South Carolina Surface Water Quantity Models
Monthly Summary

Invoice Date:	October 30, 2015
For Services Between:	October 1, 2015 and October 30, 2015
Invoice No.:	14

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
- Coordinated with ICC Global Hosting to conduct a one-month test of the Saluda basin model in a virtual desktop environment.
- The SWAM User's Manual (version 3.0) was updated and submitted to DNR and DHEC.

Data Collection

- Data collection in the Broad, Pee Dee, Catawba, Santee, and Salkehatchie River basins is substantially complete; however, additional follow-up calls are being made as the data is analyzed and incorporated and used for unimpaired flow (UIF) development and model development.
- Data collection in the Saluda basin is complete.

Data Analysis and Modeling

Saluda

- Based on comments and additional information received from DNR, the historical rule curves for Lake Murray and Lake Greenwood that were in place during the calibration were reviewed and adjusted in the SWAM model. The calibration results workbooks were updated.
- The draft report documenting the Saluda Basin model was updated, reflecting the minor changes to Lake Murray, Lake Greenwood, and downstream nodes (gages) during the calibration period.

Edisto

- A draft set of UIFs were submitted to DNR for review. Review comments were received, and work was performed to address comments. COM Smith is awaiting clarification from SCE&G concerning historical withdrawal and discharge data from the now-closed Canadys Station, before finalizing the UIF updates.

Broad

- CDM Smith prepared for submittal the Broad River Basin UIF Methodology Memorandum.
- Reservoir data were compiled and reviewed, and hindcasting and gap-filling was initiated.
- Sub-basins were delineated and basin statistics (area, land use) were generated to aid in reference gage selection and extensions.
- Hindcasting and gap filling of withdrawal and discharge data was completed.

Pee Dee

- Work was initiated on the Pee Dee basin UIF Methodology Memorandum.
- Sub-basins were delineated and basin statistics (area, land use) were generated to aid in reference gage selection and extensions.
- Hindcasting and gap filling of withdrawal and discharge data was substantially completed.

Catawba

- The draft model framework for the basin was submitted for review. Based on comments received from DNR, the TAC, and the Catawba-Wateree Water Management Group (CWWMG) administrators (HDR Inc.), the framework was revised and a final model framework memo was submitted.

Santee

- Hindcasting of operational records continued.

Savannah

- CDM Smith began reviewing GIS data and withdrawal and discharge data collected from DHEC.

Salkehatchie

- Hindcasting of operational records continued.

Stakeholder Involvement

- The two stakeholder meetings that were scheduled for October 14 and 15 were cancelled because of flooding.
- The first stakeholder meeting for the Pee Dee River basin was rescheduled for November 3.
- The first stakeholder meeting for the Catawba River basin was scheduled for November 4.
- The second stakeholder meeting for the Edisto River basin was scheduled for December1.
- The second stakeholder meeting for the Saluda River basin was rescheduled for December2.

Summary of Upcoming Work

Over the next month, the project team will:

- Submit the draft Edisto SWAM model and report for review.
- Update and submit the final Edisto UIF dataset and Results Memorandum.
- Continue development of the Broad UIF dataset. Once the Broad dataset is complete, the Saluda basin UIF dataset will be completed to the confluence of the Wateree River.
- Participate in the Pee Dee and Catawba stakeholder meetings.
- Continue data collection in the Savannah basin.
- Submit the Broad UIF Methodology Memorandum and continue preparation of the Edisto UIF Methodology Memorandum.

Issues Impacting Scope, Schedule, or Project Cost

Additional discussions were held between CDM Smith and DNR regarding how reservoir operating rules are incorporated in SWAM. DNR indicated the preference for additional flexibility in SWAM to allow the user to evaluate more complex alternative management rules. It was noted that when more complex rules (such as the Lake Murray Striped Basin release rules) were included in SWAM as “prescribed rules", user-initiated adjustments to test variations of the rule were not easily performed. CDM Smith is preparing a summary, for DNR's review, of proposed model enhancements that will allow for increased flexibility with regard to reservoir operating rules. This additional work may result in a minor increase in scope and project cost.

Schedule adjustments were made to reflect the project progress and more accurately account for future deliverables.

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.