# Meeting Minutes

**Santee River Basin Council Meeting No. 4 (Hybrid Format)**

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| Date: | March 11th, 2025 |
| Time: | 9:00 AM |
| Location: | Jefferies Generating Station<br>(463 Power House Road, Moncks Corner, SC 29461) |
| Prepared by: | CDM Smith |
| RBC Members Present: | Todd Biegger, Sarah Wiggins, Mike Wooten, Alicia Wilson, Brandon Stutts*, Michael Melchers, Riley Egger, John Grego, Hixon Copp*, Jason Thompson, Hunter Hames (alternate for David Wielicki), W.E. Mickey Johnson, Jr., |
| RBC Members Absent: | Jeff Ruble, Allan Clum |
| Planning Team Present: | John Boyer, Monica Camacho, Kirk Westphal*, Scott Harder, Brooke Czwartacki, Leigh Anne Monroe, Hannah Hartley*, Andrew Wachob*, Joseph Koon<br>**Attended virtually* |

## 1.0 Call To Order and Welcome

The meeting was called to order at 9 am, with Michael Melchers welcoming the RBC members. Michael stated the meeting objectives and invited the RBC members for approval of the previous minutes and the agenda. One change was requested regarding prior draft minutes by Michael Melchers. John Boyer explained he would update the minutes to clarify that FERC licenses all non-federal hydropower development in the US and that they don't have jurisdiction over USACE projects. The previous meeting minutes were approved by Jason Thompson with a second by Mickey Johnson, and John Grego mentioned it be approved "with amendment". The agenda was also approved by RBC motion.

John Boyer mentioned the drought exercise from Wednesday, March 5, and asked Jason Thompson for his feedback. Jason described it as well-attended by many stakeholder groups. They walked through the stages of drought types from minor to state of emergency. Jason suggested that the attendees left better prepared than prior to the exercise.

John reminded the RBC about three upcoming webinars: one on agribusiness by Dr. Nathan Smith of Clemson, another on statewide resilience and risk reduction by Catherine Min of SCOR, and a third on freshwater and marine resources by Dr. Joey Ballenger and Steve Meyer of SCDNR.

John explained that the RBC will discuss drought response and management during the April RBC meeting. John also mentioned that the update and application of the Santee water quantity model is still on hold pending receipt of Catawba-Wateree River basin outflows from the Catawba-Wateree Water Management Group's Integrated Water Resources Planning effort.

## 2.0 Public and Agency Comments

Public comments: There were no public comments.

Agency comments: There were no Agency comments.

## 3.0 Review of February RBC Meeting

John reviewed the information presented during the February RBC meeting. Brooke Czwartacki had covered groundwater of the Santee Basin including aquifer extents, recharge areas, cones of depression, and reported groundwater use. Hannah Hartley had provided an overview of surface water resources and Scott Harder had summarized surface water use noting the significant water withdrawals in the Catawba Basin, the seasonality of water withdrawals, and the importance of upstream water management.

John Boyer explained that we're waiting on Catawba modeling to get inflows for our modeling of the Santee Basin. John Grego asked if Duke Energy doesn't already have this information. John Boyer explained that they're updating their model with new data.

Q: For the permitted and registered water use scenario, does that only include the active permits?

A: that scenario includes everything that still has a permit, regardless of whether it is active or not.

## 4.0 Surface Water and Groundwater Demand Projections with Scott Harder

Scott Harder reviewed the approach to developing surface and ground water demand projections. Scott outlined the driver variables used in projections, including population growth for public water supply, economic growth rates for manufacturing, new electricity production for thermoelectric power, and irrigated acres for agriculture/golf courses. He further discussed and gave examples of water supply baseline demands and population projections.

Q: Are any of the proposed natural gas facilities in the study area?

A: Not that Scott is aware of.

Q: Is there potential for conversion to natural gas?

A: As far as Williams Station they are in the process of building some gas peaking units (gas CT turbines). Brandon Stutts of Dominion Energy is coordinating with Scott on water usage on those. The units can also be air-cooled. Brandon will provide estimates to Scott when he has them.

Q: Are these power plants being decommissioned because they're outdated and can't be repaired?

A: It is likely that they are phasing out coal and therefore these coal plants. The question of why not converting them to natural gas is for Dominion Energy.

## 5.0 Reservoir and Source Water Management with Jason Thompson

Jason Thompson provided an overview of Charleston Water System's operations, including the history of how they began and how they got to where they are today. Charleston Water System serves water and sewer customers. Their water sources include Bushy Park Reservoir (primary), Edisto River (secondary), and Goose Creek Reservoir (tertiary). Sometimes their primary and secondary sources can be interchanged. Access to three different sources and two different basins helps with their drought resiliency. The Bushy Park Project created the Bushy Park Reservoir along the Back River. Charleston Water System's drought plan is activated based on SCDNR Drought Committee drought declarations by county, Edisto stream flow triggers, specific conductance within Bushy Park Reservoir, and Goose Creek Reservoir levels.

Q: Is Folly beach on septic systems?

A: Septic is a patchwork, and it's difficult to get good septic numbers. Not sure of specifics on wastewater for Folly.

Q: What's your impact fee on septic?

A: Not sure, but city or county would know. A lot of septic have been converted to the collection system.

Q: How deep is Goose Creek reservoir?

A: It goes as deep as 20 feet, most of it is an average of 5 to 10 feet.

Q: When you blend from three different sources, is that difficult from a treatment standpoint?

A: The sources are different in water quality makeup, but if all are behaving well, water-quality wise, it's not too difficult. Sometimes if one is looking better, they can blend more of it and reduce the source that's not as good at that time.

Q: How much water is pulled from each source?

A: About 75% from Bushy Park, 25% from Edisto, and a very small percentage from Goose Creek recently.

Q: Is the permitted withdrawal from Edisto a lot higher?

A: Edisto was once the primary source, so we can pull more from it, but we've never utilized more than one-third of the Edisto permit. We don't have as big of a permit For Bushy Park, but we've used a lot from there for a narrow amount of time.

## 6.0 Santee Cooper Project History and Operations with Michael Melchers

Michael provided a detailed background on the Santee Cooper project, including its initial concept in the 1920s, the impact of the Great Depression, and the formation of Santee Cooper in 1934 to move the project forward. The initial concept for the Santee Cooper project was developed in the 1920s by the Columbia Railway & Navigation Company, which aimed to improve navigation between Charleston and Columbia. The Great Depression, which began in 1929, significantly impacted the project's progress as the Columbia Railway & Navigation Company was unable to secure financing, leading to the project's delay. In 1934, the South Carolina legislature formed Santee Cooper to provide a mechanism for moving the project forward, securing funding through the Works Progress Administration.

Michael discussed the construction of the Santee Cooper project, which began in 1939 and was completed in three years, a remarkable feat given the scale of the project, which employed over 12,000 people at the peak of construction and resulted in the clearing of over 170,000 acres of forest and floodplain. The construction included not only the Jefferies Hydroelectric generating station but also a spillway, 40 miles of earthen embankment dams, and other significant infrastructure.

Michael explained the primary motivators for the project, including hydroelectric power generation, flood control, and health betterment. The Santee Cooper project has a generating capacity of 145 megawatts of power, sufficient to provide electricity for approximately 150,000 homes. The project also serves a critical role in flood control, helping to manage water levels and mitigate flooding in the region.

An additional motivator for the project was public health, particularly in addressing malaria, which was a significant issue in the area during the 1930s.

Michael outlined the federal authorizations for the project, including the initial license in 1926 (which focused on power generation and navigation), the second license which was issued in 1979 (which included additional water quality and property management requirements, reflecting the growing importance of environmental considerations), and the third license, which was issued in January 2023. Michael mentioned that the newest license focuses heavily on environmental and wildlife protection measures, and that its issuance ensures the future of the reservoirs until 2073, which is critical given the importance of the project for the state and the Lowcountry.

Michael discussed the challenges related to migratory fish and the measures taken to support their passage. The construction of the hydroelectric project created barriers to fish migration, particularly affecting species such as American shad, American eel, blueback herring, and the endangered shortnose and Atlantic sturgeon. To address these challenges, the project includes measures such as using the navigation lock as a fish passage during the spring migration season, allowing fish to bypass the dam and continue their migration. The navigation lock is operated six times a day during the spawning season to facilitate fish passage, with a siphon providing oxygenated attraction flow to guide the fish into the lock.

Michael provided details on the hydroelectric stations, the integration with the navigation lock, and the importance of managing water flow to protect the area's surface water supply and to prevent issues like siltation in the harbor. The Santee Cooper project includes multiple hydroelectric stations, with the main station generating 145 megawatts and a smaller 2 MW station installed at the spillway on Lake Marion. The Jefferies Hydroelectric Generating Station is integrated with the navigation lock, which is used for both navigation and fish passage, demonstrating the multifunctional nature of the infrastructure. Effective water flow management is crucial to prevent issues such as siltation in the harbor, which can impact navigation and the overall health of the waterway.

Michael explained the management of the reservoirs, including the rule curve for Lake Marion, which dictates the target elevation to balance inflows, recreational interests, and flood control. The rule curve for Lake Marion dictates the target elevation for the reservoir throughout each calendar year. The rule curve is adjusted seasonally to account for higher inflows in the winter and spring, and to maintain higher water levels during the summer for recreational use and water supply protection. Michael also highlighted the changes in minimum flow requirements as a result of the new license, which aim to enhance habitat and attraction flows for migratory species in the Santee and Cooper rivers below the Project.

Michael described the workflow for daily hydro operation decisions, including the use of USGS gauges, weather forecasts, and an in-house lake management application to balance inflows and outflows. Daily hydro operation decisions are informed by data from USGS gauges, National Weather Service forecasts, and an in-house lake management application that models inflows and outflows. The workflow involves evaluating upstream inflows, current lake storage, and energy usage patterns to optimize hydroelectric generation and water management. An AI-supplemented version of the lake management application is being implemented to enhance decision-making and operational efficiency. Michael also discussed the Santee Spillway, the only method of flood control for the project, and its capacity to handle significant inflows during flood events.

Q: Why was the FERC licensing process held up by fish?

A: Building a dam blocks the migration pattern for certain fish, some of which are endangered species. Federal resource agencies are thus required to consider the impact to these species when taking action on Federal licenses and permits, which often extends the timeline for approval.

Q: When Lake Marion was built, was there an idea to create a dam to increase power generation?

A: Lake Marion primarily exists to divert water into Lake Moultrie – Lake Moultrie is much deeper than Lake Marion, which allows for much more efficient use of the water for generating electricity. Santee Cooper does have a small hydroelectric unit on Lake Marion to ensure that at least some electricity is generated while passing required minimum flows into the Santee River, but this unit is significantly less efficient than the units at Jefferies.

Q: How much does the brackish water move during rain events?

A: The saltwater/freshwater boundary can move significantly depending on rainfall, storm surge, king tides, and other events. The location of the saltwater wedge is closely monitored on the Cooper River to ensure that the Bushy Park Reservoir is protected from saltwater intrusion.

Q: Do you still have a big congregation of fish below the spillway at Lake Marion?

A: We do see a relatively large and varied population of fish in the DNR sanctuary below the Santee Spillway. The plan is to put in upstream passage at that location to fulfill the requirements of our license. We are evaluating our options currently.

Q: How much is the lock activated to be efficient in moving fish?

A: The Pinopolis Lock is operated 6 times a day for fish passage during the spring spawning season. We have recently installed high resolution sonar units at the lock to help us quantify the efficiency of the lock in passing migratory fish from the Cooper River into Lake Moultrie.

Q: Do you put them in an elevator?

A: No; the Pinopolis Lock is used to lift the fish from the tailrace into the lake while the fish remain in the water column. The St. Stephen fish lift (operated by the US Army Corps of Engineers) does use an elevator-style mechanism to lift fish from the Rediversion Canal tailrace into Lake Moultrie.

Q: Is there a rig down there that counts them?

A: See answer above – we have recently installed sonar units to help quantify passage at the Pinopolis Lock. The St. Stephen facility uses a viewing window and camera to estimate passage.

Q: Is the lake management application (looks at storage, ability to pass water down stream, juggle inflows with outflows, etc.) computerized now?

A: Yes; it uses a numerical model of the lake system to forecast and optimize hydroelectric unit dispatch and flood control. We are in the process of deploying an AI-supplemented version of the forecast tool which should help make our operations even more efficient.

Q: Does it still take about 7 days for water to travel from top of watershed to bottom?

A: Not sure of the exact travel time off-hand, but a good rule of thumb is that inflows shown in Columbia and Camden (Congaree and Wateree Rivers, respectively) take about 3 days to enter Lake Marion.

Q: Highest spillway discharge from Lake Marion?

A: Last year in response to hurricane Helene had approximately 20 gates open and released 170,000 cubic feet per second (cfs) at the peak. They started spilling 3-4 days in advance before receiving the flood waters to help mitigate downstream impacts.

## 10.0 Conclusions and Upcoming Schedule

The next meeting will be held on April 8th, 2025, at the Old Santee Canal Park (the same location of previous RBC meetings). The agenda for next month's meeting will include water demand projections, an overview of Capacity Use Areas and Groundwater Management Plans, the outlook for groundwater, and a drought management discussion. Also, as noted at the beginning of the meeting, there are a variety of topics that will be provided as virtual webinars before the next scheduled meeting in April due to the shorter timeframe for planning in this river basin. These virtual webinars will be recorded for those who can't make it.