Organizations Present

Duke Energy
Georgia Environmental Protection Division (GAEPD)
Greenville Water, SC
HDR
National Weather Service, Greenville-Spartanburg, SC (NWS)
Seneca Light and Water, SC
South Carolina Department of Health and Environmental Control (SCDHEC)

Attendance Roll and Agenda Review
1. Ed Bruce of Duke Energy took attendance and reviewed the agenda.

Low Inflow Protocol (LIP) Status

2. As of November 30, 2017 the Keowee-Toxaway (KT) Project remained in Low Inflow Protocol (LIP) Stage 2 conditions as a result of the U.S. Army Corps of Engineers (USACE) continuing to be in Level 2 of their Drought Plan (DP) and the USACE reservoirs not recovering to lake levels that allow a return to Stage 1. Note, the 12-week rolling average of the U.S. Drought Monitor in Normal condition and the 4-month long-term average streamflows are in Normal condition.

3. Mr. Bruce provided a review of drought conditions throughout the Upper Savannah River Basin based on data through December 11, 2017. Hartwell Lake is at the USACE DP Level 2 entry elevation, but is projected to drop and remain below the DP Level 2 elevation over the coming months, through February 2018. Thurmond Lake is currently below the DP Level 2 threshold elevation and is also projected to remain below the DP Level 2 elevation over the coming months, through February 2018. The Hartwell Lake elevation chart shows that the lake has not been as low as the current levels for this time of year, since 2012, and reflects a slightly declining trend in recent weeks.

4. The four-month rolling average streamflow is at the seasonal long term average. However, as the long-term average is beginning its seasonal increase, it is unlikely the four-month rolling average streamflow will remain above the long-term average, in the absence of any significant inflow events over the coming weeks.

5. The U.S. Drought Monitor map for the southeast shows worsening drought conditions over the past month in middle of North Carolina, South Carolina, Georgia, particularly in the middle of the Savannah River Basin. However, the Upper Savannah River Basin remains relatively clear of these more severe drought conditions. A chart showing the intensity of historical drought since 2000, as based on the U.S. Drought Monitor, indicates the Upper Savannah River Basin reflects some re-emerging signs of dry conditions within the basin.

6. The Oconee County groundwater gage shows levels below the long-term average with the current reading of 30.18 feet below the surface and the monthly mean at 29.58 feet below the surface. The McCormick County groundwater gage continues to be well below its long term average with declining levels.
7. Mr. Bruce reviewed the Oconee Nuclear Station’s (ONS) consumptive water use and cumulative natural reservoir surface evaporation for the three Duke Energy reservoirs in the Upper Savannah River Basin. Consumptive water use in December is approximately 23.0 million gallons per day (MGD) and is expected to be approximately 25.2 MGD next month (based on long-term historical water use, updated for 2016 estimated consumptive water use). Cumulative surface evaporation for all of Duke Energy’s reservoirs is estimated to be approximately 27.9 MGD in December. Surface evaporation rates are expected to begin increasing in January to approximately 29.9 MGD.

8. Mr. Bruce reviewed the Keowee Development’s water releases to Hartwell during the previous 4 weeks ending December 5th. Average weekly total releases, including leakage and seepage, for the month were 5,655 acre-feet per week (407 cubic feet per second or 263 MGD). Releases for the period were required releases per the Operating Agreement between Duke Energy and USACE to balance reservoir storage percentages between the Keowee-Toxaway and USACE hydro projects.

9. Greenville Water reports rainfall at Table Rock and North Saluda are significantly higher than 2016 and remain above the 10-year, year-to-date (YTD), average, while Adkins is higher than 2016 and slightly below the 10-year YTD average. Table Rock Reservoir is approximately 0.05 feet below full pond elevation, and the North Saluda Reservoir is approximately 0.1 feet above full pond.

10. Seneca Light and Water reports their water treatment plant production is approximately 6.5 MGD and rainfall is near the long-term average. The area received approximately 2-inches of snowfall during the December 9-10 event, with areas north of Seneca receiving upwards of 4-inches.

**Update on Meteorology and Keowee-Toxaway Project Operations**

11. Lynne Dunn (Duke Energy) provided a meteorology and operational update.

12. The regional precipitation for 2017 year-to-date is above normal for Greenville-Spartanburg and Asheville, NC, and below normal for Hartwell Dam. Current rainfall for Greenville-Spartanburg, SC is 51.54 inches, Asheville, NC is 53.15 inches, and Hartwell Dam is 54.72 inches. Current departure from normal for Greenville-Spartanburg, SC is +7.05 inches; Asheville, NC is +9.87 inches; and Hartwell Dam is -0.78 inches.

13. According to NOAA data, observed precipitation shows there has been 0 to 2 inches more rainfall than normal within this area over the last 90 days.

14. The NOAA Long Term Palmer Drought Severity Index map through December 2, 2017 shows the Upper Savannah River Basin area as needing very little rainfall over the next 4 weeks to return to normal condition.

15. The NOAA short and medium term forecasts predict less than 1 inch of rainfall for the next 7 days (December 11 to 18) and an Equal Chance of Normal, Below Normal, or Above Normal precipitation for the 8 to 14 day outlook (December 18 to 24). The January through March outlook projects Above Normal temperatures and Below Normal precipitation for the basin.

16. The Duke Energy meteorological forecast issued November, 2017 shows Above Normal temperatures and Below Normal precipitation for the Keowee-Toxaway area through February.

17. Streamflow conditions are currently normal, but below the median at the Chattooga River gage near Clayton, GA.
18. A chart depicting recent historical lake levels for Lake Jocassee and Lake Keowee indicates levels have been relatively constant in Lake Keowee during 2017, with decreasing levels in recent weeks. Increasing levels have been observed in Lake Jocassee over the past several weeks, following several months of decline as a result of balancing storage with USACE reservoirs downstream.

19. In summary, the KT LIP is in Stage 2 Condition. NOAA forecasters are suggesting below normal probability for precipitation through March. Duke Energy is suggesting below normal precipitation through February as well. Duke Energy continues to request water conservation efforts by water users relying on water stored in Lake Keowee, including watering restrictions for Lake Neighbors on Lake Keowee and Lake Jocassee.

20. Mr. Bruce updated the group that Duke Energy and the NWS have been discussing methods for potentially evaluating NWS and Duke Energy meteorological forecasts. Although they have had some preliminary discussions, a process to evaluate these forecasts has yet to be developed. Discussions are ongoing.

21. Mr. Bruce indicated that the KT-DMAG will not hold another call this month due to the upcoming holiday, assuming there are no major changes in weather conditions. Alternately, Duke Energy may email an intra-month drought status update to the group.