South Carolina Surface Water Quantity Models
Monthly Summary

Invoice Date:	June 29, 2015
For Services Between:	May 17, 2015 and June 20, 2015
Invoice No.:	10

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
- Several enhancements were made to the Simplified Water Allocation Model (SWAM) and testing of these enhancements was completed. These included:
  - A new option for more easily simulating Riparian Water Rights
  - A new Reservoir Accounts summary table that summarizes parent-child accounting by reservoirs
  - Miscellaneous interface (labeling) improvements, based on feedback received during DNR and DHEC training in April

Data Collection

- CDM Smith finished contacting registered and permitted water users in the Saluda basin and 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 also began organizing and analyzing existing data in the remaining basins.

Data Analysis and Modeling

Saluda

- Continued development of the unimpaired flow (UIF) dataset to the confluence of the Broad River. The Draft UIF Dataset is substantially complete and will be submitted to DNR and DHEC for review. A technical memorandum is being prepared to document the results and final methodology.
- CDM Smith continued inputting water withdrawal, discharge, and operating data into the Saluda basin baseline and calibration models. The baseline model reflects current operations in the basin, whereas the calibration model includes time-series histories of water withdrawal and discharge data.

Edisto

- Continued collecting, organizing, reviewing, and analyzing DHEC data and data collected from users.
- Addressed DNR comments on the draft of model framework and submitted the final model framework.
- Continued preparing the UIF methodology report and organizing the collected withdrawal and discharge data to facilitate development of the UIF dataset.

Broad

- Submitted a draft of the Broad River model framework.
- Continued organizing, reviewing, and analyzing DHEC data and data collected from users. Continued contacting permitted water users below Lake Wateree.
- *Development of the Broad UIF dataset is on hold, pending formal approval of the amendment dated March 26, 2015.*

Pee Dee

- As part of the UIF development in the Saluda, prepared UIF worksheets that will be used in the Pee Dee and other basins.
- Continued withdrawal and discharge data collection and analysis.

Catawba

- Received and reviewed the existing NC-SC Catawba-Wateree Basin UIF dataset, CHEOPS model, and documentation from HDR, Inc.
- Reviewed USGS flow gage information, withdrawal and discharge locations, and other information in order to develop a proposed approach to updating and extending (geographically) the existing UIF dataset.

Santee

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

Savannah

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

Salkehatchie

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

Stakeholder Involvement

- Attended and presented the model framework at the first stakeholder meeting in the Edisto basin.
- Hosted the first Technical Advisory Committee orientation meeting, consisting of representatives of various stakeholder groups.

Summary of Upcoming Work

Over the next month, the project team will:

- Continue data collection in the Catawba; and initiate data collection in the Santee, Salkehatchie, and Savannah basins.
- Finalize development of the UIF dataset for the Saluda Basin to the confluence of the Broad River, following receipt of review comments.
- Continue development and calibration of the Saluda model to the confluence of the Broad River.

- Begin development of the Edisto and Broad UIF datasets (pending approval of the amendment for 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 Broad River basin model framework.
- Continue development of the Edisto basin UIF dataset and calibration model.

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 has been submitted for approval. 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.

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.