South Carolina Surface Water Quantity Models
Monthly Summary

Invoice Date:	May 2, 2016
For Services Between:	April 3, 2016 and April 31, 2016
Invoice No.:	20

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
- Based on DNR comments, SWAM's "Node Output" and Reservoir Output" tables were reconfigured.

Data Collection

- Data collection most 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 Analysis and Modeling

Saluda

- Reservoir enhancements to the SWAM code, which will apply to reservoirs in the Saluda basin, were developed, tested, and presented to DNR and DHEC.
- Updates to the Model Report were initiated.

Edisto

- The calibration and model report was being finalized based on the final UIF dataset selected by DNR. Updates to the baseline model were initiated.

Broad

- Development of the calibration model was completed and the model and calibration results workbooks were provided to DNR and DHEC for review. Work on the modeling report and baseline model was initiated.

Pee Dee

- Development of the draft calibration model was completed and the model and calibration results workbooks were provided to DNR and DHEC for review. Work on the modeling report and baseline model was initiated.

Catawba-Wateree

- Reservoir enhancements to the SWAM code, which will apply to reservoirs in the Catawba-Wateree basin, were further tested.
- The process of developing UIFs for the Catawba tributaries was initiated, as was preliminary development of the calibration model.

Santee

- A UIF methodology memorandum was prepared.
- Development of the calibration model was initiated.

Savannah

- Reservoir enhancements to the SWAM code, which will apply to reservoirs in the Savannah basin, were further tested.

Salkehatchie

- CDM Smith continued working on the draft model framework and memorandum.

Stakeholder Involvement

- Presentation materials and model demonstrations were prepared for the 2nd Stakeholder Meeting in the Pee Dee Basin.

Summary of Upcoming Work

Over the next month, the project team will:

- Submit the final Edisto basin UIF dataset and Results Memorandum
- Submit the final Saluda basin Model Report and baseline model

Issues Impacting Scope, Schedule, or Project Cost

In late 2015, 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 prepared, submitted, and recently received approval for a change order to implement model enhancements that will allow for increased flexibility with regard to reservoir operating rules.

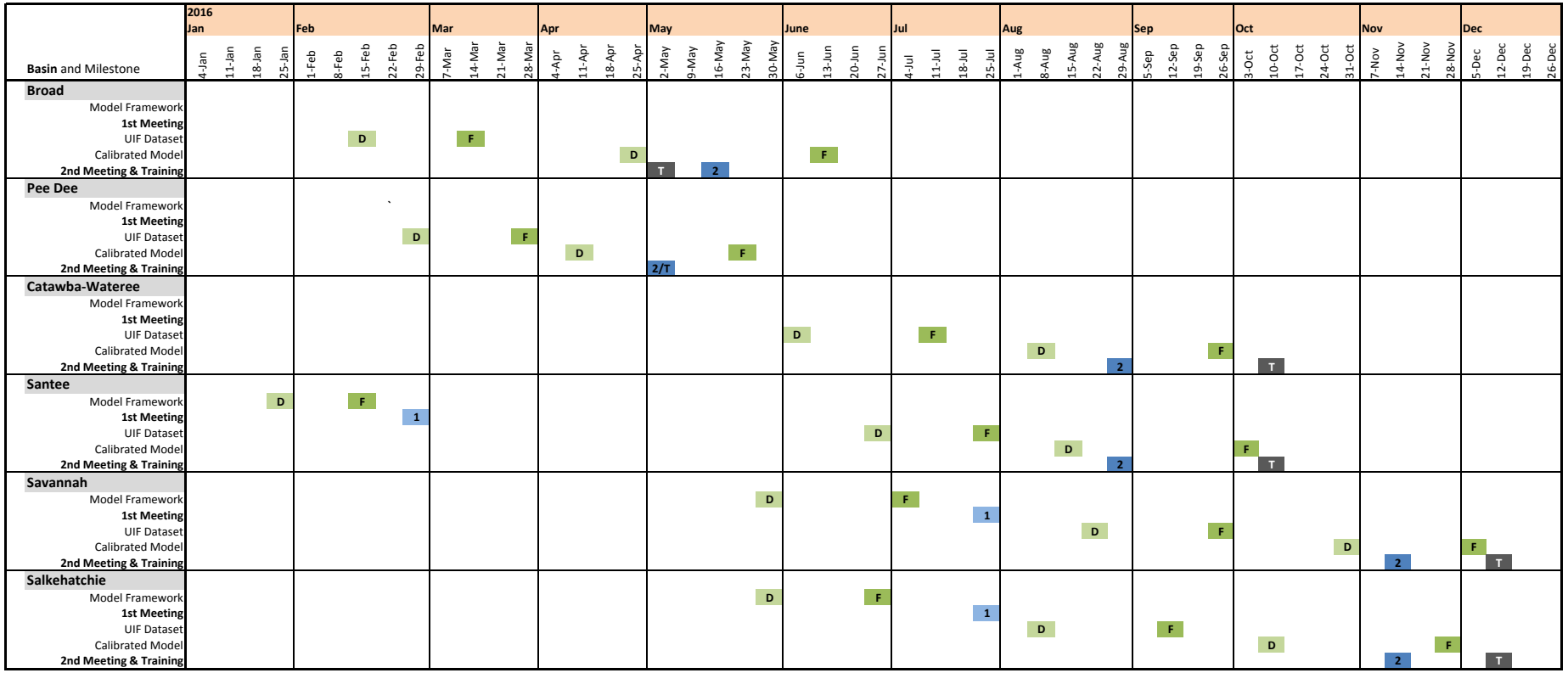
Schedule adjustments were made to reflect the project progress and more accurately account for future deliverables. It is currently anticipated that due to delays in completion of the pilot model, the project schedule will need to be extended approximately six months, to the end of 2016. An updated schedule is attached.

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. The decision on whether to implement one or more of these enhancements will likely be made once additional models are completed.

South Carolina Surface Water Quantity Assessment **Schedule** Updated May 2, 2016



1 = First Meeting
2 = 2nd Meeting
D = Draft Comlpetion Date
F = Final Completion Date
T = Training

2016 Proposed Stakeholder Meeting Schedule

Basin	1st Meeting Week of:	2nd Meeting Week of:
Saluda	*completed*	*completed*
Edisto	*completed*	*completed*
Broad	*completed*	18-May-16
Pee Dee	*completed*	2-May-16
Catawba-Water.	*completed*	29-Aug-16
Santee	*completed*	29-Aug-16
Savannah	25-Jul-16	14-Nov-16
Salkehatchie	25-Jul-16	14-Nov-16