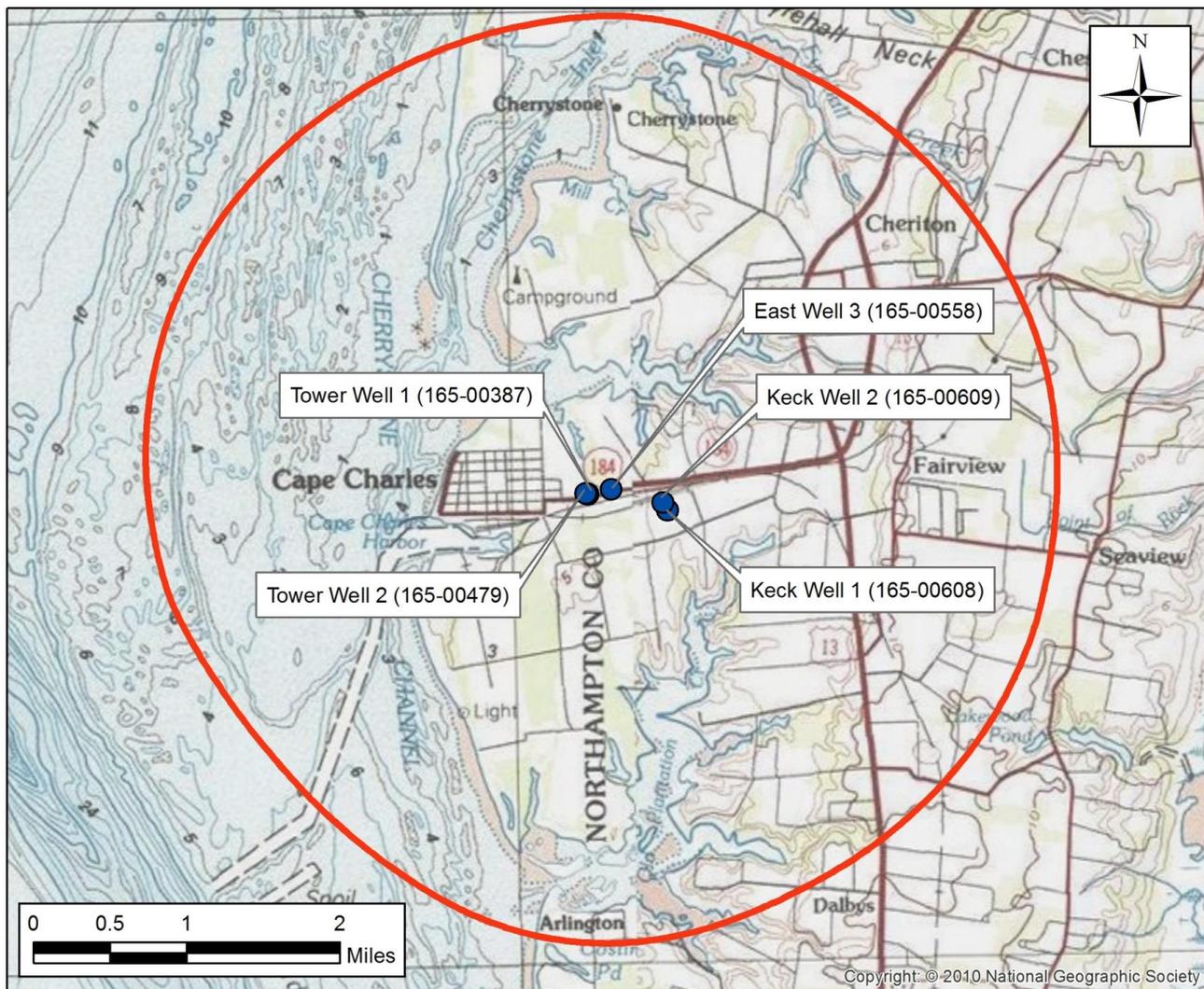


Cape Charles Waterworks Area of Impact - Upper Yorktown-Eastover Aquifer



● Cape Charles Waterworks Wells

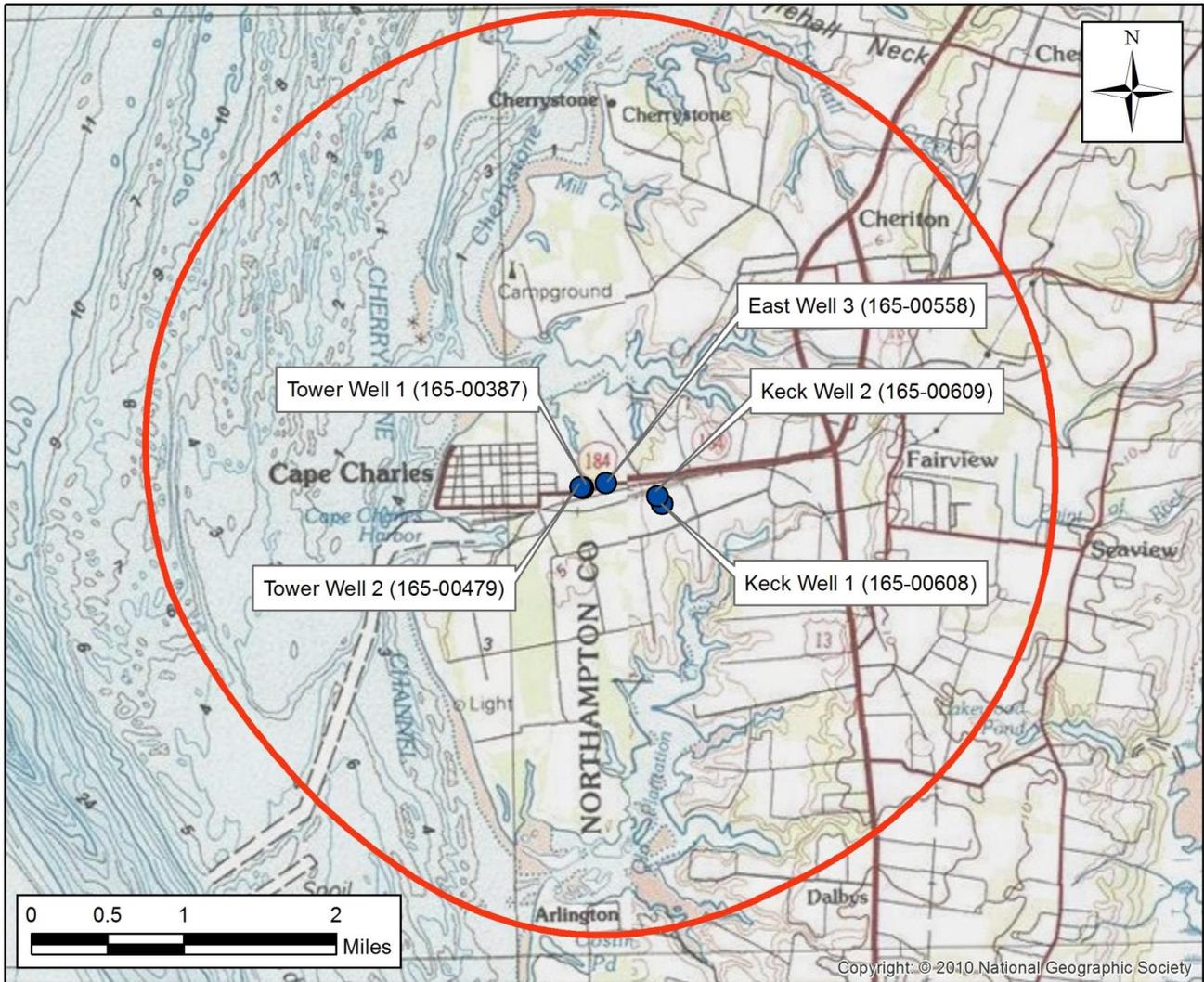
○ Upper Yorktown-Eastover Area of Impact

Simulated drawdown at or exceeding one foot in the Upper Yorktown-Eastover aquifer resulting from a steady-state simulation of 63,200,000 gallons per year (173,151 gpd) from the Upper, Middle, and Lower Yorktown-Eastover aquifers. Maximum radius of one-foot drawdown (Area of Impact) occurs 3.2 miles from the pumping center. The Virginia Eastern Shore Model developed by the USGS was used to simulate drawdown.

Technical evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Water Supply April 24, 2014



Cape Charles Waterworks Area of Impact - Middle Yorktown-Eastover Aquifer



● Cape Charles Waterworks Wells

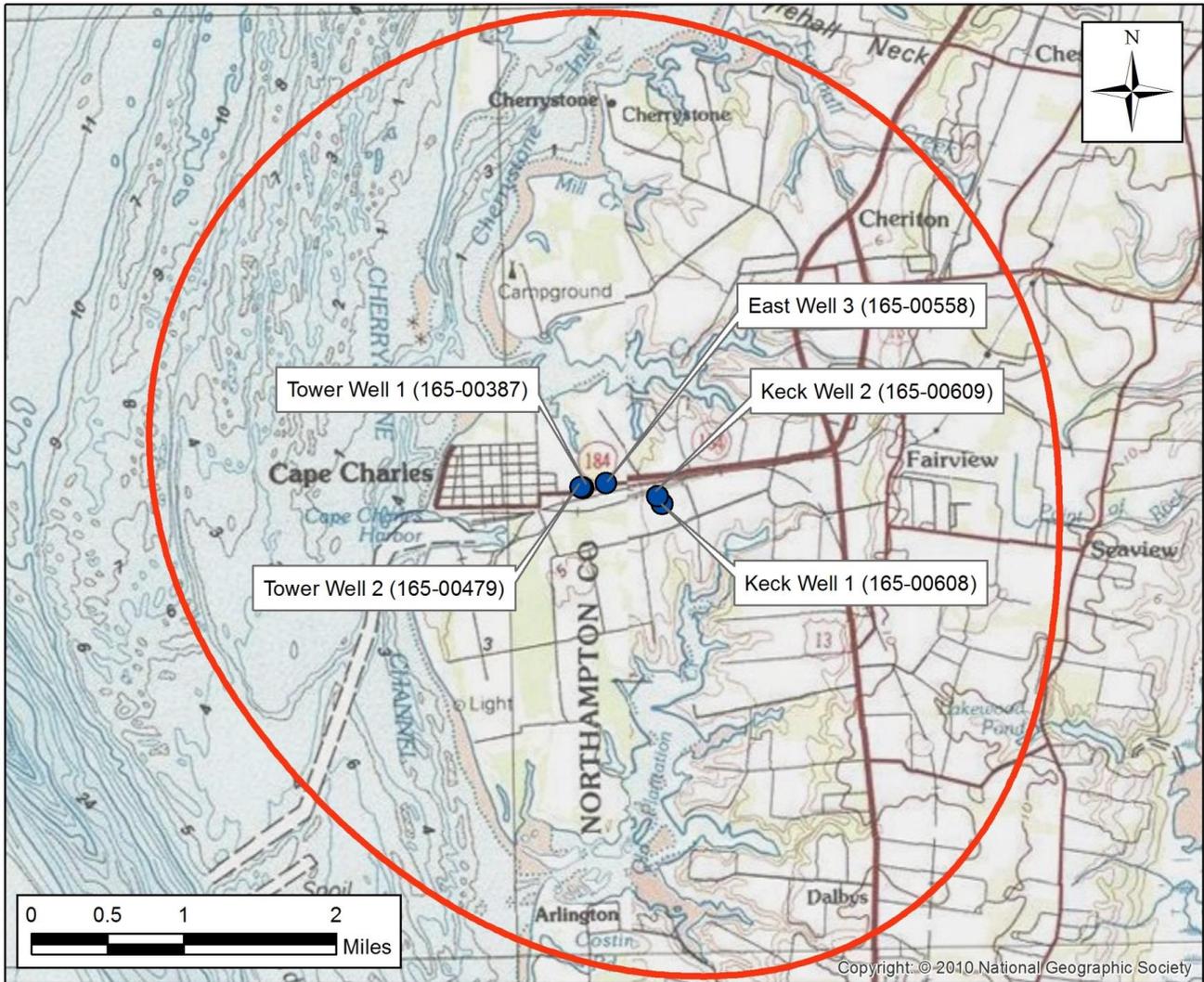
○ Middle Yorktown-Eastover Area of Impact

Simulated drawdown at or exceeding one foot in the Middle Yorktown-Eastover aquifer resulting from a steady-state simulation of 63,200,000 gallons per year (173,151 gpd) from the Upper, Middle, and Lower Yorktown-Eastover aquifers. Maximum radius of one-foot drawdown (Area of Impact) occurs 3.2 miles from the pumping center. The Virginia Eastern Shore Model developed by the USGS was used to simulate drawdown.

Technical evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Water Supply
April 24, 2014



Cape Charles Waterworks Area of Impact - Lower Yorktown-Eastover Aquifer



● Cape Charles Waterworks Wells

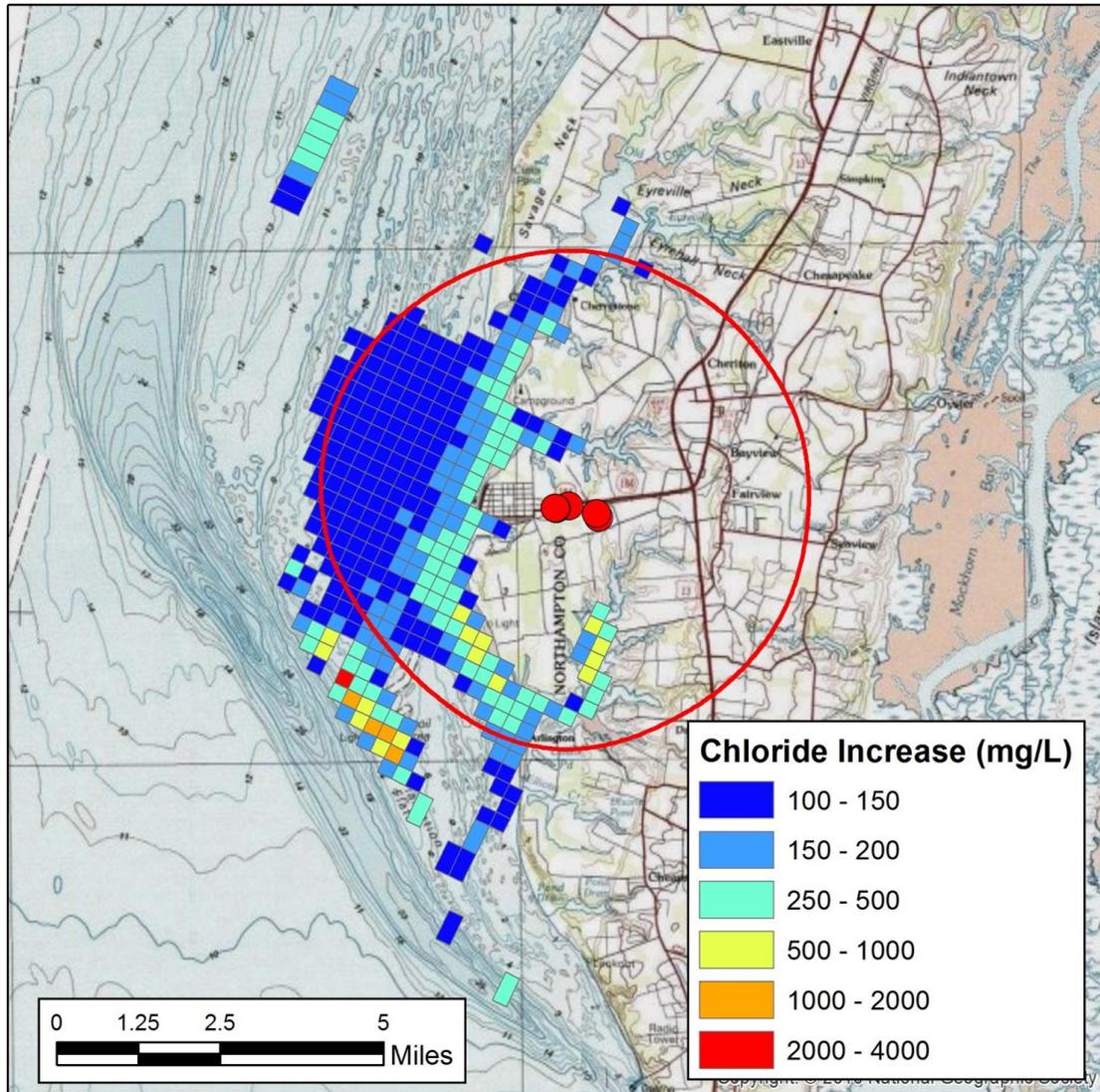
○ Lower Yorktown-Eastover Area of Impact

Simulated drawdown at or exceeding one foot in the Lower Yorktown-Eastover aquifer resulting from a steady-state simulation of 63,200,000 gallons per year (173,151 gpd) from the Upper, Middle, and Lower Yorktown-Eastover aquifers. Maximum radius of one-foot drawdown (Area of Impact) occurs 3.4 miles from the pumping center. The Virginia Eastern Shore Model developed by the USGS was used to simulate drawdown.

Technical evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Water Supply April 24, 2014



Town of Cape Charles - Upper Yorktown-Eastover Confining Unit Simulated VESM Chloride Concentration Increase



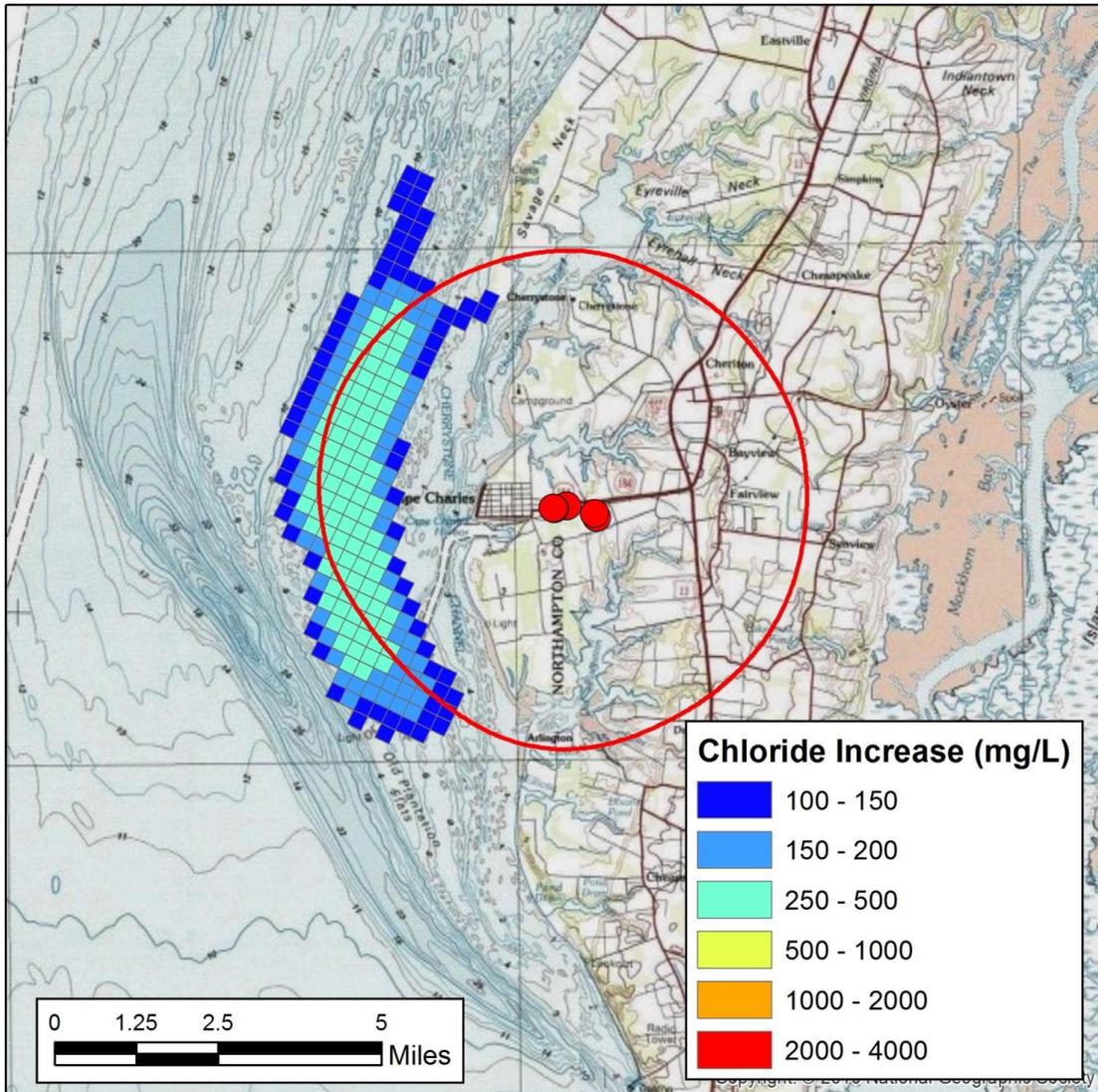
- Upper Yorktown-Eastover Aquifer AOI
- Town of Cape Charles Wells

Technical Evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Water Supply April 24, 2014.

Simulated chloride concentration increase in the Upper Yorktown-Eastover confining unit resulting from a 50 year simulation of 63,200,000 gallons per year from the Upper, Middle, and Lower Yorktown-Eastover aquifers.



Town of Cape Charles - Upper Yorktown-Eastover Aquifer Simulated VESM Chloride Concentration Increase



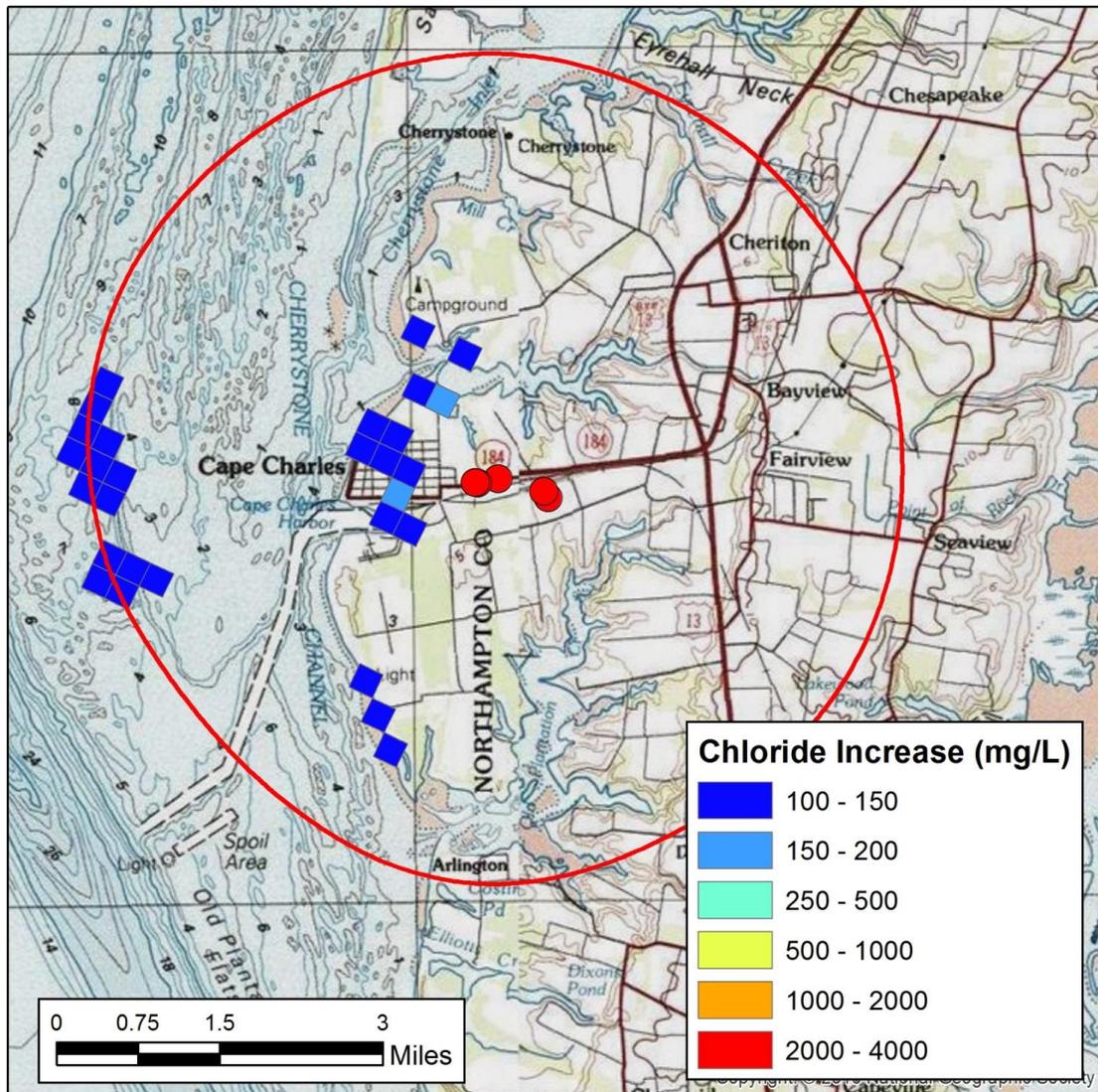
- Upper Yorktown-Eastover Aquifer AOI
- Town of Cape Charles Wells

Technical Evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Water Supply April 24, 2014.

Simulated chloride concentration increase in the Upper Yorktown-Eastover aquifer resulting from a 50 year simulation of 63,200,000 gallons per year from the Upper, Middle, and Lower Yorktown-Eastover aquifers.



Town of Cape Charles - Middle Yorktown-Eastover Confining Unit Simulated VESM Chloride Concentration Increase



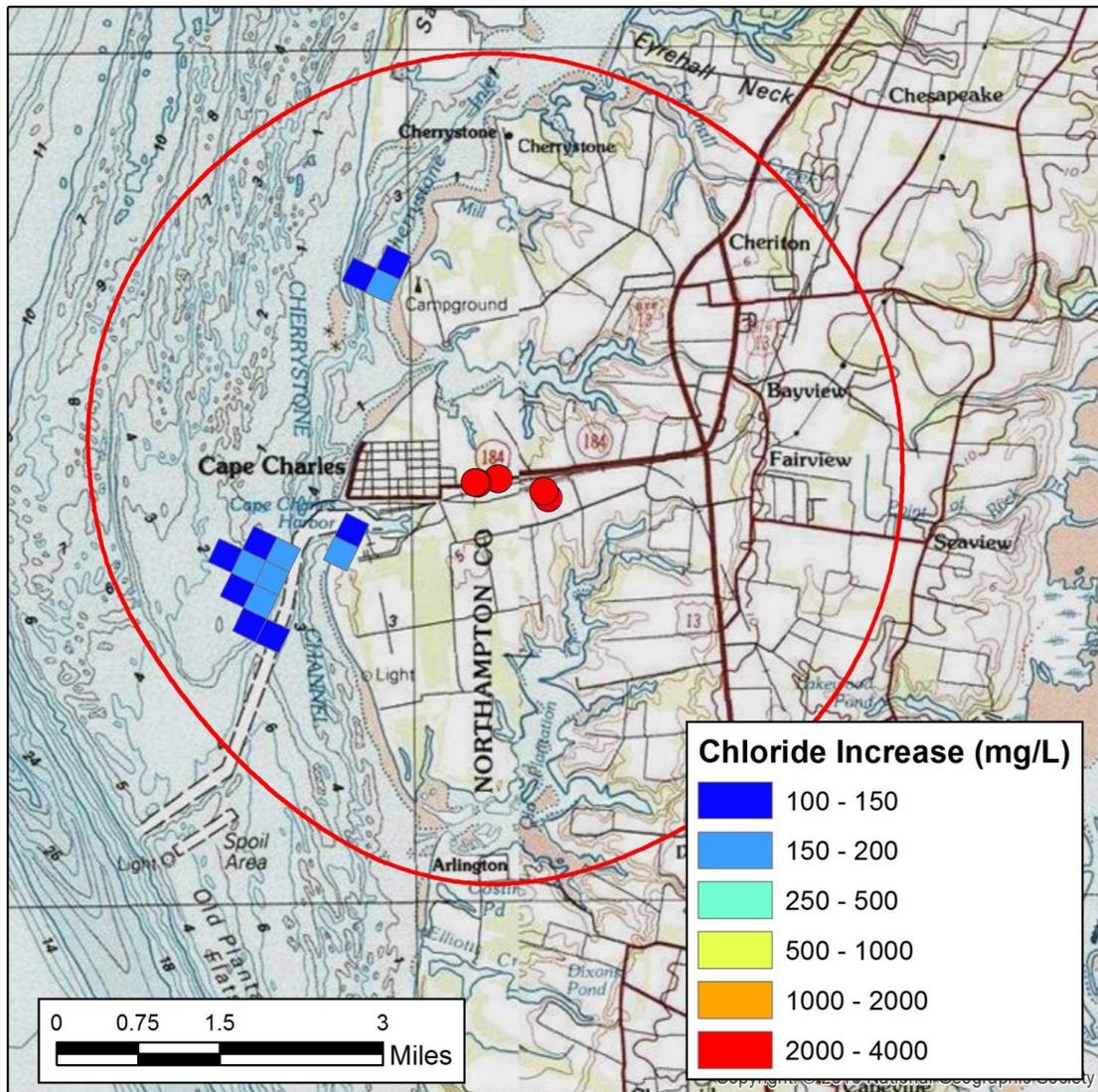
- Middle Yorktown-Eastover Aquifer AOI
- Town of Cape Charles Wells

Technical Evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Water Supply April 24, 2014.

Simulated chloride concentration increase in the Middle Yorktown-Eastover confining unit resulting from a 50 year simulation of 63,200,000 gallons per year from the Upper, Middle, and Lower Yorktown-Eastover aquifers.



Town of Cape Charles - Middle Yorktown-Eastover Aquifer Simulated VESM Chloride Concentration Increase



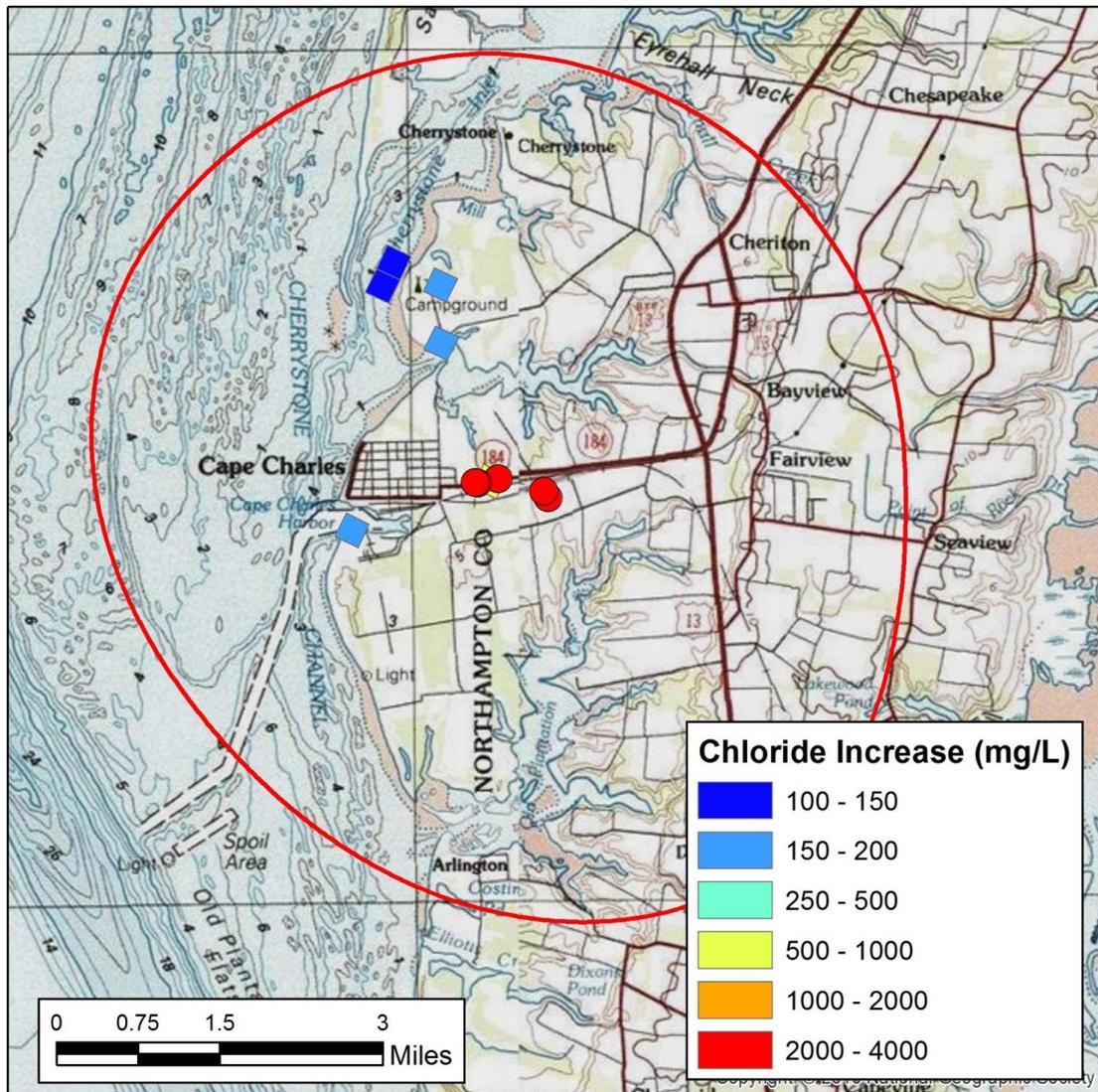
- Middle Yorktown-Eastover Aquifer AOI
- Town of Cape Charles Wells

Technical Evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Water Supply April 24, 2014.

Simulated chloride concentration increase in the Middle Yorktown-Eastover aquifer resulting from a 50 year simulation of 63,200,000 gallons per year from the Upper, Middle, and Lower Yorktown-Eastover aquifers.



Town of Cape Charles - Lower Yorktown-Eastover Confining Unit Simulated VESM Chloride Concentration Increase



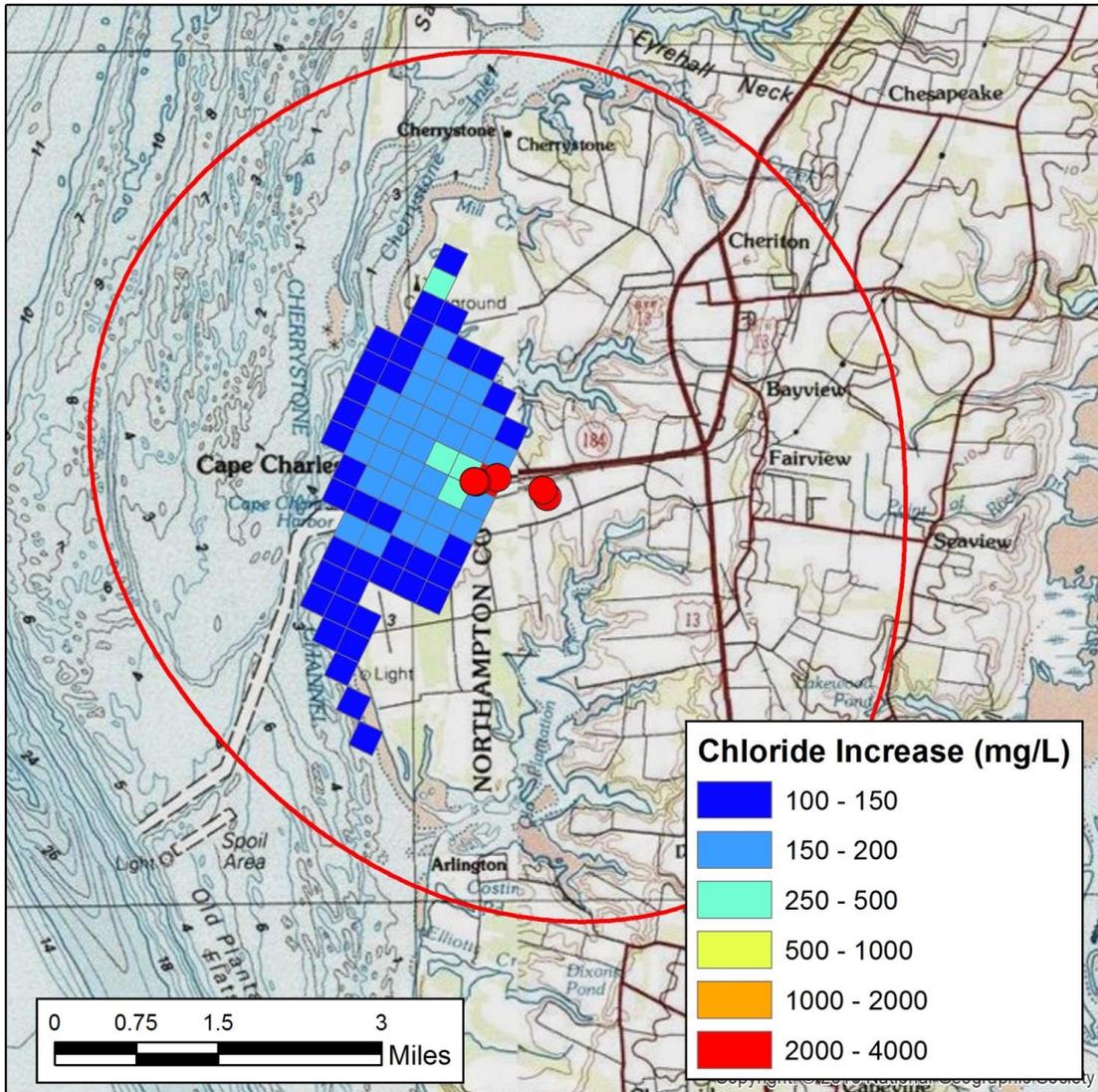
-  Lower Yorktown-Eastover Aquifer AOI
-  Town of Cape Charles Wells

Technical Evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Water Supply April 24, 2014.

Simulated chloride concentration increase in the Lower Yorktown-Eastover confining unit resulting from a 50 year simulation of 63,200,000 gallons per year from the Upper, Middle, and Lower Yorktown-Eastover aquifers.



Town of Cape Charles - Lower Yorktown-Eastover Aquifer Simulated VESM Chloride Concentration Increase

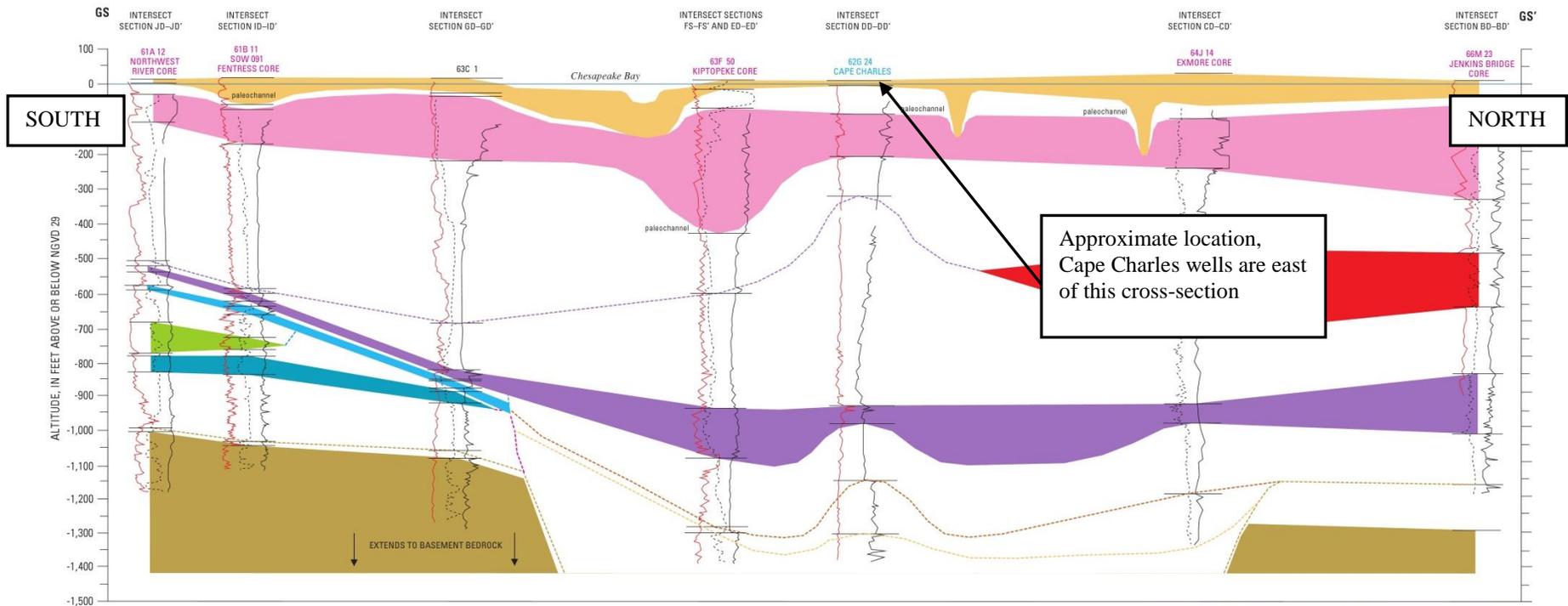


-  Lower Yorktown-Eastover Aquifer AOI
-  Town of Cape Charles Wells

Technical Evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Water Supply April 24, 2014.

Simulated chloride concentration increase in the Lower Yorktown-Eastover aquifer resulting from a 50 year simulation of 63,200,000 gallons per year from the Upper, Middle, and Lower Yorktown-Eastover aquifers.





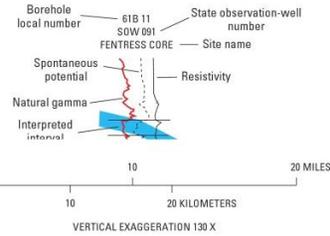
EXPLANATION

[Aquifers are shown by solid colors. Confining units and zones are shown by intervening blank areas following the sequence below. Where adjacent confining units or zones are in direct contact, the top surface of the unit or zone is shown by dashed lines.]

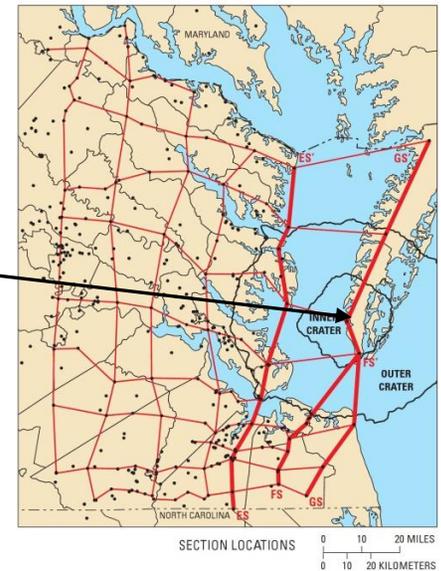
- Surficial aquifer
- Yorktown confining zone
- Yorktown-Eastover aquifer
- Saint Marys confining unit
- Saint Marys aquifer
- Calvert confining unit
- Piney Point aquifer
- Chickahominy confining unit
- Exmore Matrix confining unit
- Exmore Clast confining unit
- Nanjemoy-Marlboro confining unit
- Aquia aquifer
- Peedee confining zone
- Peedee aquifer
- Virginia Beach confining zone
- Virginia Beach aquifer
- Upper Cenomanian confining unit
- Potomac confining zone
- Potomac aquifer
- Basement bedrock

BOREHOLE GEOPHYSICAL LOG

[Heading in blue indicates lithologic control from detailed cuttings descriptions, and in magenta from core. Heading in black indicates only drillers logs or no lithologic information available.]



Reference location of cross-section above



Coastal Plain (2006) Cross-Sections GS-GS' from USGS Professional Paper 1731.