



**Texas State Soil and Water Conservation Board
 Clean Water Act §319(h) Nonpoint Source Grant Program
 FY 2013 Workplan 13-09**

SUMMARY PAGE					
Title of Project	Surface Water Quality Monitoring to Support the Implementation of the Lampasas River Watershed Protection Plan				
Project Goals	<ul style="list-style-type: none"> • Generate data of known and acceptable quality for surface water quality monitoring of mainstem and tributary stations on the Lampasas River • Support the implementation of the Lampasas River WPP by collecting water quality data for use in evaluating the effectiveness of BMPs and in assessing water quality improvement • Communicate water quality conditions to the public and the Lampasas River Watershed Partnership Steering Committee in order to support adaptive management of the Lampasas River WPP and to expand public knowledge on Lampasas River water quality data 				
Project Tasks	(1) Project Administration; (2) Quality Assurance; (3) Water Quality Data Collection and Analysis (4) Maintain Stakeholder Communication				
Measures of Success	<ul style="list-style-type: none"> • Data of known and acceptable quality are generated for surface water quality monitoring of mainstem and tributary stations in the Lampasas River watershed • Water quality data is communicated to the public and the Partnership • Increased watershed stewardship among Lampasas River watershed stakeholders 				
Project Type	Implementation (); Education (); Planning (); Assessment (X); Groundwater ()				
Status of Waterbody on 2010 Texas Integrated Report	<u>Segment ID</u>		<u>Parameter of Impairment or Concern</u>		<u>Category</u>
	1217B Sulphur Creek (unclassified water body)		Depressed dissolved oxygen		5c
	1217D North Rocky Creek (unclassified water body)		Depressed dissolved oxygen		5b
Project Location (Statewide or Watershed and County)	Lampasas River Watershed in Bell, Burnet, Coryell, Hamilton, Lampasas, Mills, and Williamson Counties				
Key Project Activities	Hire Staff (); Surface Water Quality Monitoring (X); Technical Assistance (); Education (); Implementation (); BMP Effectiveness Monitoring (); Demonstration (); Planning (); Modeling (); Bacterial Source Tracking (); Other ()				
2012 Texas NPS Management Program Reference	<ul style="list-style-type: none"> • Component 1 LTGs 1, 2, 3, 7 • Component1 STGs 1B, 1E, 3A, 3F 				
Project Costs	Federal	\$206,169	Non-Federal	\$166,616	Total \$372,785
Project Management	<ul style="list-style-type: none"> • Texas A&M AgriLife Research 				
Project Period	October 1, 2013 – June 30, 2017				

Part I – Applicant Information

Applicant							
Project Lead		Raghavan Srinivasan, Ph.D.					
Title		Professor					
Organization		Texas A&M AgriLife Research – Blackland Research and Extension Center					
E-mail Address		r-srinivasan@tamu.edu					
Street Address		720 E. Blackland Rd.					
City	Temple	County	Bell	State	TX	Zip Code	76502
Telephone Number	(979) 845-5069			Fax Number	(979) 862-2607		

Project Partners	
Names	Roles & Responsibilities
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 and TCEQ.
Texas A&M AgriLife Research – Blackland Research and Extension Center (AgriLife Research)	Provide project administration and reporting, coordination, data and analysis review, assistance for stakeholder relations, and technology transfer to the Lampasas River Watershed Partnership. Develop project final report.
Tarleton Institute for Applied Environmental Research (TIAER)	Provide water quality sampling and analysis for testing sites. Assist in coordinating water quality sampling efforts. Provide QAPP development and support.
Lampasas River Watershed Partnership (Partnership)	Collaborate as critical local stakeholders and play a lead role in communicating with other local stakeholders.

Part II – Project Information

Project Type							
Surface Water	X	Groundwater					
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> ?				Yes	X	No	
If yes, identify the document.		<i>Lampasas River Watershed Protection Plan</i>					
If yes, identify the agency/group that developed and/or approved the document.		The Lampasas River Watershed Partnership facilitated by Texas A&M AgriLife Research and TSSWCB		Year Developed	2013		

Watershed Information				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2010 IR	Size (Acres)
Lampasas River (Lampasas River above Stillhouse Hollow Lake, Rocky Creek, Sulphur Creek, Simms Creek)		1217	2	839,800
	120702030101	1217B	5c	
	120702030509	1217D	5b	
		1217C	2	

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: <i>2010 Texas Integrated Report</i> , Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.
<p>2010 Integrated Report Sulphur Creek (1217B) and North Rocky Creek (1217D) are listed as impaired for depressed DO.</p> <p>2011 BRA CRP Basin Highlights Report Lampasas River (1217) from the crossing of FM 1690 up to the crossing of CR 117 is listed as impaired for bacteria. This portion of the river is strongly intermittent and only possesses flowing water immediately following a rain event, which is most likely the source of the bacteria.</p> <p>Lampasas River above Stillhouse Hollow Lake, has a designated high aquatic life use. The stream was assessed at US 190 near Kempner, Station 11897, on June 16-17 and August 26-27, 2010. The objective was to evaluate ALU attainment, in light of potential threats indicated by concerns for bacteria in portions of the segment, and excessive algal growth below Sulphur Creek. Although all components of the assessments met or exceeded high ALU expectations, nutrient enrichment was indicated by dense filamentous algae growth.</p> <p>Sulphur Creek (1217B) and North Rocky Creek (1217D) possess impairment or concern for depressed DO. This DO impairment is caused by frequent low water levels which hinder its ability to buffer against high ambient air temperatures in the summer and fall reducing the water's capacity to maintain DO levels.</p>

Project Narrative

Problem/Need Statement

The Lampasas River (segment 1217) rises in western Hamilton County, 16 miles west of Hamilton and flows southeast for 75 miles. The river courses through Hamilton, Lampasas, Burnet and Bell Counties. In Bell County the river turns northeast and is dammed five miles southwest of Belton to form Stillhouse Hollow Lake (Segment 1216). Below Stillhouse Hollow Lake, the Lampasas River flows to its confluence with Salado Creek and the Leon River to form the Little River.

The Lampasas River is commonly characterized by low water levels and is situated within a rural and agricultural dominated landscape. The Cities of Lampasas and Kempner are the only cities situated wholly within the watershed, while the Cities of Copperas Cove and Killeen each drain a portion of their city into the Lampasas River watershed.

According to the 2002, 2004, 2006 and 2008 Texas Water Quality Inventory and 303(d) List, the Lampasas River above Stillhouse Hollow Lake is impaired by elevated bacteria concentrations and does not meet Texas Surface Water Quality Standards for contact recreation. However, the Lampasas River was not listed as impaired on the 2010 Integrated Report. The river's delistment occurred because no additional data had been collected for assessment from 2000 until late 2009 and existing historical data no longer met TCEQ's criteria to be included in assessment.

Prior to the river's delistment AgriLife Research and TSSWCB established the Lampasas River Watershed Partnership in November 2009 as part of TSSWCB project 07-11, *Lampasas River Watershed Assessment and Protection Project*. Through this project, land use was updated, water quality modeling using existing data was conducted, and a WPP was developed to address the bacteria impairment. The development of a WPP was a stakeholder driven process facilitated by AgriLife Research. With technical assistance from AgriLife Research and other state and federal partners, the Steering Committee identified water quality issues that are of particular importance to the surrounding communities. The Steering Committee also contributed information on land uses and activities that were utilized in identifying the potential sources of bacterial impairments and in guiding the development of the WPP. The WPP identified responsible parties, implementation milestones and estimated financial costs for individual management measures and outreach and education activities. The plan also described the estimated load reductions expected from full implementation of all management measures. The Partnership also developed a water quality monitoring regime that they felt would provide an accurate measure of the effectiveness of the WPP's implementation on the bacteria loads within the river and its tributaries.

During the development of the WPP, Texas Water Resources Institute (TWRI) completed a water quality monitoring and bacterial source tracking project within the Lampasas River watershed as part of TSSWCB project 10-51, *Bacterial Source Tracking to Support the Development and Implementation of Watershed Protection Plans for the Lampasas and Leon Rivers*. Fifteen river and tributary sites were selected by the Partnership to be monitored monthly for conventional field parameters, bacteria enumeration and bacterial source tracking. Sample collection for project 10-51 concluded in January 2012.

While the Brazos River Authority (BRA) and TCEQ both collect water quality data within the watershed (typically on a quarterly basis), the Partnership felt it was not intensive enough to detect changes within water quality.

The stakeholders of the Lampasas River Watershed Partnership feel that maintaining a continuous monitoring program is crucial to the success of the WPP. This project will provide critical water quality data that will be used to judge the effectiveness of WPP implementation efforts and serve as a tool to quantitatively measure water quality restoration.

Project Narrative

General Project Description (Include Project Location Map)

TIAER will conduct routine ambient monitoring at 10 sites monthly collecting field, conventional, flow and bacteria parameter groups. The 10 sites have already been identified by the Partnership as shown in Table 1 and Figure 1. The sampling period will extend over 24 months with a total number of sample events scheduled being 240. Spatial and seasonal variations will be captured across the sampling period.

TIAER will conduct biased flow monitoring at the 10 sites listed in Table 1 once per quarter/season under wet weather conditions, collecting field, conventional, flow and bacteria parameter groups. If a routine sampling event happens to capture wet weather conditions, an additional wet weather sample will not be collected that quarter. It is expected that no more than 80 biased flow samples will be collected over 8 quarters/seasons. Spatial, seasonal and meteorological variation will be captured across the sampling period.

All monitoring data will be uploaded quarterly into the TCEQ SWQMIS for future water quality assessments. AgriLife Research will develop a final report that includes an assessment of water quality with respect to effectiveness of BMPs implemented, short-term progress made in achieving water quality goals stated in the WPP as well as statistical analysis to identify any trends within the dataset. AgriLife Research will communicate water quality conditions to the public and the Partnership Steering Committee in order to support adaptive management of the Lampasas River WPP and to expand public knowledge on Lampasas River water quality data.

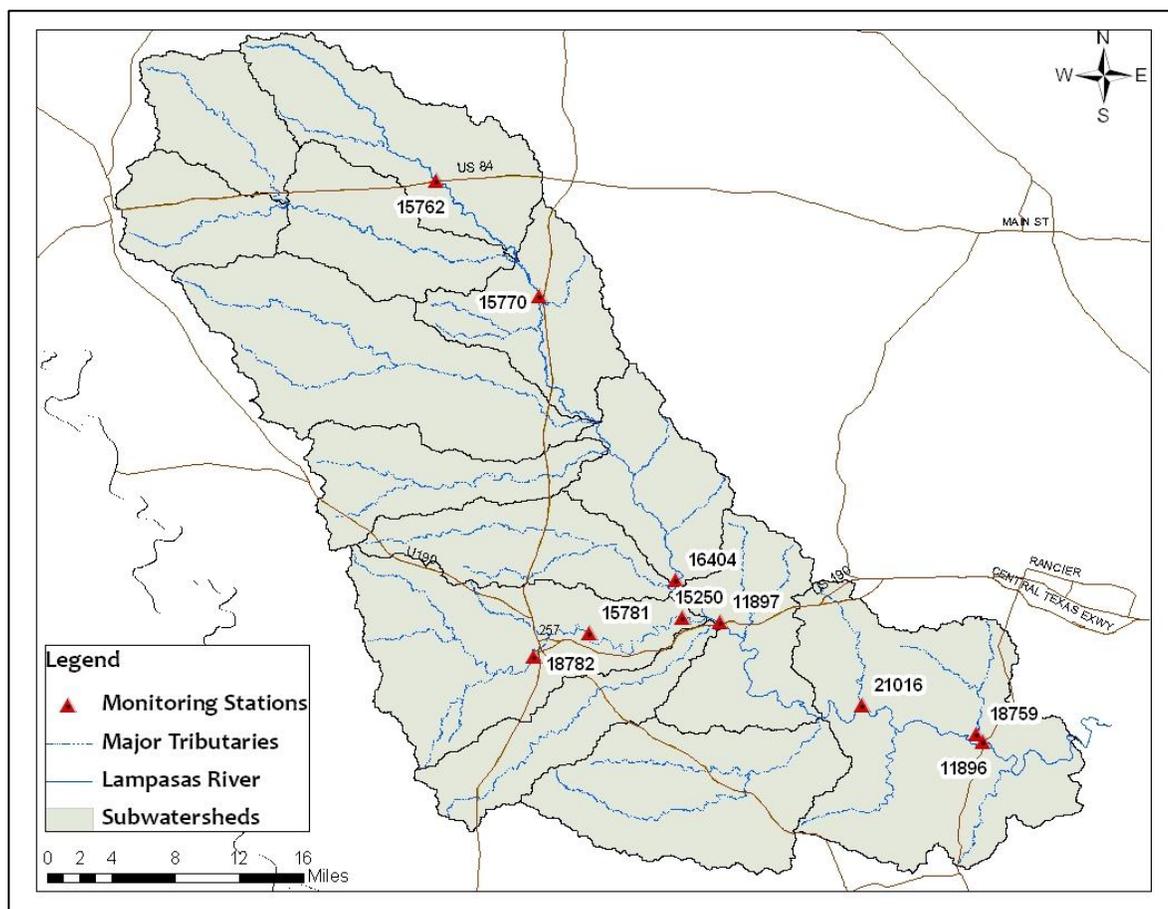


Figure 1. Map of water quality monitoring stations recommended by the Lampasas River Watershed Partnership to evaluate the effectiveness of BMP implementation.

Table 1. Locations recommended by the Lampasas River Watershed Partnership for water quality monitoring.

TCEQ ID	Location	Lat	Long
15762	LAMPASAS RIVER AT US 84	31.48027	-98.2735
15770	LAMPASAS RIVER AT CR2925	31.119	-98.0565
16404	LAMPASAS RIVER AT FM 2313	30.97248	-97.7786
11897	LAMPASAS RIVER AT US 190	31.08167	-98.0164
11896	LAMPASAS RIVER AT HWY 195	30.95297	-97.7212
18782	SULPHUR CREEK AT NARUNA ROAD	31.0504	-98.1852
18781	SULPHUR CREEK AT CR 3010	31.07091	-98.1353
15250	SULPHUR CREEK AT CR 3050	31.0854	-98.0507
21016	CLEAR CREEK AT OKALLA ROAD	31.0063	-98.8887
18759	REESE CREEK NR FM 2670 BR985	30.9793	-97.7847

Tasks, Objectives and Schedules						
Task 1	Project Administration					
Costs	Federal	\$68,089	Non-Federal	\$91,746	Total	\$159,835
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	AgriLife Research 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 th of January, April, July and October. QPRs shall be distributed to all Project Partners.					
	Start Date	Month 1		Completion Date	Month 45	
Subtask 1.2	AgriLife Research 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 45	
Subtask 1.3	AgriLife Research 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. AgriLife Research will develop lists of action items needed following each project coordination meeting and distribute to project personnel.					
	Start Date	Month 1		Completion Date	Month 45	
Subtask 1.4	AgriLife Research will develop a Final Report that summarizes water quality data collected through Task 3. The Report shall, at a minimum, provide an assessment of water quality with respect to effectiveness of BMPs implemented and a discussion of interim short-term progress in achieving the Lampasas River WPP water quality goals.					
	Start Date	Month 28		Completion Date	Month 45	
Deliverables	<ul style="list-style-type: none"> • QPRs in electronic format • Reimbursement Forms and necessary documentation in hard copy format • Final Report in electronic and hard copy formats 					

Tasks, Objectives and Schedules						
Task 2	Quality Assurance					
Costs	Federal	\$4,250	Non-Federal	\$3,463	Total	\$7,713
Objective	To develop data quality objectives (DQOs) and quality assurance/control (QA/QC) activities to ensure data of known and acceptable quality are generated through this project.					
Subtask 2.1	TIAER with assistance from AgriLife Research will develop a QAPP for activities in Task 3 consistent with the most recent versions of <i>EPA Requirements for Quality Assurance Project Plans (QA/R-5)</i> and the <i>TSSWCB Environmental Data Quality Management Plan</i> .					
	All monitoring procedures and methods prescribed in the QAPP shall be consistent with the guidelines detailed in the <i>TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue (RG-415)</i> and <i>Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data (RG-416)</i> . [Consistency with Title 30, Chapter 25 of the Texas Administrative Code, <i>Environmental Testing Laboratory Accreditation and Certification</i> , which describes Texas' approach to implementing the National Environmental Laboratory Accreditation Conference (NELAC) standards, shall be required where applicable.]					
	Start Date	Month 1	Completion Date	Month 9		
Subtask 2.2	TIAER will implement the approved QAPP. TIAER will submit revisions and necessary amendments to the QAPP as needed.					
	Start Date	Month 9	Completion Date	Month 45		
Deliverables	<ul style="list-style-type: none"> QAPP approved by TSSWCB and EPA in both electronic and hard copy formats Approved revisions and amendments to QAPP, as needed Data of known and acceptable quality as reported through Task 3 					

Tasks, Objectives and Schedules						
Task 3	Water Quality Data Collection and Analysis					
Costs	Federal	\$112,947	Non-Federal	\$68,067	Total	\$181,014
Objective	To provide data of known and acceptable quality for surface water quality monitoring of mainstem and tributary stations of the Lampasas River.					
Subtask 3.1	TIAER will conduct routine ambient monitoring at 10 sites monthly collecting field, conventional, flow and bacteria parameter groups. The 10 sites have been identified by the Partnership (Table 1).					
	Sampling period extends over 24 months. Total number of sample events scheduled for collection through this subtask is 240. Spatial and seasonal variation will be captured across the sampling period. Six of the monitoring sites are currently monitored quarterly by either TCEQ or BRA through the Clean Rivers Program. TIAER will coordinate with these entities so as not to duplicate sampling dates.					
	TIAER's Laboratory will maintain NELAC accreditation and conduct sample analyses. Field parameters are pH, temperature, dissolved oxygen and specific conductance. Conventional parameters are total suspended solids, nitrate + nitrite nitrogen, total kjeldahl nitrogen, chlorophyll-a, pheophytin and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. <i>E. coli</i> enumeration will be done using USEPA Method 1603.					
	Start Date	Month 9	Completion Date	Month 33		
Subtask 3.2	TIAER will conduct biased-flow monitoring at 10 sites (Table 1) once per quarter/season under wet weather conditions, collecting field, conventional, flow and bacteria parameter groups. These sites shall be the same as the sites for routine ambient monitoring described in Subtask 3.1. If a storm event was captured under routine monitoring in subtask 3.1, a separate biased flow sample will not be collected under this subtask. Specific parameters are defined in subtask 3.1.					
	The sampling period extends through 8 quarters/seasons. The number of samples planned for collection through this subtask is 80. Spatial, seasonal and meteorological variation will be captured across the sampling period.					
	Samples will be analyzed at TIAER's Laboratory.					
	Start Date	Month 9	Completion Date	Month 33		
Subtask 3.3	Monitoring data from activities in subtasks 3.1-3.2 will be uploaded into the TCEQ SWQMIS at least quarterly. Data will be transferred in the correct format using the TCEQ file structure along with a completed Data Summary, as described in the most recent version of the <i>TCEQ Surface Water Quality Monitoring Data Management Reference Guide</i> . TIAER will submit Station Location Requests to TCEQ, as needed, to obtain TCEQ station numbers for new monitoring sites. Data Correction Request Forms will be submitted to TSSWCB whenever errors are discovered in data already reported. All monitoring data files, data summary reports and data correction request forms will also be provided to AgriLife Research. TIAER will input monitoring regime, as detailed in the QAPP, into the TCEQ CMS.					
		Start Date	Month 1	Completion Date	Month 36	
Subtask 3.4	AgriLife Research will summarize water quality data collected in subtasks 3.1 and 3.2 and conduct statistical and trend analysis to evaluate the effectiveness of BMPs implemented which will be included in the Report developed in subtask 1.4.					
	Start Date	Month 28	Completion Date	Month 43		
Deliverables	<ul style="list-style-type: none"> • Station Location Request Forms (as needed) in electronic format • Monitoring data files and Data Summary in electronic format • Data correction request forms (as needed) in electronic format 					

Tasks, Objectives and Schedules						
Task 4	Maintain Stakeholder Communication					
Costs	Federal	\$20,883	Non-Federal	\$3,340	Total	\$24,223
Objective	To maintain stakeholder engagement through stakeholder meetings during the implementation of the watershed protection plan as water quality data is collected.					
Subtask 4.1	AgriLife Research will host and facilitate meetings of the Partnership as appropriate in order to communicate project goals, activities and achievements, and movement towards water quality restoration.					
	Start Date	Month 1		Completion Date	Month 45	
Subtask 4.2	AgriLife Research will summarize the results from Task 3 to be included in the BRA's Clean Rivers Program Basin Highlights Report and Basin Summary Report. AgriLife Research will provide updates on the results and activities of Task 3 to the Steering Committee.					
	Start Date	Month 1		Completion Date	Month 45	
Deliverables	<ul style="list-style-type: none"> Schedules, agendas, meeting materials, attendance lists and meeting summaries from stakeholder meetings Summary of findings from monitoring activities included in BRA CRP BHR and BSR in both electronic and hardcopy formats 					

Project Goals (Expand from Summary Page)
<ul style="list-style-type: none"> Generate data of known and acceptable quality for surface water quality monitoring (routine ambient, targeted ambient) of mainstem and tributary stations for field and conventional parameters, flow, and bacteria Support the implementation of the Lampasas River WPP by collecting water quality data for use in evaluating the effectiveness of BMPs and in assessing water quality improvement Communicate water quality conditions to the public and to the Partnership on project results and activities in order to support adaptive management of the Lampasas River WPP and to expand public knowledge on Lampasas River water quality data

Measures of Success (Expand from Summary Page)
<ul style="list-style-type: none"> Data of known and acceptable quality are generated for surface water quality monitoring of main stem and tributary stations on Lampasas River for field and conventional parameters, flow, and bacteria Water quality data is used to evaluate progress in implementing the Lampasas River WPP Monitoring data is appropriately managed and transferred for inclusion into the TCEQ SWQMIS Water quality data is communicated to the public and the Partnership in a timely fashion

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

Long-Term Goals

LTG 1: Focus NPS abatement efforts, implementation strategies and available resources in watersheds identified as impacted by NPS pollution

LTG 2: Support the implementation of state, regional and local programs to prevent NPS through assessment, implementation and education

LTG 3: Support the implementation of state, regional, and local programs to reduce NPS pollution, such as the implementation of strategies defined in...WPPs

LTG 7: Increase overall public awareness of NPS issues and prevention activities

Short-Term Goals

STG 1: Data collection and assessment: Coordinate...with appropriate entities and target CWA §319(h) grant funds toward water quality assessment activities in high priority, NPS-impacted watersheds...were additional information is needed

Objective B: Ensure that monitoring procedures meet quality assurance requirements and are in compliance with EPA-approved TSSWCB QMPs

Objective E: Conduct monitoring to determine effectiveness of ...WPPs and BMP implementation as appropriate

STG 3: Education: Conduct education...to help increase awareness of NPS pollution and prevent activities contributing to the degradation of water bodies, including aquifers, by NPS pollution

Objective A: Enhance existing outreach programs at the state, regional, and local levels to maximize the effectiveness of NPS education

Objective F: Implement public outreach and education to maintain and restore water quality in waterbodies impacted by NPS pollution

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

Budget Summary				
Federal	\$	206,169	% of total project	55%
Non-Federal	\$	166,616	% of total project (≥ 40%)	45%
Total	\$	372,785	Total	100%
Category		Federal	Non-Federal	Total
Personnel	\$	61,369	\$ 45,582	\$ 106,951
Fringe Benefits	\$	16,233	\$ 9,353	\$ 25,586
Travel	\$	3,000	\$ 0	\$ 3,000
Equipment	\$	0	\$ 0	\$ 0
Supplies	\$	198	\$ 0	\$ 198
Contractual	\$	97,477	\$ 64,984	\$ 162,461
Construction	\$	0	\$ 0	\$ 0
Other	\$	1,000	\$ 0	\$ 1,000
Total Direct Costs	\$	179,277	\$ 119,919	\$ 299,196
Indirect Costs (≤ 15%)	\$	26,892	\$ 46,697	\$ 73,589
Total Project Costs	\$	206,169	\$ 166,616	\$ 372,785

Budget Justification (Federal)		
Category	Total Amount	Justification
Personnel	\$ 61,369	Principal Investigator – .0208 FTE in Years 1-3 and 0 FTE in Year 4 (\$11,398) Project Manager – Year 2 @ .10 FTE (\$4,338) and Year 3 @ .15 FTE (\$6,702) and Year 4 @ .059 FTE (\$2,802) Data Analyst/ Research Associate/Research Scientist –Year 3 @ .25 FTE (\$15,914) Data Analyst/Research Associate/Research Scientist – Year 4 @ .50 FTE (\$20,215) *Salary estimates are based on average monthly percent effort for the entire contract. Actual percent effort may vary between months, but in the aggregate, will not exceed the total money allocated for the entire project period. **Actual personnel may change over the life of the project as the needs of the project change (see Eligible Personnel List in table below).
Fringe Benefits	\$ 16,233	TAMUS estimates at 17.4% of Personnel plus group health of \$474/month/FTE (Fringe benefits are estimated based on salary estimates above. Actual fringe benefits will vary between months with percent effort variations but will not exceed the overall estimated amount.)
Travel	\$ 3,000	Travel from Temple to the Lampasas River watershed for stakeholder engagement, estimated 183 mile roundtrip for an estimated 3 roundtrips/year for 3 years (\$971) Travel from Temple to Stephenville for project planning, estimated 214 mile roundtrip twice yearly (3 roundtrips) with overnight stays (\$870) Travel from Temple to College Station for project coordination, estimated 172 mile roundtrip quarterly each year (\$1,159) All travel will be reimbursed at state rate, \$77 room night and \$46/day per diem, or actual costs, not to exceed current per diem rates for the state of Texas
Equipment	\$ 0	N/A
Supplies	\$ 198	Computer consumables, computer parts and supplies
Contractual*	\$ 97,477	Tarleton Institute of Applied Environmental Research
Construction	\$ 0	N/A
Other	\$ 1,000	Computer hardware, repair, and software licensing. Shipping and postage and copies/reproduction services
Indirect	\$ 26,892	15% of Total Direct Federal Costs

Budget Justification (Non-Federal)		
Category	Total Amount	Justification
Personnel	\$ 45,582	Principal Investigator – .0833 FTE in Years 1-3 and 0 FTE in Year 4 (Total - \$45,582)
Fringe Benefits	\$ 9,353	TAMUS estimates at 17.4% of Personnel plus group health insurance of \$474/month/FTE
Travel	\$ 0	N/A
Equipment	\$ 0	N/A
Supplies	\$ 0	N/A
Contractual*	\$ 64,984	Tarleton Institute of Applied Environmental Research
Construction	\$ 0	N/A
Other	\$ 0	N/A
Indirect	\$ 46,697	DHHS Negotiated rate agreement establishes allowable IDC at 45.5% MTDC effective 9/1/13 per agreement approved 6/8/11 IDC @ 45.5% of MTDC Base of \$54,935 = \$24,995 Unrecovered IDC based on the difference of allowable IDC of 15% TDC and negotiated rate of 45.5% MTDC @45.5% of MTDC Base of \$106,800 = \$48,594 Less IDC @ 15% of TDC Base of \$179,277 = \$26,892 Total Unrecovered IDC = \$21,702

Eligible Personnel List for AgriLife (Federal)		
Name	Job Title	Project Budget Title/Role
Daggupati, Naga P	Asst Res Scientist	Research Associate
Jones, Charles A	Sr Reseach Scientist	Research Scientist
Karthikeyan, Raghupathy	Associate Professor	Research Scientist
Srinivasan, Raghavan	Professor	Principal Investigator
Tapaneeyakul, Sasathorn	Lecturer	Data Analyst
Tech, Jaclyn B	Sr Software Appl Dev	Data Analyst
Yeganantham, Dhanesh	Grad Asst Research	Research Associate

TIAER Subcontract Budget Summary				
Federal	\$	97,477	% of total project	60%
Non-Federal	\$	64,984	% of total project (≥ 40%)	40%
Total	\$	162,461	Total	100%
Category		Federal	Non-Federal	Total
Personnel	\$	41,552	\$ 17,596	\$ 59,148
Fringe Benefits	\$	11,698	\$ 3,580	\$ 15,278
Travel	\$	1,306	\$ 835	\$ 2,141
Equipment	\$	0	\$ 0	\$ 0
Supplies	\$	467	\$ 311	\$ 778
Contractual	\$	0	\$ 0	\$ 0
Construction	\$	0	\$ 0	\$ 0
Other	\$	33,983	\$ 21,633	\$ 55,616
Total Direct Costs	\$	89,006	\$ 43,955	\$ 132,961
Indirect Costs (≤ 15%)	\$	8,471	\$ 21,029	\$ 29,500
Total Project Costs	\$	97,477	\$ 64,984	\$ 162,461

Contractual Budget Justification (Federal) –TIAER		
Category	Total Amount	Justification
Personnel	\$ 41,552	See personnel table given below for details. Federal portion represents approximately 71% of total category costs.
Fringe Benefits	\$ 11,698	Approximately 29% of federal salaries
Travel	\$ 1,306	All travel assumes use of TIAER vehicles with a fuel (gasoline and diesel) mileage of about 13 mpg and fuel costs estimated up to \$4/gallon rather than the State reimbursement rate. <ul style="list-style-type: none"> • Trips by TIAER field staff to and from sampling sites for sample retrieval, flow measurements, and general maintenance (estimated 56 trips to sampling sites, about 250 miles per trip), and • Trips by TIAER staff to Temple annually for project coordination meetings with the TSSWCB (roundtrip about 214 miles). Approximately 61% of total Travel cost charged to federal portion of the project.
Equipment	\$ 0	N/A
Supplies	\$ 467	Field supplies: pH solution \$700; miscellaneous other standards \$78. Approximately 61% of total Supply costs charged to the federal portion of the project.
Contractual	\$ 0	N/A
Construction	\$ 0	N/A
Other	\$ 33,983	Lab analyses for samples (\$53,204); vehicle maintenance @ 16.4 cents/mile (\$2,354), and miscellaneous charges, such as postage and shipping (\$58). More details provided below. Approximately 62% of the total Other costs will be charged to the federal portion of the project.
Indirect	\$ 8,471	Indirect charged 15% of total direct minus federal cost of lab analyses of samples (\$32,535).

Contractual Budget Justification (Non-Federal) – TIAER		
Category	Total Amount	Justification
Personnel	\$ 17,596	See personnel table given below for details. Non-federal portion represents approximately 30% of total category costs.
Fringe Benefits	\$ 3,580	Approximately 23% of non-federal salaries (see below for more details)
Travel	\$ 835	All travel assumes use of TIAER vehicles with a fuel (gasoline and diesel) mileage of about 13 mpg and fuel costs estimated up to of \$4/gallon rather than the State reimbursement rate of 56.5 cents/mile. <ul style="list-style-type: none"> • Trips by TIAER field staff to and from sampling sites for sample retrieval, flow measurements, and general maintenance (estimated 56 trips to sampling sites, about 250 miles per trip), and • Trips by TIAER staff to Temple annually for project coordination meetings with the TSSWCB (roundtrip about 214 miles). Approximately 39% of total Travel cost charged to non-federal portion of the project.
Equipment	\$ 0	N/A
Supplies	\$ 311	Field supplies: pH solution \$700; miscellaneous other standards \$78. Approximately 39% of total Supply costs charged to the non-federal portion of the project.
Contractual	\$ 0	N/A
Construction	\$ 0	N/A
Other	\$ 21,633	Lab analyses for samples (\$53,204); vehicle maintenance @ 16.4 cents/mile (\$2,354), and miscellaneous charges, such as postage and shipping (\$58). More details provided below. Approximately 38% of the total Other costs will be charged to the non-federal portion of the project.
Indirect	\$ 21,029	Non-federal match for indirect calculated as the difference between total and federal indirect. Total indirect calculated as 37% of modified total indirect (Tarleton State University's indirect rate).

Detailed Budget Justification of TIAER Personnel & Fringe:

Staff Name	Position or Title	Estimated Average Annual Salary or Hourly Wage Over the Project	Estimated Individual Fringe Rate	% Time to Project over 3.5 yrs (42 Months)	Estimated Total Salary to Project	Estimated Total Fringe to Project	Estimated Total Salary & Fringe to the Project	
Field Operations								
Stroebl, Jeff	Research Associate	\$58,025	27%	5.8%	\$11,779	\$3,180	\$14,959	
Millican, Jimmy	Sr. Research Associate	\$52,169	32%	4.4%	\$8,034	\$2,571	\$10,605	
Martinez, Abel	Research Associate	\$64,482	31%	6.4%	\$14,444	\$4,478	\$18,922	
Blankenship, David	Sr. Research Assistant	\$34,450	37%	4.0%	\$4,823	\$1,785	\$6,608	
Laboratory (QAPP review & cleaning of field equipment) – tasks outside of sample analysis by lab								
Murphy, Mark	Laboratory Manager	\$81,950	26%	0.22%	\$631	\$164	\$795	
Hunt, Vickie	Technician	\$31,793	38%	0.55%	\$612	\$233	\$845	
QA, Coordination of Field Effort, Data Management, Data Submittals								
Pack, Scotty	Computer Systems Development Technician	\$48,485	30%	0.66%	\$1,120	\$336	\$1,456	
Easterling, Nancy	Research Associate	\$60,352	8.1%	5.6%	\$11,829	\$958	\$12,787	
Rogers, Jim	Sr. Program Analyst	\$64,572	26%	0.6%	\$1,356	\$353	\$1,709	
McFarland, Anne	Research Scientist	\$99,341	27%	1.3%	\$4,520	\$1,220	\$5,740	
					Totals	\$59,148	\$15,278	\$74,426

Detailed Justification for Other:

Lab Analysis – For monitoring under Task 3 over 24 month, the budget includes 240 routine grab for conventional parameters of CHLA and pheophytin, NO₂-N+NO₃-N, TKN, TP and TSS (estimated cost per sample \$128.81) and 50 biased-flow samples (estimated cost per sample \$132.24). *E. coli* does not require a field split but is analyzed as a laboratory duplicate, so only 240 routine and 50 flow biased samples are budgeted at an estimated cost of \$54.06 per sample (method 1603). Total revised laboratory costs estimated at \$53,204.

Vehicle maintenance – TIAER maintains its own fleet of vehicles and the vehicle maintenance rate (15 cents/mile) is based on the following: new tires for a vehicle once every 30,000 miles at a cost of \$250 per tire, an oil change once every 3,000 miles at a cost of \$90 each, and diesel exhaust fluid cost of \$50 every 7500 miles. In addition the vehicle maintenance assumes 0.08 cents per mile for miscellaneous repairs.

In revised budget, vehicle maintenance based on actual spending, which has been close to 16.4 cents/mile.