QUARTERLY PROGRESS REPORT

October, 1 2013 to December, 31 2013

In this reporting period the following items were accomplished:

<u>General:</u>

State DOT's and practitioners noticed that the FHWA-FST2DH Model for Simulating Two-dimensional Depth-averaged Flow and Sediment Transport showed instabilities for some cases and therefore an improvement of the model was needed. FHWA decided to transition from the FHWA-FST2DH Model to a new two-dimensional hydraulic river modeling program, SRH-2D developed by the U.S. Bureau of Reclamation (Reclamation). The SRH-2D hydraulic modeling program has been used by Reclamation and other agencies for many years. It is recognized for its ability to achieve stable solutions to complex hydraulic problems quickly and effectively. FHWA hydraulic engineers have evaluated the current program's capabilities and see a significant potential benefit for future Department of Transportation (DOT) hydraulic related projects. However, the current version of the SRH-2D program does not include the analysis of key structural features that are often required for transportation related hydraulics projects. Reclamation does not have a need for analysis of these features but is interested in collaborating with FHWA to broaden the use of the model and make it more applicable to a wider range of projects. FHWA established an Interagency Agreement with the USBR using TPF-5(248) funds to incorporate modeling tools into SRH-2D needed for transportation related hydraulics projects. We expect to have the project completed in fall 2014.

- Task 1 of the Interagency Agreement with the USBR is substantially complete, although USBR will continue to provide technical support for the SMS Interface when the new SRH-2D features are added.
- Task 2.1 – USBR is currently working on Task 2.1 (to incorporate weir flow, culvert flow and bridge pires into SRH-2D), but has been delayed by the late release of the beta SMS-SRH2D interface and a modification to Aquaveo's contract.
- Aquaveo compiled its first successful beta version of the SMS SRH-2D Interface on Jan 3rd and provided a copy to USBR on Jan 16th. USBR needs to be familiar with the interface to know how best to program the hydraulic structure variables into SRH-2D.