

Groundwater Availability Assessment
Technical Advisory Committee Meeting
March 26, 2019
1:00-3:00
U.S. Geological Survey
720 Gracern Rd, Columbia
Columbia, SC 29210

AGENDA

1. Introductory Remarks and Roll Call – meeting started at 1:10pm

Attendees

1. Brooke Czwartacki - SCDNR
 2. Scott harder - SCDNR
 3. Joe Gellici - SCDNR
 4. Bruce Campbell - USGS
 5. Joshua Williams - SCDNR
 6. Clay Duffie - MPW
 7. Alex Butler - DHEC
 8. Andy Wachob - SCDNR
 9. Andrea Hughes - SCDHEC
 10. Rob Devlin - SCDHEC
 11. Kelley Ferda - SIPSD
 12. Kristy Ellenberg - SCDHEC
 13. Bill - Duke Energy
 14. Alicia Wilson – USC
 15. Michael Yip - GCWSD
 16. Adem Ali - CoC
2. Joe reviewed the agenda with everyone
 3. Status Report on the Hydrogeologic Framework – Joe Gellici (DNR)
 - a. Introduced new project proposal that will digitize paper cross-sections of the SC Hydrogeologic Framework to make more accessible to future geology and hydrology employees as well as stakeholders.*
 - b. Mentioned the latest 2019 potentiometric maps of the Upper and Middle Floridan aquifers and the Gordon aquifer. In the past all three of these*

aquifers have been merged into a single potentiometric map. Final reports should be out in the next month or so. April-June.

4. Status Report on the Groundwater Flow Model – Bruce Campbell (USGS)
 - a. *Calibrations have been completed and model is nearly complete. Shooting for the end of fiscal year.*
 - b. *Bill with Duke energy asked is this working progress.*
 - i. *Bruce: Nope, done. Shooting for end of fiscal year.*
 - c. *Bill (Duke energy) – is this just an update.*
 - i. *Bruce – yes, updated the grid cell size for better resolution, additional water-level data, new stream gage data, new recharge model addition.*
 - d. *Largest driver of the model is the new recharge piece included.*
 - e. *Calibration criteria +/-20ft*
 - f. *As moving into deeper layers calibration results begin to decrease*
 - g. *In the crouch branch aquifer. Picking up cone of depression near Cameron in Calhoun county and not seeing calibration results we would like to see in Grand Strand area of state. Calculated levels are not drawing down close enough to observed levels.*
 - h. *Plenty of things to look at. Maybe set aside 1 day and will work through list Bruce compiles of problematic areas. Use everyone's local knowledge to see if what model is simulating makes sense.*
5. Discussion – Campbell, B.G., and Coes, A.L., eds., 2010, [Groundwater availability in the Atlantic Coastal Plain of North and South Carolina](#): U.S. Geological Survey Professional Paper 1773, 241 p., 7 pls.

Let's focus our discussion on Chapter 3 of the report: *"Simulation of Groundwater Flow in the Atlantic Coastal Plain, North and South Carolina and Parts of Georgia and Virginia, Predevelopment to 2004"*

Kelley is really interested in a possible 'planning tool' for regulators. North end of Hilton head island already having salty well issues. Salt is reaching 200 ppm and above. Kelley would like another cretaceous well and possibly more because updating water management plan out to 2050. Already has couple 1 cretaceous well, 1 RO, and 2 ASR.

Clay – with the 2015 simulations and 2004. Will there be any comparisons and show some changes in budgets positively and/or negatively?

Bruce – yes, in this professional paper zoomed into Sumter and Aiken. 2 areas in state that had heavy water use, but not a lot of studies in detail so no reason to focus on those areas again. Are there a few areas like that you would

like to think about and include? Maybe mount pleasant Charleston area for Charleston aquifer. Maybe Florence and Georgetown but not sure about Georgetown due to calibration results of model.

Joe – you don't expect these budgets to change drastically.

Bruce – no probably not. Static but upper coastal plain has ramped up in use.

Clay – water budgets are important. Does not quite understand them, but would like to discuss. What does not make sense are huge differences in hydrographs.

*Bruce – there is no limit on what information we would like to pull out of the model. We just need some concrete things to focus on. **November is end of model work.***

Will plan on discussing budget analysis at next meeting.

6. Discussion – Model Scenarios

a. Talked about running what if scenarios in the past.

b. Can run up to 6 scenarios. What do you feel is important?

i. Bruce says 6 climate scenarios are already setup so could possibly incorporate a few more.

1. Higher demand and lower demand in land change/water demand scenarios with each containing dry, median, and wet global climate models.

ii. Scott Harder – would like to keep consistent with surface water model work happening currently and use some of there projections into some scenarios. Will most likely only have 1 basin completed by the time Bruce needs these scenarios.

1. Alex does not see this happening before the report so these scenarios will have to be run at a later time.

iii. Joe – proposed 4 scenarios

1. Base case

2. Base case plus 0.5% annual increase to 2050

3. Drought: effect of 10-year drought

4. Agriculture withdrawals increase: adding 20 new irrigation wells in study area.

iv. Bruce – need to nail these down ASAP.

v.

7. Update on the Planning Process Advisory Committee – Andy Wachob (DNR)

Working on developing water plans that correspond roughly to the 8 major watersheds. Working on a planning framework. Document describing how the planning process should happen. Past year working with PPAC, 20 members from multiple sectors across the state. Planning will be done by about 25 stakeholders called the RBC. Using surface water models and where appropriate the USGS groundwater model to help identify any water shortages or water use issues they would like to address. Far along in developing framework. Hoping framework will give enough guidance to RBC for appropriate planning. Should be done roughly in a few months. Needs to go through stakeholder process. Draft will be ready for public review. Issues arose during the writing of framework in groundwater because the aquifers don't conform to the same regions as the river basins. Some process to incorporate groundwater planning into this process. When talking about gw availability, its one thing to know how much is in the ground but the big question is how much can we use without negative consequences.

8. Discussion – How do we quantify groundwater availability in the State?
9. Discussion – How will Technical Advisory Committees in Capacity Use Areas work with River Basin Councils?
 - a. *Boundaries of river basins do not coincide with capacity use areas as well as aquifers for groundwater. Have to develop a way that these 2 managing groups can work together to determine water availability.*
 - b. *Texas approach – determining desired future conditions for each aquifer, passed onto gw models and they determine how much gw is available so desired conditions will not be reached. So a hard number is available for each aquifer in each area of state so they can plan ahead. Our approach is adaptive management strategy. Hard to plan 50 years out with this approach.*
 - c. *Alex – brought up sustainable yield – development and use of gw to maintain present without compromising the ability of future generations to meet their own needs.*
 - d. *Alex – a hard number for gw availability is the WRONG APPROACH and wrong question to be asking.*
 - e. *Clay – need to be aquifer specific otherwise tying surface water and groundwater management together is going to be very hard.*
 - f. *Alex – lack of data is causing extra protection over aquifer due to uncertainty.*

- g. *RBC identifying where groundwater fits in with their management plan.*