

Status Report on the Hydrogeologic Framework

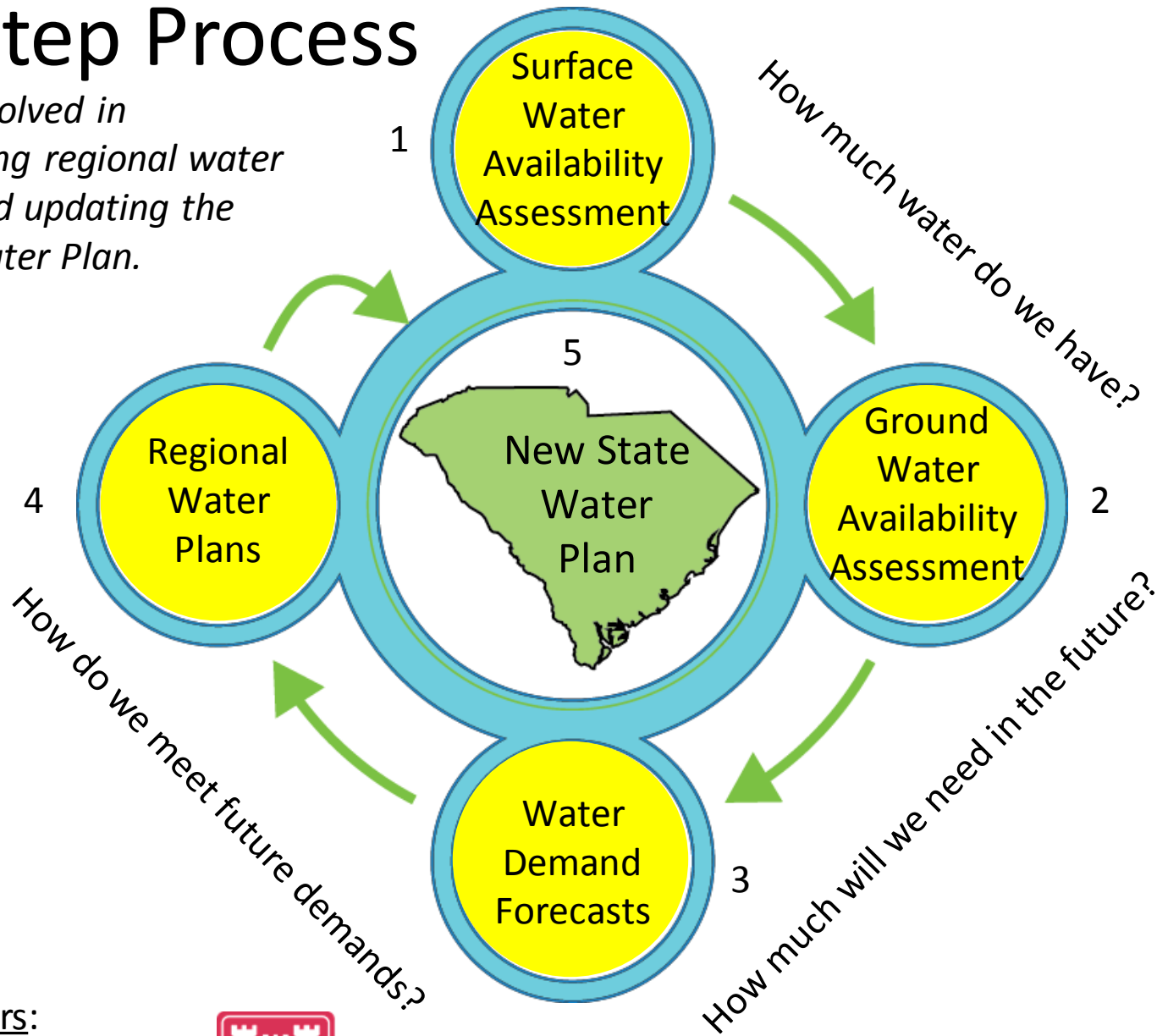
Groundwater TAC Meeting
Columbia, S.C.
July 30, 2018



Joe Gellici - Hydrologist
Land, Water and Conservation Division
S.C. Department of Natural Resources

Five Step Process

Steps involved in developing regional water plans and updating the State Water Plan.



Cooperators:

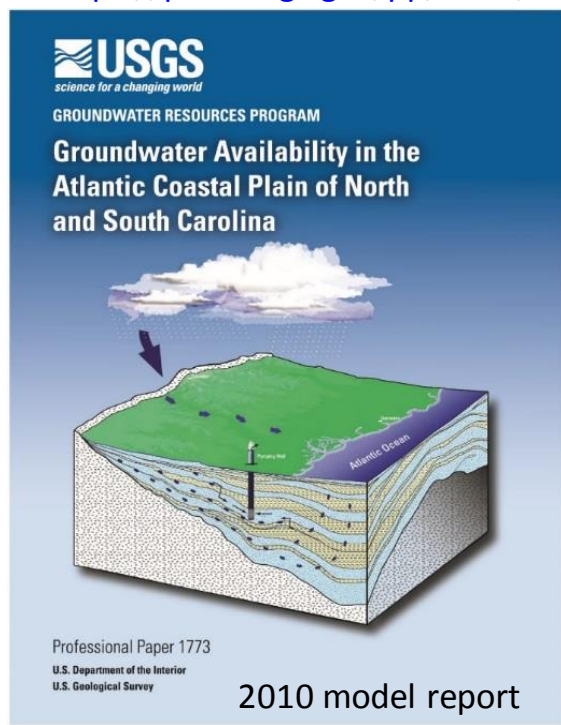


STEP 2

Groundwater Availability Assessment

Purpose: Update the 2010 groundwater flow model of the Coastal Plain.

<https://pubs.usgs.gov/pp/1773/>



USGS webpage for the project:

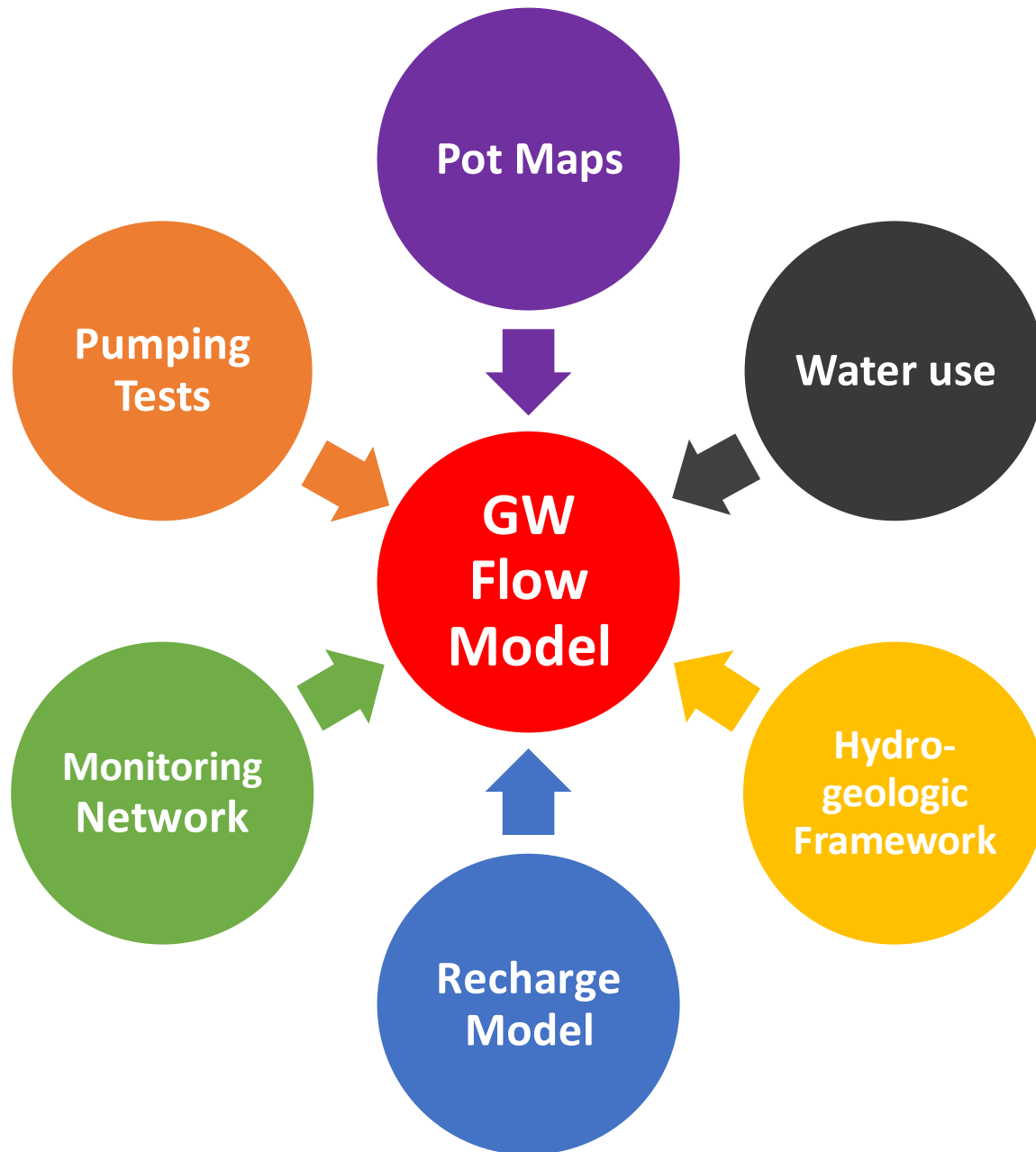
https://www.usgs.gov/centers/sa-water/science/update-south-carolina-atlantic-coastal-plain-groundwater-availability-0?qt-science_center_objects=0#qt-science_center_objects

The screenshot shows the USGS South Carolina Water Science Center website. The header includes the USGS logo and navigation links. The main content area is titled "Update the South Carolina Atlantic Coastal Plain Groundwater Availability Model". It lists the project number (GC16MP005GE7100), project chief (Bruce Campbell), and cooperators (South Carolina Department of Natural Resources). The period of the project is February 2016 to February 2019. There is a "Background" section with detailed text about the project's goals and methods. A sidebar on the left lists various projects and water quality information.

Model update is scheduled to be completed by June 2019.



DNR



Aquifer and confining-unit structure contour maps...

Aquifer and confining unit isopach maps...

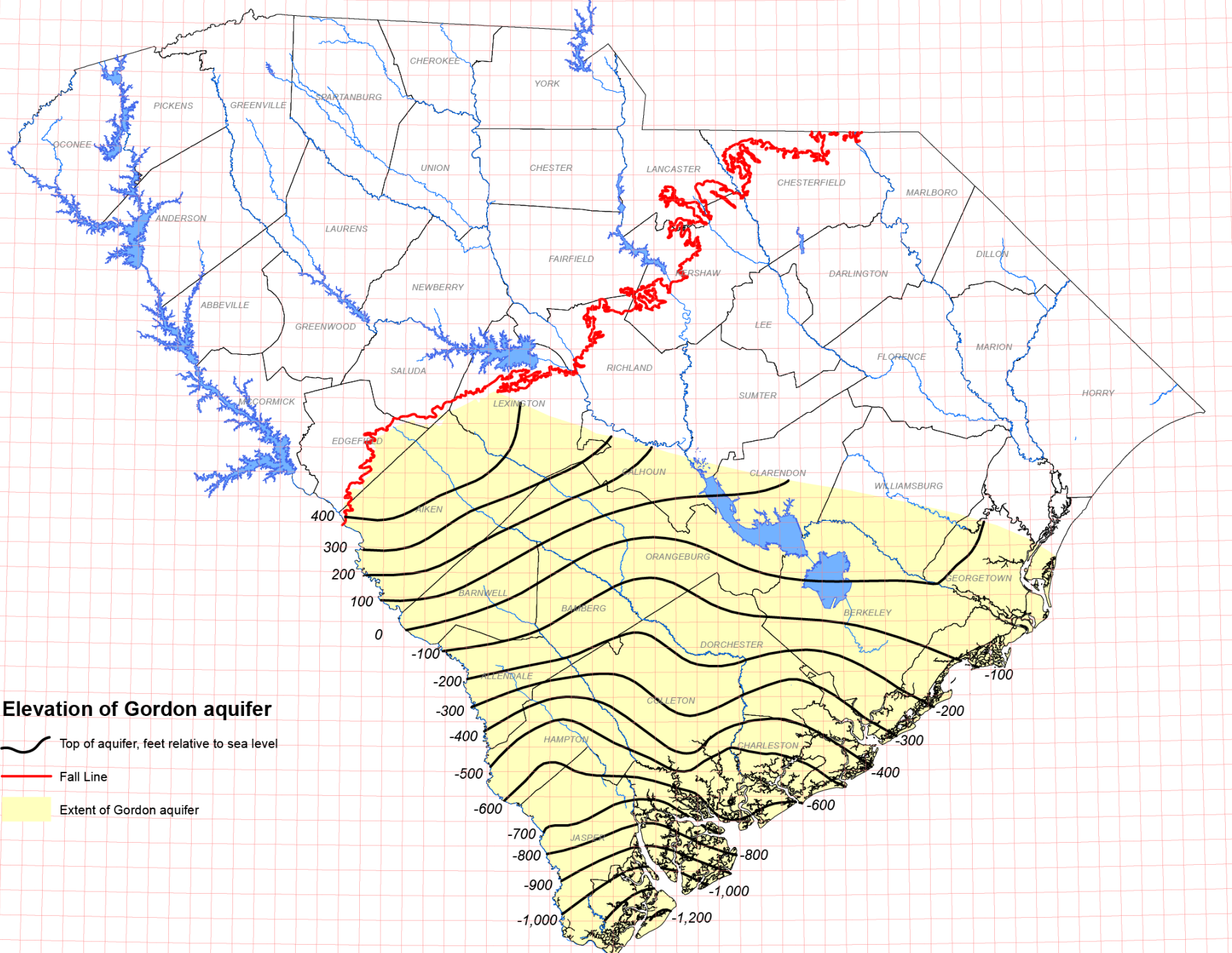
Aquifer transmissive thickness maps...

Are all being done in ArcMap (Josh Williams, DNR)

The hydrogeologic cross sections, which were originally done in RAGWARE, are being redrawn in Illustrator.

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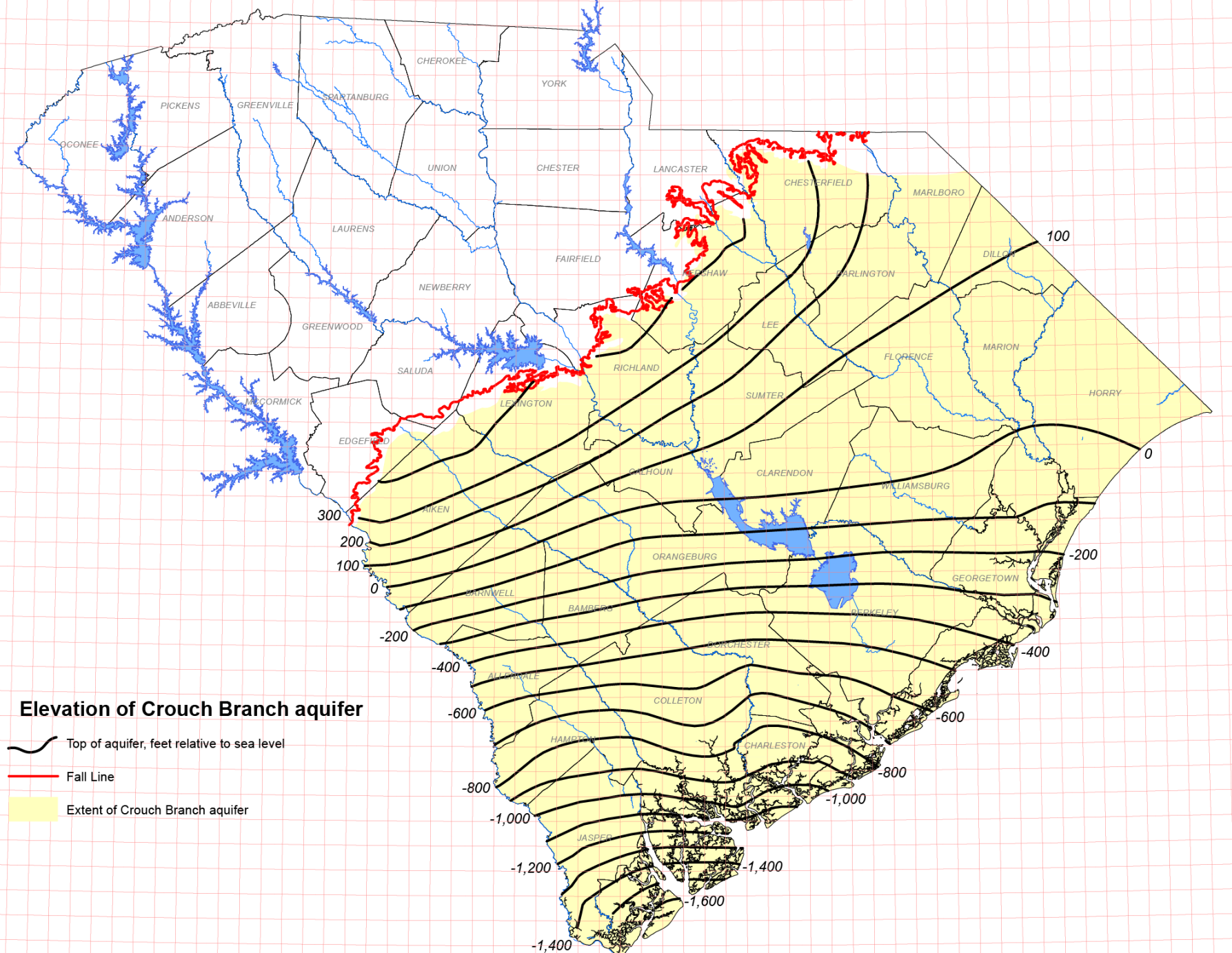


Elevation of Gordon aquifer




- Top of aquifer, feet relative to sea level
- Fall Line
- Extent of Gordon aquifer

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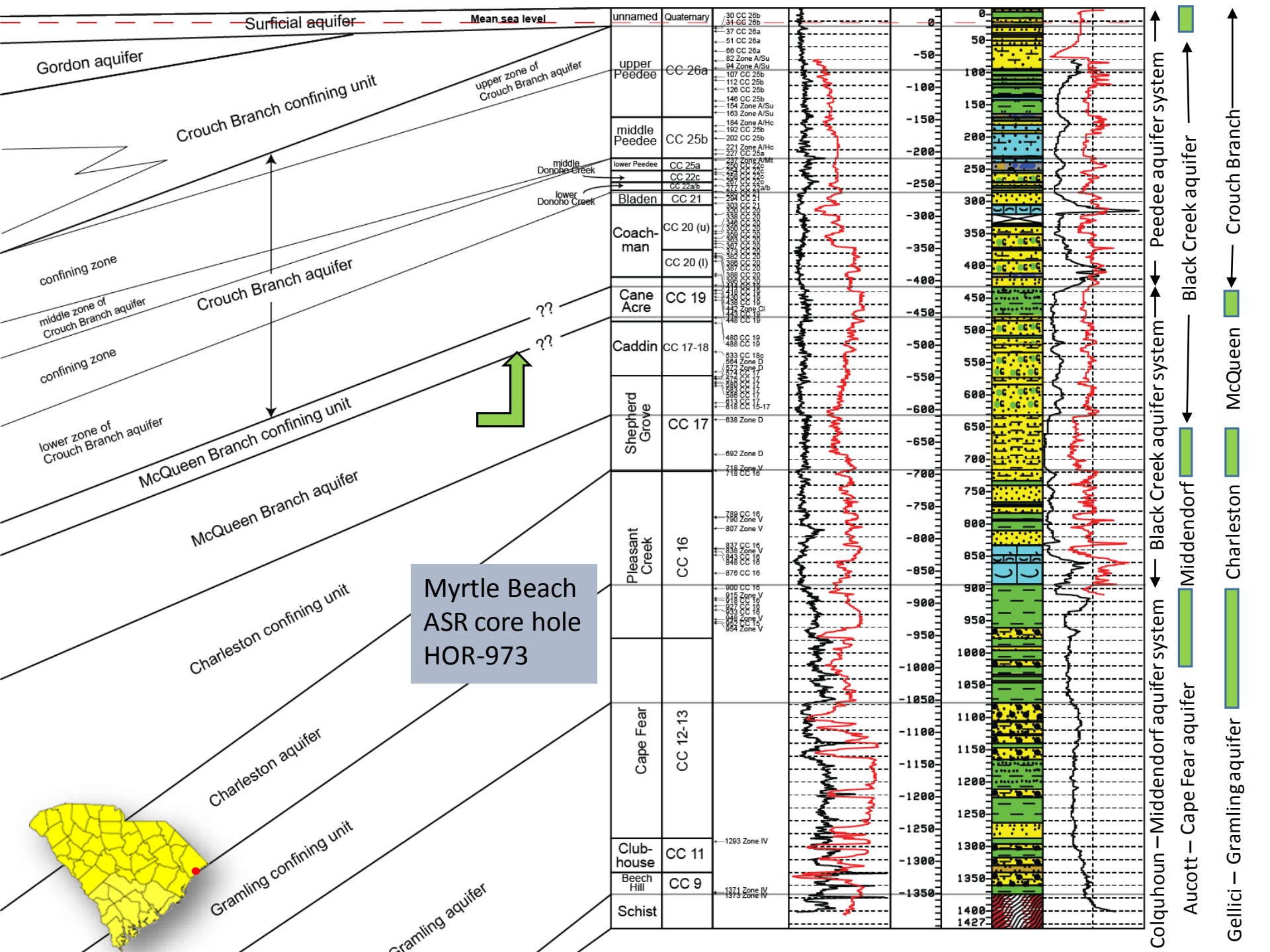
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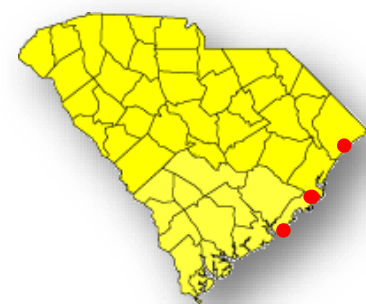
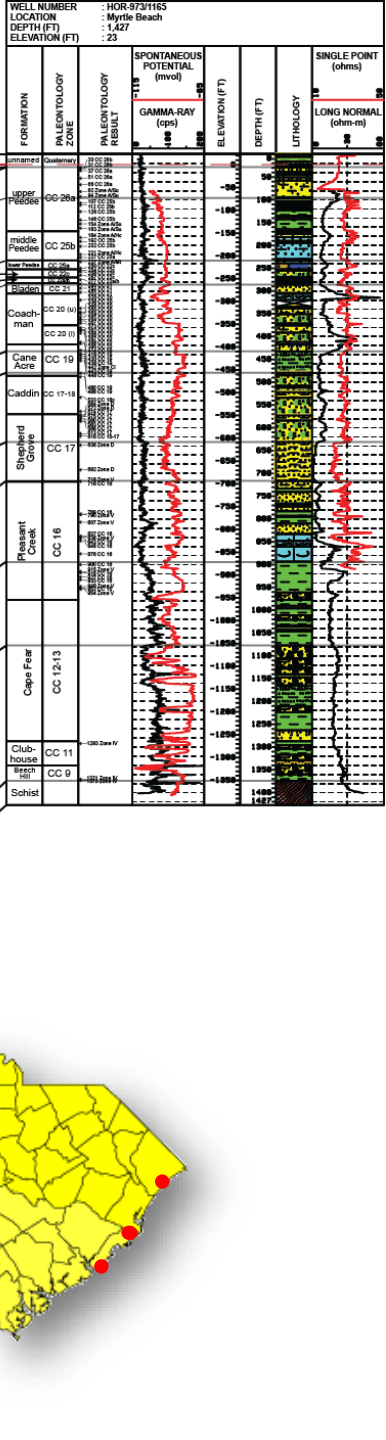
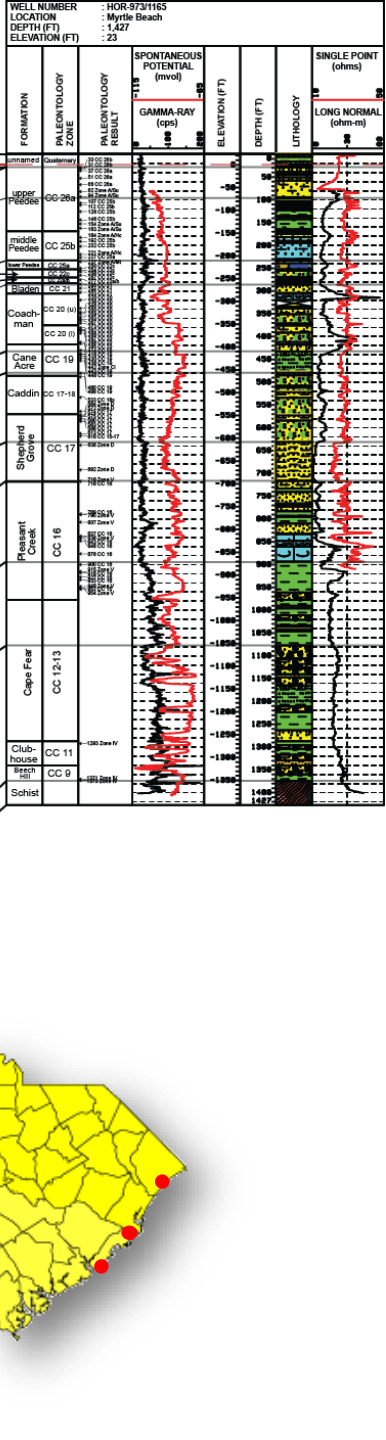
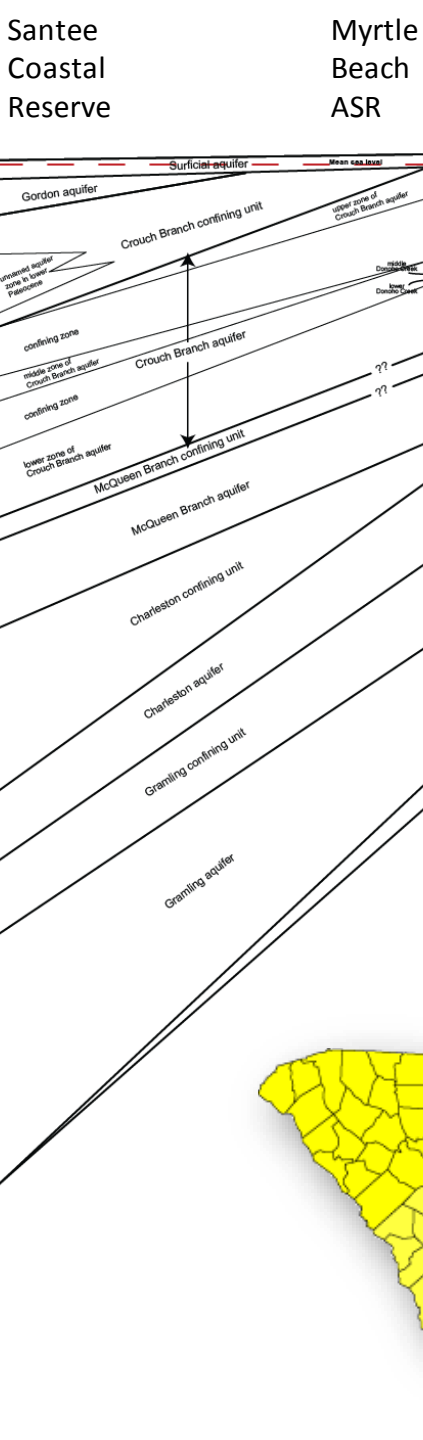
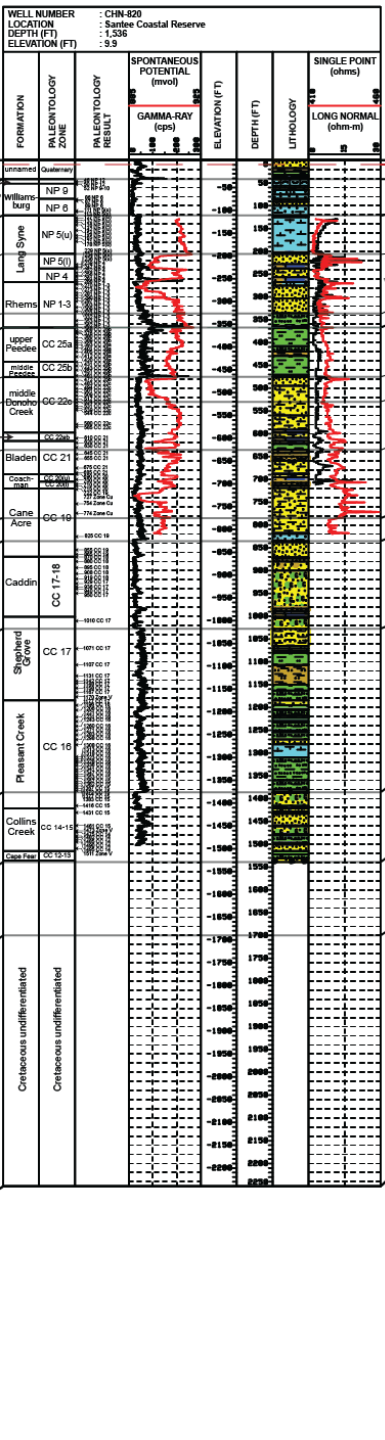
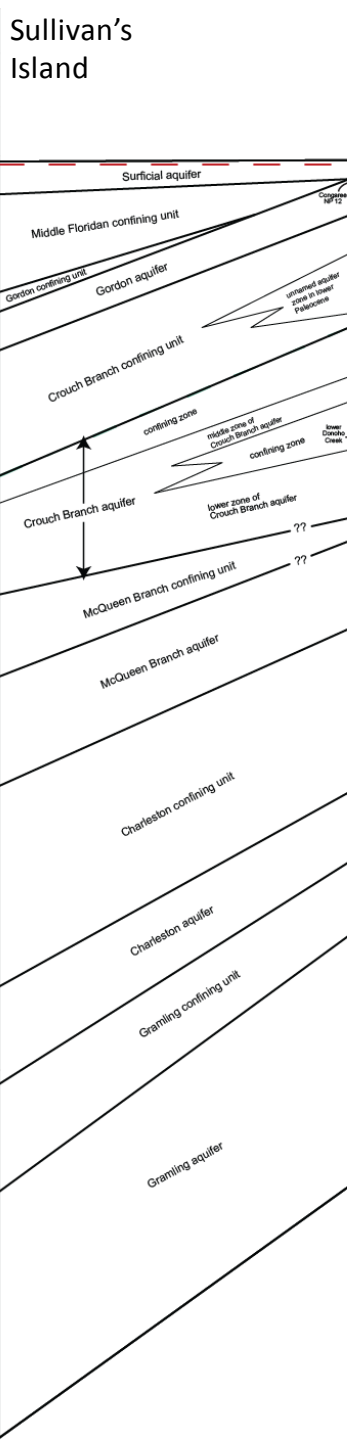
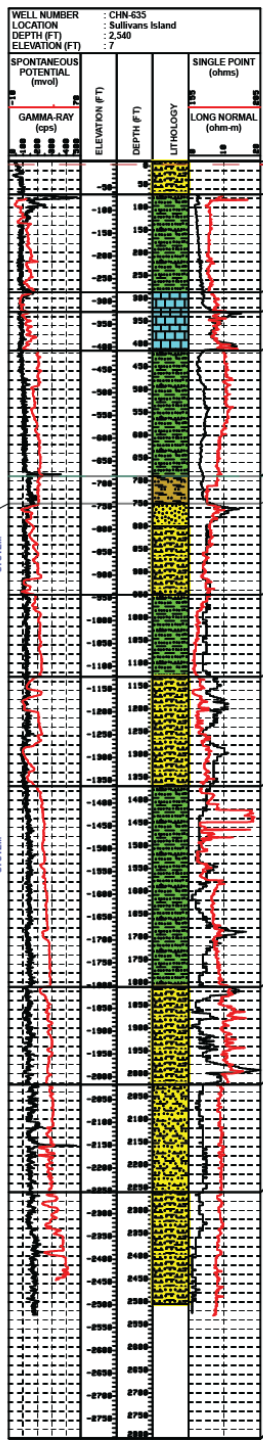


Elevation of Crouch Branch aquifer

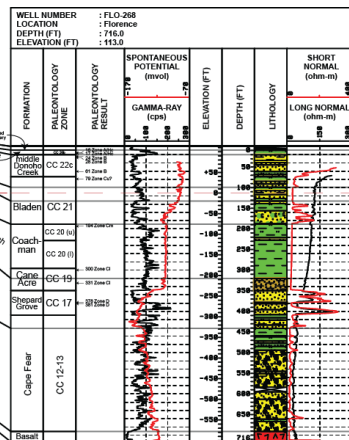
-  Top of aquifer, feet relative to sea level
-  Fall Line
-  Extent of Crouch Branch aquifer

Hydrogeology of the Myrtle Beach Area

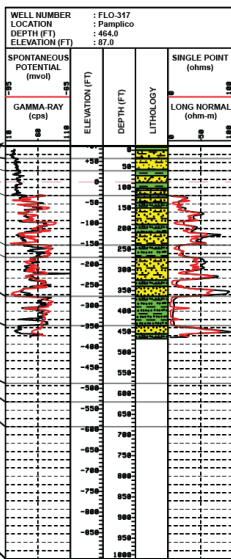




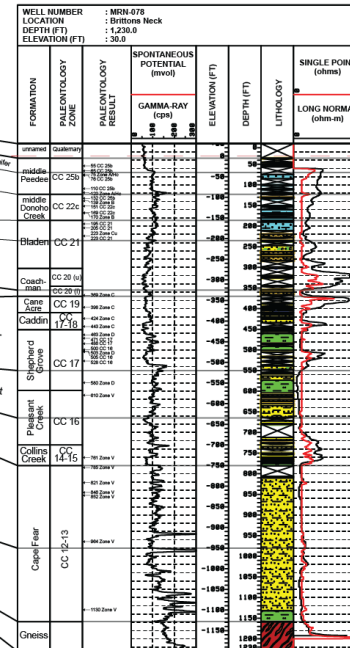
Florence



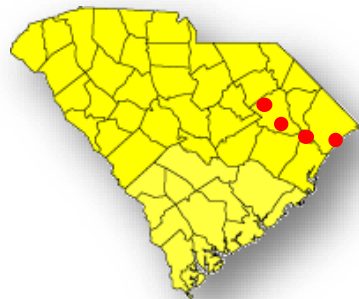
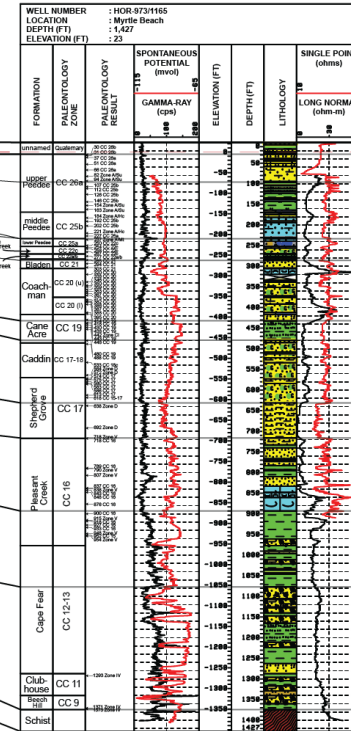
Pamplico



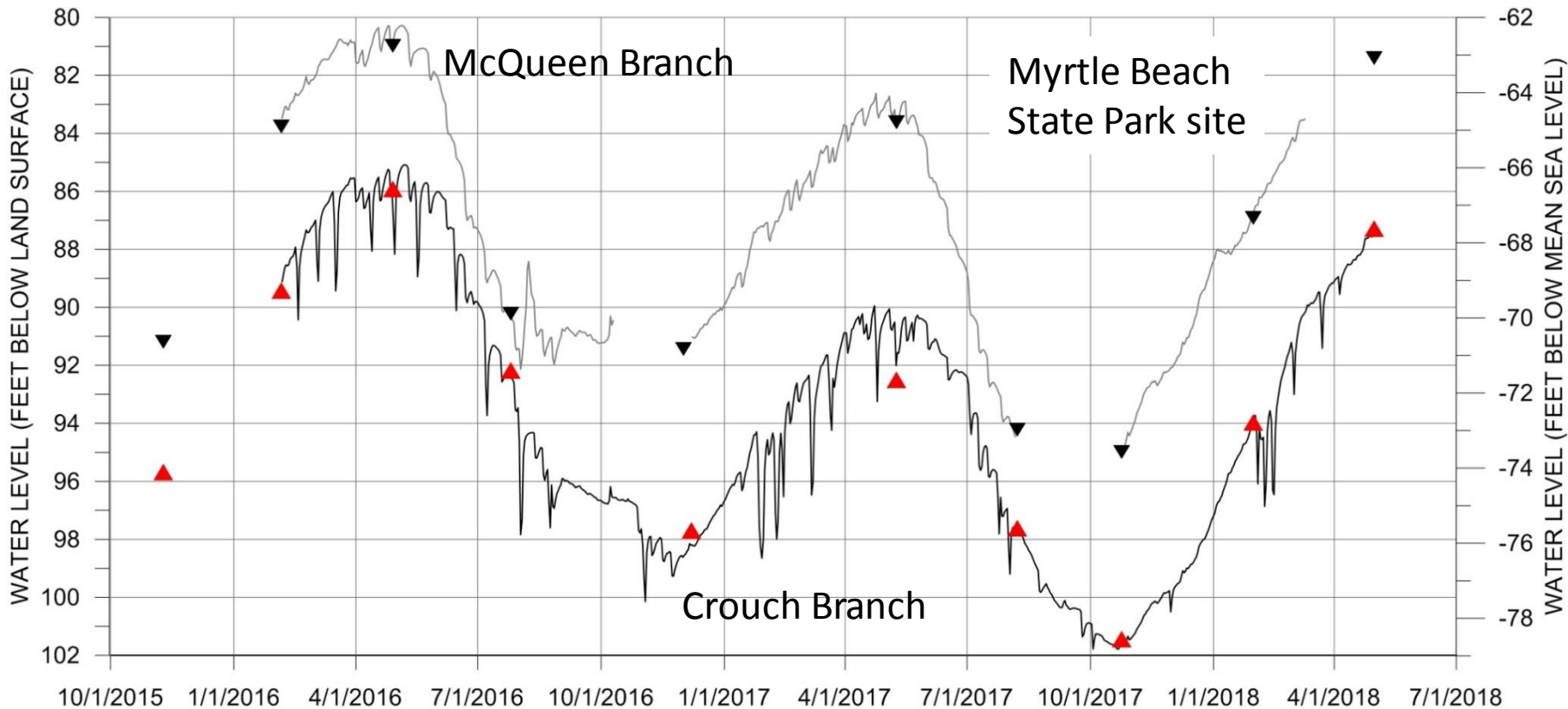
Britton's Neck



Myrtle Beach ASR



HOR-1326 (McQueen Branch) & 1327 (Crouch Branch) Daily Average and Manual Water Levels



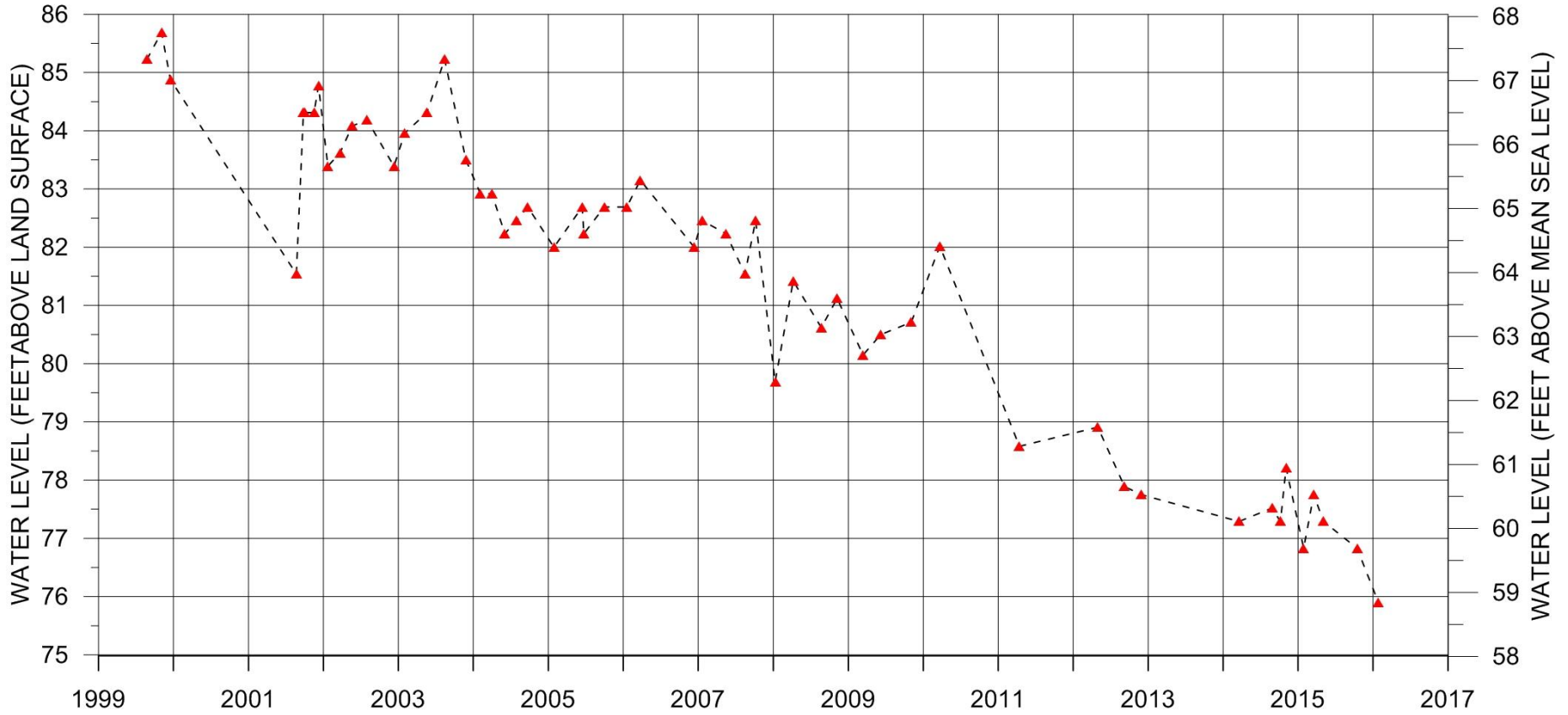
HOR-1326
Aquifer: McQueen Branch
Depth: 600 ft
Screen: 590-600 ft

HOR-1327
Aquifer: Crouch Branch
Depth: 440 ft
Screen: 430-440 ft



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HOR-0973 Manual Water Levels



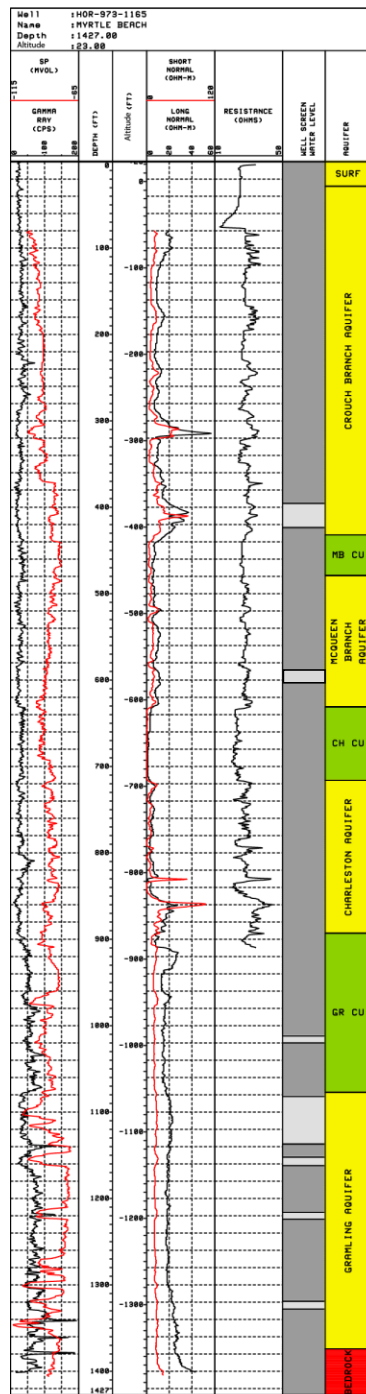
▲ - - - ▲ - - - ▲ Manual water level

Aquifer: Gramling
Elevation: 19 ft.
Depth: 1331 ft.
Screen: 1012-1328 ft.

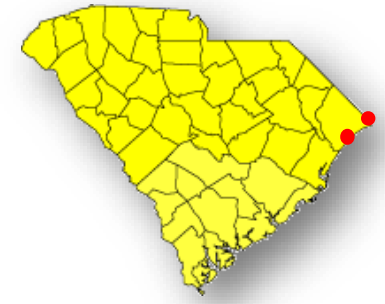
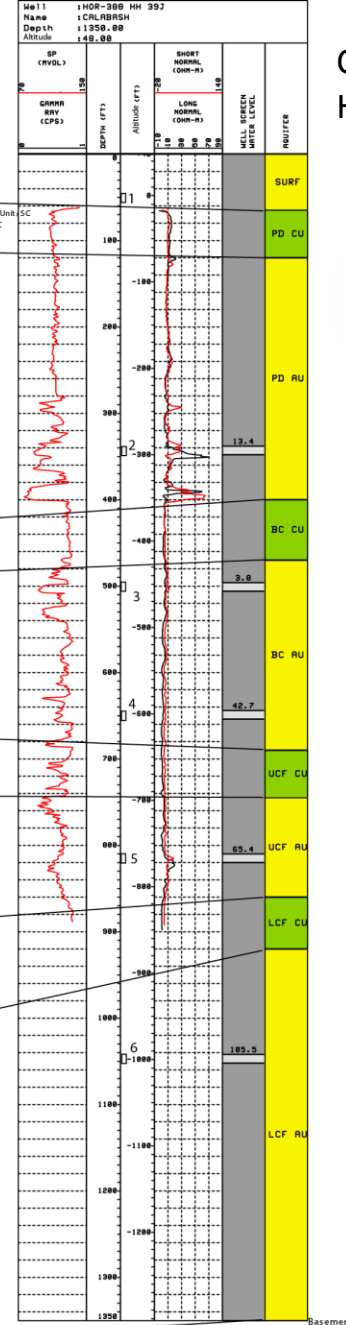


DNR

Myrtle Beach
HOR-973



Calabash Research Center
HOR-299



Crouch Branch Confining Unit/SC
Peedee Confining Unit/NC

Crouch Branch Aquifer/SC
Peedee Aquifer/NC

Crouch Branch

McQueen Branch Confining Unit/SC
Black Creek Confining Unit/NC

McQueen Branch Aquifer/SC
Black Creek Aquifer/NC

McQueen Branch

Charleston Confining Unit/SC
Upper Cape Fear Confining Unit/NC

Charleston Aquifer/SC
Upper Cape Fear Aquifer/NC

Charleston

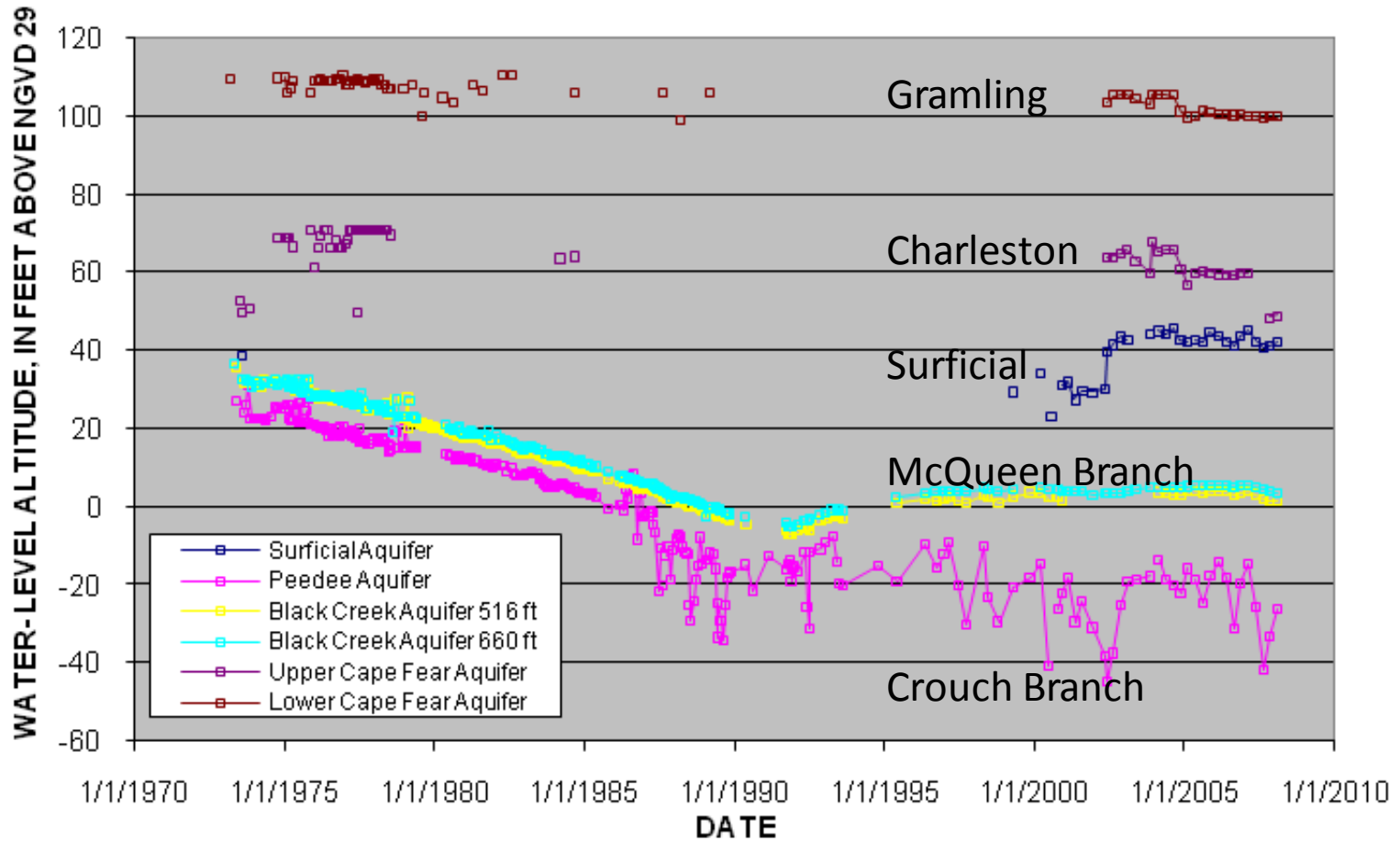
Gramling Confining Unit/SC
Lower Cape Fear Confining Unit/NC

Gramling Aquifer/SC
Lower Cape Fear Aquifer/NC

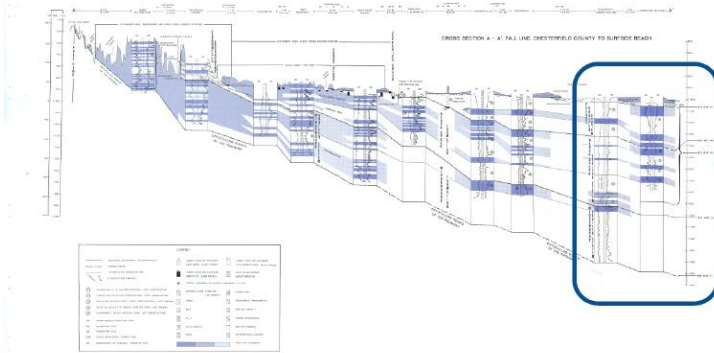
Gramling

Figure B41. Hydrostratigraphic correlation cross section from HOR-973-1165, Myrtle Beach, Horry County, SC, to HOR-388/HH 39J, Calabash, Brunswick County, NC.

Calabash Station

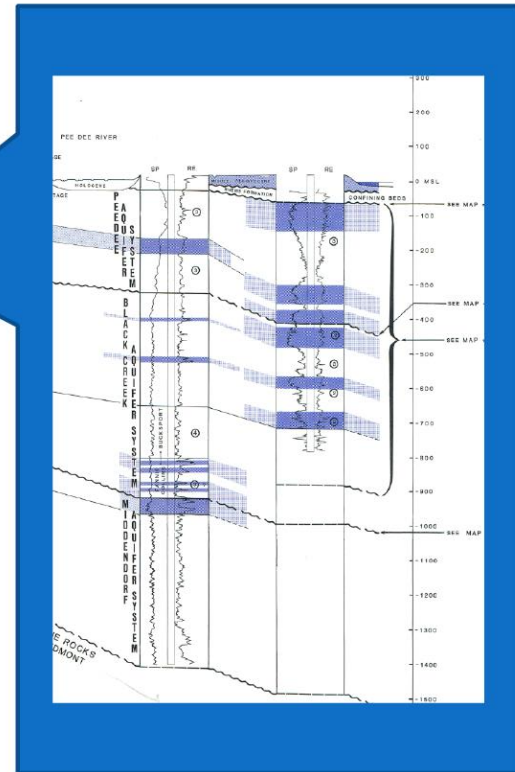


Old Nomenclature

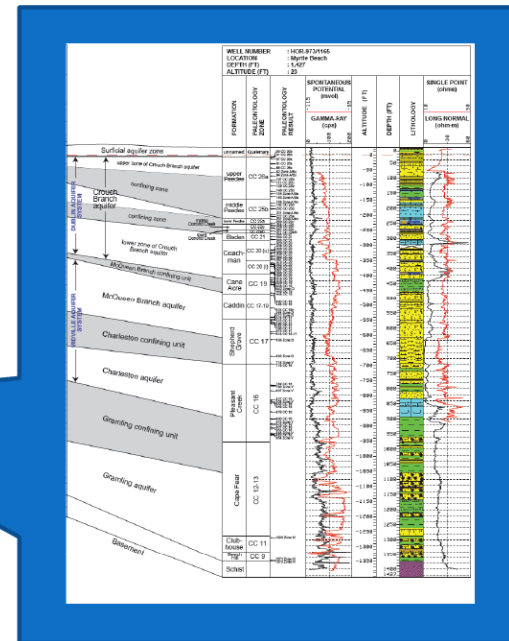
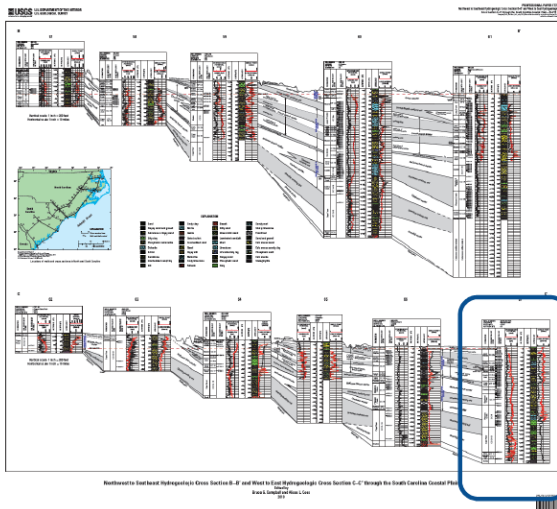


Black Creek Aquifer System 300' – 900' below surface

Colquhoun, D.J., Woollen, I.D., Van Nieuwenhuise, D.S., Padgett, G.G., Oldham, R.W., Boylan, D.C., Bishop, J.W., and Howell, P.D., 1983, Surface and subsurface stratigraphy, structure and aquifers of the South Carolina Coastal Plain: University of South Carolina, Department of Geology, 78 p.



New Nomenclature



Lower Crouch Branch (300' – 440')
 McQueen Branch (460' – 630')
 Charleston Aquifer (720' – 890')

Deerfield ASR Well

Not approved as submitted due to length of well with screened sections possibly in multiple aquifers.

Class V / Recharge Wells / R.61-87.11(E)(1)(b): *“Recharge wells used to replenish the water in an aquifer.”*

“an aquifer” is indicative of a single aquifer.