South Carolina Surface Water Quantity Models
Monthly Summary

Invoice Date:	July 30, 2015
For Services Between:	June 21, 2015 and July 24, 2015
Invoice No.:	11

Summary of Work Completed During Invoice Period

Project Management and Related Tasks

- Continued internal project coordination and management tasks, including:
  - Weekly project team meetings
  - Monthly project meeting by teleconference
- A teleconference was conducted with DNR staff to discuss recent and potential future enhancements to the Simplified Water Allocation Model (SWAM).

Data Collection

- CDM Smith continued contacting water users in the Broad, Edisto, Pee Dee, and Catawba basins to confirm reported withdrawal amounts, sources, and discharge amounts; collect pre-reporting withdrawal amounts (or estimates); and confirm operational parameters.
- CDM Smith continued organizing and analyzing existing data in the remaining basins.
- CDM Smith began contacting water users in the Santee and Salkehatchie River basins.

Data Analysis and Modeling

Saluda

- Finished development of a draft unimpaired flow (UIF) dataset to the confluence of the Broad River and submitted it to DNR and the Technical Advisory Committee (TAC) for review. A technical memorandum was prepared to document the results and methodology.
- CDM Smith and DNR held several conference calls to review and discuss the draft UIF dataset. In response to DNR comments, CDM Smith conducted additional testing to compare and evaluate record extension methodology and documented the results in a memorandum. Following a teleconference, CDM Smith and DNR agreed to apply the recommended record extension methodology detailed in the memorandum, which reflected a slight change over what was used to develop the draft UIF dataset.
- Based on the comments received on the draft UIF dataset and adjustment in record extension methodology, CDM Smith began revising the UIF dataset.
- Greenville Water provided monthly lake-level data for Table Rock and North Saluda Reservoirs for the period 1965–1987. CDM Smith updated the corresponding reservoir UIF workbooks to include this new data (replacing hindcasted data).
- CDM Smith began calibration of the Saluda basin model. The calibration model includes time-series histories of water withdrawal and discharge data.

Edisto

- Continued analyzing DHEC data and data collected from users, and began setting up UIF workbooks.
- Continued preparing the UIF methodology report, including making adjustments to incorporate the revised record-extension methodology.
- Held additional discussions with Charleston Water System and DHEC to understand and analyze the historical withdrawal amounts from the Edisto River.

Broad

- Addressed DNR comments received on the draft Broad River model framework and submitted an updated model framework for posting on DNR website.
- Continued organizing, reviewing, and analyzing DHEC data and data collected from users.
- Received approval on the amendment dated March 26, 2015 to develop the Broad River basin UIF dataset.

Pee Dee

- As part of the UIF development in the Saluda, continued to prepare UIF worksheets that will be used in the Pee Dee and other basins.
- Held a teleconference with DHEC to review coastal golf course surface-water intake locations.
- Continued collection and analysis of withdrawal and discharge data.
- Began developing the draft model framework.

Catawba

- Continued contacting permitted and registered water users to collect and confirm current and historical operations and water withdrawal data.
- Received approval on the amendment dated June 10, 2015 to enhance the existing Catawba River basin UIF dataset.

Santee

- As part of the UIF development in the Saluda, updated UIF worksheets that will be used in the Santee and other basins. Continued organizing withdrawal and discharge data.

Savannah

- As part of the UIF development in the Saluda, updated UIF worksheets that will be used in the Savannah and other basins. Continued organizing withdrawal and discharge data.

Salkehatchie

- As part of the UIF development in the Saluda, updated UIF worksheets that will be used in the Salkehatchie and other basins. Continued organizing withdrawal and discharge data.

Stakeholder Involvement

- Prepared presentation materials for the first stakeholder meeting in the Broad River basin, scheduled for August 5.

Summary of Upcoming Work

Over the next month, the project team will:

- Continue data collection in the Catawba, Santee, and Salkehatchie basins. Initiate data collection in the Savannah basin.
- Finalize development of the UIF dataset for the Saluda Basin to the confluence of the Broad River.
- Finalize development and calibration of the draft Saluda model to the confluence of the Broad River.
- Continue development of the Edisto UIF dataset and begin development of the Broad UIF dataset. Once the Broad dataset is complete, the Saluda UIF dataset will be completed to the confluence of the Wateree River.
- Finalize development of the draft Pee Dee River basin model framework.

Issues Impacting Scope, Schedule, or Project Cost

The decision was made to develop a Broad River basin UIF dataset, rather than attempt to use the existing, incomplete dataset. An amendment submitted in March was approved; therefore, CDM Smith will begin UIF development in the Broad basin. Minor schedule adjustments have been made to reflect the project progress and more accurately account for future deliverables.

Development of the Saluda UIF dataset has taken longer than originally anticipated; however, the project team is confident that subsequent basins will be completed more efficiently, given that a repeatable process has been established and all of the tools and information necessary to develop the UIF datasets are in place. CDM Smith and DNR have also agreed to a modified record extension methodology which should result in UIF datasets that are acceptable to all parties in subsequent basins

During the project kickoff meeting, and based on DNR and DHEC review of the draft Modeling Plan, several potential out-of-scope model enhancements were identified. These include:

- A “Current Situation Analysis” for quasi-real time operational support. This functionality would provide a probabilistic analysis of current conditions at any future point in time and how conditions are likely to change within 6 or 12 months based on projected use and management patterns.
- The ability to use near-term hydrologic flow forecasts (for example, 60-day streamflow forecasts from NOAA) for month-to-month operational planning.
- Use of HEC DSSVue and DSS files for results display and analysis.

CDM Smith has presented a scope for implementing these enhancements to DNR and DHEC, and will prepare cost prior to completion of the pilot (Saluda) model. The decision on whether to implement one or more of these enhancements will likely be made once the pilot model is completed.