

**Minutes**  
**Saltwater Intrusion Steering Committee Meeting**  
**October 19, 2010**

**Attending:** David Baize, Brian Baker, Richard Cyr, Kelly Ferda, Bill Garbett, Chuck Gorman, Rusty Hildebrand, Donna Katula, Jim Kennedy, Jeff Larson, Steve Liotta, John Sawyer, Charles Sexton, Mark Smith, Paul Vogel.

The meeting was opened by Jeff Larson with a review of the agenda. Copies of Steering Committee goals and objectives formulated at the last meeting were also passed out.

In response to a request by the Steering Committee at the last meeting, a history of saltwater intrusion was compiled by South Carolina and Georgia. Brian Baker presented the history to the committee in the form of a handout and PowerPoint presentation.

Comments on the history presentation:

Lots of work has already gone into managing saltwater intrusion.

We need to keep the history neutral and not use it to compare states.

Much time and money has gone into developing a scientific foundation for predicting saltwater movement into the aquifer.

A chart to show the progress that has been made by reducing withdrawals from the aquifer would be helpful.

Permit limits are important because that is what the permittee can grow into.

How do we want to use the history?

*Post it on the shared SC/GA website. Provide it to elected officials.*

In response to discussions from the last meeting, Dr. Jim Kennedy developed possible Upper Floridan aquifer sustainable yields based on the Steering Committee's draft goal of stopping plume movement. Dr. Kennedy presented the results in a PowerPoint presentation. Possible sustainable yields depended on where simulated pumping of the aquifer occurred and the combination of pumping amounts in the Savannah area, the Georgia Yellow Zone, and Hilton Head Island.

Comments on possible sustainable yields:

Can Dr. Kennedy calculate the optimum scenario for determining a possible sustainable yield?  
*An infinite number of withdrawal scenarios can be run based on the Committee's wants.*

The model indicates a 90% reduction is necessary.

The location of withdrawals has an impact on what the sustainable yield might be,

We already know there is a problem with saltwater intrusion on Hilton Head. It is not just a problem on the north end of the Island.

When we design the actual remedy, we will need consultants. We are trying to identify solutions in a general way. We can identify the target to reach, but need consultants to help us get there.

The information presented by Dr. Kennedy does not leave us many options. The committee was reminded that this is only one possible option for sustainable yield. Other sustainable yield metrics can be considered and management practices other than large reductions in groundwater withdrawals can be considered.

All withdrawals in Chatham County include everyone. We are not just talking about a little pain, but a lot of pain.

The reason the model simulations show large reductions is because the Committee indicated they want to stop movement of saltwater plumes. If the goal were changed to slowing the movement of plumes, the reductions could be less.

The metric for determining sustainable yield by the committee was no movement of saltwater further inland on Hilton Head Island. A different sustainable yield metric may result in different possible sustainable yields.

The first thing the Committee needed to know is a worse case scenario. Now we need to ask how much pain are we willing to accept.

Once we include a vertical migration component, our withdrawals may be even smaller.

Technology is progressing, like membrane technology. New technologies may become cost effective.

We need to have a solution that will allow for growth.

We do not have to look at just extremes, such as ceasing all withdrawals or pumping till the water is gone.

If we can get reductions to reduce some stress on the aquifer (such as reducing pumpage by 50%), how would we do that? Also, other technologies could be used in the future.

ASR may be a possibility.

ASR would need to be approved by elected officials in Georgia. It may be acceptable if it can be controlled.

South Carolina can show that ASR is a good technology.

The Savannah River Committee will expect recommendations that are costed out.

The pain associated with reductions needs to be defined.

We could phase in solutions to arrive at an ultimate goal.

Legislators would look closely at the solutions identified by this Committee.

The Committee's recommendations will have many audiences and some may be able to assist with funding.

Reclaimed water has been a part of solution for a long time.

Georgia is now developing regional water plans. The Coastal Regional Water Plan has been written to include withdrawal data, growth trends, demands, etc. It is not a static environment. We cannot just look at surface water verses groundwater but need to look at the entire picture.

Do any consultants come to mind that can help?

On Hilton Head Island, there are a variety of consultants. Consultants developed the salt water intrusion model accepted by the agencies.

It is up to the Committee to identify consultants.

What will a consultant be used for?

A consultant can tell us how much groundwater we can have with certain engineering controls and the cost of the engineering controls.

Some preliminary cost estimates have been generated but are not complete enough to be used for making decisions.

What does the Committee think?

Regarding reductions, we need to pick a point to start. We don't need a consultant to tell us where to start. We can take the first steps now and work it out through an iterative process.

We should look at the saltwater plume direction and rate of movement. Use the plume as a meter and spend money where the plume is moving.

If we are in agreement that the pumping centers will stay where they are and we have a commitment to reduce, say, 25% by 2017, then we can determine the effect on the plume.

That scenario can be modeled.

We have a limited timeframe to get this information back to the Governor's Committee.

I don't agree to identify a specific reduction amount now.

The model should not be blindly accepted now. However, if there is an agreement on a specific reduction amount, the effects of the reduction can be validated based on new monitoring data.

Can Dr. Kennedy quantify how to get the biggest bang for the buck? For example, what if the cone of depression were eliminated? Can we prioritize the most critical reduction?

If the Committee can give Dr. Kennedy a list of reduction combinations, he can model it.

Can Hilton Head Island go entirely to surface water? How do we eliminate the cone of depression? Does Savannah's I and D plant have enough capacity to serve surface water to all of Savannah?

This is more than just a matter of supplying water. It also includes costs of improvements, politics, the idea of controlling your own destiny, etc. We have just touched on one facet of this.

To address the problem, what are the first steps?

Based on experiences with the TMDL, there are multiple options and multiple costs.

For groundwater and saltwater intrusion, zero withdrawals is not an option.

Engineered solutions are necessary.

We need to have all the information before we start making decisions.

Solutions may start with reductions, and then decide on which engineering solutions to consider.

This groundwater solution is much like Lake Lanier. We don't want to still be studying this in 5 years.

Hilton Head has already gone to alternate water sources.

Hilton Head cannot wait long because their wells are already contaminated.

Installation of a barrier also has problems.

Five wells on Hilton Head have been taken out of service now due to saltwater contamination. Two more will be taken out soon.

Hilton Head Island will go to zero production because they have to.

The groundwater resource has been mined. We now have information to help identify solutions.

We can give this to a consultant and they can help provide answers.

How do we get the Committee to agree on solutions?

We need to show that saltwater intrusion into existing wells is imminent.

Does the EIS for the Jasper Port identify how it will effect saltwater intrusion?

*Yes, the conclusion is that saltwater is already leaking into the aquifer so the proposed dredging will not make the situation worse.*

Camille Ransom with South Carolina is studying downward migration of saltwater into the aquifer. Downward migration is happening now.

Regardless of the amount of reductions, it will not help Hilton Head Island because they already have saltwater in their wells.

Hilton Head Island does not have a choice but to reduce groundwater withdrawals and would be happy to see reductions from anyone else.

The Committee has the expertise to determine how to reach their goals.

The Committee should also put some costs with the solutions.

There is an urgency to finding solutions for a portion of Hilton Head Island and the Committee should report out on this.

Maybe an engineering solution consisting of a barrier becomes important because it will stop saltwater intrusion into wells on Hilton Head.

If all the wells on Hilton Head will become contaminated, that will define the problem for which we need to be seeking solutions.

Hilton Head is the most immediate problem. This may not be a primary reason for Georgia to consider solutions, but there is downward migration which will be a problem for Georgia.

A barrier is not a solution until we look at technical details.

11.5 Mgd for a barrier is a big number.

A barrier will not solve the whole problem.

An engineering solution must have a reduction component.

25% reduction and a barrier is a potential solution.

The costs of engineering solutions must be maintained forever.

If costly solutions are proposed, they need to be recommended while the Governor's Committee is in place.

The problem cannot be fixed overnight. We need to figure out what we can and can't realistically do.

We need to articulate cost and effects of any solution. For water suppliers, capital costs will probably include a rate increase which is always difficult for City and County leaders.

We need a mutually agreeable goal.

We should ignore the political hurdles for now.

Maybe we can look at costs associated with 10, 20...50% reductions.

We have a goal of maintaining a sustainable yield. We need to come up with a broader goal to keep Hilton Head from getting worse.

There are approximately 10 years before the wells in the south part of Hilton Head are contaminated.

There is a plume at Fort Pulaski now also.

We will not get a 25% reduction of groundwater withdrawals by tomorrow.

We should not be talking about a 50% reduction across the board. We should be looking at relative costs for Georgia and South Carolina.

Hilton Head's problem is immediate and is in a good position to make a case to elected officials.

If we increase reductions from the Upper Floridan, we can still use the Upper Floridan for emergencies.

Suggest a sustainable yield of 10 Mgd for Savannah, 1.7 Mgd for Hilton Head, and 17 Mgd for the Yellow Zone.

We will need to run the suggested withdrawals and then give the results to Camille Ransom to put in his model.

The Yellow Zone should reduce below what is currently being withdrawn, say to 15 Mgd.

We can set goals, but we need time to see if it can be done. We are not committing to anything.

We can take the Committee's goal as a hypothesis and get back together to see where we are.

We need Dr. Kennedy's and Mr. Ransom's model runs before our next meeting.

Any goals we set will need monitoring through the use of monitoring wells.

Action Items:

- Dr. Kennedy to model 10 Mgd for Savannah, 1.7 Mgd for Hilton Head, and 15 Mgd for the Yellow Zone. The results of this model run will be provided to Camille Ransom for inclusion into the vertical migration model. Dr. Kennedy and Mr. Ransom will develop a presentation for the Committee at the next meeting.
- Savannah, Hilton Head, and the Yellow Zone representatives will develop preliminary costs estimates over the next 20 years for implementing the reductions and provide these estimates at the next meeting
- Mark Smith will secure a room for the next meeting on November 18 at 9 am at the Convention and Trade Center in Savannah.