

**Monthly Letter Progress Report #01 – January 2011  
Assessment of Groundwater Modeling Approaches to  
Brackish Aquifers**

**TWDB Contract No. 1100011196**

**Submitted to:**

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## TWDB Contract No. 1100011196

### 1.0 Progress on Tasks

This report summarizes activities on project tasks for the month of January, 2011 and represents the first progress report on this contract. The project actually started in late December of 2010, but no time was billed for that month.

#### Task 1 Project Management

We had a kickoff meeting in mid-January with TWDB staff. We discussed the progress we had made to that point and immediate plans for continuing work.

#### Task 2 Technical Tasks

Technical tasks in January focused on the literature review, which is the first technical task in the project schedule.

We created a matrix of all identified variable-density groundwater codes and their associated parameters (source code, numerical formulation of groundwater flow, dimensionality, etc). This work included searching all relevant books and publications and consulting with some industry professionals familiar with variable density groundwater modeling packages. We got feedback from district personnel in California but have not yet gotten any response from Florida. Because of the prevalence of SEAWAT in Florida, we may not get any additional code identifications from the water management districts in that state.

We also began the process of evaluating variable density modeling in the literature. Our first area of emphasis was how the interface between fresh and salt water is modeled, i.e. sharp versus gradient interfaces. Additionally, we reviewed several papers related to the effect that aquifer geometry has on the distribution of variable density head values.

#### Task 3 Project Report

There was no work under this task in January.

## **2.0 Planned Activities for the Next Month**

### Task 1 Project Management

There are no major project management tasks to be completed in February.

### Task 2 Technical Tasks

Technical tasks in February will be focused on getting the bulk of the literature review completed, and turning attention to the applicability evaluation of the groundwater codes.

### Task 3 Project Report

We do not anticipate doing work under this task in February.

## **3.0 Problems/Issues and Actions Required/Taken**

None.