



## Eastern Shore of Virginia Ground Water Committee

January 16, 2018

10:00 a.m.

Enterprise Building, Accomac

### MEETING AGENDA

1. Call to Order
2. Minutes of the November 21, 2017 Meeting ..... 3
3. Financial Status Report ..... 6
4. Public Nomination for 2017 Ground Water Award..... 8
5. Staff Update ..... 9
  - Chincoteague Update*..... 9
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  - Data from the Water Clinic*..... 10
  - FY 2018 ATTENDANCE RECORD ..... 12
6. January 2018 Ground Water Consultant Report ..... 20
  - House Bills
  - Draft Groundwater Presentations
7. Other Matters
8. Public Participation
9. Schedule Next Meeting & Adjourn



# A-NPDC

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## ACCOMACK-NORTHAMPTON PLANNING DISTRICT COMMISSION

P.O. BOX 417 • 23372 FRONT STREET • ACCOMAC, VIRGINIA 23301  
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Minutes of the November 21, 2017 Meeting  
Eastern Shore of Virginia Ground Water Committee

The meeting of the Eastern Shore of Virginia Ground Water Committee was held at 10:00 AM on Tuesday, November 21, 2017 in the A-NPDC Conference Room of the Enterprise Building in Accomac, Virginia.

Members Present:

Charles Kolakowski  
Daniel Hershey  
Elaine Meil  
Eugene R. Hampton  
Granville Hogg, Vice Chairman  
Grayson Chesser  
Jim Belote  
Paul Muhly, Chairman  
Robert Meyers

Members Absent:

John Salm  
Mike Mason

Others Present:

Britt McMillan, ARCADIS  
Charles Kolakowski, Northampton County  
Cole Charnock, ESSWCD  
Curt Smith, A-NPDC  
Curtis Consolvo, GeoResources, Inc.  
Dirk Lynch, MSA P.C.  
Jay Ford, VES  
Jon Richardson, ESHD  
Joseph Betit, Accomack County Citizen  
Ken Dufty, Eastern Shore COQ  
Mathew Link, VDEQ  
Randy McFarland, USGS  
Richard Snyder, VIMS ESL  
Shannon Alexander, A-NPDC



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1. Call to Order

Chairman Muhly called the meeting to order at 10:00 AM.

2. Review of the October 17, 2017 Minutes

**Vice Chairman Hogg moved to approve the Minutes of the October 17, 2017 meeting. The motion, seconded by Committee Member Meyers, carried unanimously.**

3. Financial Status Report

The FY 2018 Financial Status Report and FY19 Budget requests for Accomack County and Northampton Committee were presented.

**Committee Member Meyers moved to approve the FY2018 financial status and both the Accomack County and Northampton County FY2019 Budget Requests. The motion, seconded by Vice Chairman Hogg, carried unanimously.**

4. 2017 Ground Water Award

Committee Member Meyers brought attention to Wallops for their environmental monitoring and attention to the Chincoteague wells. There was no other discussion. Members are to nominate candidates during the January 2019 meeting.

5. Staff Update

The following staff updates were presented:

Committee Attendance Record

The FY2017 Committee Attendance Record was presented.

Environmental Reviews and Permits

*VA Pollutant Discharge Elimination System Program*

Staff presented the list of active VPDES permits on the Eastern Shore (total 19) for Committee consideration. Staff informed the Committee that there is to be a public hearing concerning the four VPDES for poultry operations that were discussed during the October meeting.

Other Items

*VDEQ Update: Chincoteague Wells, Groundwater Withdrawal Permit Compliance Initiative –* Mr. Matthew Link of VDEQ provided an update. The Compliance Initiative ends December 15<sup>th</sup>. There have been four permits applications received.

*Staff presented an update concerning the Water Clinic and summary data, however, further discussion was tabled until the January meeting to allow staff to review direct data from Virginia Tech.*



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Staff presented an update concerning the *SHIFT* initiative and revisited letters sent to representatives in 2015, 2016, and early 2017 with regards to *SHIFT*, HB558, and HB2477.

**Vice Chairman Hogg made a motion to send a letter to Delegate Bloxom, Senator Lewis, and Governor-elect Northam with a background about the issue and the concerns for the Eastern Shore. The motion, seconded by Committee Member Meyers, carried unanimously.**

Staff presented the following *Public Workshops & Outreach events* –Staff presented progress on the Second Annual Well & Septic Forum, to be held at ESCC Nov. 8<sup>th</sup> at 6:30pm.

### *USGS EM-Logging*

Randy McFarland presented the results interpretation for the August 2017 logging. USGS is to add in an informational component using local land-use knowledge into the log interpretation documentation. USGS indicated the need for additional sampling wells for the logging program and for the water level network. Staff and the Committee are to work together and with VDEQ and USGS to locate potential new sampling sites.

### 6. Consultant Report:

The consultant provided contributions during the USGS presentation.

### 7. Other Matters:

Vice Chairman Hogg raised concerns about the water quality, identified from the Water Clinic laboratory analysis, from wells sourced from the unconfined aquifer on bayside property in Northampton County. Discussion ensued.

### 8. Public Participation:

None.

### 9. Schedule Next Meeting & Adjournment

The next Committee meeting was scheduled for January 16, 2018 at 10:00 AM in the A-NPDC Conference Room of the Enterprise Building in Accomac.

Chairman Muhly adjourned the meeting at 12:14 p.m.

Copy test:

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Paul Muhly, Chairman

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Elaine K. N. Meil, Secretary



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## MEMORANDUM

TO: Eastern Shore of Virginia Ground Water Committee

FROM: Shannon Alexander  
 Coastal Resources Program Manager  
 Accomack-Norhampton Planning District Commission

DATE: January 16, 2018

SUBJECT: Financial Status Report

### Ground Water Consultant Contract

Staff is working to

**Staff requests the Committee consider approving an extension of the Groundwater Consultant Contract with Arcadis through FY2019 with Exhibit B Work Authorization updated to reflect updating the Water Supply Plans.**

### Financial Status Report

The FY 2018 Financial Status Report is attached.

Bills Payable:

None.

**TOTAL BILLS PAYABLE   \$0.00**

**Staff requests the Committee review and consider approving the FY2018 Financial Status Report.**

**EASTERN SHORE OF VIRGINIA GROUND WATER COMMITTEE**

Financial Statement--December 2017

**Fiscal Year 2018**

	<u>Annual Budget</u>	<u>Current Period Activity</u>	<u>YTD Activity</u>	<u>Balance</u>	<u>% of Budget</u>
<b>REVENUES:</b>					
<b>Ground Water Consultant Appropriations:</b>					
Accomack County	\$ 14,251.00	\$ 0.00	\$ 7,125.50	\$ 7,125.50	50.00%
Northampton County	7,415.00	0.00	3,707.50	3,707.50	50.00%
FY 2017 Remaining Balances	1,332.00	0.00	1,332.00	0.00	
Subtotal	<u>\$ 22,998.00</u>	<u>\$ 0.00</u>	<u>\$ 12,165.00</u>	<u>\$ 10,833.00</u>	52.90%
<b>Ground Water Modeling Run Appropriations:</b>					
Accomack County	\$ 1,500.00	\$ 0.00	\$ 750.00	750.00	50.00%
Northampton County	1,500.00	0.00	750.00	750.00	50.00%
FY 2017 Remaining Balances	6,975.00	0.00	6,975.00	0.00	100.00%
Subtotal	<u>\$ 9,975.00</u>	<u>\$ 0.00</u>	<u>\$ 8,475.00</u>	<u>\$ 1,500.00</u>	84.96%
<b>Ground Water Committee Staff Support:</b>					
Accomack County	\$ 3,970.00	\$ 0.00	\$ 1,985.00	1,985.00	50.00%
Northampton County	3,970.00	0.00	1,985.00	1,985.00	50.00%
Subtotal	<u>\$ 7,940.00</u>	<u>\$ 0.00</u>	<u>\$ 3,970.00</u>	<u>\$ 3,970.00</u>	50.00%
<b>USGS Ground Water Model:</b>					
Accomack County	\$ 7,500.00	\$ 0.00	\$ 3,750.00	3,750.00	0.00%
Northampton County	7,500.00	0.00	3,750.00	3,750.00	0.00%
FY 2017 Remaining Balances	0.00	0.00	0.00	0.00	0.00%
Subtotal	<u>\$ 15,000.00</u>	<u>\$ 0.00</u>	<u>\$ 7,500.00</u>	<u>\$ 7,500.00</u>	50.00%
<b>Water Clinic</b>					
SERCAP	\$ 11,000.00	\$ 0.00	\$ 0.00	11,000.00	0.00%
<b>Household Hazardous Waste Collection:</b>					
Accomack County-appropriated to Public Works	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	
Northampton County	0.00	0.00	0.00	0.00	#DIV/0!
FY 2017 Remaining Balances	7,850.00	0.00	7,850.00	0.00	
Subtotal	<u>\$ 7,850.00</u>	<u>\$ 0.00</u>	<u>\$ 7,850.00</u>	<u>\$ 0.00</u>	100.00%
Total Revenues	<u>\$ 74,763.00</u>	<u>\$ 0.00</u>	<u>\$ 39,960.00</u>	<u>\$ 23,803.00</u>	53.45%
<b>EXPENDITURES:</b>					
Ground Water Consultant	\$ 22,998.00	\$ 0.00	\$ 10,500.00	\$ 12,498.00	45.66%
Ground Water Modeling Run	9,975.00	0.00	0.00	9,975.00	0.00%
Ground Water Committee Staff Support	7,940.00	0.00	3,970.00	3,970.00	50.00%
USGS Ground Water Model	15,000.00	0.00	0.00	15,000.00	0.00%
Water Clinic (Sponsored by SERCAP)	11,000.00	0.00	0.00	11,000.00	0.00%
Household Hazardous Waste Collection	7,850.00	0.00	0.00	7,850.00	0.00%
Total Expenditures	<u>\$ 74,763.00</u>	<u>\$ 0.00</u>	<u>\$ 14,470.00</u>	<u>\$ 60,293.00</u>	19.35%
NET SURPLUS OR (DEFICIT) OF REVENUES LESS EXPENDITURES	\$ 0.00	\$ 0.00	\$ 25,490.00		

**\* Deposits for the period include:**

As Summarized \$ 0.00

\$ 0.00

**\*\* Expenditures for the period include:**

Payables (previous month) \$ 0.00

Total Expenditures \$ 0.00

**BILLS PAYABLE DETAIL:**

1/10/2018

<u>DUE TO</u>	<u>DESCRIPTION</u>	<u>DATE</u>	<u>AMOUNT</u>
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**TOTAL BILLS PAYABLE**

**\$ 0.00**



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## MEMORANDUM

TO: Eastern Shore of Virginia Ground Water Committee

FROM: Shannon Alexander  
Coastal Resources Program Manager  
Accomack-Northampton Planning District Commission

DATE: January 16, 2018

SUBJECT: Public Nomination for 2017 Ground Water Award

During the November meeting NASA was put forward as a potential nominee. Previous recipients are listed below.

**2005 – Jane Corson-Lassiter, ES Environmental Education Council**

**2006 – Richard Davis, Ivy Farm Nursery**

**2007 – William Neal, Hermitage Farms Nursery**

**2008 – Chuck Tankard, Tankard Farms**

**2009 – Robin Rinaca, Eastern Shore Nursery of Virginia**

**2010 - Walmart Supercenter of Onley**

**2011 – Cherrystone Campground and Aqua-Farms**

**2012 - Town of Cape Charles Wastewater Treatment Plant**

**2013 – ES Rural Health Onley Community Health Center**

**2014 – Waste Watchers of the Eastern Shore**

**2015 – Home-Fitchett Farms**

**2016 – Commonwealth Chesapeake Company**

**Staff requests the Committee's nominations for the 2016 Ground Water Award.**





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### MEMORANDUM

TO: Eastern Shore of Virginia Ground Water Committee  
FROM: Shannon Alexander  
Coastal Resources Program Manager  
Accomack-Northampton Planning District Commission  
DATE: January 16, 2018  
SUBJECT: Staff Update

#### Committee Attendance Record

The FY2018 Committee Attendance Records are [attached](#).

#### Environmental Reviews and Permits

##### *VA Pollutant Discharge Elimination System Program*

- None
- Public Hearing – January 30, 2018 Nandua High School auditorium. Public informational meeting 5:30pm – 6:15pm; Public Hearing 6:30pm. VA0C50004, 5, & 6. [See attached](#).

##### *VA Pollution Abatement Program*

- None

##### *Total Maximum Daily Load/Implementation Plans*

- None

##### *Public Notice – Environmental Project*

- None

##### *Consent Orders*

- None

#### Other Items

##### *Chincoteague Update*

Mr. Matthew Link will provide an update on the status of replacement well plans.

##### *VDEQ Groundwater Withdrawal Compliance Initiative*

Mr. Matthew Link will provide an update on the conclusion of this effort.



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## Data from the Water Clinic

Some relevant averages from the 143 samples collected and analyzed are featured in the table below. It is important to note that samples were taken and transported by generally untrained members of the public. 99 of the participants chose to share their results, the spreadsheet has been received and shared with the consultant.

<u>Constituent</u>	<u>Detection Limit (DL)</u>	<u>EPA recommended limit or range</u>	<u>Average</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Exceeding EPA recommendation (No./%)</u>
Iron (mg/l)	0.0010	0.3	0.245	DL	6.885	29/20.3%
Manganese (mg/l)	0.0010	0.05	0.021	DL	0.1781	23/16.1%
Hardness (mg/l)	0.017	120-180 (hard) >180 (very hard)	75.6	DL	285.1	1/0.7%
Sulfate (mg/l)	0.30	250	6.1	DL	152.1	0/0.0%
Fluoride	0.10	2 (SMCL) 4 (MCL)	0.16	DL	0.84	0/0.0%
Total Dissolved Solids (mg/l)	1.0	500	284	48	1,224	14/9.8%
pH	N/A	Min 6.5 Max 8.5	7.8	6.4	8.5	2/1.4%
Copper (mg/l)	0.0010	1 <sup>st</sup> draw 1.3 Flush 1.3	0.074 0.012	DL DL	6.723 0.922	1/0.7% 0/0.0%
Sodium (mg/l)	0.0010	20	45.23	4.91	3542	69/48.3%
Nitrate-N (mg/l)	0.005	10	0.413	DL	16.333	2/1.4%
Arsenic (mg/l)	0.0010	1 <sup>st</sup> draw 0.01 Flush 0.01	0.001 0.001	DL DL	0.016 0.017	2/1.4% 2/1.4%
Lead (mg/l)	0.001	1 <sup>st</sup> draw 0.015 Flush 0.015	0.007 0.001	DL DL	0.344 0.035	12/8.4% 4/2.8%
Total Coliforms (MPN/100ml)	1.0	0.0	138	DL	>2419	51/35.7%
E. Coli (MPN/100ml)	1.0	0.0	34	DL	>2419	6/4.2%

Potential next steps will be discussed.



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### *Public Workshop & Outreach*

- Master Gardeners – Staff will present February 28 at 9:00am in AREC in Painter.
- Requests have been received to present to the Exmore Rotary Club and the Northampton County Planning Commission.

### Informational Items

#### *Research and News Articles*

*Desalinization plant proved to be winning gamble for Cape May.* [See Attached.](#) Further information available on the City [website](#) and USGS research [here](#). Please see <http://www.a-npdc.org/accomack-northampton-planning-district-commission/ground-water-management/publications-resources/> to find the most recent presentations from Randy McFarland of USGS. See USGS Electro-Magnetic Logging (Salt Water Intrusion Research) Presentation (2017, R. McFarland) (slide 7, etc.), for reference to estimated confined groundwater levels.

*Accomack County one of three in Virginia with most pollution per capita.* [See Attached.](#) Staff will present more detailed information in the spring with the VDEQ TRI report is completed.



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## EASTERN SHORE OF VIRGINIA GROUND WATER COMMITTEE FY 2018 ATTENDANCE RECORD

Members	Term Exp.	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
<u>Accomack Co.</u>													
Jim Belote	NA	*	X	X	X	X	*						
Grayson Chesser		*		X	X	X	*						
Daniel Hershey	June 30, 2019	*	X	X	X	X	*						
Paul Muhly		*	X	X	X	X	*						
<u>Northampton Co.</u>													
Eugene Hampton	October, 2019	*	X	X		X	*						
Granville Hogg		*	X	X		X	*						
Robert Meyers	January, 2019	*	X	X	X	X	*						
John Salm	May, 2018	*	X		X		*						
<u>Non-Voting Ex-Officio Members</u>													
Mike Mason	NA	*					*						
Charles Kolakowski	NA	*	X			X	*						
Elaine Meil	NA	*	X	X	X	X	*						

- Indicates not a member. X Indicates member present.  
 \* Indicates no monthly meeting held. NA Not Applicable  
 ( ) Indicates an alternate present





*COMMONWEALTH of VIRGINIA*

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TIDEWATER REGIONAL OFFICE  
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Molly Joseph Ward  
Secretary of Natural Resources

David K. Paylor  
Director

Craig R. Nicol  
Regional Director

December 14, 2017

Mr. Michael T. Mason, CPA  
Accomack County Administrator  
P. O. Box 388  
Accomac, VA 23301

**RE: Notification of Intent to Convene a Public Hearing**

Virginia Pollutant Discharge Elimination System Permits VA0C50004, VA0C50005 and VA0C50006  
Confined Animal Feeding Operations: FPNA Farms, Inc. (Withams, VA), Brady Farm (Atlantic, VA) and  
Horsey Poultry Farm (New Church, VA), Accomack County

Dear Mr. Mason:

This notification is being provided to you in response to the written comments we received regarding the draft Virginia Pollutant Discharge Elimination System (VPDES) Permits public noticed for the above referenced confined animal feeding operations.

The Virginia Department of Environmental Quality (DEQ) has determined that a public hearing will be convened to receive public comments relative to the three draft VPDES Permits. The public hearing will be held pursuant to the authority contained in State Water Control Law (§62.1144.15:02) on **January 30, 2018**.

The public hearing will be held at the Nandua High School auditorium (26350 Lankford Hwy.) in Onley, VA on January 30, 2018 at 6:30 PM. A public informational meeting will be held prior to the public hearing at the same location from 5:30 to 6:15PM. The public comment period will run until February 14, 2018. A public notice of this hearing will also be published in the Eastern Shore News no less than 30 days prior to the hearing date.

Please feel free to contact me at [robert.smithsonjr@deq.virginia.gov](mailto:robert.smithsonjr@deq.virginia.gov) or 757-518-2106 with any questions you may have.

Sincerely,

Robert E. Smithson, Jr.  
Environmental Specialist Senior



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## Desalination plant proved to be winning gamble for Cape May

By RICHARD DEGENER Staff Writer Sep 4, 2012

CAPE MAY — Carl Behrens elevates his voice over the din of high-pressure pumps that squeeze salty water through tiny polymer membranes and create fresh water.

Behrens, plant operator at the city's \$5 million desalination plant, is like a high school science teacher as he draws charts and graphics to explain how the plant works. The simple version is that well water with high levels of chlorides and sodium — salts — are pushed through membranes that are wound tightly into cylinders.

The openings in the membranes are just .22 microns. A micron, Behrens explains, is about one-thousandth of 1 millimeter.

End result? Water that is 99.83 percent water — the highest percentage most people will ever drink. It's so clean it has no taste at all. It's so clean the city has entered it in water competitions and won.

"In my opinion, we have the best water in New Jersey," Behrens yells above the noise.

Each minute Behrens talks, the city produces another 650 gallons. The plant has two skids full of the cylindrical membranes. Each skid is about the size of a tractor-trailer and capable of processing 968,000 gallons per day.

For a city that needs an average of 1.4 million gallons per day, with peaks of 2.8 million gallons on a summer day, the desalination plant that opened 14 years ago, in September 1998, has turned out to be the answer. It was the first to open in New Jersey, and there are still only two of them.

But at the time, the plant was considered a huge gamble.

Fred Sickels, who directs the state Department of Environmental Protection's Division of Water Supply and Geoscience, credited the city for doing a thorough analysis of the situation and making a reasonable decision at the time.

"We're happy with the plant. They're doing a good job and they showed that desalination can work under the proper conditions and in certain circumstances," Sickels said.

While the city was the first in the northeast to construct such a plant, Pierre Lacombe, a hydrologist with the U.S. Geological Survey, said others are considering them in sandy coastal regions, including towns on Cape Cod and Martha's Vineyard.

### **Cape May's big decision**





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During much of the last century, salt chased the city's Water Department farther inland and deeper into the ground as one well after another went bad from pumping too close to the ocean. When pumping is done near salt water, it draws that water in.

The city once had artesian water that bubbled out of the ground, but by 1910 it had to abandon surface water wells. In 1940, it had to dig even deeper to avoid salts. Those deep wells were abandoned in 1962. In 1950, the city moved inland and dug wells on Canning House Lane — which is in Lower Township south of the Cape May Canal — but several of these wells have gone salty.

By 1998, salt levels were rising in the city's last fully functioning well, Well No. 5, in the 560-foot deep Cohansey Aquifer. The city responded by digging two new deeper wells in the Atlantic City 800-Foot Sands Aquifer and building a plant that would use pumps to force this salty water through a series of membranes whose openings are so small that salts and other dissolved solids are prevented from going through.

Mayor Ed Mahaney said planning for the plant began when he took office in 1995, and he remembers doctors telling their patients not to drink the city's water because it was high in chlorides and sodium. Potable water must be below 250 parts per million of chlorides and 50 parts per million of sodium.

The city at that point was purchasing some water from neighboring Lower Township. It also blended water from different wells to keep salt levels below the thresholds for potable water.

Back then, the city worried about a future where it had to buy all its water.

"In the 1980s and 1990s we got ongoing complaints about the quality of our water. Now, we don't get those complaints at all and we now have a supply. The desalination plant has moved us into a position of water supply leadership. We do have control of our own destiny," said Mahaney.

### **Salt-lite water is key**

Energy is the big drawback: When officials got the first electric bills after the plant started operating they were in shock.

"At \$250,000 a year, it's the single largest energy component in our budget," Mahaney said.

The city initially had a deal to run off peak times to reduce energy costs, but Mahaney said this was eliminated during some electric company mergers.

But it could have been worse if the city had not drilled several deep wells 860 feet down in the Atlantic City 800-Foot Sands Aquifer, which had only slightly salty water.

Behrens said pure seawater has chloride levels of 22,000 parts per million. Behrens said pure seawater would require pumps to run at 1,200 to 2,000 pounds per square inch. This would add greatly to energy costs.

The city uses pumps that operate at about 200 pounds per square inch. For every 100 gallons the city processes, it gets about 68 gallons of clean water with the salty discharge going to Cape Island Creek.

### **Desalinated water is not cheap.**



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When the desalination plant went online the cost to produce water rose from 70 cents to \$1.80 per 1,000 gallons, but Behrens noted at \$101.25 per quarter for the average user, it is only about \$20 more per quarterly bill than nearby water utilities.

Cape May is now exploring wind turbines and solar panels to defray the costs.

### **The future**

As the salt content in the last conventional well, Well No. 5, continues to rise, officials are also considering the future.

Currently, the water from this well is blended with the desalination output, accounting for up to 1 million gallons per day, Behrens said. Without this well, the city would not have enough water at peak times.

Mahaney said one option is to direct Well 5 water to the desalination plant, but that would require DEP approval.

“The DEP is cautious with the Cohansey. We could affect neighboring communities’ wells. They don’t want anybody hastening their demise,” Mahaney said.

Mahaney said another option is to drill another deep well in the Atlantic City 800-Foot Sands Aquifer. Behrens said desalination capacity could easily be added.

The city has even experimented with producing extra desalination water and recharging one of its old Cohansey Aquifer wells, Well No. 4, but ran into problems as the water was pulling too much iron out of underground clay layers.

Behrens wants to the revisit recharging Well No. 4, something Wildwood has done since the 1950s when it became the first in the nation to use this approach. Water can be pumped in the off season and used to recharge wells — a process known as Aquifer Storage and Recovery — that are tapped in the summer.

Lacombe said he has no doubt solutions will be found.

“They ran into problems for 100 years, and for 100 years they found solutions,” Lacombe said.





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## Accomack County one of three in Virginia with most pollution per capita

WTKR 3; Capital News Service December 20, 2017

The Oakwood area of Buchanan County in western Virginia is home to fewer than 1,600 people but produced 920 pounds of pollution per person in 2016. That's more than 200 times the state average of 4.2 pounds per person.

Oakwood is home to the Jewell Coke Co., a coal processing plant. The Jewell Coke plant mainly releases hydrochloric acid into the air. Breathing hydrochloric acid can cause throat irritation and long-term respiratory issues such as asthma.

Last year, Jewell Coke Co. reported releasing more than 1.6 million pounds of onsite pollution, with about 1.2 million pounds going into the air. "It does have DEQ air permits. Their emissions are limited and controlled by the permits," said Bill Hayden from the Virginia Department of Environmental Quality. "1.2 million pounds sounds like a lot, but it is permitted, and it is an allowable amount that DEQ believes that, even though it's going into the air, it will not harm air quality," he said. SunCoke Energy, Jewell Coke Co.'s parent company, declined to comment about the releases.

The Clover area in Halifax County and the Accomac area of Accomack County also have high amounts of pollution per person, with around 780 and 670 pounds respectively.

Dominion Energy's Clover Power Station runs up Clover's numbers. It reported releasing more than 1.1 million pounds of pollution onsite. The releases included 19 different chemicals, such as zinc compounds and sulfuric acid.

In Accomack County, the Perdue Farms Accomac Processing Plant released nitrate compounds and hydrogen sulfide, totaling almost 800,000 pounds of pollution.

This data is from the 2016 Toxic Release Inventory compiled by the U.S. Environmental Protection Agency. The inventory requires companies to report releases of certain chemicals every year. Hayden said it is intended to let people know what is released in their community. "The hope is that they will start reducing those amounts because of public pressure, and that's what has happened over the last 30 years," he said.

Hayden stressed that the pollution released from these factories is all permitted. According to the EPA's enforcement and compliance history online database, Jewell Coke Co., the Clover Power Station and the Perdue Farms Accomac Processing Plant all are currently in compliance with the Clean Air Act, the Clean Water Act and the Resources Conservation and Recovery Act.

The Sierra Club of Virginia similarly analyzed the 2015 toxic release inventory to find the most polluted areas of the state. "We call on the Department of Environmental Quality and our elected officials to support increased opportunities for engagement in the Title V air



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pollution permitting process,” Kendyl Crawford, the group’s conservation program manager, said when the study was published. “Virginians living in highly polluted areas should be given more opportunities to speak for themselves and to fight these large corporations spewing toxic chemicals into the communities where they live.”

### **Poverty and pollution**

The Sierra Club’s report points out connections between large amounts of pollution and high poverty rates.

Oakwood, Clover and Accomac all have large amounts of pollution with few residents, giving them high rates of pollution per person. Clover and Accomac are also above the average poverty rate for Virginia.

Of the 10 ZIP codes with the most pollution per person, six are above the state’s average poverty rate. Six of the top 10 ZIP codes with the highest total pounds of pollution are also above Virginia’s average poverty rate. However, of the 10 poorest ZIP codes in the state, only one is also above the state average for pounds per person released. The 24089 ZIP code area outside of Martinsville in Henry County has a poverty rate of 38.5 percent and is the second poorest ZIP code in the state. There, 122 pounds of pollution is released per person. The Eastman Chemical Co. has two plants in this area. In 2016, it produced over 700,000 pounds of onsite pollution, released into the air. The company makes window films.

### **Biggest polluter: The Army Radford Munitions Plant**

The U.S. Army Radford Munitions Plant, located on the New River in Montgomery County, has the highest onsite emissions of all facilities in Virginia. In 2016, the plant released over 12 million pounds of pollution, contributing to the area’s 282.8 pounds of pollution per person.

The vast majority of the plant’s emissions are nitrate compounds released into bodies of water. These emissions have caused issues with environmental regulations for the plant. Nitrates reduce the amount of oxygen dissolved in nearby streams, which aquatic plants and animals need to survive. The munitions plant has been in violation of the Clean Water Act since October 2016 for depleting oxygen levels in surrounding bodies of water, according to the EPA’s enforcement and compliance history online database.

Last August, the facility was also in violation of the Clean Air Act for visible airborne emissions and particulate matter.

Over the past few years, the plant executives have worked to be more open to the public and to address concerns voiced by residents of the surrounding area. Lt. Col. James Scott, commander of the plant, said at a recent community meeting that the facility is committed to transparency.



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Open burning onsite has long been the community's biggest concern. A current project will decrease open burning, but it is unclear when the new waste incinerator will be finished. The area has a poverty rate of 27.9 percent – almost double the state average of 14.9 percent. MeadwestVaco in Covington is Virginia's second largest polluter, releasing over 2.5 million pounds of pollution in 2016. That works out to about 180 pounds of pollution per person in the ZIP code around the facility.

MeadwestVaco releases various chemicals, mainly methanol, through a smoke stack. Exposure to airborne methanol over a long period of time can lead to headaches, nausea and vision issues. Other large polluters are the AdvanSix plant in Hopewell and the Covington Power Station.

*By Julie Rothery*

*Capital News Service*



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### MEMORANDUM

TO: Eastern Shore of Virginia Ground Water Committee  
FROM: Britt McMillan  
Principal Hydrogeologist  
Arcadis-Malcolm Pirnie  
DATE: January 16, 2018  
SUBJECT: January 2018 Ground Water Consultant Report

#### Technical/Regulatory/Educational Items

1. House Bills 211 and 772: Delegate Wright and Delegate Jones introduced legislation to change the term of groundwater withdrawal permits from the current 10-year to a 15-year permit. This would make the permit limit consistent with surface water withdrawal permits. The legislation introduced by Jones also raises the permit fee from the current \$6,000 to \$9,000. The bills are currently in Committee pending referral.
2. House Bill 358: Delegate Bulova introduced legislation to require the developer of a new subdivision that has 30 or more lots served by private wells to apply for a technical evaluation from the DEQ prior to final subdivision plat approval. The bill is currently in Committee pending referral.
3. Draft Groundwater Presentations: Two draft groundwater resource presentations will be reviewed. The presentations will discuss maintaining a sustainable groundwater supply for the Eastern Shore. One presentation will be a more general discussion that will consider the overall Columbia – Yorktown-Eastover Multi-Aquifer System. The other presentation will focus on the importance of the Columbia (surficial) aquifer for maintaining a sustainable groundwater resource.
  - a. Maintaining a Sustainable Groundwater Resource in the Multi-Aquifer Columbia – Yorktown-Eastover aquifer system: This presentation will 1) define sustainability in the context of the Eastern Shore aquifers; 2) identify factors that determine sustainability of the different aquifers; 2) limitations of the aquifers; 3) issues that have been experienced on the Eastern Shore; and 4) measures that can be taken to help maintain a sustainable supply.
  - b. The Importance of the Columbia Aquifer in Maintaining a Sustainable Groundwater Resource: This presentation will focus on sustainable groundwater and the Columbia aquifer. The presentation will 1) introduce the Columbia aquifer in the context of the overall aquifer system; 2) discuss how the Columbia aquifer is replenished and how the Columbia aquifer replenishes the underlying Yorktown-Eastover aquifer; 3) use of the Columbia aquifer relative to other sources of water; and 4) benefits of water quality protection and promoting use of the Columbia aquifer.

Other Items: None



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<b>Eastern Shore of Virginia Ground Water Committee FY 2017 Consultant Progress Summary</b>			
<b>Task 1 - Committee Meetings (FY17 Goal = 10)</b>			
<b>% Completion</b>		<b>40%</b>	
<b>Task 2 – Technical Documentation</b>			
<b>No.</b>	<b>Activity</b>	<b>Month</b>	
1	Summarize findings from the Eastern Virginia Groundwater Management Advisory Committee. Included in the findings was the recommendation for regional planning efforts through EVGMA Planning District Commissions with specific reference to the Eastern Shore of Virginia Groundwater Committee as an example to be emulated.	Aug	
2	Present information from USGS Circular: <i>Understanding Nutrients in the Chesapeake Bay Watershed and Implications for Management and Restoration – The Eastern Shore</i> . The circular provided a synopsis of research completed on nutrient contribution to the Chesapeake Bay from the Eastern Shore along with target reductions in nutrient loading necessary to meet the TMDL requirements.	Aug	
3	Presented the draft Groundwater Use Summary and discussed groundwater use trends over the past 8 years.	Sep	
4	Presented three-dimensional perspectives of the Eastern Shore Groundwater Resources using the Eastern Shore Model and well and water quality data from DEQ. The information ultimately will be developed into a short video to support understanding of the groundwater resources on the Eastern Shore	Sep	
5	Discussed recent events that potentially conflict with the goal of increasing use from the more sustainable Columbia aquifer on the Eastern Shore. The Groundwater Committee requested preparation of informational materials, in the form of a two-page summary and presentation suitable for public meetings such as County Board of Supervisors. These informational materials would focus on the importance of the Columbia aquifer as part of the Columbia aquifer and Yorktown-Eastover aquifer Sole Source Aquifer System.	Sep	
6	Attended the VDEQ Aquifer Science and Modeling Workshop. Information covered and discussed at the workshop included: 1) current understanding of the hydrogeologic framework for the Eastern Shore with a focus of paleochannels; 2) recalibration and sensitivity analysis for the Eastern Shore Model; and 3) modeled groundwater withdrawal impacts from current and permitted withdrawals on the Shore.	Oct	
7	Presented limited water quality results from the domestic well sampling and discussed results in the context of the groundwater resource and domestic well construction considerations.	Nov	
<b>Task 3 - Groundwater Permit Review</b>			
<b>Applicant</b>	<b>Permit Status</b>	<b>Month</b>	<b>Annual Amount (Gal)</b>
None			
<b>Task 4 – Implement Committee Work Plan</b>			
<b>Activity</b>	<b>Month(s)</b>	<b>Outcome</b>	
Present information on the Sole Source Aquifer; recent challenges for the Columbia aquifer; and maintaining the goal to promote sustainable use of the combined Columbia and Yorktown-Eastover aquifer systems.	August	A brief discussion on the dual-sole source aquifer system was initiated at the August meeting, however time limitations restricted the discussion.	
<b>Task 5 – Progress Reports</b>			
<b>% Completion</b>		<b>40%</b>	



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