024 Groundwater Consultant Report.

The review included three of the draft permits detailing special conditions and the withdrawal amounts. The committee discussed the report. A copy of the presentation will be attached to the packet.

10. **Schedule Next Meeting**

The next scheduled meeting for the Groundwater Committee will be held on Tuesday, March 19, 2024, at 10:00 A.M - 12:00 P.M. The meeting will be held at the Eastern Shore Chamber of Commerce's board room in Melfa, Virginia.

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11. Attachments

ARCADIS

SUMMARY
VIRGINIA EASTERN SHORE MODEL (VAHYDROGW-ES) 2022-2023
SIMULATION OF POTENTIOMETRIC GROUNDWATER SURFACE
ELEVATIONS OF REPORTED AND TOTAL PERMITTED USE

February 2024

ARCADIS

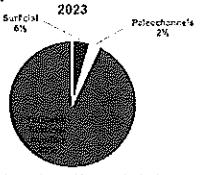
Summary of Permitted Groundwater Use 2021-2022

County	Reported (MGD) 2023	Permit (MGD) 2023	Percent Used 2023
Accomack	5.0	7.6	66%
Northampton	1.3	2.6	50%
Total	6.3	10.2	62%

County	Permitted Use 2023	Domestic (Estimated) 2006	Total 2023
Accomack	5.0	1.4	6.5
Northampton	1.3	0.6	1.9
Total	6.3	2.1	8.4

Source		Reported (MGD) 2023	Permitted (MGD) 2023	Percent Used 2023
SW Ponds (Surficial)[1]		7.5	NA	NA
GW Aquifers	Surficial	0.3	0.9	36%
	Upper Yorktown	2.8	4.4	64%
	Middle Yorktown	2.6	3.6	73%
	Lower Yorktown	0.3	0.5	52%
	Paleochannels	0.2	0.5	36%
	GW Total	6.5	10.2	63%
Water Total		14	NA	NA

Reported Groundwater Use 2023



- Ponds are located in the Surficial aquifer and are replenished by 1) precipitation, 2) stormwater, and 3) groundwater from the Surficial aquifer. The ponds do not remove water from the confined Yorktown-Eastover aquifer system
- [1]Source of Pond withdrawal is Table 21 from the Virginia Annual Water Resources Report (2023)

Less than 10% of the permitted groundwater is obtained from the most sustainable aquifers (surficial and paleochannels).

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Change in Permitted Groundwater Use 2018 to 2023

County	Reported (MGD) 2018	Reported (MGD) 2023	Reported Δ%	Permitted (MGD) 2018	Permitted (MGD) 2023	Permitted Δ%
Accomack	4.65	5.04	11%	7.61	7.62	1%
Northampton	0.81	1.29	59%	2.77	2.59	-7%
Total	5.36	6.33	18%	10.38	10.21	-2%

Aquifer	Reported (MGD) 2018	Reported (MGD) 2023	Reported Δ%	Permitted (MGD) 2018	Permitted (MGD) 2023	Permitted Δ%
Surficial	0.38	0.34	-10%	1.05	0.89	-15
Upper Yorktown	0.83	2.84	242%	2.68	4.44	50%
Middle Yorktown	2.53	2.69	12%	3.52	3.82	9%
Lower Yorktown	1.42	0.28	-80%	1.54	0.54	-64%
Paleochannels	0.2	0.19	-5%	0.77	0.53	-31%
Total	5.36	6.46	21%	9.84	10.21	4%

There was a significant shift from the Lower Yorktown-Eastover Aquifer to the Upper Yorktown-Eastover Aquifer for both reported (actual) use and permitted use. In at least some instances the reason documented in permits was salty (high chlor)des/dissolved solids) in the Lower YT Aquifer.

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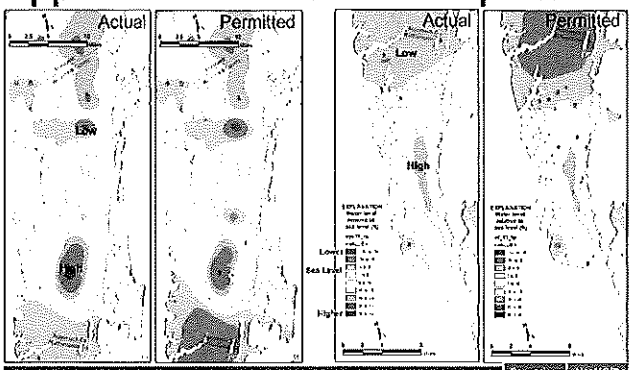
Upper Yorktown-Eastover Aquifer



2022-2023 Model Simulated Groundwater Elevations
80% Drawdown Criterion was exceeded near the Tyson Withdrawal

Scenario	Usage(MGD)
Actual	2.84
Permitted	4.44

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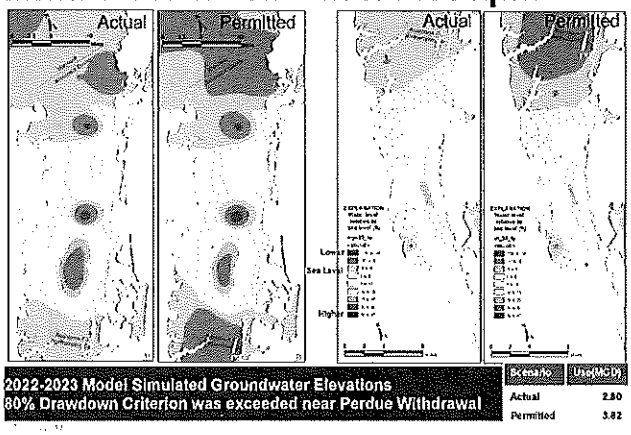
Middle Yorktown-Eastover Aquifer



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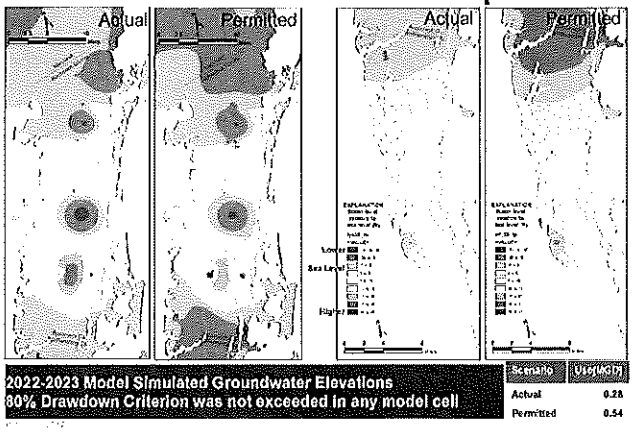
Lower Yorktown-Eastover Aquifer



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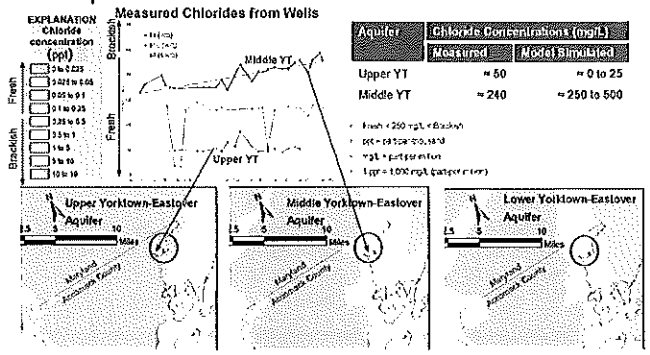
Example – Measured vs Modeled Chlorides



Aquifer	Chloride Concentrations (mg/L)	
	Measured	Model Simulated
Upper YT	≈ 50	≈ 0 to 25
Middle YT	≈ 240	≈ 250 to 500

Measured water quality from Captains Cove wells match model simulated chloride spatial trends

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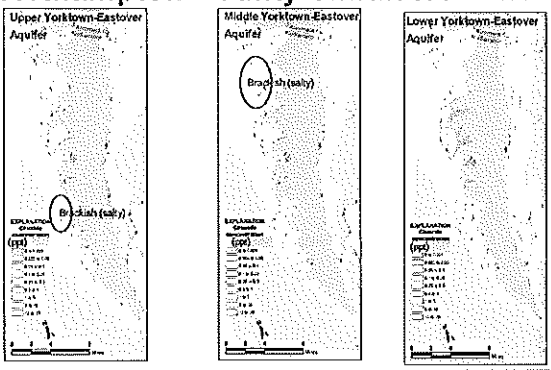
Northampton County Simulated Chlorides



Due to geography (near the tip of the Peninsula) Fresh groundwater is more limited in Northampton County. Areas near the Bay appear most limited.

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Summary

- The 80% drawdown criteria was exceeded in the Upper Yorktown-Eastover aquifer and Middle Yorktown-Eastover aquifer for the first time in 2023. The area exceeding the criteria in the Upper YT is near the Tyson withdrawal. The are exceeding the criteria in the Middle YT is near the Perdue withdrawal.
- New or expanded withdrawals that have an area of impact (1-foot drawdown) that intersects one of the "critical" cells that exceed the 80% drawdown criteria may have their requested use reduced.
- Sustainable resources: Only 7% of actual groundwater use is from the more sustainable surficial aquifer and paleochannels. 90% of the groundwater use is from the upper and middle Yorktown-Eastover aquifers.
- While use of the lower Yorktown-Eastover aquifer is limited, use from the overlying confined aquifers create an upward flow direction and prevents recharge over much of the lower aquifer. This greatly increases the potential for saltwater intrusion, as indirectly evidenced by lower groundwater levels in this aquifer than the overlying aquifers.
- The Eastern Shore model is one of several useful sources of information in locating areas susceptible to saltwater intrusion. This information is particularly useful in identifying areas where chloride monitoring would be most beneficial.

12. Adjournment

Member Grossman made the motion to adjourn. Seconded by Member Hershey, it was approved unanimously.

The meeting was adjourned at 12:10 P.M.

Calvin Washington Sr., Vice Chairman

Elaine K. N. Meil, Secretary/Treasurer

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MEMORANDUM

TO: Eastern Shore of Virginia Groundwater Committee

FROM: Sandy Taylor
Administrative Director, A-NPDC

DATE: March 19, 2024

SUBJECT: February 2024 Financial Statement

Attached is the February 2024, Eastern Shore of Virginia Groundwater Financial Statement.

Committee approval of the February 2024, Financial Statement is requested.

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EASTERN SHORE OF VIRGINIA GROUND WATER COMMITTEE

Financial Statement-February 2024 **Fiscal Year 2024**

	Annual Budget	Current Activity	YTD Activity	Balance
Ground Water Consultant Appropriations:				
Accomack County	$ 14,251.00	$ 0.00	$ 7,125.50	$ 7,125.50
Northampton County	7,415.00	$ 0.00	$ 3,707.50	3,707.50
Subtotal	$ 21,666.00	$ 0.00	$ 10,833.00	$ 10,833.00
Ground Water Modeling Run Appropriations:				
Accomack County	$ 1,500.00	$ 0.00	$ 0.00	1,500.00
Northampton County	1,500.00	0.00	$ 0.00	1,500.00
Subtotal	$ 3,000.00	$ 0.00	$ 0.00	$ 3,000.00
Ground Water Committee Staff Support:				
Accomack County	$ 12,276.00	$ 1,485.66	$ 9,550.57	2,725.43
Northampton County	7,724.00	$ 765.33	$ 5,149.86	2,574.14
Subtotal	$ 20,000.00	$ 2,250.99	$ 14,700.43	$ 5,299.57
Ground Water Member Fees:				
Accomack County	$ 2,640.00	$ 294.00	$ 1,075.50	1,564.50
Northampton County	2,640.00	$ 120.20	$ 711.23	1,928.77
Subtotal	$ 5,280.00	$ 414.20	$ 1,786.73	$ 3,493.27
USGS Ground Water Model:				
Accomack County	$ 7,500.00	$ 0.00	$ 0.00	7,500.00
Northampton County	7,500.00	$ 0.00	$ 0.00	7,500.00
Subtotal	$ 15,000.00	$ 0.00	$ 0.00	$ 15,000.00
Ground Water Plan Project Implementation				
Accomack County	$ 26,854.00	$ 0.00	$ 0.00	26,854.00
Northampton County	15,827.00	0.00	$ 0.00	15,827.00
Subtotal	$ 42,681.00	$ 0.00	$ 0.00	$ 42,681.00
Total Revenues	$ 107,627.00	$ 2,665.19	$ 27,320.16	$ 80,306.84

Bills Payable as of February 29, 2024

DUE TO	DESCRIPTION	DATE	AMOUNT
A-NPDC	Staff Support	02/01/2024-02/29/2024	$ 2,250.99
Board Members	Meeting Fees	20-Feb-24	$ 414.20
Arcadis	Consultant		$ 0.00
		Total Bills Payable	**$ 2,665.19**

Allocated Funds

	Prior Year Funds	Expenditures	Balance
Ground Water Modeling Run	$14,000.00	$14,000.00	$ 0.00
Ground Water Plan Project Implementation	44,847.00	0.00	$ 44,847.00
Total Allocated Funds	$ 58,847.00	$ 14,000.00	$ 44,847.00

A-NPDC
ACCOMACK-NORTHAMPTON PLANNING DISTRICT COMMISSION
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(757) 787-2936 • TOLL FREE (866) 787-3001 • FAX: (757) 787-4221
WEBSITE: www.a-npdc.org

MEMORANDUM

TO: Eastern Shore of Virginia Groundwater Committee

FROM: Kellen J. Singleton
Interdisciplinary Planner, A-NPDC

DATE: March 19, 2024

SUBJECT: March 2024 Staff Report

Environmental Reviews and Permits:

N/A

VA Pollutant Discharge Elimination System Program:

- Domestic Sewage Discharges of Less than or Equal to 1,000 Gallons per Day (VAG40)
- Seafood Processing Facilities (VAG52)
- Remediation of Contaminated Sites and Hydrostatic Tests (VAG83)
- Discharges of Stormwater Associated with Industrial Activity (VAR05)
- Non-Metallic Mineral Mining (VAG84)
- Concentrated Animal Feeding Operations (VAG01)
- Concrete Products Facilities (VAG11)
- Vehicle Wash and Laundry Facilities (VAG75)
- Non-Contact Cooling Water Discharges (VAG25)
- Pesticides Discharges (VAG87)
- Watershed Permit for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed (VAN00)
- Potable Water Treatment Plants (VAG64)
- Discharges of Stormwater from Construction Activities (VAR10)
- Fundraising Car Wash Guidelines

For details please see:
https://www.deq.virginia.gov/permits/water/surface-waters-vpdes

VA Pollution Abatement Program:

Facility	Permit Number	City / County	Permit Action	DEQ Admin Office	Application Received	Application Complete	Draft Permit Sent to Owner
Accomack County Leachate Treatment Facility	VPA01079	Accomack County	Reissuance	Tidewater	12/11/2020	01/20/2021	
Tyson Farms Inc. - Temperanceville	VPA01035	Accomack County	Reissuance	Tidewater	10/06/2020	05/12/2021	
Atlantic Town Center Clean Water Plant	VPA01080	Accomack County	Issuance	Tidewater	04/11/2011		
Kuzzens Incorporated	VPA01047	Northampton County	Reissuance	Tidewater	0/28/2022	05/27/2022	
Perdue Foods LLC - Accomack	VPA01076	Accomack County	Reissuance	Tidewater	09/09/2022		

Consent/Enforcement Orders:

N/A

Groundwater Withdrawal Permits:

Groundwater Withdrawal in Accomack County - GW0049201
Public Comment Period: March 8, 2024 - April 8, 2024
Applicant Name, Address and Permit Number: Town of Onancock; 15 North Street, Onancock, VA 23417; GW0049201
Name and Location of Water Withdrawal: Town of Onancock Water System; 15 North Street, Onancock, VA 23417

Groundwater Withdrawal in Accomack County - GW0069101
Public Comment Period: March 15, 2024 – April 15, 2024
Applicant Name, Address and Permit Number: Kuzzens, Inc.; 3769 Grapeland Circle, Exmore, VA 23350; GW0069101
Name and Location of Water Withdrawal: Melfa Farm; Fair Oaks Rd. (St. Rt. 672), Melfa, VA 23410

Groundwater Withdrawal in Northampton County - GW0069901
Public Comment Period: March 15, 2024 – April 15, 2024

Applicant Name, Address and Permit Number: Kuzzens, Inc.; 3769 Grapeland Circle, Exmore, VA 23350; GW0069901
Name and Location of Water Withdrawal: Tipton Farm; Seaside Rd., Marionville, VA 23408

For details please see:

https://www.deq.virginia.gov/permits/public-notices/water/water-withdrawal

Upcoming Events/Meetings:

Date and Time		Meeting/Event Title	Organization
Mar-23 2024 (Sat)	3:30 pm	Screening & Discussion: Against the Current Eastern Shore Community College	WHRO Public Media and WORLD
Mar-28 2024 (Thu)	2:00 pm	Sewage Collection and Treatment Regulation (9VAC25-790) Amendments - Regulatory Advisory Panel	State Water Control Board
Apr-20 2024 (Sat)	10:00 am	"Return to Our Roots" - Exmore Earth Day 2024	Town of Exmore

Old Business:

Website Updates and Optimization

On December 7 PDC planning and administrative staff met to develop a plan of action to address esvaplan.org and specifically the GWC web content and presence. Plan to address issues include:

- Improving esvaplan.org overall Site Engine Optimization (SEO)
  - Offloading old website presence, a-npdc.org
  - Improving webpage crawlability
  - Keyword optimization
- Moving up GWC landing page in website hierarchy to main "Planning" page
- Expanding main page navigation bar to include direct dropdown menu link to GWC landing page
- Establishing and incorporating cross-functional collaboration with website management
- Hiring to replace staff and improve planning capacity. Interviews have taken place.

Staff has reached out to a-npdc.org domain owner to offline old site. Staff has also reached out to current contracted esvaplan.org developer to optimize current site. Planning and administrative staff have established interdepartmental management practices to improve and manage site content.

New Business:

Public Outreach and Education

- On March 13, 2024 staff trained the 2024 Master Gardener Trainee Class on the History of the Eastern Shore's Water Supply. The event took place at the Virginia Cooperative Extension as part of The Eastern Shore of Virginia Master Gardeners program.

- Staff has reached out to DEQ Tidewater Coordinator of Environmental Justice, Grace Holmes, who will be representing DEQ at the "Return to Our Roots" - Exmore Earth Day 2024 event. Staff will coordinate with DEQ staff in a dual exhibit effort.

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MEMORANDUM

TO: Eastern Shore of Virginia Groundwater Committee

FROM: Kellen J. Singleton
Interdisciplinary Planner, A-NPDC

DATE: March 19, 2024

SUBJECT: Residential Well Testing Program

Subcommittee Program Scope and Standards Update

The Residential Well Testing Program Subcommittee met on March 14. Members discussed scope, objectives, budget, and timeline. Staff and subcommittee will begin finalizing project budget and RFP draft to procure services in carrying out the residential well testing scope of work with anticipated time of execution by the end of FY2024. Please see the following attachments for review:

- Considerations for Residential Well Testing RFP (March 14, 2024)
- Eastern Shore Residential Well Testing Program Scope and Objectives (March 14, 2024)
- Well Testing Worksheet and Owner Info (March 14, 2024)
- Well Testing Equipment Check List (March 14, 2024)

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MEMORANDUM

TO: Eastern Shore of Virginia Groundwater Committee

FROM: Kellen J. Singleton
Interdisciplinary Planner
Accomack-Northampton Planning District Commission

DATE: March 19, 2024

SUBJECT: Groundwater Outreach and Education

Groundwater Outreach and Education

Groundwater Outreach and Education

- Public mischaracterizations of ground water supply
- Information guide for decision makers and new membership.
- Informational handouts and material.
- Public outreach and educational opportunities.

Members Walker and Grossman have drafted an information guide for new membership. Attached for review is the draft information guide as of 11/13/23.

Member Walker and Mastyl have sourced and reviewed past and current GWC informational material. An update and revision of "Facts about the Eastern Shore of Virginia's Groundwater", to reflect the current understanding- to serve as a stand-alone, has been advised with a goal of finalization by 4/16/24. Please see the following attachments for review.

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MEMORANDUM

TO: Eastern Shore of Virginia Groundwater Committee

FROM: Kellen J. Singleton
Interdisciplinary Planner
Accomack-Northampton Planning District Commission

DATE: March 19, 2024

SUBJECT: Groundwater Sustainability: Regulatory Policies and Updates

Regulatory Policy and Challenges

- USACE Section 404 of the Clean Water Act
- DEQ VWP Permitting
- Other

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MEMORANDUM

TO: Eastern Shore of Virginia Groundwater Committee

FROM: Britt McMillan
Principal Hydrogeologist, Arcadis

DATE: March 19, 2024

SUBJECT: March 19, 2024 Groundwater Consultant Report

March 2024 Groundwater Consultant Report

March update will be provided separately.

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MEMORANDUM

TO: Eastern Shore of Virginia Groundwater Committee

FROM: Kellen J. Singleton
Interdisciplinary Planner, A-NPDC

DATE: March 19, 2024

SUBJECT: Committee Attendance Records

The FY2024 Committee Attendance Records are attached.

A-NPDC
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EASTERN SHORE OF VIRGINIA GROUND WATER COMMITTEE FY 2024 ATTENDANCE RECORD

Member	Term Exp.	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
ACCOMACK COUNTY													
Calvin Washington Sr.	*Vice Chair, July 2025*	-	-	-	-	-	-	X	X				
Paul Muhly	*Vice Chair; Next vote: July 2025*	*	X	X	X	*	*	-	-				
Dan Hershey	*June 2025*	*	X	X		*	*	X	X				
Grayson Chesser	*June 2023*	*	X	X		*	*	X	X				
Sue Mastyl	*April 2025*	*	X	X	X	*	*	X	X				
NORTHAMPTON COUNTY													
John Coker	*Chair; Next Vote: July 2025*	*		X	X	*	*	X					
Paul Grossman	*March 2024*	*	X	X	X	*	*	X	X				
Steve Sturgis	*July 2024*	*	X		X	*	*	X	X				
Ann Hayward Walker	*December 2024*	*	X	X	X	*	*		X				
NON-VOTING EX-OFFICIO MEMBERS													
Charles Kolakowski	*NA*	*				*	*		X				
Mike Mason	*NA*	*				*	*						
Elaine Meil	*NA*	*				*	*		X				

-	Not a Member	X	Member Present	()	Alternate Present
*	No Meeting Held	NA	Not Applicable		

RFP Considerations for Residential Well Testing Consultant

(Notes from Subcommittee Meeting on August 4, 2023, Updated March 14, 2024)

After subcommittee discussion, the following points were agreed for A-NPDC to use in developing an RFP to procure services to carry out the residential well testing scope of work. For the first year (2024), the scope of work could range between $25,000 - $40,000.

Staff Scope of Work:

1. Administrative Labor (preferably $25, or not to exceed $50 per hour). Consider an ESCC intern. Labor rate will include liability insurance. Tasks:
    a. Work with GWC to update the Groundwater 101 Fact Sheet for Residential use (Britt developed the original fact sheet)
    b. Coordinate with community representative and homeowners to schedule sampling and find out location of testing faucet
    c. Purchase sample equipment and supplies. Refer to/incorporate the Equipment Check List developed by Paul Muhly (attached)
        i. For quantitative testing?
        ii. Also, high school test kits? Which ones, cost?
    d. Engage, train, and schedule Field Sampler, who will sample in accordance with a Health and Safety Plan (HASP), either from their organization, ANPDC, or develop one.
    e. Establish subcontract with certified laboratory
    f. Develop spreadsheet for sample tracking and results
    g. Manage analysis of samples - Use cost estimate from Water Testing Labs of MD, Inc. Salisbury Md.
    h. Enter results data from lab on spreadsheet (developed in Task 1.f).
    i. Report program results to GWC (via PowerPoint), plus deliver electronic copy of data results spreadsheet.

2. Field Sampler. Consider qualified volunteer, e.g., former GWC member, or an ESCC intern. If hired, labor rate will include liability insurance and not to exceed $50/hr. Tasks.
    a. Obtain/organize supplies from Administrative Lead – see Equipment Check List
    b. Carry out sampling with community representative
        i. Complete Residential Well Testing Field Work Sheet and Well Testing Owner's Name and Location Information
        ii. Deliver samples to laboratory for analysis

Budget

Cost assumptions for FY 2024

- Labor scope – see above staffing
- Sample analysis: 2 counties (9 districts in AC, 5 districts in NC) 10 samples/county district: 140 samples at $99/sample = $13,860 ($99 for coliform bacteria, nitrates + nitrites, sand turbidity, pH.
- Field travel time for sample location: 30 minutes to each site x 10 sites = 5 hr./day. Double = 10 hours /day.

□

- Field travel time to deliver samples to Salisbury lab: 2.5 hrs. RT from AC; 4.5 hrs. RT from NC.
- Note: If field sampler is a volunteer, no time or labor cost, but compensate mileage. 2024 IRS rate = $.67/mile

Milestones

Quantitative Testing

- April 2024 – develop, issue RFP
- June 15 – select contractor (s)
- August 1 – complete administrative tasks 1. A - F
- October 1 – complete sampling
- November 1 – complete analysis
- December 1 – Compile results and deliver to GWC and other agencies for model input
- January 1? GWC to review, present/report to A and N county BoS, and plan for FY 2025

We only discussed quantitative sampling and are omitting qualitative testing from RP scope. Milestones below represent starting points (outdated).

Future Qualitative Testing for High Schools

- September, October 2023 – contact schools, assess interest, confirm which schools and teachers
- Purchase test kits (how many, which ones?)
- November 2023 – coordinate with teachers to prepare for testing in the Spring Semester
- December 2023 – deliver test kits and Groundwater 101 Fact Sheet
- January to March 2024 – carry out testing (too long?)
- April – share results with GWC
- May – GWC follow up and plan for FY 2025

Eastern Shore Ground Water Committee (GWC)

Residential Water Well Testing Program

The GWC's mandate is:

> *"to assist local governments and residents of the Eastern Shore in understanding, protecting, and managing ground water resources, to maintain a ground water resources protection and management plan, to serve as an educational and informational resource to local governments and residents of the Eastern Shore, and to initiate special studies concerning the protection and management of the Eastern Shore ground water resource."*

A high priority of the GWC is undertaking a comprehensive residential well testing program, which will extend over multiple years. This is an initial description of the program to conduct testing of drinking water from residential wells.

Program Scope

The program will target Low-to Moderate Income (LMI) neighborhoods, where it is more likely to find older drinking water wells and wastewater septic fields that may not meet current standards. These systems have a higher likelihood of having water quality issues than recently constructed systems. The purpose of the program is to help residents learn about drinking water quality and address potential concerns they have about the quality of their drinking water from individual wells serving their homes. The GWC will invite the Board of Supervisors representatives in both counties to help identify initial priority stakeholders and areas to be tested. The Program also will engage Eastern Shore residents in groundwater testing and in the process of using and interpreting that data to help build confidence and credibility in residential drinking water test results.

Data collected from the well testing program will be input into the ground water geographic information system model. Past research has documented areas in the surficial aquifer where nitrate exceeds the drinking water MCL. Limited data has indicated that shallow wells are at greatest risk of contamination. Other research has documented areas where there are excessive levels of salt in deeper wells that may be a result of saltwater intrusion. Water Quality Testing of Wells in the Surficial Aquifer, Testing of On-Site Systems, and Identifying Emerging Contaminants are GWC High Priorities of Concern.

This residential well testing program is voluntary and separate from any required testing by the Virginia Dept. of Health (VDH) and Dept. of Environmental Quality (DEQ). Testing of drinking water from community water systems, which is regulated under VDH, is excluded from this program.

Program Goals

To improve the understanding of drinking water quality in LMI neighborhoods, specific activities in this monitoring program will be implemented to achieve the following goals:

1. Develop and implement a residential well testing program, in accordance with appropriate quantitative protocols provided by certified laboratories and/or agency guidelines, e.g., Virginia Division of Consolidated Laboratory Services (DCLS) Drinking Water Sample Collection Guide.
2. Coordinate the communication and exchange of resulting data with local, state, and federal drinking and groundwater stakeholders.
3. Institute educational activities about drinking water quality for eastern shore communities.

Sampling Area, Annual Objectives, and Testing Standards

This program will test the quality of groundwater in residential wells, i.e., the source of their drinking water. To this end, samples will be taken from either from an outside faucet prior to any home treatment system or a tap at the well head, rather than interior faucets. This is because drinking water quality can be altered in delivering water from the well to the faucet, depending upon the age and materials used in the interior plumbing system and other aspects, e.g., home water treatment system and water heaters. This program will test the source of drinking water in individual residences, quantitatively analyze samples using certified laboratories, and compare results to acceptable standards set by the US EPA, as well as the Commonwealth of Virginia.

The following objectives will guide the development of annual activities:

1. Annual sampling of the Bi-County area with initial target LMI communities identified by the Board of Supervisors. The number of residences to be tested will vary as the program ramps up and learns more from annual test results. Tested residences with results that exceed standards will be eligible for future additional testing.
2. Prioritize communities with a majority of domestic wells that are greater than 40-years old.
3. Prioritize wells that are screened in the Columbia (surficial) aquifer. These are likely to include shallow wells.
4. Compare results to the corresponding standards (see table below) and identify residences that warrant more intensive testing.
5. Communicate results with the individual residents.
6. Carry out educational activities to promote citizen learning about drinking water quality, such as the use of home test kits by high school science classes and community organizations, and/or sharing information about drinking water quality online and/or at community activities.

The principal measures for safe drinking water are the Environmental Protection Agency (EPA) drinking water standards. EPA has established two principal sets of standards:

- *Primary* Drinking Water Standards to *protect public health*, and
- *Secondary* Drinking Water Standards are for constituents that are *nuisances but not health threatening* and can have objectionable effects on the water, including 1) aesthetic effects (undesirable taste or odor), 2) cosmetic effects (staining or deposits) or 3) technical effects (can damage equipment).

The complete set of drinking water standards can be found at:
https://www.epa.gov/dwreginfo/drinking-water-regulations

Year 1/Initial Activities (FY 2023)

1. Establish a Subcommittee of the GWC to scope and lead in the detailed planning and oversight of the Residential Well Testing Program (quantitative) to achieve the Program Goals (above). The quantitative part of the program will focus first on testing residential wells for primary constituents which present a health risk.

2. Identify a preliminary water screening activity (qualitative home tests) to begin to involve the community and learn about community concerns, testing protocols and kits which will be used to develop subsequent activities to support Goal #3.

    - Initiated the identification of a home drinking water screening kit to meet the initial Year 1 objective community representatives, potentially also including high school science classes. Examples to consider include: Hach test kits and a variety of home water test kits. One example is the H2O OK Drinking Water Analysis Test Kit at Lowes which contains litmus paper type tests for total chorine, total hardness, iron, pH, total alkalinity, copper, iron bacteria, nitrates, nitrites, and hydrogen sulfide.

    - Contacted high school principals in each county (Northampton and Arcadia) to inform them about the program, and inquired if science classes would be interested in incorporating drinking water testing into the curriculum.

Year 2 Activities (FY2024: July 1, 2023 – June 30, 2024)

Goal #1

1. Finalize constituents to be analyzed. Initial samples will test for these constituents: coliform bacteria, nitrates and nitrites, and turbidity.
2. Develop sample collection protocol (Attachment 1).
3. Coordinate with Board of Supervisor (BOS) for their recommendations for the first year to test residential wells in 3-4 LMI communities in each county (approximately 5 residences in each community).
4. Outline staffing needs to conduct residential well testing. This will include consultant staff and/or GWC members.
    a. Assist ANPD-C in developing request for proposal (RFP) to hire a consultant staff. Items to be addressed in the RFP include:
        i. Consultant to develop/use Health and Safety Plan for field sampling
        ii. Purchase sampling supplies and equipment
        iii. Establish contract with certified analysis laboratory
5. Develop Groundwater 101 Fact Sheet (ES GWC with consultant). Potential starting point https://www.esvaplan.org/wp-content/uploads/2022/03/Facts-about-the-ESVA-Groundwater.pdf

6. Work with BOS input and community organization representatives to identify initial target residences and coordinate with property owners (ES GWC, ANPDC and consultant)
7. Conduct initial sampling, deliver samples to certified laboratory for analysis, e.g., Water Testing Labs of MD, Inc., and review initial test results.

Goal #2

1. Develop spreadsheet format protocol for data reporting, presentation, and sharing with local, state, and federal drinking and groundwater stakeholders.
    a. The protocol should enable data to be added to existing databases, such as the Accomack-Northampton WQ Summary and the ground water geographic information system model.
2. Develop results interpretation guide for residents (ES GWC technical advisor, i.e., Arcadis). See notes in Attachment 2.
    a. Include language for recommended additional action if standards are exceeded.

Goal #3

1. Define initial potential educational activities.
    a. Home kit testing by high schools and community organizations. Select test kit, define which testing organizations, coordinate with them, develop schedule, provide training and record keeping protocols.
        i. These tests are not limited to LMI students or individual wells. That is, some samples may be taken from homes that have community water systems.
        ii. Provide testing and record keeping (spreadsheet) instructions, including emailing a copy of the record keeping form or spreadsheet to the GWC.
    b. Participate in/share information at community meetings as appropriate.
    c. Share Groundwater Committee website location, existing groundwater fact sheets, and new Groundwater 101 Fact Sheet when available.

Safety

A Health and Safety Plan (HASP) will be prepared by the consultant for the field testing. The HASP will identify potential hazards including biological (e.g., animals and insects), chemicals (including sample preservatives), and physical (such as slips, trips, and falls) and appropriate responses to these hazards. Information on steps that will be taken if an injury occurs will be provided in the HASP. GWC will be held harmless for any liability.

Points of Contact

Eastern Shore Ground Water Committee Chairs (GWC)

- John Coker, Northampton County Board of Supervisor (johncoker@aol.com)
- Calvin Washington, Accomack County Board of Supervisor (Calvin Washington cwashington@co.accomack.va.us

A-NPDC Staff

- Kellen Singleton (ksingleton@esvaplan.org)

Subcommittee for the Residential Well Water Testing Program

- Ann Hayward Walker, Northampton County (ahwalker@seaconsulting.com)
- Daniel Hershey, Accomack County member (danhershey1947@gmail.com)
- Paul Muhly (pmuhly1@verizon.net)

Technical Advisor to the GWC

- Britt McMillan, ARCADIS

Attachment 1

Quantitative Residential Well Testing: Sample Collection, Handling, and Data Collection

This water quality testing will analyze drinking water samples from wells for individual residences (not community water wells). The samples will be taken from a tap prior to any home water treatment system. For homes with no treatment system, sample locations will be determined on a case-by-case basis with a preference on an outside location. This is because drinking water quality can be altered in delivering water from the well to the faucet, depending upon the age and materials used in the interior plumbing system and other aspects, e.g., home water treatment systems or water heaters. Samples will be delivered to a VELAP or DCLS certified laboratory for quantitative analysis and results compared to acceptable standards set by the US EPA. Tested residences with results that exceed standards will be eligible for more extensive quantitative testing.

A community representative should be part of the well testing team to accompany the sampling personnel.

Results will be shared with the homeowners. The data will be input into the Accomack-Northampton WQ Summary and the groundwater geographic information system model. Test results will be identified on the spreading using a sample number, rather than name or address.

Collect the information and record on the Residential Well Testing Work Sheet (separate documents also contains Equipment Check List and Well Testing Owner's Name and Location), including but not limited to:

- Sample location – 911 address
- Household name
- Testing date
- Sample location (GPS)
- Photographs of well location and water appearance
- Label individual sample containers.

Sample Collection Procedure for Private Homes (from Water Testing Labs of MD, Inc.)

1. Nitrile exam gloves (powerless) will be worn at all times.
2. Obtain a sterilized container of approximately 4.0 oz. capacity (120 ml). There should be a powder or small amount of liquid preservative in the bottle. Care must be taken not to touch the inside of the container or lid. Some of the preservatives are strong acids or bases and care must be taken to avoid spilling any liquid. Contact with the preservatives must be avoided. If contact occurs flush with copious amounts of water.
3. Run the COLD water from an outside tap with no aerators, swivel taps, or filters for 15-20 seconds.
4. Remove the seal completely and take the cap off the container (use powerless nitrile gloves, and/or be sure not to place fingers on top or any part of the container to avoid contamination).

5. Fill the container to just below the neck, AT LEAST to the 100 mL line marked the bottle (be sure not to dump any out after sampling).
6. Place cap back on the container, tighten, and return to the Ziplock bag.
7. Keep the container iced in a cooler or in a refrigerator until analysis is performed.
8. Make sure the sample is returned to the laboratory **within 24 hours** after sampling or the sample may be rejected.
9. Obtain a (non-sterile) 250 mL container and fill it with water from the same tap. This is for chlorine residual and requested chemical testing.

Samples will be accepted 8:30 AM – 4 PM, Monday – Friday, excluding holidays.
If you have any questions, please call us at 410-546-1318. Carrie Myers, Lab Director.

Attachment 2

Interpreting Water Quality Test Results

Technical advisor to develop language about what do to if residential sample result exceeds a primary drinking water standard.

When would additional sampling be appropriate?

Example from Idaho https://www.deq.idaho.gov/water-quality/groundwater/wells/

1. *If your well water tests positive for a contaminant, discuss your test results and determine any health risks with your local* public health depart*ment.*
2. *If your water is contaminated to a point that it may harm your health, fix the problem as soon as possible. You may need to find an alternative drinking water source (for temporary or permanent use), disinfect your well, repair your syst*

RESIDENTIAL WELL TESTING WORK SHEET *DATE* _____

_____ *Accomack Co.* _____ *Northampton Co.* *PLEASE PRINT ALL INFORMATION CLEARLY*

Name _____

911 address _____

Census Tract Zone #_____ Phone No. _____

Field tester's name _____ GPS _____

Community Rep or Area coordinator: _____

AREA KNOWN AS _____

.....

Is home within 500 yards from an active farming operation? Y____ N____

Sample drawn from: Pump house ____ Outside spigot ____ Other _____

Shallow (Columbia) well _____ Drilled well _____ Unknown _____

.....

Lab results: Testing for:

Coliform Bacteria, Nitrates + Nitrites, Sand, Turbidity and pH.

MUST BE RETURNED ON ICE WITHIN 24 HOURS OF COLLECTION

Date sample taken to Testing Lab _____ Time _____

Samples will only be accepted between 8:30 AM and 4:00PM

Testing Lab name: _____

Lab I.D._____ Date test results returned :_____

Testing result information logged in and passed on to:

GWC _____ Date _____ VDH (ES) _____ Date _____

VDEQ _____ Date _____ USGS _____ Date _____

NOTES

WELL TESTING OWNERS' NAME AND LOCATION INFORMATION

THIS INFORMATION TAG MUST BE COMPLETED AND INCLUDED WITH EVERY SAMPLE KIT

Homeowner/Renters Name _____

Address

_____

Well Sample taken by _____

Well GPS location _____ Date _____

PLACE THIS TAG IN A SEPARATE BAGGIE AND INSERT IN THE WELL SAMPLE KIT

WELL TESTING OWNERS' NAME AND LOCATION INFORMATION

THIS INFORMATION TAG MUST BE COMPLETED AND INCLUDED WITH EVERY SAMPLE KIT

Homeowner/Renters Name _____

Address

_____

Well Sample taken by _____

Well GPS location _____ Date _____

PLACE THIS TAG IN A SEPARATE BAGGIE AND INSERT IN THE WELL SAMPLE KIT

WELL TESTING OWNERS' NAME AND LOCATION INFORMATION

THIS INFORMATION TAG MUST BE COMPLETED AND INCLUDED WITH EVERY SAMPLE KIT

Homeowner/Renters Name _____

Address

_____

Well Sample taken by _____

Well GPS location _____ Date _____

PLACE THIS TAG IN A SEPARATE BAGGIE AND INSERT IN THE WELL SAMPLE KIT

EQUIPMENT CHECK LIST

Items and tools needed to take well samples

_____ Testing kits from Lab

_____ Insulated chest to save and transport samples

_____ ICE

_____ Various heavy duty zip lock bags with labels

_____ Permanent marking pens, fine tip

_____ Nitrate gloves to wear while taking samples

_____ Channel Lock wrench to loosen connection of hose & faucet

_____ Empty one (1) gallon jug to purge water line

_____ Clipboard to hold field reports

_____ GPS app to record location of well/home

_____ Work gloves

_____ Watch for time recording

_____ Transportation/vehicle

_____ Eastern Shore road maps (VDOT) or GPS system to locate testing sites, for both counties.

_____ Pepper spray for unruly dogs

Name of testing area contact _____

Phone number _____

Notes

Eastern Shore Groundwater Committee

Information for New Members

The Eastern Shore of Virginia Ground Water Committee (GWC) is a bi-county committee formed in 1990 by Accomack and Northampton Counties to study and plan for ground water protection. The 11-member committee meets monthly and includes elected officials, citizens, and local government staff. The Accomack-Northampton Planning District Commission (A-NPDC) staffs the committee and a consulting hydrogeologist advises the committee prepares monthly technical reports, and coordinates with the Virginia Department of Environmental Quality and the US Geological Survey (USGS).

Current Members

Chairman: John Coker

Vice Chairman: Calvin Washington

Committee Members:

- Accomack County – Calvin Washington, Grayson Chesser, Daniel Hershey, Susan Mastyl
- Northampton County - John Coker, Paul Grossman, Steve Sturgis, Ann Hayward Walker,
- Non-voting Ex-officio - Elaine Meil, Charles Kolakowski, and Mike Mason

A-NPDC Staff - Kellen Singelton

Consulting Hydrologist - Britt McMillan, Arcadis

Groundwater Management Area

The Eastern Shore of Virginia is one of six areas designated by the US Environmental Protection Agency (USEPA) as a Sole Source Aquifer within the Mid-Atlantic area (Federal Region 3). EPA designated the Columbia – Yorktown-Eastover Multi-aquifer System a sole source aquifer, effective May 9, 1997.

The Sole Source Aquifer (SSA) Program, which is authorized by Section 1424(e) of the Safe Drinking Water Act, allows communities to petition the USEPA for protection when a community is dependent on a single source of drinking water and there is no possibility of a replacement water supply to be found.

On June 17, 2013, the State Water Control Board adopted amendments (9VAC25-600-20) that declared the Eastern Shore of Virginia as a groundwater management area, known as the Eastern Shore Groundwater Management Area. It encompasses the counties of Accomack and Northampton.

Website

https://www.esvaplan.org/planesva/ground-water-management/eastern-shore-of-virginia-ground-water-committee/

Important Documents

- *Hydrogeologic Framework of the Virginia Eastern Shore.* 2019. USGS. https://pubs.usgs.gov/sir/2019/5093/sir20195093.pdf

- *Eastern Shore of Virginia Groundwater Resource Protection and Preservation Plan*. 2013. A-NPDC and the Eastern Shore of Virginia Groundwater Committee https://www.a-npdc.org/wp-content/uploads/2016/05/ESVAGroundwaterResourceProtectionAndPreservationPlan2013compress.pdf
    - This is an update of the first plan which was developed in 1992. This plan provides an overview of Eastern Shore groundwater management (80+ pages).
    - This plan reflects a sustainable, systematic approach (p. 1.2-1) to using and managing the groundwater resource
    - To sustain the aquifer capacity, this plan describes threats to groundwater capacity and quality and provides this guidance: the Virginia Department of Environmental Quality (VDEQ) regulates all withdrawals greater than or equal to 300,000 gallons/month. Under these regulations, the VDEQ:
        1. Requires that all pump intakes are above the top of the aquifer and
        2. Groundwater levels are not lowered below the 80% criterion
- Figure 1. State Division of Responsibilities: VA DEQ and VDH
- Figure 2. Understanding Permit Area of Impact (AOI) and 80% Drawdown
- The Virginia Eastern Shore Groundwater Model https://www.usgs.gov/centers/virginia-and-west-virginia-water-science-center/groundwater-flow-modeling

Mandate

> The committee's mandate is to "assist local governments and residents of the Eastern Shore in understanding, protecting and managing ground water resources, to maintain a ground water resources protection and management plan (see above), to serve as an educational and informational resource to local governments and residents of the Eastern Shore, and to initiate special studies concerning the protection and management of the Eastern Shore ground water resource."

What does the Mandate mean regarding our role and activities?

The Committee meets monthly to discuss eastern shore ground water issues and review proposed ground water withdrawals over 300,000 gals per month, which are permitted by DEQ. Proposed permits are reviewed by the GWC's Consulting Hydrologist; his monthly report to the GWC is included in each meeting packet. Under our mandate, the GWC can provide comment to DEQ on proposed permits. Occasionally, EPA sends federal projects to the GWC for review as part of a Memorandum of Understanding related to our Sole Source Aquifer.

The mandate implies that members should be open to learn about various relevant technical aspects of groundwater and groundwater management. This technical knowledge is important for the members to engage with groundwater and drinking water agencies in protecting and managing ground water resources on the Eastern Shore. This knowledge also is useful in providing educational and informational resource to local governments and residents of the Eastern Shore.

The documents listed above are excellent sources of directly relevant information. Various fact sheets and presentations on the website provide additional information and details on specific topics, e.g., Paleochannels and Saltwater Intrusion https://www.esvaplan.org/planesva/ground-water-management/publications-resources/

GWC Programs

- Residential Well Testing, others added as needed
- Groundwater Committee Projects and Programs on the website, under which is also Permits and Tracking.
- Past projects are also listed on the website

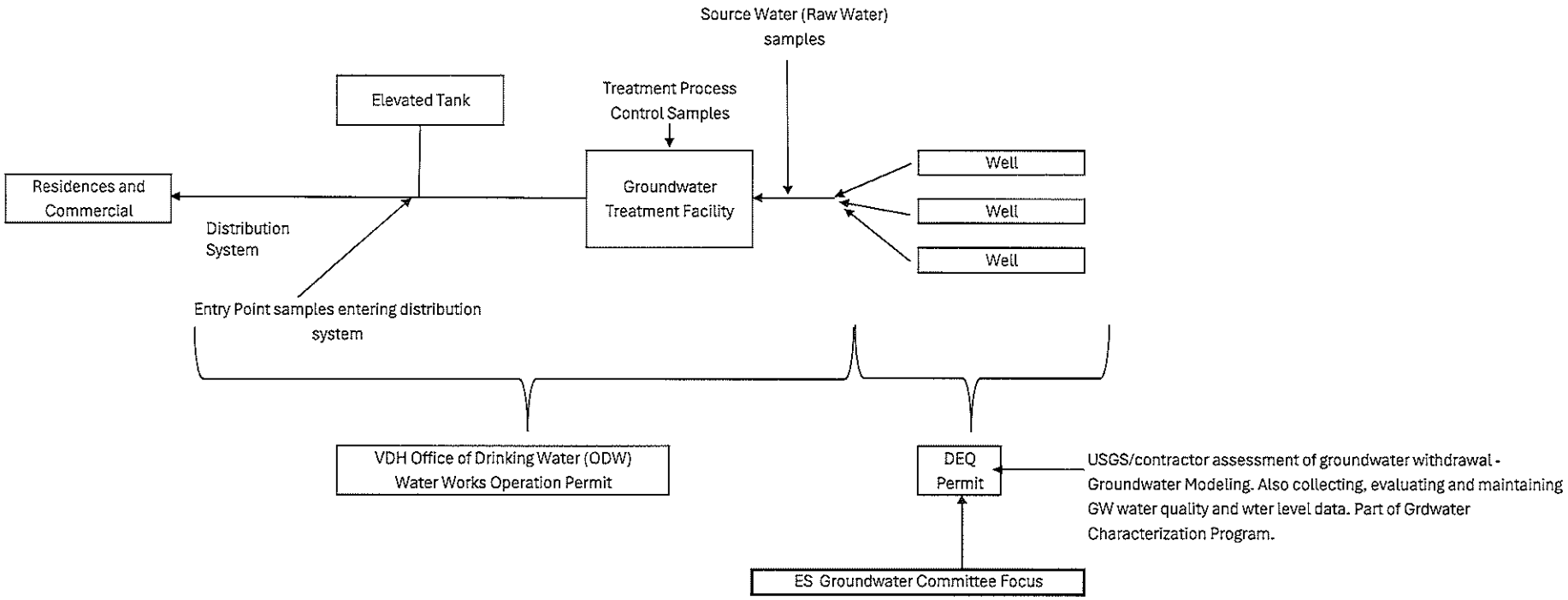
Meetings

- The Board Room at the ESVA Chamber of Commerce, Melfa VA
- Monthly (except July and December), 3rd Tuesday from 10 am – noon
- Attendance in person or virtual
- Typical agenda structure: Call to Order, Public Participation, Previous Meeting Minutes, Financial Status Report, A-NPDC Staff Report, Ground Water Consultant Report, additional topics, e.g., NASA PFAS Status Update, Residential Well Testing Program

Meeting Materials

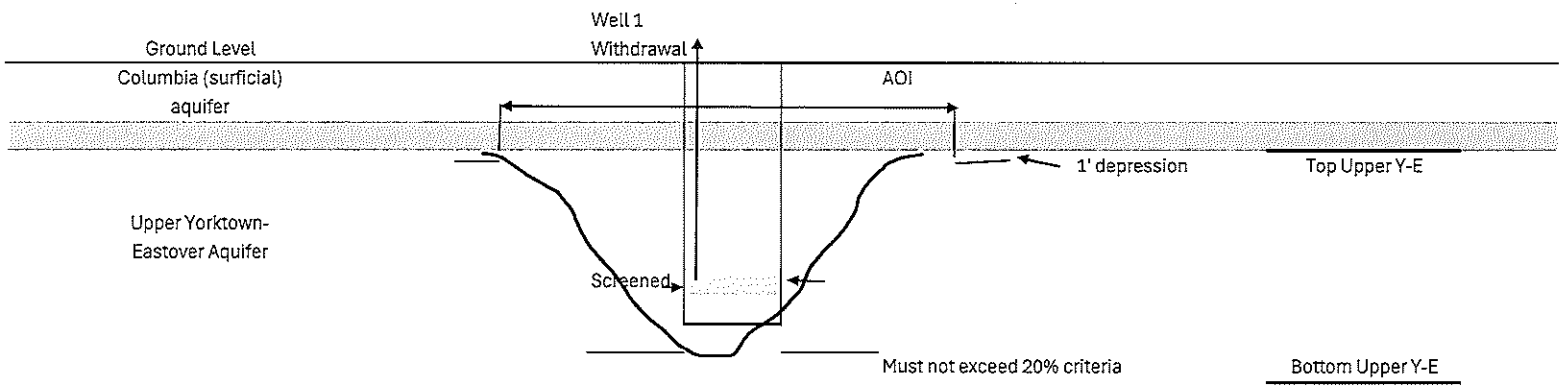
- The meeting materials to be covered in the agenda are compiled into a packet and distributed via email by A-NPDC staff before each monthly meeting
- Posted at: https://www.esvaplan.org/planesva/ground-water-management/eastern-shore-of-virginia-ground-water-committee/

Fig. 1 - State Division of Responsibilities: VA DEQ and VDH



Note: At national level, US Geological Survey (USGS) manages groundwater resources; US EPA is responsible for drinking water safety

Fig. 2 - Understanding Permit Area of Impact (AOI) and 80% Drawdown



Middle Yorktown-
Eastover Aquifer

Lower Yorktown-
Eastover Aquifer

Area of Impact (AOI) - Pumping from a well in a water table aquifer lowers the water table near the well. This area is known as a cone of depression. The land area above the cone of depression is called the area of impact. Groundwater flows towards the well into the cone of depression which can change the natural direction of groundwater within the area of impact around the well. The AOI is typically drawn to the point of 1 foot depression from surface. If the cones of depression for two or more wells overlap, there is said to be well interference. This interference reduces the water available to each of the wells.

80% Criteria - a well cannot draw down below 80% of the distance from the top to bottom of an aquifer.

Facts about the Eastern Shore of Virginia's Groundwater

The Eastern Shore of Virginia depends **entirely** on ground water for drinking water supplies, as well as most other supplies such as irrigation water. The salt water that surrounds us causes our water to become brackish at relatively shallow depths (350 feet) in most areas. On the necks, it becomes brackish at even shallower depths. The total available ground water supply is limited to the amount of fresh water recharging the aquifers from precipitation directly falling on the Shore.

Sole-Source Aquifer

In 1997, the US Environmental Protection Agency (EPA) designated the fresh ground water that supplies all drinking water on the Eastern Shore of Virginia as the Columbia and Yorktown-Eastover Multiaquifer System Sole Source Aquifer. The designation provides protection to the Shore's water supply by requiring the EPA to review proposed projects on the Shore that are receiving federal financial assistance to ensure they do not endanger the water source.

General Threats to Our Groundwater

- Saltwater Intrusion
- Lowered Ground Water Level from Pumping
- Contamination

Saltwater Intrusion and Lowered Ground Water Level both reduce the volume of drinking water available to us. Contamination can render large amounts of our drinking water unusable.

What is being done to protect the ground water?

Numerous federal, state, and local ground water protection laws and programs exist. Many are designed to protect ground water from chemicals, biological waste, or petroleum hydrocarbon releases. The Eastern Shore of Virginia Ground Water Committee was formed in 1990 to assist local governments and residents in understanding, protecting and managing the ground water resource. The Ground Water Supply Protection and Management Plan for the Eastern Shore of Virginia (1992) provides the basis and guidelines for protecting the ground water resource.

What needs to be done & what can I do?

The ESV Ground Water Committee continues to encourage the use of the Columbia Aquifer instead of the Yorktown-Eastover Aquifer. The Committee is currently working with local farmers and farm agencies to reduce irrigation dependence on the Yorktown-Eastover. This will help protect that aquifer from saltwater intrusion and lowered ground water levels. Continuing education efforts are also very important. One of the simplest but most effective ways of reducing water use that one person can do is just fix any leaks that develop.

For more information about the Eastern Shore of Virginia's groundwater and what needs to be done to protect it, go to http://www.a-npdc.org/accomack-northampton-planning-district-commission/ground-water-management/.

Eastern Shore of Virginia Groundwater Committee

Preferential Use of the Surficial Aquifer Statement of Principle

August 2022

The Eastern Shore of Virginia Groundwater Committee has for over the past 20-years promoted use of the surficial aquifer as one of a number of sustainable approaches to preserving the resource limited Yorktown-Eastover aquifer. The surficial aquifer has proven to be suitable for potable and non-potable use over much of the Shore. To date, the potable uses are principally from domestic wells and non-potable uses are principally for agricultural irrigation and commercial/industrial cooling water on the Shore.

In the 2019 and 2020 legislative session, the Commonwealth of Virginia enacted two bills that meet the Groundwater Committee's goals. The Virginia Department of Environmental Quality (DEQ) is in the process of developing the supporting regulations.

One regulation that was approved by the State Water Control Board in their December 2020 session establishes a General Permit for groundwater withdrawals from the surficial aquifer on the Eastern Shore. The purpose of this regulation is to encourage use of the surficial aquifer over the Yorktown-Eastover aquifer through a significantly simplified permitting process. There is little present incentive for existing permitted users to make use of the simplified permitting process.

A second bill passed in the 2020 General Assembly legislative session prohibits permitted groundwater withdrawals outside the surficial aquifer for nonagricultural irrigation wells. This bill only addresses nonagricultural irrigation use and does not address other non-potable withdrawals, such as cooling water, car washes, and similar uses where the surficial aquifer has been proven to be a suitable source on the Shore. A draft regulation establishing a General Permit for groundwater withdrawals from the surficial aquifer in all groundwater management areas has been developed and it is anticipated this draft regulation will be submitted to the State Water Control Board for approval in 2021.

To augment the new regulations and to, in part, address limitations of these regulations in promoting the goal of using the surficial aquifer in preference to the Yorktown-Eastover aquifer, the Groundwater Committee supports the following principles for non-potable groundwater withdrawals from the Yorktown-Eastover aquifer that meet the requirement for a groundwater withdrawal permit:

- Feasibility of using the surficial aquifer as the principal groundwater source or to augment use of the Yorktown-Eastover aquifer should be assessed within the 15-year time frame of a groundwater withdrawal permit. As previously issued in DEQ groundwater withdrawal permits, this assessment should be added as a Special Condition to the permit. DEQ or a responsible party identified by DEQ should provide oversight and review of the assessment to assure minimum testing requirements are met.
- For any new or expanded withdrawal use of the surficial aquifer shall be assessed before a draft permit is developed. This assessment should be completed prior to or as part of the permit application process. DEQ or a responsible party identified by DEQ shall provide oversight and review of the assessment to assure appropriate testing methods are employed.
- For any new or expanded withdrawal, the surficial aquifer shall be used to the maximum extent possible before the end of the 15-year permit period.

- Before any new or replacement permitted wells are constructed, use of surficial aquifer well(s) shall be assessed. Constructing a new or replacement well in the Yorktown-Eastover aquifer shall only occur after DEQ determines that use of the surficial aquifer is not feasible.
- For all withdrawals where use of the surficial aquifer is feasible, an assessment of transitioning use from the Yorktown-Eastover aquifer to the surficial aquifer shall be completed. This assessment can be completed as part of a permit application process or as a Special Condition of the Permit. Where feasible, transition to the surficial aquifer can be established as a Special Condition of the Permit and completed in phases within a permit cycle.

In addition to the above principles the Groundwater Committee recognizes the importance of maintaining close communication with DEQ on issues related to the groundwater resource on the Eastern Shore. The Groundwater Committee appreciates past DEQ participation and supports continued DEQ participation with the Committee in the future. The Groundwater Committee also encourages DEQ to proactively include the Groundwater Committee on groundwater resource matters, including groundwater withdrawal applications to the extent possible.

These principles are intended to maintain a safe and reliable water supply for the Eastern Shore into the future. As conditions and regulations change, the above principles will be modified, as necessary.

The Eastern Shore of Virginia Groundwater Committee adopts these principles on August 16, 2022.

3/15/2024

RE: Info sheets for GWC

Eastern Shore Ground Water Committee Public Informational Material Review
GWC Member Sue Mastyl

- General comments –
  - Each info sheet should have the date (month/year) of publication.
  - Several info sheets need the web address changed from a-npdc.org to esvaplan.org, and the contact email changed from Shannon Alexander to Kellen.
  - References within the info sheets are of little value – we should either develop a separate "Sources" document, where we can provide the full citations, or delete them.
  - All of these need careful proofing.
- Facts about the Eastern Shore of Virginia's Groundwater – as a stand-alone document, this is missing some info – I would add –
  - State Groundwater Management Act, establishing the ESVA Groundwater Management area, and the permit requirement for anything >300,000 GPM
  - Diagram showing the freshwater lens/sole-source aquifer
  - Description of freshwater lens, with precipitation/recharge numbers (1st paragraph in Paleochannels info sheet & Saltwater Intrusion info sheet) – I would add the statement from Britt's latest presentation (Feb mtg) on the actual vs. permitted usage numbers
  - Para. 5 cites the ESVA Ground Water Supply Protection and Management Plan from 1992 – is this the most recent?
- Paleochannels and Groundwater Resources –
  - Para. 1 cites the "Ghyben-Herzberg relation" (also in the Saltwater Intrusion info sheet) – I have no idea what this is referring to.
  - We should check whether this reflects the current understanding of the paleochannels, since they're developing more data on this.
  - The 2009 ESVA Groundwater Model cited on page 2 should be replaced with data from the 2021 USGS model.
- Potential for Saltwater Intrusion Summary –
  - There are actually two separate files for the same document – "Saltwater_intrusion-.pdf" and "info sheet_Saltwater_Intrusion.pdf".
  - I'm not sure if the statements concerning the lack of water quality monitoring and observation wells are still valid.
- Subsidence and Sea-Level Rise Presentation –
  - I don't know how much of these data are still valid – this is a Jan. 2014 presentation (with data from 2006), and our understanding of sea-level rise has changed a lot in the last 10 years.
  - This presentation is mostly focused on subsidence on the mainland (Potomac aquifer), which has less relevance for us on the Shore. The last slide is interesting, addressing northern Accomack County as part of the Salisbury embayment; however, I've never heard of this before, so it would require some accompanying context to make it relevant.
  - Overall, I think we need a brand-new document addressing sea-level rise, with specific emphasis on the Shore.
- Ground-water Concerns for the ESVA (Info Sheet/Chloride Levels/Richardson) –

  - This is a 1993 publication, so we'd have to check to make sure it still reflects our current understanding.
  - On thing jumped out at me – in the 1st para on page 1, it refers to "cone-like depressions in the water-level surface around major pumping centers near the Towns of Accomac, Cape Charles, Cheriton, Chincoteague, Exmore, and Hallwood, Virginia." Accomac may refer to Perdue, & Hallwood may refer to Tyson; I'm not sure that we can state that there are currently cones of depression in the other locations.
- Publications & Resources –
  - Unfortunately, many of the links don't work, so I couldn't check on these. I really think we have way too many listed here; there's a lot of duplication, and a lot of older publications that we may not need. We may want to separate them into categories (water quantity, saltwater intrusion, paleochannels, surficial aquifer, etc.), & then start weeding out what we don't really need