

Watershed Assistance to Improve Water Quality in North Central Texas

Texas Water Resources Institute
FY 08 Federal Appropriated Funds
Project # 69-7442-8-805

Quarter no. 1 From 10/08/08 Through 1/08/09

Progress in Meeting Project Milestones and Output Commitments

Task, Deliverables and Schedules

The Texas Water Resources Institute (TWRI) along with the Texas A&M University Spatial Sciences Laboratory (SSL), Texas AgriLife Research and Extension Center at Temple and Texas AgriLife Extension have been diligently working to complete project deliverables. Project efforts during this quarter focused on modeling activities and education. The SSL and BAREC have completed efforts to calibrate and validate and ran management/BMP scenarios through the SWAT model for Cedar Creek Reservoir looking to reduce nutrient and sediment loadings.

TWRI continues to update its Web site containing water quality information, specifically related to project efforts, for scientists and the general public and to provide project oversight and financial management for the project.

In looking forward to the next quarter, work associated with Eagle Mountain Reservoir and Richland Chambers Reservoir Watersheds modeling activities will continue.

The economics team has developed an economic model that will quantify the cost effectiveness of different BMP scenarios. Extension specialists have been conducting stakeholders and work group meetings in an effort to finalize the Cedar Creek WPP by September 2009.

The status of tasks, milestones and deliverables will be defined using the following terms:

| | |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------|
| Pending | Work has not started on the deliverable |
| Initiated | Work has started |
| Completed | The objectives were achieved and deliverables are finished |
| Deferred | Work has started, but further action is delayed pending other information, the completion of another objective, staff restraints, etc. |
| Ongoing | Work will continue throughout the term of the contract |

Task 1 SWAT Modeling

| Date | Status | Deliverables |
|--------|-----------|----------------------------------------------------------------------------------|
| 1/1/07 | Completed | 1. Complete model calibration and validation for Cedar Creek Reservoir Watershed |
| 1/1/08 | Completed | 2. Model calibration and validation for Eagle Mountain Reservoir Watershed |
| 1/1/08 | Initiated | 3. Model calibration and validation for Richland Chambers Reservoir Watershed |
| | Pending | 4. Model calibration and validation for Benbrook Reservoir |
| | Pending | 5. Model calibration and validation for Lake Bridgeport |

Comments:

- SSL and Texas AgriLife Research and Extension Center at Temple have begun to collect water quality and flow data for the Richland Chambers Watershed.
- Baylor University conducted a sediment survey of Eagle Mountain Reservoir in order to verify storage capacity, flows and sediment size for the model. A survey of Richland Chambers Reservoir is scheduled to begin in August. The survey had been postponed to recent rainfall.
- Modeling activities continue for Richland Chambers Reservoir Watershed. Data has been gathered and analyzed and the model has been set-up. The model has been calibrated for flow and the research team is working to finalize model calibration for nutrients. This deliverable is 65 percent complete.

Task 2 Economic Analysis

| Date | Status | Deliverables |
|---------|-----------|------------------------------------------------------------------------------------------------------------------|
| 4/1/08 | Completed | 1. Begin developing input data for economic analysis of alternative BMPs for Cedar Creek Reservoir and Watershed |
| 10/1/08 | Completed | 2. Conduct economic analyses of alternative BMPs for Cedar Creek Reservoir Watershed |
| 10/1/08 | Initiated | 3. Begin developing input data for economic analyses of Eagle Mountain Watershed |
| 4/1/09 | Pending | 4. Conduct economic analyses of alternative BMPs for Eagle Mountain Reservoir Watershed |
| 4/1/09 | Pending | 5. Begin developing input data for economic analyses of Richland Chambers Reservoir Watershed |
| 10/1/09 | Pending | 6. Conduct economic analyses of alternative BMPs for Richland Chambers Reservoir Watershed |

Comments:

- On November 20, 2008 a meeting was held with the Cedar Creek stakeholders group to present the BMP cost and efficiency scenarios.
- An economics team meeting was held December 23rd to refine BMP scenario outputs.

Task 3 Extension Education

| Date | Status | Deliverables |
|---------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4/1/04 | Completed | 1. Develop generalized watershed management program bulletin |
| 7/1/04 | Completed | 2. Conduct two-day watershed management training program for County Extension Agents and other selected resource personnel |
| 10/1/05 | Completed | 3. Recruit Cedar Creek stakeholder committee |
| 1/1/05 | Completed | 4. Develop Cedar Creek Watershed characteristics fact sheet |
| 1/1/05 | Completed | 5. Construct demonstration trailer |
| 4/1/05 | Completed | 6. Hold Cedar Creek public meeting on watershed characteristics and pollution problems |
| 4/1/05 | Completed | 7. Recruit Eagle Mountain stakeholder committee |
| 4/1/05 | Completed | 8. Conduct two-day training program on stream erosion for County Extension Agents and other resource personnel |
| 4/1/05 | Completed | 9. Hold two Cedar Creek stakeholder committee meetings |
| 7/1/05 | Initiated | 10. Develop Eagle Mountain Watershed characteristics fact sheet |
| 7/1/05 | Completed | 11. Conduct two Cedar Creek Extension education meetings on urban storm water quality, agricultural nonpoint source pollution prevention and wastewater |
| 7/1/08 | Initiated Completed Completed | 12. Develop general fact sheets on: 1) Wastewater management options around lakes, 2) Urban storm water management, and 3) Lawn management |
| 8/1/08 | Initiated | 13. Hold Eagle Mountain stakeholder committee meetings |
| 8/1/08 | Initiated | 14. Hold Eagle Mountain public meeting on watershed characteristics and pollution problems |
| 4/1/09 | Pending | 15. Develop Richland Chambers Watershed characteristics fact sheet |
| 7/1/09 | Pending | 16. Conduct educational meetings in the Richland Chambers Watershed |
| 10/1/09 | Pending | 17. Hold Richland Chambers stakeholder committee meetings |

10/1/09 Pending 18. Hold Richland Chambers public meeting on watershed characteristics and pollution problems

Comments:

- Cedar Creek Watershed fact sheet development is in the intermediate stage. This deliverable will be completed once BMP runs have been made through the SWAT model and recommendations have been made on how to reduce loadings into the reservoir. This deliverable is 85 percent complete.
- Texas AgriLife Extension is working on the following publications 1) stream processes, 2) Where does the rainfall go, 3) Utilizing rain gardens for stormwater abatement, 4) Vegetative filter strips, and 5) grassed waterways. These publications are 75 percent complete.
- Texas AgriLife Extension conducted a multi-county (Kaufman, Van Zandt, Rockwall and Henderson) short course on December 19, 2008 in Kaufman, TX. The short course targeted cattle producers in the area and a portion of the program focused on stocking rates, Agricultural BMPs and their benefits, nutrient management, control of erosion, etc. A presentation was made on the availability of funds and assistance from NRCS and the TSSWCB related to EQIP and local grant funds to support Ag BMPs on producer lands.

Task 4 Administration

| Date | Status | Deliverables |
|---------|-----------|------------------------------|
| 1/7/04 | Completed | 1. Quarterly Progress Report |
| 4/7/04 | Completed | |
| 7/7/04 | Completed | |
| 10/7/04 | Completed | |
| 1/7/05 | Completed | |
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| 1/7/09 | Completed | |
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| 7/7/09 | | |

10/7/09

2. Final Report

Comments:

- TWRI continually updates the Web site created specifically for the North Central Texas Water Quality Project. The Web site can be accessed at the following address: <http://nctx-water.tamu.edu>
- TWRI and the Texas AgriLife Research and Extension Urban Solutions Center conducted a stakeholder meeting in the Cedar Creek watershed on November 20, 2008. Topics of discussion focused on economic analysis and review of SWAT model outputs related to BMP model runs.

Problems or Obstacles Encountered and Remedial Actions Taken

The Spatial Sciences Laboratory and Texas AgriLife Research and Extension Center at Temple have been working closely with Texas Water Resources Institute (TWRI) towards successful completion of project deliverables.

Work Planned for Next Reporting Period

Task 1: SWAT Modeling

Run the SWAT model for Eagle Mountain Reservoir and begin identifying BMPs for the watershed to meet water quality standards. Continue data collection and model development on Richland Chambers Reservoir.

Task 2: Economics

Finalize running different scenarios with SWAT/QUAL2E/WASP output looking at the combination that provides the least cost while still achieving the necessary load reductions.

Task 3: Education

Conduct stakeholder and educational meetings in the Cedar Creek and Eagle Mountain Watersheds. Continue conducting BMP meetings to educate local landowners of practices they can implement on private property that can lessen soil erosion and water quality impairments as well as identify funding opportunities for these practices such as EQIP and others.

Task 4: Administration

TWRI will continue working with TRWD, SSL, Texas AgriLife Research and Extension Center at Temple and Texas AgriLife Extension Service in moving forward with project

deliverables and reporting progress on a quarterly basis. Efforts will be made to publicize the project and raise awareness of water quality issues within the study area.

Use of Awarded Funds

FY 03 Funded Project YEARS 1-4

| | Current Balance** |
|-------------------------------------------------------|--------------------------|
| Texas Water Resources Institute | \$29.73 |
| Texas AgriLife Research and Extension Center - Dallas | \$1,698.18 |
| Spatial Sciences Lab - TAMU | \$41.10 |
| Texas AgriLife Extension – BAEN | \$1,422.71 |
| Texas AgriLife Extension – AGECE | \$577.98 |
| Consultants | \$37.88 |
| TOTAL | \$3,807.58 |

****changes between this balance and the balance reported on the last quarterly report are due to payroll corrections and encumbrance releases**

FY 08 Funded Project Year 1

| | Current Balance (as of 11/30/08) |
|-------------------------------------------------------|---------------------------------------------|
| Texas Water Resources Institute | \$21,549 |
| Texas AgriLife Research and Extension Center - Dallas | \$68,224 |
| Spatial Sciences Lab - TAMU | \$80,578 |
| Texas AgriLife Extension – BAEN | \$83,475 |
| Texas AgriLife Extension – AGECE | \$40,693 |
| TOTAL | \$298,325 |