

**Texas A&M AgriLife Research
Texas Water Resources Institute**

Implementing the Pecos River Watershed Protection Plan through a Heliborne Electromagnetic (EM) Survey, Identifying salinity sources and understanding mechanisms of solute transport in the Pecos River.

**FY 12 CWA 319(h)
TSSWCB Project No. 12-11**

Quarter no. 5 From 10/1/2013 Through 12/31/ 2013

I. Abstract

Work this quarter has continued to focus on getting the project up and running completely. The draft of the project QAPP remains in agency review. Existing data gathering has also continued so that the project team is prepared to start work when the project QAPP is approved. Post cards were sent to landowners of record for properties in the study area seeking their permission were also sent out. The response rate was very low and permission to conduct the study was only received for roughly 16% of the study area. As such, the application of the HEM technology in this project was not justified. Landowners were subsequently notified that the HEM technology would not be deployed in the study area.

II. Overall Progress and Results by Task

TASK 1: Project Administration, Public Notification and Engagement

Subtask 1.1: *TWRI will prepare electronic quarterly progress reports (QPRs) for submission to the TSSWCB. QPRs shall document all activities performed within a quarter and shall be submitted by the 15th of January, April, July and October. QPRs will be distributed to all Project Partners.*

The following actions have been completed during this reporting period:

A. TWRI submitted the Year 2, Quarter 1 report to TSSWCB on January 14, 2014.

37% Complete

Subtask 1.2: *TWRI will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly.*

The following actions have been completed during this reporting period:

A. As of December 4, 2013, a total of \$68,193, or about 18 percent of the total project budget has been spent.

25% Complete

Subtask 1.3: *TWRI will host coordination meetings or conference calls, at least quarterly, with Project Partners to discuss project activities, project schedule, communication needs, deliverables, and other requirements. TWRI will develop lists of action items needed following each project coordination meeting and distribute to project personnel.*

The following actions have been completed during this reporting period:

- A. Several calls amongst team members were held this quarter to discuss project progress, QAPP development and public relations.

45% Complete

Subtask 1.4: TWRI, with assistance from Research, will develop a request for qualifications, accept bids and select a contractor to perform heliborne EM data collection, processing, analysis of results and delivery of a report describing the approach used, results, their analysis and implications.

The following actions have been completed during this reporting period:

- A. Task complete.

100% Complete

Subtask 1.5: TWRI will work with Research and the selected contractor to determine which portions of Crane, Pecos, and Ward Counties will be crossed during the heliborne EM survey, and will identify appropriate property owners for notification. Upon identification, TWRI will notify all landowners in regards to the potential flight activity over their property. Notification will be attempted through mailed letters and phone calls to residences. Watershed-wide, open notifications will also be distributed through appropriate information channels such as the Pecos WPP Implementation website (pecosbasin.tamu.edu) and local media. Ad space will be purchased in local newspapers as needed to ensure that notifications are published in the local papers.

The following actions have been completed during this reporting period:

- A. Permission was sought from landowners in the study area and permission was received to apply the HEM technology on only 16% of the study area.
- B. This level of permission did not warrant HEM application; therefore, the contract with the selected contractor was terminated.
- C. Landowners were notified that the HEM was not going to be applied and they were thanked for their cooperation.

50% Complete

Subtask 1.6: TWRI will coordinate ground control efforts with the proper authorities and provide personnel to assist with traffic control in priority areas on roadways as needed during the flights where traffic must be stopped as the heliborne EM equipment passes over.

The following actions have been completed during this reporting period:

- A. No activity to report this quarter.

0% Complete

Subtask 1.7: TWRI will engage the Pecos River watershed landowners and other entities identified in the Pecos River WPP and report on project activities.

The following actions have been completed during this reporting period:

- A. Numerous phone calls, letters and other correspondence were completed this quarter with various landowners regarding project happenings.

50% Complete

TASK 2: Quality Assurance

Subtask 2.1: *TWRI, with assistance from Research will develop a QAPP for activities in Task 3 that is consistent with the most recent versions of EPA Requirements for Quality Assurance Project Plans (QA/R-5) and the TSSWCB Environmental Data Quality Management Plan*

The following actions have been completed during this reporting period:

- A. QAPP review has been canceled due to the HEM component of the project being cancelled.
- B. Further action will be determined when a path forward is reached.

55% Complete

Subtask 2.2: *TWRI, with assistance from Research and the selected contractor will implement the approved QAPP. TWRI will submit revisions and necessary amendments to the QAPP as needed.*

The following actions have been completed during this reporting period:

- A. No activity to report this quarter.

0% Complete

TASK 3: Conduct a desktop hydrogeological assessment of surface water and groundwater interactions

Subtask 3.1: *Research will compile the existing groundwater monitoring data (water level, water quality, borehole lithological data, borehole geophysical survey if available and other related data from Texas Water Development Board and/or other sources), and develop a water resources database and GIS coverage for establishment of hydrogeological framework.*

The following actions have been completed during this reporting period:

- A. No new activity to report this quarter.

30% Complete

Subtask 3.2: *Research will conduct preliminary analysis of hydrogeological data to gain a better understanding of temporal and spatial variations of groundwater quality and identify data gaps in existing data sets*

The following actions have been completed during this reporting period:

- A. No activity to report this quarter.

0% Complete

Subtask 3.3: *Research will utilize preliminary hydrogeological assessment results to provide specific direction to the selected contractor in collection of the heliborne EM data and will work with the contractors to finalize the flight path plan.*

The following actions have been completed during this reporting period:

- A. No activity to report this quarter.

0% Complete

Subtask 3.4: *Using information from the heliborne EM survey, Research and the selected contractor will assess groundwater salinity conditions and identify sites where borehole hydrogeological and lithological data are needed to verify heliborne EM results.*

The following actions have been completed during this reporting period:

A. No activity to report this quarter.

0% Complete

Subtask 3.5: *Research will combine results from the desktop hydrogeological assessment and EM survey in to a combined final report.*

The following actions have been completed during this reporting period:

A. No activity to report this quarter.

0% Complete

TASK 4: EM survey data planning, collection and data assessment

Subtask 4.1: *The contractor, in coordination with Research, and TWRI, will develop a flight plan for the collection of heliborne EM survey data at the site from Coyanosa and Girvin (56 miles river reach). The survey flight lines will be conducted along the selected reach and hot spots to be determined based on hydrogeological and field conditions and plotted using GIS.*

The following actions have been completed during this reporting period:

A. No activity to report this quarter.

B. The contract for HEM work has been terminated due to HEM cancellation.

C. Task complete.

0% Complete

Subtask 4.2: *During data collection, Research and TWRI personnel will be onsite with contractor personnel to ensure appropriate coordination, QA/QC, data collection and adherence to the contract.*

The following actions have been completed during this reporting period:

A. No activity to report this quarter.

B. Task will not be carried out due to HEM cancellation.

0% Complete

Subtask 4.3: *The contractor will facilitate data collection and assessment and the initial processing onsite to ensure quality data collection.*

The following actions have been completed during this reporting period:

A. No activity to report this quarter.

B. Task will not be carried out due to HEM cancellation.

0% Complete

Subtask 4.4: *The contractor will develop a technical report that describes in detail the data collection*

sites (providing maps of areas), details the technology and approach used in collecting the heliborne EM data, provides an interpretation of the heliborne EM data, and summarizes the findings of the heliborne EM assessment in a survey report.

The following actions have been completed during this reporting period:

A. No activity to report this quarter.

B. Task will not be carried out due to HEM cancellation.

0% Complete

III. Projected Work for Next Quarter

- determine a path forward for the project