



**Texas State Soil and Water Conservation Board  
 Clean Water Act §319(h) Nonpoint Source Grant Program  
 FY 2013 Workplan 13-08**

SUMMARY PAGE			
Title of Project	Statewide Delivery of the Texas Well Owner Network		
Project Goals	<ul style="list-style-type: none"> <li>Statewide implementation of the Texas Well Owner Network (TWON) program through well water screening and training events</li> <li>Improve and protect well water and surface water quality by increasing awareness of water quality issues and knowledge of best management practices (BMPs) through improved private well management</li> </ul>		
Project Tasks	(1) Project Administration; (2) Coordination and delivery of TWON screenings and trainings, and (3) Evaluate the effectiveness of the TWON trainings		
Measures of Success	<ul style="list-style-type: none"> <li>Increase well owner awareness of water quality issues and knowledge of BMPs through distribution of TWON publications and delivery of TWON well screenings and trainings</li> <li>Delivery of at least 30 TWON trainings in selected watersheds</li> <li>Delivery of at least 20 well water screening events in selected watersheds</li> <li>Measure impact of program delivery through participation in TWON trainings and increased knowledge and understanding of individuals participating in the program</li> </ul>		
Project Type	Implementation ( ); Education (X); Planning ( ); Assessment ( ); Groundwater (X)		
Status of Waterbody on <i>2010 Texas Integrated Report</i>	<u>Segment ID</u>	<u>Parameter of Impairment or Concern</u>	<u>Category</u>
	0612	Bacteria	5c
	1804A	Bacteria	5c
	1217B	Depressed Dissolved Oxygen	5c
	1217D	Depressed Dissolved Oxygen	5b
	1221	Bacteria	5b
	1221A	Depressed DO	5c
		Bacteria	5b
	1221B	Bacteria	5b
	1221D	Bacteria	5b
	1221F	Bacteria	5b
	1901	Bacteria	4a
	1301	Bacteria	5c
	1302	Bacteria	5b
	1302A	Bacteria	5b
	1302B	Bacteria	5b
		Depressed DO	5c
	2311	Depressed Dissolved Oxygen	5c

<b>Project Location</b> (Statewide or Watershed and County)	Attoyac Bayou Watershed upstream of Sam Rayburn Reservoir in San Augustine, Nacogdoches, Shelby, and Rusk Counties; Buck Creek Watershed in Childress, Collingsworth and Donley Counties; Geronimo Creek Watershed in Guadalupe and Comal Counties; Lake Granbury Watershed in Hood, Parker, Palo Pinto, Ranger, Erath, and Jack Counties; Lampasas River Watershed in Bell, Burnet, Coryell, Hamilton, Lampasas, Mills, and Williamson Counties; Leon River Watershed below Proctor Lake and above Belton Lake in Comanche, Hamilton, Erath, Coryell, Mills and Bell Counties; Lower San Antonio River Watershed in DeWitt, Goliad, Guadalupe, Karnes, Refugio, Victoria, and Wilson Counties; Pecos River Watershed in Texas in Crane, Crockett, Pecos, Reeves, Terrell, Upton, and Ward Counties; Plum Creek Watershed in Caldwell, Hays, and Travis Counties; San Bernard River Watershed in Austin, Colorado, Wharton, Fort Bend, and Brazoria Counties; Upper Llano River watershed in Edwards, Kerr, Kimble, Menard, Real, and Sutton Counties					
<b>Key Project Activities</b>	Hire Staff ( ); Surface Water Quality Monitoring ( ); Technical Assistance ( ); Education (X); Implementation ( ); BMP Effectiveness Monitoring ( ); Demonstration ( ); Planning ( ); Modeling ( ); Bacterial Source Tracking ( ); Other ( )					
<i>2012 Texas NPS Management Program Reference</i>	<ul style="list-style-type: none"> <li>• Component 1 – LTG Objectives 1, 2, 4, 7</li> <li>• Component 1 – STGs 2C, 3A, 3B, 3D, 3E</li> <li>• Components 2, 3</li> </ul>					
<b>Project Costs</b>	<b>Federal</b>	\$478,135	<b>Non-Federal</b>	\$318,831	<b>Total</b>	\$796,966
<b>Project Management</b>	<ul style="list-style-type: none"> <li>• Texas Water Resources Institute</li> <li>• Texas A&amp;M AgriLife Extension Service</li> <li>• Texas A&amp;M AgriLife Research</li> </ul>					
<b>Project Period</b>	October 1, 2013 – September 30, 2016					

**Part I – Applicant Information**

Applicant							
Project Co-Lead	Dr. Kevin Wagner						
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Project Co-Lead	Dr. Diane E. Boellstorff						
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Project Co-PI	Dr. Mark L. McFarland						
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Project Co- PI	Dr. Saqib Mukhtar						
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Project Co- PI	Dr. Travis D. Miller						
Title	Associate Department Head						
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<b>Project Partners</b>	
<b>Names</b>	<b>Roles &amp; Responsibilities</b>
Texas State Soil and Water Conservation Board (TSSWCB)	Provide state oversight and management of all project activities and ensure coordination of activities with related projects, TCEQ and the Texas Groundwater Protection Committee.
Texas Water Resources Institute (TWRI), Texas A&M AgriLife Research	Project coordination and administration. Maintain the TWON website/educational material clearinghouse.
Texas A&M AgriLife Extension Service – Department of Soil and Crop Sciences (SCSC)	Project coordination with watershed coordinators, County Extension Agents and groundwater conservation districts; update and tailor educational materials and programs to local conditions; deliver programs; provide content management for TWON website/educational material clearinghouse; and conduct program/educational material evaluations.
Texas A&M AgriLife Extension Service – Department of Biological and Agricultural Engineering (BAEN)	Assist with developing supplemental TWON materials and delivering educational programs.
Texas Water Development Board (TWDB) and the Texas Alliance of Groundwater Districts	Support coordination with the Texas Alliance of Groundwater Districts as appropriate in order to communicate project goals, activities, training opportunities and accomplishments to affected parties.

**Part II – Project Information**

Project Type								
Surface Water	X	Groundwater	X					
Does the project implement recommendations made in (a) a completed WPP, (b) an adopted TMDL, (c) an approved I-Plan, (d) a Comprehensive Conservation and Management Plan developed under CWA §320, (e) the <i>Texas Coastal NPS Pollution Control Program</i> , or (f) the <i>Texas Groundwater Protection Strategy</i> ?				<table border="1"> <tr> <td>Yes</td> <td>X</td> <td>No</td> <td></td> </tr> </table>	Yes	X	No	
Yes	X	No						
If yes, identify the document.		Buck Creek Watershed Protection Plan; Geronimo and Alligator Creeks Watershed Protection Plan; Lake Granbury Watershed Protection Plan; Lampasas River Watershed Protection Plan; Watershed Protection Plan for the Leon River Below Proctor Lake and Above Belton Lake; One Total Maximum Daily Load for Bacteria in the Lower San Antonio River; A Watershed Protection Plan for the Pecos River in Texas; Plum Creek Watershed Protection Plan; San Bernard River Watershed Protection Plan						
If yes, identify the agency/group that developed and/or approved the document.		Buck Creek Watershed Partnership facilitated by TWRI; The Geronimo and Alligator Creeks Watershed Partnership facilitated by GBRA, Texas AgriLife Extension Service and TSSWCB; The Lake Granbury Watershed Protection Plan Stakeholders Committee facilitated by the Brazos River Authority and TCEQ; Lampasas River Watershed Partnership facilitated by Texas A&M AgriLife Research and TSSWCB; Landowners and entities in the Pecos River watershed, facilitated by AgriLife Extension, TWRI and TSSWCB; Plum Creek Watershed Partnership facilitated by Texas AgriLife Extension Service and TSSWCB; Houston-Galveston Area Council and TCEQ		Year Developed	2011; 2012; 2011; 2013; 2011; 2008; 2008; 2008; 2011			

<b>Watershed Information</b>				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2010 IR	Size (Acres)
Attoyac Bayou	120200050301 – 120200050307, 120200050401 – 120200050406, 120200050501	0612	5b	426,880
Buck Creek	111201050204, 111201050208, 111201050303, 111201050305 – 111201050307, 111201050401 – 111201050407, 111201050501 – 111201050502	0207A	2	187,270
Geronimo Creek (including its tributary, Alligator Creek)	121002020110, 121002020111	1804A	5c	44,152
Lake Granbury	120602010601 – 0608, 120602010701 – 0706, 120602010801 – 120602010809, 120602010901 – 120602010907, 120602011001 – 120602011004, 120602011101 – 120602011110, 120602011201 – 120602011208	1205	2	1,335,138
Lampasas River (Lampasas River above Stillhouse Hollow Lake, Rocky Creek, Sulphur Creek, Simms Creek)	120702030101 – 120702030509	1217 1217A 1217B 1217C	5c 2 2 2	839,800
Leon River below Proctor Lake and above Belton Lake	120702010501 – 120702010509, 120702010601 – 120702010605, 120702010701 – 120702010705, 120702010801 – 120702010806, 120702010901 – 120702010908, 120702011002	1221	5a	871,488

Lower San Antonio River	121003030202, 121003030205, 121003030206, 121003030403, 121003030404, 121003030501, 121003030503, 121003030505, 121003030604 – 121003030608, 121003040405	1901	4a	776,863
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Pecos River	130700010201 - 130700010207; 130700010301 - 130700010305 130700010401 - 130700010408; 130700010503 - 130700010506 130700010601 - 130700010605; 130700010701 - 130700010705 130700010801 - 130700010803; 130700010901 - 130700010906 130700011001 - 130700011006; 130700030101 - 130700030106 130700030201 - 130700030204; 130700030301 - 130700030308 130700030401 - 130700030403; 130700040101 - 130700040106 130700040301 - 130700040305; 130700040401 - 130700040406 130700040501 - 130700040506; 130700040601 - 130700040605 130700040701 - 130700040705; 130700040801 - 130700040806 130700050101 - 130700050106; 130700050201 - 130700050205 130700050301 - 130700050304; 130700060101 - 130700060105 130700060201 - 130700060206; 130700060301 - 130700060306 130700060401 - 130700060405; 130700060501 - 130700060506 130700060601 -			
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Plum Creek	110901050702, 110901050703, 111002030102, 111301050208, 111302090204, 120100040204, 120301010104, 120500030306, 120601020401, 120702010804, 120702010805, 120800020403, 121002030401 – 121002030403	1810	4b	288,240
San Bernard River	120904010101, 120904010102, 120904010104, 120904010109, 120904010205, 120904010207, 120904010302, 120904010304 – 120904010306, 120904010308	1301 1302 1302A 1302B	5c 5a 5c 5c	672,000
Upper Llano	120902020101 – 120902020109; 120902020201 – 120902020206	1415	1	1,209,850

### Water Quality Impairment

Describe all known causes (i.e., pollutants of concern) and sources (e.g., agricultural, silvicultural) of water quality impairments or concerns from any of the following sources: *2010 Texas Integrated Report*, Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.

This project will continue statewide implementation of the TWON program. Watersheds and aquifers will be selected in collaboration with the TSSWCB and with input from other interested groups including groundwater conservation districts (GCDs), County Extension Agents (CEAs), river authorities and Soil and Water Conservation Districts (SWCDs). Many of the watersheds and aquifers selected are described in the *Texas NPS Management Program* or identified as impaired in the *2010 Texas Integrated Report*.

The U.S. Geological Survey (USGS, DeSimone et al. 2009) reported that nitrate was the most commonly detected contaminant in private wells derived from man-made sources at concentrations greater than the EPA Maximum Contaminant Level (MCL). A second finding was that total coliform bacteria were detected in 34% of sampled wells. The MCL goal for fecal coliform bacteria, including *Escherichia coli*, in drinking water is zero.

For 2003-2008, the TWDB reported that for the 3,861 private water wells sampled, the percentage of wells exceeding the nitrate MCL varied from 2% to 50% each year, depending on the region. Additionally, results of well screenings conducted by the Texas A&M AgriLife Extension Service from 2003-2009 indicate that about 33% of private wells in Texas contain fecal coliform bacteria.

Segment ID	Body Name	Impairment	Code
0612	Attoyac Bayou	Bacteria	5b
1804A	Geronimo Creek	Bacteria	5c
2311	Upper Pecos River	Depressed DO	5c
1810	Plum Creek	Bacteria	4b
1217B	Sulphur Creek	Depressed DO	5c
1217D	North Fork Rocky Creek	Depressed DO	5b
1221	Leon River below Proctor Lake	Bacteria	5b
1221A	Resley Creek	Depressed DO	5c
		Bacteria	5b
1221B	South Leon River	Bacteria	5b
1221D	Indian Creek	Bacteria	5b
1221F	Walnut Creek	Bacteria	5b
1901	Lower San Antonio River	Bacteria	4a
1301	San Bernard River Tidal	Bacteria	5c
1302	San Bernard River Above Tidal	Bacteria	5b
1302A	Gum Tree Branch	Bacteria	5b
1302B	West Bernard Creek	Bacteria	5b
		Depressed DO	5c
<b>Water Quality Concerns</b>			
0612	Attoyac Bayou	Bacteria	CN
0207A	Buck Creek	Nitrate	CS
1804A	Geronimo Creek	Nitrate	CS
1217B	Sulphur Creek	Depressed DO	CS
1221	Leon River Below Proctor lake	Chlorophyll-a	CS
		Depressed DO	CS
1221A	Resley Creek	Chlorophyll-a	CS
		Nitrate	CS
		Bacteria	CN
		Orthophosphorus	CS
1221B	South Leon River	Depressed DO	CS
1221D	Indian Creek	Depressed DO	CN
		Nitrate	CS
		Orthophosphorus	CS
1205	Lake Granbury	Chlorophyll-a	CS
1901	Lower San Antonio River	Bacteria	CN
		Chlorophyll-a	CS
		Nitrate	CS
		Orthophosphorus	CS
		Total phosphorus	CS
2311	Upper Pecos River	Bacteria	CN
		Chlorophyll-a	CS
		Depressed DO	CS
		Golden alga	CN
1810	Plum Creek	Depressed DO	CS
		Nitrate	CS
		Orthophosphorus	CS
		Total phosphorus	CS
1301	San Bernard River Tidal	Chlorophyll-a	CS

1302	San Bernard River Above Tidal	Depressed DO	CS
1302A	Gum Tree Branch	Bacteria	CN
		Depressed DO	CS
1302B	West Bernard Creek	Depressed DO	CS
<b>Special Interest</b>			
0207A	Buck Creek	Bacteria	WAP
1205	Lake Granbury	Bacteria	WAP
1217	Lampasas River Above Stillhouse Hollow Lake	Bacteria	WAP
1415	Upper Llano	-	WAP

## Project Narrative

### Problem/Need Statement

Over 1,000,000 private water wells in Texas provide water to citizens in rural areas and increasingly, to those living on small acreages in the rural-urban interface. Public drinking water supplies are generally of good quality and are monitored through requirements of the federal Safe Drinking Water Act; however, private well owners are independently responsible for monitoring the quality of their wells and frequently at greater risk for exposure to compromised water quality.

Management and protection of private water wells are under the control of the landowner, and therefore, depend primarily on education rather than regulation. To address the issues described above, which affect both surface water and groundwater, SCSC, BAEN and TWRI have developed TWON to deliver a science-based, community-responsive education curriculum. TWON focuses on protecting groundwater quality and aquifer integrity, and also complements the successful Texas Watershed Steward program by emphasizing the importance of implementing BMPs. The two most common private well pollutants, fecal coliform bacteria and nutrients, also are the most frequent cause of waterbody impairment or concern in Texas. It is likely that in many cases, local release of fecal coliform bacteria and nutrients is not limited to contamination of the property owner's private well and that these contaminants are transported off-site and contribute to pollutant loadings in surface waterbodies.

TWON provides training to Texans regarding water quality and BMPs for protecting their wells and surface waters, which will avert off-site transport of contaminants (bacteria and nutrients) to surface waters, prevent contamination of underlying aquifers, and safeguard the health of landowners and their families. As a result, this program supports on-going watershed protection planning efforts being conducted by TSSWCB and others by expanding the reach of these programs to additional audiences and resulting in greater implementation of BMPs for water quality improvement and protection.

## Project Narrative

### General Project Description

This project will continue statewide implementation of the TWON program, which builds institutional and local capacity to improve and protect both well water and surface water quality by improving awareness of water quality issues and increasing knowledge of BMPs. The training includes methods for safeguarding well water quality for landowners and their families and others relying on the availability of high quality groundwater stored by aquifers. Because improved understanding of water quality, human impacts, and management practices to improve well and surface water quality will help to forestall off-site transport of coliform bacteria and nutrients to surface waters, the TWON is an effective tool to bring to bear in WPP and TMDL implementation where investigations indicate bacterial and nutrient contributions. The program is delivered through (1) water well screenings, (2) delivery of TWON trainings, and (3) evaluation of the program so that needed modifications and improvements can be made.

*TWON Educational Program Topics:* The TWON education curriculum emphasizes BMPs for safeguarding private well water quality and aquifer integrity. The TWON curriculum and publications include the following topics:

- Interpretation of well water screening results
- Watershed and groundwater hydrology and the importance to neighbors and the public of safeguarding aquifer integrity and groundwater quality
- Proper siting of drinking water wells and avoiding improper well construction techniques
- Proper maintenance and protection of the wellhead
- Solid and hazardous household waste management
- Improperly sited and functioning on-site wastewater treatment systems
- Maintenance, aging and failure of on-site wastewater treatment systems
- Effects of land use changes on well water quality
- Locating and properly plugging abandoned wells

*Selection of Screening/Training Locations.* SCSC will collaborate with the TSSWCB and other state and local organizations to select locations for the TWON well water screenings and the longer, 6-hour TWON trainings, which also include a voluntary well water screening for interested participants. SCSC will coordinate efforts with state agencies and organizations already involved in WPP/TMDL processes or who are planning future WPP/TMDL processes in specific watersheds.

*TWON Water Well Screenings and Trainings.* A minimum of 20 TWON well screenings (about 7 each year) and 30 TWON trainings (10 each year) will be delivered throughout the project to provide wellhead protection information and recommendations for remediating well contamination, if appropriate. Educational materials such as the TWON Handbook, factsheets and PowerPoint modules developed through TSSWCB project #10-04, "Preventing Water Quality Contamination Through the Texas Well Owner Network," will be utilized. Trainings will be delivered by the TWON Coordinator, BAEN and/or SCSC Program Specialists and/or the SCSC Assistant Professor and Extension Specialist, as appropriate. TWON educational programs are delivered in two forms: 1) Well screening events will be scheduled for areas where they will benefit from short and extremely focused events not lasting more than two hours, and 2) in other areas, the more comprehensive, 6-hour TWON trainings, will be delivered which will cover topics listed above in greater detail and also will include voluntary well screenings for interested participants.

*Well Water Analyses.* For both TWON well screening and training events, participants will be encouraged to arrive with private well water samples, collected using the Soil, Water and Forage Testing Laboratory water collection procedures (<http://soiltesting.tamu.edu/files/waterweb1.pdf>). For the TWON training events, participants will personally screen their own water sample under the supervision of the workshop coordinator, for nitrate, salinity concentrations, and arsenic for areas where these contaminants are of concern according to the *Texas NPS Management Program Appendix D Groundwater Constituents of Concern Report*. For participants with positive results, remediation

instructions and/or a recommendation and instructions will be given for sending follow-up samples to an accredited NELAC laboratory to perform drinking water analyses.

Screening for fecal coliform bacteria will either be conducted on-site by the SCSC Program Specialist or participants will be issued a discounted voucher to be taken to a local or nearest NELAC-certified lab(s). During most of the screenings, results of bacterial analyses will not be available before the training is completed. Bacterial screening results and as appropriate, remediation instructions or recommendation for additional testing will be mailed to the participants, which allows them to receive bacterial screening results privately. Participants who use the voucher provided during the longer, 6-hour trainings to submit a sample for bacterial analyses to a NELAC-certified lab will have begun the recommended practice of testing their water annually for fecal-indicator bacteria. TWON will request participants' permission to receive copies of bacterial lab results so that appropriate remediation recommendations and materials may be forwarded to those with positive analyses.

Most participants will be responsible for the cost of their water sample screening analysis (approximately \$10/sample), but for underserved and student audiences, and by individual request through the CEA or watershed coordinator, costs of analyses will be underwritten by the project through the purchase of necessary supplies.

As a result of the training, participants will more clearly understand the relationships between practices in or near the well and the quality of water available for their families and other families pumping from the same formation. In order to increase delivery of the educational materials to a greater audience, any new or updated TWON educational materials will continue to be posted online as they are developed to make them readily available to the public.

*Assessment.* An evaluation approach that was developed through TSSWCB project #10-04 will be used to measure both knowledge and behavior changes of individuals participating in the program. A pre-test/post-test evaluation strategy will be implemented at the beginning and end of each training event. The pre-test will ask knowledge-based questions and the post-test will measure knowledge change of participants. In addition, the post-test will include 'intentions to change' questions that will focus on behaviors that participants should adopt based on what they have learned.

A six month follow-up evaluation instrument will also be administered to participants via online technology. Emails will be sent to program participants to determine which practices were adopted six months after the program. For those individuals that do not have email, traditional mailing techniques will be used to collect this information.

<b>Tasks, Objectives and Schedules</b>						
Task 1	Project Administration					
Costs	Federal	\$36,728	Non-Federal	\$24,307	Total	\$61,035
Objective	To effectively administer, coordinate and monitor all work performed under this project including technical and financial supervision and preparation of status reports.					
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 15 <sup>th</sup> of January, April, July and October. QPRs shall be distributed to all Project Partners.					
	Start Date	Month 3	Completion Date	Month 36		
Subtask 1.2	TWRI will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly.					
	Start Date	Month 1	Completion Date	Month 36		
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.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 1.4	TWRI and SCSC will attend and participate in the Texas Groundwater Protection Committee and subcommittee meetings, Texas Alliance of Groundwater Districts conferences, and other meetings as appropriate in order to communicate project goals, activities and achievements accomplished to affected parties.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 1.5	TWRI, in collaboration with SCSC, will maintain a website to serve as a clearinghouse for TWON information and resources. Unique visitors will be tracked through the website and reported in QPRs.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 1.6	TWRI will develop a project final report.					
	Start Date	Month 33	Completion Date	Month 36		
Deliverables	<ul style="list-style-type: none"> <li>• QPRs in electronic format</li> <li>• Reimbursement Forms and necessary documentation in hard copy format</li> <li>• Final Report in electronic and hard copy formats</li> </ul>					

Tasks, Objectives and Schedules						
Task 2	Coordination and delivery of TWON screenings and trainings					
Costs	Federal	\$400,000	Non-Federal	\$270,074	Total	\$670,074
Objective	Deliver TWON water well screenings and TWON 6-hour trainings in priority watersheds and aquifers.					
Subtask 2.1	SCSC will continue to employ an Extension Program Specialist who will serve as the full-time TWON Program Coordinator and will be responsible for the general oversight and coordination of all project activities and for promoting, coordinating, and/or delivering the TWON training events.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 2.2	SCSC will work with the TSSWCB and other state and local organizations to select locations for the TWON well screening and training events. SCSC will coordinate efforts with state agencies and organizations already involved in WPP/TMDL processes or who are planning future WPP/TMDL processes in specific watersheds. SCSC and TSSWCB will periodically make collaborative decisions to re-prioritize and add/remove locations from the list.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 2.3	SCSC with assistance from TWRI will develop and disseminate informational materials in order to actively market TWON well water screenings and trainings including news releases, internet postings, newsletter announcements, public/conference presentations, flyers, etc. As appropriate TWRI will include information on the project in the <i>txH<sub>2</sub>O</i> , <i>Conservation Matters</i> e-letter and AgriLife news. All announcements, letters, and publications will be provided to the TSSWCB for review and comment prior to dissemination.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 2.4	Deliver well screening events to provide well-head protection information and recommendations for remediating well contamination, if appropriate. Screenings will be delivered by the SCSC Assistant Professor and Extension Specialist, TWON Coordinator and/or the SCSC Program Specialist as appropriate. A minimum of 20 well screening events (about 7 each year) will be delivered throughout the project. Well screening event educational programming will include an overview of the topics discussed in more detail during comprehensive TWON trainings.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 2.5	Deliver 6-hour TWON trainings in selected watersheds, with the minimum goal being 30 events delivered throughout the course of the project (10 each year) to increase local understanding of the factors which can adversely impact well water quality, and provide information and tools to prevent and/or resolve them. Trainings will include a well water screening opportunity for participants. These screenings are in addition to the 20 screening events described in Subtask 2.4. Trainings will be delivered by the TWON Coordinator, and a combination of the BAEN and SCSC Program Specialists and the SCSC Assistant Professor and Extension Specialist.					
	Start Date	Month 1	Completion Date	Month 36		
Deliverables	<ul style="list-style-type: none"> <li>List of program delivery watersheds selected in cooperation with TSSWCB, updated as needed</li> <li>Delivery of at least 30 (10 each year), 6-hr TWON trainings</li> <li>Delivery of at least 20 (approximately 7 each year) TWON well water screening events</li> <li>Meeting notices, materials, agendas and attendance lists for TWON trainings</li> <li>Press releases, newspaper articles, newsletters and other public information, as developed and disseminated</li> </ul>					

Tasks, Objectives and Schedules						
Task 3	Evaluate the effectiveness of the TWON trainings					
Costs	Federal	\$41,407	Non-Federal	\$24,450	Total	\$65,857
Objective	To measure both knowledge and behavior changes of individuals participating in the program.					
Subtask 3.1	SCSC will administer pre-test and post-test evaluations to evaluate knowledge increases by individuals participating in the TWON trainings regarding program principles, appropriate BMPs addressing proper private well management, participant satisfaction with the program and participants' intentions to change their behavior as a result of the TWON training.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 3.2	SCSC will administer 6 month follow-up evaluations via online techniques to assess behavior changes adopted and other activities by TWON training participants.					
	Start Date	Month 1	Completion Date	Month 36		
Subtask 3.3	SCSC will analyze results obtained from the pre-test/post-test and 6 month follow-up evaluations using descriptive summary statistics.					
	Start Date	Month 3	Completion Date	Month 36		
Subtask 3.4	SCSC will modify the educational program and materials as appropriate.					
	Start Date	Month 3	Completion Date	Month 36		
Deliverables	<ul style="list-style-type: none"> <li>Pre-test/post-test evaluation results for TWON training</li> <li>Follow-up evaluations for TWON training</li> </ul>					

### **Project Goals (Expand from Summary Page)**

This project will continue statewide implementation of the TWON program through well water screening events and 6-hour TWON trainings. The goals of the project are to improve and protect both well water and surface water quality by increasing awareness of water quality issues and knowledge of BMPs through improved private well management. Project goals will be achieved by (1) delivery of TWON well water screening events; (2) delivery of TWON educational materials and 6-hour trainings; and (3) evaluation of the program so that needed modifications and improvements can be made.

### **Measures of Success (Expand from Summary Page)**

Increase well owner awareness of water quality issues and knowledge of BMPs through:

- Distribution of TWON publications and delivery of TWON well screenings and trainings
- Delivery of at least 30 (10 each year), 6-hour TWON trainings in selected watersheds
- Delivery of at least 20 (7 each year) well water screening events

Measure impact of program delivery through:

- Numbers of citizens participating in TWON trainings, water well screening events, and unique visitors to website
- Increased knowledge and understanding of individuals participating in the program, as measured by pre/post tests and 6 month follow up evaluations

**2012 Texas NPS Management Program Reference (Expand from Summary Page)**

**Components, Goals, and Objectives**

Component 1 – Explicit short- and long-term goals, objectives and strategies that protect surface and ground water.

LTG: Protect and restore water quality affected by NPS pollution through assessment, implementation and education

1. Focus NPS abatement efforts ...and available resources in watersheds and aquifers as identified as impacted by NPS pollution.
2. Support the implementation of state, regional, and local programs to prevent NPS pollution through assessment ...and education.
4. Support the implementation of state, regional, and local programs to reduce NPS pollution to groundwater through the *Texas Groundwater Protection Strategy*, based on the potential for degradation with respect to use.
7. Increase overall public awareness of NPS issues and prevention activities.

STG Two – Implementation: Implement TMDL I-Plans and/or WPPs and other state, regional and local plans/programs to reduce NPS pollution...potentially degraded with respect to use criteria by NPS pollution.

- Objective C – Develop and implement BMPs to address NPS constituents of concern in aquifers identified as impacted by or vulnerable to NPS pollution.

STG Three – Education: Conduct education and technology transfer activities to help increase awareness of NPS pollution and activities which contribute to the degradation of waterbodies, including aquifers, by NPS.

- Objective A – Enhance existing outreach programs at the state, regional, and local levels to maximize the effectiveness of NPS education.
- Objective B – Administer programs to educate citizens about water quality and their potential role in causing NPS pollution.
- Objective D – Conduct outreach through the CRP, AgriLife Extension, SWCDs, and others to enable stakeholders and the public to participate in decision-making and provide a more complete understanding of water quality issues and how they relate to each citizen.
- Objective E – Implement outreach and education activities identified in the *Texas Groundwater Protection Strategy* to prevent NPS impacts to groundwater.

Component 2 - Working partnerships and linkages to appropriate State, interstate, Tribal, regional, and local entities, private sector groups, and Federal agencies.

Component 3 - Balanced approach that emphasizes both statewide NPS programs and on-the-ground management of individual watersheds.

**EPA State Categorical Program Grants – Workplan Essential Elements**

***FY 2011-2015 EPA Strategic Plan Reference***

Strategic Plan Goal – Goal 2 Protecting America’s Waters

Strategic Plan Objective – Objective 2.2 Protect and Restore Watersheds and Aquatic Ecosystems

**Part III – Financial Information**

<b>Budget Summary</b>				
Federal	\$	478,135	% of total project	60%
Non-Federal	\$	318,831	% of total project (≥ 40%)	40%
Total	\$	796,966	Total	100%
Category		Federal	Non-Federal	Total
Personnel	\$	285,511	\$ 100,719	\$ 386,230
Fringe Benefits	\$	77,153	\$ 22,578	\$ 99,731
Travel	\$	37,856	\$ 0	\$ 37,856
Equipment	\$	0	\$ 0	\$ 0
Supplies	\$	5,250	\$ 0	\$ 5,250
Contractual	\$	0	\$ 0	\$ 0
Construction	\$	0	\$ 0	\$ 0
Other	\$	10,000	\$ 6,800	\$ 16,800
Total Direct Costs	\$	415,770	\$ 130,097	\$ 545,867
Indirect Costs (≤ 15%)	\$	62,365	\$ 59,845	\$ 122,210
Unrecovered IDC	\$	0	\$ 128,889	\$ 128,889
Total Project Costs	\$	478,135	\$ 318,831	\$ 796,966

The TSSWCB CWA §319(h) NPS Grant Program has a 60/40% match requirement. The cooperating entity will be reimbursed 60% from federal funds and must contribute a minimum of 40% of the total costs to conduct the project. The 40% match must be from non-federal sources and must be described in the Budget Justification. Reimbursable indirect costs are limited to no more than 15% of total federal direct costs. The project budget generally covers a two to three year period.

<b>Budget Justification (Federal)</b>		
Category	Total Amount	Justification
Personnel	\$ 285,511	TWRI Project Manager, 0.1 FTE/yr (\$15,919) TWRI Graduate Student, \$10/hour for 40 hours/year (\$1,324) TWRI IT Associate, 0.05 FTE/yr (\$6,358) BAEN Program Specialist, 0.2 FTE/yr (\$29,226) SCSC Extension Program Specialist I, 0.25 FTE/yr (\$35,299) SCSC Extension Program Specialist, 1 FTE/yr (\$197,385)
Fringe Benefits	\$ 77,153	17.4% plus group health of \$474/month per FTE; 9.9% plus group health of \$376/month for students
Travel	\$ 37,856	TWRI travel (mileage) for trainings and meetings @ \$500/yr, (\$1,500) BAEN travel (mileage, some per diem and lodging) for trainings @ \$2,500/yr, (\$7,500) SCSC travel (mileage, some per diem and lodging) for trainings and screenings @ \$7,750 in year 1, \$10,556 in year 2 and \$10,550 in year 3 (\$28,856) Funds will be used to support travel to and from TWON well screenings and training events, and may also be used for specialist and program specialists to disseminate information regarding the successful delivery of the TWON program at national and state conferences: <ul style="list-style-type: none"> <li>• a minimum of 10 TWON training locations/year x 1 night x 4 individuals (program specialists and other Extension personnel necessary for support of training events) x \$123 per night + mileage @ \$.565/mile for trips ranging from 100-500 miles roundtrip</li> <li>• a minimum of 7 TWON well screening locations/year x 2 nights x 1 individual (program specialist) x \$123 per night + mileage @ \$.565/miles for trips ranging from 100-500 miles roundtrip</li> </ul>
Equipment	\$ 0	N/A
Supplies	\$ 5,250	SCSC Supplies @ \$3,000 in year 1, \$750 in years 2-3 to include: plastic bins, pens and pencils, laptop computer and software for program delivery in yr 1, projection screen in yr 1 for program delivery, map and graphics development, water sample analysis devices (e.g. Colilert apparatus, TDS probe, nitrate strips, and arsenic screening materials), and general office supplies to include flash drives, paper, scissors, mailing labels, portfolios, and name tags.  BAEN general supplies @ \$250/yr, (\$750) to include demonstration materials and general office supplies such as flash drives and paper.
Contractual	\$ 0	N/A
Construction	\$ 0	N/A
Other	\$ 10,000	SCSC printing costs for TWON curriculum manuals (minimum of 10 locations/yr x 3 years x roughly 27-28 participants/training x \$6.50/manual = \$5,355) Tuition and Fees for SCSC Extension Program Specialist (\$4,200) Printing brochures, fact sheets & copying other materials related to training events (\$145) Phone – cell & office (\$300)
Indirect	\$ 62,365	15% of Total Direct Federal

<b>Budget Justification (Non-Federal)</b>		
<b>Category</b>	<b>Total Amount</b>	<b>Justification</b>
Personnel	\$ 100,719	TWRI Interim Director, 0.021 FTE, (\$8,100) BAEN Associate Department Head, 0.04 FTE, (\$15,021) SCSC Extension Water Resources Specialist, 0.135 FTE, (\$34,056) SCSC Associate Department Head, 0.10 FTE, (\$43,542)
Fringe Benefits	\$ 22,578	17.4% plus group health of \$474/month per FTE
Travel	\$ 0	N/A
Equipment	\$ 0	N/A
Supplies	\$ 0	N/A
Contractual*	\$ 0	N/A
Construction	\$ 0	N/A
Other	\$ 6,800	Water Well Screening @ \$6,800 (~\$10/sample * 34 samples/screening * 20 screenings)
Indirect	\$ 59,845	46% of Total Direct Non-Federal Costs
Unrecovered IDC	\$ 128,889	31% of Total Direct Federal