

Small-Scale Water Efficiency Projects
Funding Opportunity Announcement No. BOR-DO-18-F009

Uncompahgre Project Tail Water Telemetry

Submitted by:

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Title Page	1
Table of Contents	2
Technical Proposal and Evaluation Criteria	3
Executive Summary	3
Background Data	3
Project Location	4
Technical Project Description	4
Evaluation Criteria	5
Project Budget	8
Funding Plan and Letters of Commitment	8
Budget Proposal	9
Budget Narrative	9
Environment and Cultural Resources Compliance	10
Required Permits or Approvals	11
Letters of Project Support	12
Official Resolution	13
Appendix A Map of Telemetry Sites	14
Appendix B Letters of Support	15

Technical Proposal and Evaluation Criteria

Executive Summary:

Date: July 23, 2018

Applicant name: Uncompahgre Valley Water Users Association

City: Montrose

County: Montrose and Delta

State: Colorado

Project Summary: The Uncompahgre Valley Water Users Association (UVWUA) in partnership with the State of Colorado Division of Water Resources (DWR) proposes to implement real-time satellite monitoring (SATMON) at eight spill locations in the federal Uncompahgre Project Area, located in the Lower Gunnison Basin of western Colorado. The key locations are identified in Figure 1 and include eight spills from the project. The existing gaging stations will be upgraded with permanent concrete measuring flumes and SATMON monitoring equipment. The project is anticipated to: 1) result in better irrigation water management and administration of deliveries, 2) conserve approximately 2% of annual diversions by minimizing water spilled from the project, 3) improve irrigation water management by implementing modern day technology, 4) decrease production of greenhouse gases by significantly reducing vehicle travel to and from tail water sites, and 5) increase outreach and education opportunities with shareholders and the general public by providing readily accessible continuous real-time water data.

Project Schedule: The UVWUA proposes to complete the project during the winter and early spring of 2018 and 2019. The estimated completion date is April 1st of 2019.

Federal Facility: The Uncompahgre Project is a Federal project operated by the UVWUA.

Background Data:

The Uncompahgre Project consist of seven river diversions, 128 miles of major canals, 438 miles of laterals, and 216 miles of drains. The major feature of the project is Taylor Dam on the Taylor River a tributary of the Gunnison River, the Gunnison Tunnel, and South Canal which diverts Gunnison River water to the Uncompahgre River. The project diverts a total of over five hundred thousand-acre feet annually. Approximately 9,000-acre feet annually is used for municipal supply. The balance of the diversion is used to irrigate over 83,000 acres agricultural land. The UVWUA serves over 3500 shareholders who utilize the water for production of small grains, onions, corn, dry beans, forage crops, and other fruits and vegetables.

The UVWUA has completed eight phases of piping and lining to control salt and selenium loading in the Colorado Ricer Basin. The completed phase include lining of 2 miles of laterals and piping of 95.7 miles of laterals on the Uncompahgre Project. It is estimated that this effort

has reduced salt loading in the Colorado River by 27,121 pounds. The UVWUA is the recipient of additional funding to pipe an additional 21.5 miles of laterals which will reduce the salt loading by an additional 6030 pounds.

The UVWUA previously was the recipient of a WaterSmart Grant which was used to install real-time SATMAN at six critical Uncompahgre River Diversions. The SATMON at these six diversions have enabled the water manager and ditch riders to more effectively manage diversions for the Uncompahgre Project.

The UVWUA is now continuing this effort to use real-time SATMON to monitor the spills or tails from the Uncompahgre Project. The UVWUA’s water managers will be able to adjust river diversions from the Uncompahgre River based on real-time measurements of tail water or spills from the project. The location of the monitoring sites has historically been monitored with chart recorders. Although this provided a history of the water operations, the information was not readily available and was not used to operate the Uncompahgre Project.

In the future, The UVWUA wants to continue the installation of SATMON with the installation of telemetry on the major laterals and in project diversions on Spring Creek, Coal Creek, and Dry Creek. All of these efforts will lead to improved efficiency and minimize non-consumptive losses.

Project Location:

The following table shows the latitude and longitude of each of the proposed SATMON sites. The proposed sites are also show on Figure 1 SATMON site locations.

Project SATMON Sites					
<u>Canal/Lateral</u>	<u>Designation</u>	<u>Mile</u>	<u>Latitude</u>	<u>Longitude</u>	
M&D Canal	C	29.2	38 37 28.86N	108 05 47.50W	
CQ Lateral	CQ	2.2	38 39 50.63N	108 06 54.91W	
FG Lateral	FG	7	38 40 17.87N	108 02 25.44W	
FL Lateral	FL	7.62	38 40 17.87N	108 05 00.53W	
FN Lateral	FN	7.77	38 43 36.98N	108 06 03.13W	
Ironsonte Canal	F	19.56	38 40 16.10N	108 08 16.17W	
FQ Lateral	FQ	2.3	38 39 50.53N	108 06 54.98W	
East Canal	G	10.59	38 42 00.79N	107 57 40.91W	

Technical Project Description:

Describe the work in detail: The project involves replacing existing Stephens Recorders with telemetry satellite monitoring equipment. At each of the sites the existing recording equipment will be removed and replaced with the necessary SATMON equipment. This equipment includes SatLink 2 Data Collection Platform, Stage Discharger Recorder, insulated

Float Wheel, Yagi Antenna, solar panel, and battery. The necessary hardware and mounts will also be installed.

At seven of the sites excluding the East Canal site (Dragon Tooth), Parshall flumes will be constructed to eliminate the need for a hydrographer to rate the stream flow. The construction of the flumes is a canal maintenance operation undertaken frequently on the Uncompahgre Project.

Specific activities Identify the problems and needs: The existing stream gaging station which will be modernized by this project require UVWUA personnel to visit the sites on a daily basis to determine the tail water flows. Also, UVWUA personnel visit the sites on a weekly basis to replace the paper charts in order to record the history of the spills from the project. UVWUA water managers often adjust river diversions without specific knowledge of tail water flows.

Describe how project addresses the problems and needs: The project will eliminate the need for UVWUA personnel to visit the sites. Water managers will be able to make adjustments to river diversions with real time knowledge of flow conditions at the spills from the Uncompahgre Project.

Identify the expected outcomes: The expectation is to eliminate or minimize unnecessary diversion of water from the Uncompahgre River. Water managers will have real time knowledge of spill from the project when making adjustment to river diversions.

Evaluation Criteria:

Evaluation Criterion A - Project Benefits (35 points)

[Describe the expected benefits and outcomes of implementing the proposed project.](#)

In 2015, the UVWUA was awarded a WaterSmart grant to install telemetry SATMON discharge recording devices on six Uncompahgre River diversion headgates. The project was very successful and has provided the expected benefits and more as envisioned in the grant application. The UVWUA is building on the past results to gain more technology to assist our water managers in operating the project.

[What are the benefits to the applicant's water supply delivery system?](#)

The benefit of this proposed project will allow water managers to access in real-time how to manage river diversions. The installed equipment will result in a new tool to use to minimize unnecessary river diversions.

[If other benefits are expected explain those as well. Consider the following:
Extent to which the proposed project improves overall water supply reliability.](#)

The proposed project will improve water supply reliability by minimizing river diversions.

The expected geographic scope benefits from the proposed project (e.g., local, sub-basin, basin).

The proposed project's benefits include providing the local users of irrigation water the benefit of a more consistent supply. This benefit coupled with the expected reduction in diversions will affect the system water available for the Upper Basin of the Colorado River. The project will also benefit the endangered fish in the Colorado Basin by providing the expected increase in stream flows.

Extent to which the proposed project will increase collaboration and information sharing among water managers in the region.

Water managers throughout the Gunnison Basin will have access to the generated information in real-time on Division 4 of the Colorado Division of Water Resources web site.

Any anticipated positive impacts/benefits to local sectors and economies (e.g., agriculture, environment, recreation, tourism).

The proposed project will have positive impacts on all the stakeholders of the Gunnison Basin. The UVWUA envisions all of the stakeholders utilizing the real-time information and records to plan for their activities.

Extent to which the project will complement work done in coordination with NRCS in the area (e.g., with a direct connection to the district's water supply). Describe any on-farm efficiency work that is currently being completed or is anticipated to be completed in the future using NRCS assistance through EQIP or other programs.

Many of the shareholders of the UVWUA have taken advantage of NRCS programs to make their on-farm irrigation system more efficient. The proposed project will aid our shareholders in improving the reliability of supply, improved constant supply for deliveries, and minimize unnecessary diversions.

Evaluation Criterion B - Planning Efforts Supporting the Project (35 points)

Describe how your project is supported by an existing planning effort.

The proposed project is supported by three plans developed by the Irrigation Training and Research Center (ITRC). The East Side Study of July 2014, the West Side Study of June 2017, and SCADA plan of June 2017.

The proposed project is also supported by the Colorado Water Plan and Gunnison Basin RoundTable Implementation Plan. The proposed project will make the UVWUA operations more efficient and result in water savings in the Colorado Basin.

Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?

The proposed plan is supported by ITRC plans and is addressed in those documents.

Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.

The proposed plan is the next step in a continuing effort to bring modern technology to the Uncompahgre Project. This project coupled with the installation of SATMON sites on the Uncompahgre River Diversions and future planned project to install SATMON sites on other stream diversions and major lateral headgates will be a basis for future SCADA on the Uncompahgre Project.

Evaluation Criterion C - Project Implementation (10 points)

Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

The proposed project schedule is shown in Figure 2. The schedule envisioned purchasing and installing the SATMON equipment over the 2018 and 2019 winter and early spring. The proposed project completed by the 1st of April ready for the 2019 irrigation season.

Describe any permits that will be required, along with the process for obtaining such permits. Identify and describe any engineering or design work performed specifically in support of the proposed project.

No, permits are necessary for the construction and installation of the SATMON equipment. The UVWUA will be responsible for the minimal engineering for the installation of the flumes.

Describe any new policies or administrative actions required to implement the project. Describe how the environmental compliance estimate was developed. Have the compliance costs been discussed with the local Reclamation office?

No new policies or administrative actions are required to implement the project. Environmental compliance costs are expected to be very minimal. The compliance costs have been discussed with the Western Colorado Area Office in Grand Junction.

Evaluation Criterion D - Nexus to Reclamation (10 points)

Is the proposed project connected to a Reclamation project or activity? If so, how? Please consider the following:

The project is connected to Reclamation projects. Water is supplied to the Uncompahgre Project from the Aspinall Unit via the Gunnison Tunnel and the South Canal. The Uncompahgre Project is a Reclamation Project.

Does the applicant receive Reclamation project water?

Yes, the project receives Reclamation water from the Aspinall Unit on the Gunnison River and the Dallas Creek Project on the Uncompahgre River.

Is the project on Reclamation project lands or involving Reclamation facilities?

Yes, the project sites are located on Reclamation project lands and involve Reclamation facilities.

Is the project in the same basin as a Reclamation project or activity?

Yes, the project is in the Lower Gunnison Basin and the Lower Uncompahgre Basin.

Will the proposed work contribute water to a basin where a Reclamation project is located?

Yes, the project will contribute water to the Colorado Basin by eliminating an estimated 1400 acre-feet of unnecessary diversions.

Will the project benefit any tribe(s)?

No, the project will not benefit any tribe.

Evaluation Criterion E - Department of the Interior Priorities (10 Points)

Creating a conservation stewardship legacy second only to Teddy Roosevelt: Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;

The propose project will utilize science to manage water resources. The proposed project will allow water management operations to utilize the best technology available to adapt to climate changes and for the continuing drought in the Colorado Basin.

Restoring trust with local communities: Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;

The proposed project will allow the UVWUA shareholders, environmental and recreational stakeholders, other water districts, and the general public to view in real-time the tail water leaving the Uncompahgre Project. The proposed project will provide transparency to the Uncompahgre Project operations.

Modernizing our infrastructure: Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;

The proposed project is one step of many required to modernize the Uncompahgre Project. The project coupled with previous SATMON installation will form the basis for future SCADA projects to provide for more efficient operation of the Uncompahgre Project.

Project Budget

Funding Plan and Letters of Commitment:

Budget Proposal: Uncompahgre Project Canal Telemetry				
	Computation			
Budget Item Description	\$/Unit	Quantity	Quantity Type (e.g. hrs/day)	Total Cost
Salaries and Wages				
UVWUA Manager, S. Anderson	50.50	40	Hours	\$2,020.00
UVWUA Business Manager, C. DeJulio	28.75	25	Hours	\$718.75
UVWUA, Bookkeeper, S. Johnson	24.00	30	Hours	\$720.00
UVWUA, Water Master, D. Veo	30.75	30	Hours	\$922.50
UVWUA, Water Master, J. Davison	29.75	30	Hours	\$892.50
UVWUA, Crew Foreman	29.00	35	Hours	\$1,015.00
UVWUA, Backhoe Operator	32.00	40	Hours	\$1,280.00
UVWUA, Laborers	91.00	110	Hours	\$10,010.00
DWR Hydrographer	37.35	335	Hours	\$12,512.25
DWR Supervisor Hydrographer	45.65	80	Hours	\$3,652.00
Fringe Benefit				
UVWUA Manager, S. Anderson	10.61	40	Hours	\$424.20
UVWUA Business Manager, C. DeJulio	6.04	25	Hours	\$150.94
UVWUA, Bookkeeper, S. Johnson	5.04	30	Hours	\$151.20
UVWUA, Water Master, D. Veo	6.46	30	Hours	\$193.73
UVWUA, Water Master, J. Davison	6.25	30	Hours	\$187.43
UVWUA, Crew Foreman	6.09	35	Hours	\$213.15
UVWUA, Backhoe Operator	6.72	40	Hours	\$268.80
UVWUA, Laborers	19.11	110	Hours	\$2,102.10
DWR Hydrographer	7.65	335	Hours	\$2,562.75
DWR Supervisor Hydrographer	9.35	80	Hours	\$748.00
Travel				
Div. of Water Resources (Annual Mileage)	0.545	1140	Miles	\$621.30
Equipment: Please see detailed equipment costs in the appendices.				
Ironstone Extension	6212.00	1	telemetry/gage	\$6,212.00
M&D Canal	6212.00	1	telemetry/gage	\$6,212.00
FG Lateral	6212.00	1	telemetry/gage	\$6,212.00
FL Lateral	6212.00	1	telemetry/gage	\$6,212.00
FQ Lateral	6212.00	1	telemetry/gage	\$6,212.00
FN Lateral	6212.00	1	telemetry/gage	\$6,212.00
CQA Lateral	6212.00	1	telemetry/gage	\$6,212.00
Dragon Tooth Spill	6212.00	1	telemetry/gage	\$6,212.00
Supplies/Materials				

Concrete w/ Reinforcement	573.15	7	Parshall Flume	\$4,012.05
Stilling well	240	8	Monitoring Well	\$1,920.00
Contractual/Construction				
Installation, start-up, testing	1500	8	Gages	\$12,000.00
Other				
Backhoe Costs	75	32	Hours	\$2,400.00
SATMON Maint. & Replacement Fee (all 8 sites)	6400	2	Years	\$12,800.00
Rating Development/Maintenance Fee	55	8	Gages	\$440.00
Total Direct Costs				
DWR Overhead (10% of SATMON Maint & Replacement)	640	2	Years	\$1,280.00
Total Project Costs				\$125,914.64

Budget Narrative:

Funding Summary				
Funding Partner	FY 18	FY 19		Percent Contribution
Reclamation WaterSMART Grant		\$ 62,957	\$ 62,957	50%
Partner Contributions				50%
UVWUA (cash & in-kind)	\$ 10,870	\$ 32,612	\$ 43,482	
DWR (in-kind)	\$ 4,868	\$ 14,607	\$ 19,475	
Totals	\$ 15,738	\$ 110,176	\$ 125,914	

Environment and Cultural Resources Compliance

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

The proposed project will have very minimal impact on the surrounding environment. No significant quantity of earth-disturbing work will be necessary for the construction of the project. At the sites where a Parshall Flume will be poured the existing structure will be removed from the area and the canal will be graded such that concrete forms can be placed for the flume. After the concrete is cured the flume will be connected to a monitoring well and the area graded and backfilled.

Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

We are not aware of any species listed or proposed to be listed as a Federal threatened or endangered species. None of the site are designated critical habitat.

Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have.

No, there are no wetlands or other surface water inside the project sites.

When was the water delivery system constructed?

The Uncompahgre Project was constructed in the early 1900 and was substantially completed in the 1920s.

Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

The proposed project will not result in any modification to individual features of the irrigation system.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

The UVWUA office building in Montrose, Colorado is listed on the National Register of Historic Places. The proposed project will not have any effect on the office building.

Are there any known archeological sites in the proposed project area?

There are not any known archeological sites in the proposed project areas.

Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

No, the project will not have any effect of low income or minority populations.

Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

No, the proposed project will not limit access. The proposed will have no impacts on tribal lands.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

No, the proposed project will not have any impact on noxious weeds or non-native invasive species.

Required Permits or Approvals

No permits or approvals are required to complete the proposed project.

Letters of Project Support

Letters of project support and letters of commitment are not available at this time. The letters of support and commitment will be available in the next thirty days and will be submitted as they are received.

Official Resolution

Todd Stewart moved to adopt the following resolution:

RESOLUTION

“Be it resolved, that for the purpose of its continued effort to improve the efficiency and water delivery throughout the system, and continued effort of reducing salinity and selenium in the Colorado River, the Uncompahgre Valley Water Users Association does approve, ratify and confirm the authority of Steven A. Anderson, Manager, and Cheryl DeJulio, Business Manager, to provide such documentation and other assistance as may be required to participate in the Water Conservation Field Service Program (FOA #BOR-DO-18-F010) for the satellite monitoring (SATMON) system through the Colorado Division of Water Resources. Gages will be placed in the Ironstone Extension, M&D Canal, FL Lateral, FQ Lateral, FN Lateral, FG Lateral, CQ Lateral and the Dragon Tooth Spill. These gages will assist UVWUA in monitoring and controlling the flows in the major canals within the UVWUA’s project”

Be it further resolved that the Board of Directors affirms that this resolution is adopted with knowledge of the written request.

This motion was seconded by Daris Jutten and approved by a vote of 7 to 0. Done this 18th day of June 2018.

Attest:



Secretary



President

Figure 1 SATMON Site Locations

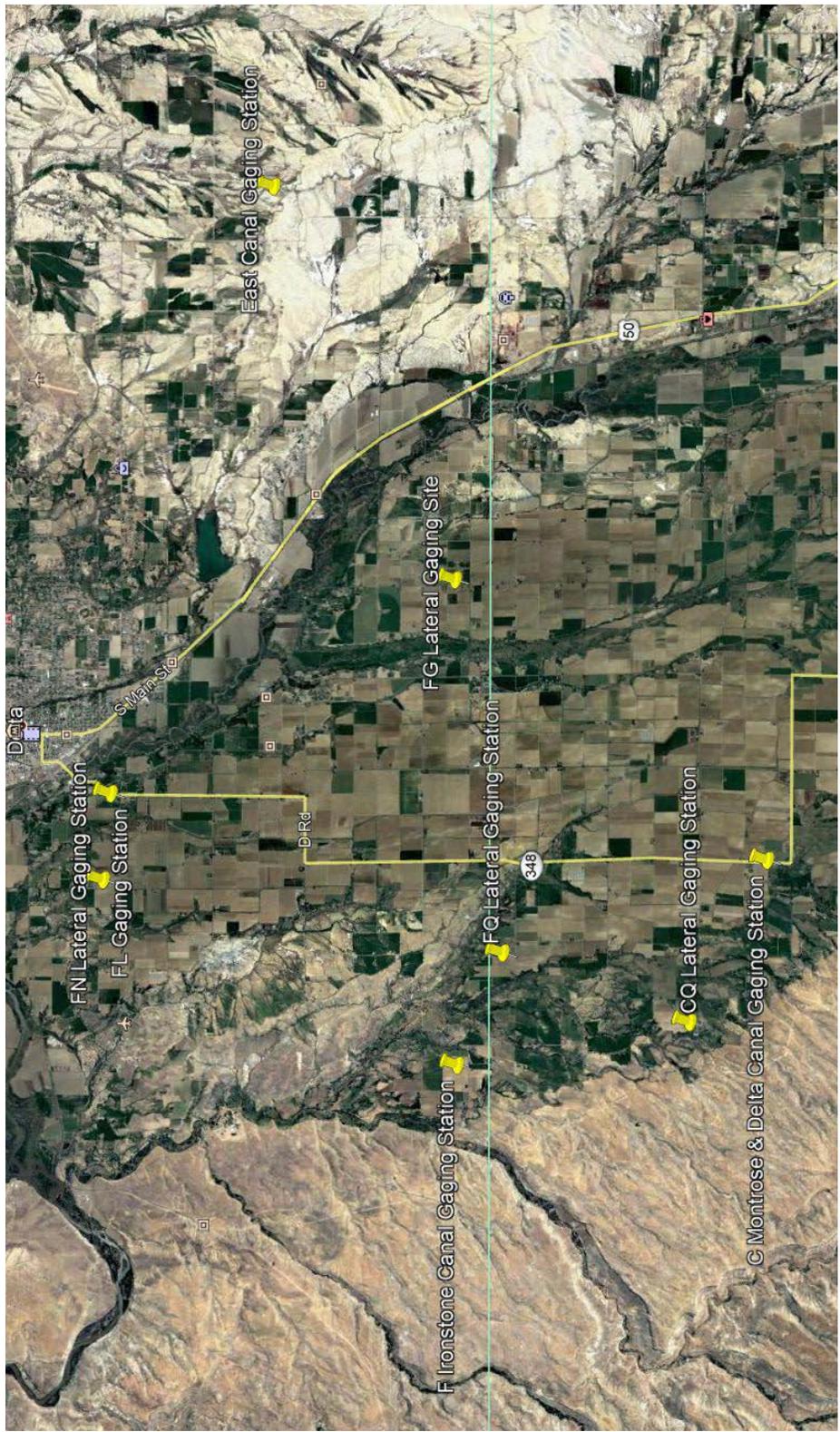


Figure 2 Project Schedule

Project Schedule						
	20 18		20 19			
Description	Q3	Q4	Q1	Q2	Q3	Q4
Task 1: Project Planning & Development	XXXXXXXXXXXX					
(September 2018 - January 2019)						
Task 2: Construct Parshall Flumes						
(December 2018 - January 2019)		XXX XXX				
Task 3: Purchase & Install Equipment						
(January 2019 - March 2019)			XXXXXXXXXX			
Task 4: Public Outreach & Education						
(April 2019 - June 2019)				XXXXXXXXXX		
Task 5: Grant Administration & Reporting						
Federal Financial Reports		X	X	X	X	X
Semi-Annual Progress Reports				X		X
Final Report						X

BUDGET INFORMATION - Construction Programs			
<i>NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case, you will be notified.</i>			
COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Columns a-b)
1. Administrative and legal expenses	\$ 6,381.00	\$	\$ 6,381.00
2. Land, structures, rights-of-way, appraisals, etc.	\$	\$	\$
3. Relocation expenses and payments	\$	\$	\$
4. Architectural and engineering fees	\$	\$	\$
5. Other architectural and engineering fees	\$ 4,400.00	\$	\$ 4,400.00
6. Project inspection fees	\$	\$	\$
7. Site work	\$	\$	\$
8. Demolition and removal	\$	\$	\$
9. Construction	\$ 35,896.00	\$	\$ 35,896.00
10. Equipment	\$ 49,696.00	\$	\$ 49,696.00
11. Miscellaneous	\$ 29,541.00	\$	\$ 29,541.00
12. SUBTOTAL (sum of lines 1-11)	\$ 125,914.00	\$	\$ 125,914.00
13. Contingencies	\$	\$	\$
14. SUBTOTAL	\$ 125,914.00	\$	\$ 125,914.00
15. Project (program) income	\$	\$	\$
16. TOTAL PROJECT COSTS (subtract #15 from #14)	\$ 125,914.00	\$	\$ 125,914.00
FEDERAL FUNDING			
17. Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share.) Enter the resulting Federal share.	Enter eligible costs from line 16c	Multiply X	100 % \$ 125,914.00