WaterSMART

Water and Energy Efficiency Grants for FY 2018

Funding Opportunity Announcement No. BOR-DO-18-F006

Funding Group I

Duchesne County Water Efficiency Project: Phase 2

Near Roosevelt, Utah

Duchesne County Water Conservancy District (Applicant)
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Roosevelt, Utah 84066

In Association With:
Dry Gulch Irrigation Company
Farnsworth Canal and Reservoir Company
Lake Fork and Yellowstone River Commission
Uinta and Whiterocks River Commission
Moon Lake Water Users Association

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May 7, 2018

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Executive Summary

The executive summary should include:

- *The date, applicant name, city, county, and state*
- *A one paragraph project summary that specifies the work proposed, including how funds will be used to accomplish specific project activities and briefly identifies how the proposed project contributes to accomplishing the goals of this FOA*
- *State the length of time and estimated completion date for the proposed project*
- *Whether or not the project is located on a Federal facility*

Date:	May 3, 2018
Applicant:	Duchesne County Water Conservancy District Roosevelt, Duchesne County, Utah
Project Title:	Duchesne County Water Efficiency Project: Phase 2

Project Summary:

The Duchesne County Water Efficiency Project: Phase 2 project is a collaborative effort to improve water efficiency in the Duchesne River Basin of Utah. Phase 1, which was funded by a 2013 WaterSMART grant, was so successful that the applicant has identified projects for a second phase. The water users in this area are dedicated to improving their system and providing for the future. Duchesne County Water Conservancy District (DCWCD) is working with five entities to identify projects that will have the following project benefits:

- Water conservation
- Improved water management
- Increased system efficiency

As with Phase 1, this project will continue to allow local water users to better understand how much water is available and how to use it more efficiently for better control and land production. These improvements will also allow the canal systems to respond quickly to flow changes. The improvements and associated benefits will allow the entities to conserve water and improve their water management. This project is expected to save 3,907 acre-feet of water annually and improve the management of 78,130 acre-feet of water deliveries, meeting the goals of this FOA. Achieving high water use efficiency is the first step towards sustainable water development and management.

The following are specific improvements in the individual systems:

- Measure diversions at canal head gates using flumes and telemetry
- Install flumes on various canals and a weir
- Install a repeater station to increase reliability of real-time data
- Install water level control sensors
- Install water meters on irrigation laterals

Water losses have a negative impact on individual shareholders and the local economy. These losses are critical in the face of potential upcoming water shortages totaling 2.5 million acre-feet in the Colorado River Basin by the year 2050, as indicated in a study published by Reclamation in 2012. The Duchesne River and its tributaries, the source of water for this project, ultimately flows to the Colorado River and is expected to experience these impacts. The project has close ties to Reclamation's enlarged Big Sand Wash Reservoir and a contractual agreement with the U.S. Department of Interior (DOI) to deliver 1,500 acre-feet of water to the endangered fish species recovery program on the Colorado River. A grant from Reclamation will make this project financially feasible.

Approximate Length:	24 months
Completion Date:	September 2020
Federal Facility:	The project is not located on a Federal facility.

Background Data

Applicant's Water Supply

As applicable, describe the source of water supply, the water rights involved, current water uses (e.g., agricultural, municipal, domestic, or industrial), the number of water users served, and the current and projected water demand. Also, identify potential shortfalls in water supply. If water is primarily used for irrigation, describe major crops and total acres served.

The Duchesne County Water Conservancy District (DCWCD) was formed in 1998 with the purpose of promoting water development in Duchesne County, Utah. It has a General Manager and a seven-member Board of Directors. It provides assistance to local irrigation companies in Duchesne County, such as: Dry Gulch Irrigation Company, Farnsworth Canal and Reservoir Company, Lake Fork and Yellowstone River Commission, Lake Fork Irrigation Company, and water users in Duchesne County who receive water from the Uinta and Whiterocks River Commission. DCWCD will be the contracting entity with Reclamation for this WaterSMART grant. DCWCD works closely with Reclamation's Central Utah Project Office and is a sponsoring entity for Reclamation's Big Sand Wash Reservoir Enlargement. Each of the five entities that DCWCD will be working with to implement these projects are described below.

Dry Gulch Irrigation Company (Dry Gulch) receives its water supply from Lake Fork, Sand Wash, and Moon Lake Reservoirs to serve approximately 58,000 acres of land in the eastern portion of Duchesne County. This project is anticipated to impact 10,000 of these acres. Dry Gulch has approximately 250 water users and an annual water supply of 30,000 acre-feet.

Farnsworth Canal and Reservoir Company (Farnsworth) receives its water supply from Browns Draw, Sand Wash, Moon Lake, and Twin Pots Reservoirs to serve approximately 12,000 acres of land in northern Duchesne County. This project is anticipated to impact 3,566 of these acres. Farnsworth has 44 water users and an annual water supply of 9,000 acre-feet.

Lake Fork and Yellowstone River Commission (Lake Fork) administers diversions from the Lake Fork and Yellowstone Rivers to serve 8,200 acres of land in northern Duchesne County.

Approximately 7,700 acres are classified as Class B lands and 500 acres lie on Bureau of Indian Affairs (BIA) lands. Lake Fork has approximately 50 water users that consist of members of the Ute Indian Tribe and non-Indian users. Their annual water supply is approximately 24,600 acre-feet.

Uinta and Whiterocks River Commission (Uinta) controls Montes Creek Reservoir, which has a capacity of 1,276 acre-feet and is fed by the Uinta River. The commission serves approximately 1,650 acres in Duchesne County via 64 water users. The annual water supply depends on the volume held in Montes Creek Reservoir but is assumed to be the capacity of 1,276 acre-feet.

Moon Lake Water Users Association (Moon Lake) distributes water from the Lake Fork and Yellowstone Rivers to various irrigation companies in Duchesne County. Two of these irrigation companies include Dry Gulch and Farnsworth, also participants in the project. This project would impact the operation and management of three canals operated by Moon Lake: Cedarview Canal, Yellowstone Feeder Canal, and Monarch Canal. Annual water deliveries on the three affected canals totals 13,250 acre-feet (2,500 acre-feet via the Cedarview Canal, 10,500 acre-feet via the Yellowstone Feeder Canal, and 250 acre-feet via the Monarch Canal).

Table 1 summarizes the water source, number of water users, number of acres served by the project, and annual water supply for each involved entity.

Table 1: Summary of Entities' Water Information

Entity	Water Source	# of Water Users	# of Acres Served by Project	Annual Water Supply (ac-ft)
Dry Gulch Irrigation Company	Lake Fork, Sand Wash & Moon Lake Reservoirs	250±	10,000	30,000
Farnsworth Canal and Reservoir Company	Browns Draw, Sand Wash & Moon Lake, Twin Pots Reservoirs	44	3,566	9,000
Lake Fork and Yellowstone River Commission	Lake Fork River Yellowstone River	50±	8,200	24,600
Uinta and Whiterocks River Commission	Uinta River Montes Creek Reservoir	64	1,650	1,276*
Moon Lake Water Users Association	Lake Fork River Yellowstone River	**	**	13,250

**Total Capacity of Montes Creek Reservoir*
***Moon Lake Water Users Association serves multiple irrigation companies.*

Water supplies differ among the involved entities in the project. Of the indicated reservoirs used by these entities, there is not enough combined storage available to capture the high spring flows and provide adequate water supply throughout the entire irrigation season. Except in a very wet year, there are always water shortages. These entities and their users regularly experience water shortages later in the season as well as receiving less than the allotted water duty of 3 acre-feet per acre allowed by the water rights. Typically, only 2 acre-feet is delivered, sometimes 2.25 acre-feet in a good year. Water right information is shown in Appendix A.

All water affected by this project is used for agricultural purposes. Typical crops grown in the project area include alfalfa hay, grass hay, pasture, and some grain crops that include corn, wheat, and oats.

Water Delivery System

Describe the applicant's water delivery system as appropriate. For agricultural systems, please include the miles of canals, miles of laterals, and existing irrigation improvements (e.g., type, miles, and acres). For municipal systems, please include the number of connections and/or number of water users served and any other relevant information describing the system.

Table 2 is a summary of each entity's water delivery system. Some of the systems are as long as 23 miles. Previous improvements have proven extremely beneficial to the river commissioners and water masters by allowing more water for the whole system through better management. Being able to look at real-time data from the telemetry systems allows them to save time and fuel from not needing to visually check on the canals. Better measurement allows water managers to leave water in storage when it is not needed. Achieving high water use efficiency is the first step towards sustainable water development and management.

Table 2: Summary of Entities and Type of Water Delivery Systems

Entity	Water Delivery System
Dry Gulch Irrigation Company	Open main canals, piped laterals, and on-farm sprinklers Meters and telemetry, staff gage and dataloggers
Farnsworth Canal and Reservoir Company	Open main canals, piped laterals, and on-farm sprinklers Telemetry, staff gage and dataloggers
Lake Fork and Yellowstone River Commission	Open main canals, piped laterals, and on-farm sprinklers telemetry, staff gage and dataloggers, water level sensors
Uinta and Whiterocks River Commission	Open main canals, piped laterals, and on-farm sprinklers Telemetry, automated control gate, bifurcation structure
Moon Lake Water Users Association	Open main canals, piped laterals, and on-farm sprinklers

Hydropower or Energy Efficiency

If the application includes hydropower or energy efficiency elements, describe existing energy sources and current energy uses.

Not applicable.

Prior Work with Reclamation

Identify any past working relationships with Reclamation. This should include the date(s), description of prior relationships with Reclamation, and a description of the project(s).

Most of the water available in Duchesne County was developed as part of the Central Utah Project (CUP) under the direction of Reclamation's CUP office. Reclamation provided oversight of the facilities constructed as part of the CUP and they are now Reclamation features. Specific relationships between the involved entities in the proposed project and Reclamation are listed in Table 3.

Table 3: Working Relationships with Reclamation

Entity	Reclamation Project Relationship
Dry Gulch Irrigation Company	DCWCD Water Efficiency Project (2013) Hancock Lateral Pipeline (2012) Big Sand Wash Reservoir Height Increase (2007) and Reclamation's Water 2025 Program
Farnsworth Canal and Reservoir Company	DCWCD Water Efficiency Project (2013) Big Sand Wash Reservoir Height Increase (2007) and Reclamation's Water 2025 Program
Lake Fork and Yellowstone River Commission	DCWCD Water Efficiency Project (2013) Big Sand Wash Reservoir Height Increase (2007) and Reclamation's Water 2025 Program
Uinta and Whiterocks River Commission	DCWCD Water Efficiency Project (2013) Reclamation's Water 2025 Program
Moon Lake Water Users Association	DCWCD Water Efficiency Project (2013) Reclamation's Moon Lake Project Yellowstone Feeder Canal (constructed 1935–1941)

As indicated in the table, the proposed project has close ties to many Reclamation projects. In addition, DCWCD has a contractual agreement with the DOI to deliver 1,500 acre-feet of water to the endangered fish species recovery program for the Colorado River.

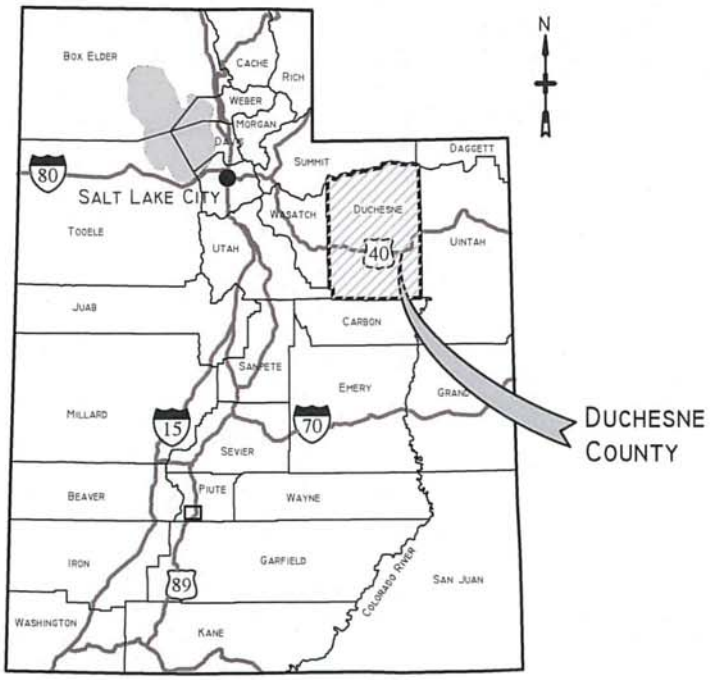
Duchesne County is also part of the Central Utah Water Conservancy District (CUWCD) which administers CUP water and manages CUP facilities. Flows from Duchesne River are diverted to Starvation Reservoir, a Reclamation facility, by the Knight Diversion Dam. Water conserved through the proposed project would continue in the Duchesne River and might be diverted to Starvation Reservoir where it would be stored for future CUP deliveries or it could remain in the Duchesne River and eventually flow into the Colorado River where it would enhance the local fish habitat.

Project Location

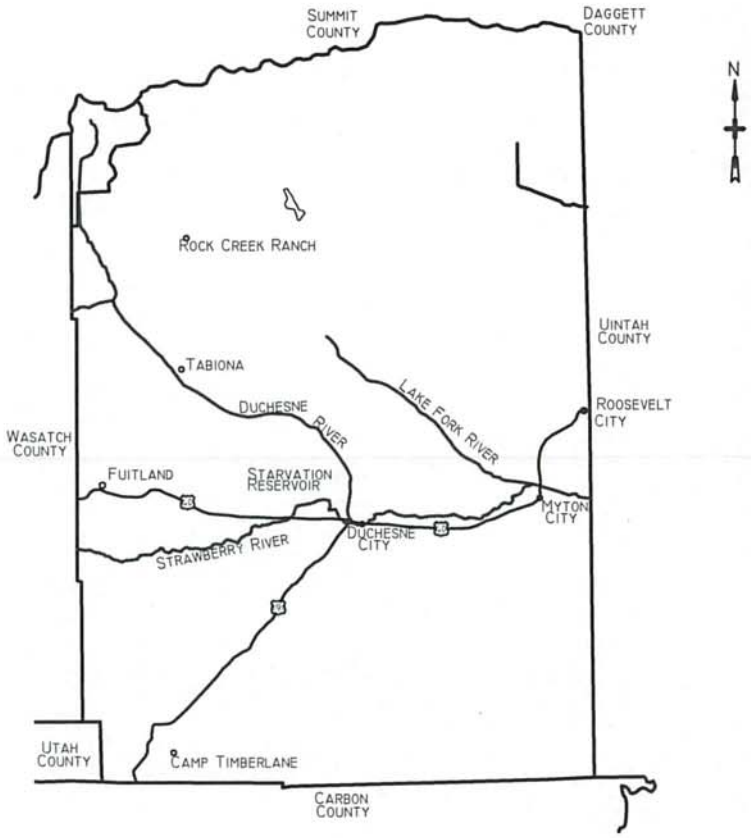
Provide specific information on the proposed project location or project area including a map showing the geographic location. For example, {project name} is located in {state and county} approximately {distance} miles {direction, e.g. northeast} of {nearest town}. The project latitude is {##°##'N} and longitude is {###°##'W}. For larger project areas, please provide location information in one of the following formats:

1. *Shapefile (.shp)*
2. *KMZ/KML (.kmz or .kml) aka Google Earth File, not an exported Google Earth map*
3. *AutoCAD (.dwg)*
4. *PDF map (.pdf)*

The Duchesne County Water Efficiency Project: Phase 2 is located in eastern Duchesne County, Utah, near Duchesne and Roosevelt as shown in Figure 1.



Utah



Duchesne County

FRANSON CIVIL ENGINEERS	DATE: APRIL 30, 2018 SCALE: Location map.dwg P:\UT\Eastern\DCWCD 2018 WaterSMART Grant application\DCWCD application old	DUCHESNE COUNTY WATER CONSERVANCY DISTRICT DUCHESNE COUNTY WATER EFFICIENCY PROJECT PHASE 2	FIGURE 1 WATERSMART LOCATION MAP

Technical Project Description

The technical project description should describe the work in detail, including specific activities that will be accomplished. This description shall have sufficient detail to permit a comprehensive evaluation of the proposal.

The proposed project intends to install measuring devices on various diversions, canals, and laterals throughout the DCWCD area on systems owned and operated by Dry Gulch, Farnsworth, Lake Fork, Uinta, and Moon Lake. Specific items include telemetry, water meters, a weir, flumes, a repeater station, and a water level control sensor. Table 4 lists the specific components to be installed if this project receives funding. The components are separated by entity. If a grant from Reclamation is received, each entity will proceed to finalize the components of their respective portion of the project including preparing the scopes of work to obtain the necessary materials and/or services.

The implementation of this project will result in water conservation, improved water management, and increased system efficiency. Local water masters and river commissioners have stated that past similar projects, including Phase 1, have been significantly beneficial in improving water management by allowing the ability to monitor exact water usage and help users adjust what the lands need accordingly, as well as saving time and fuel required to manage and operate the system.

As directed by Reclamation, an environmental and cultural review will be completed. The environmental review has been completed by Reclamation on the Moon Lake Water Users Association portion of the project. Once environmental clearance is obtained, the construction will commence.

Table 4: Project Components by Entity

Entity	Project Components
Dry Gulch Irrigation Company Install telemetry sites at seven measuring points on canal head gates and install 155 water meters on laterals and turnouts to better manage and conserve water	
1. Dry Gulch Points 1-7	Telemetry – Staff Gage and Datalogger
2. Class C, D, E, F, and K2 Water Users	155 Water Meters
Farnsworth Canal and Reservoir Company Install telemetry sites at eight main canal head gates, use of data-loggers, and a new weir for more accurate water measurement and better management	
1. Ottersen Lateral - Point 1	Telemetry – Staff Gage and Datalogger
2. #5 Lateral - Point 2	Telemetry – Staff Gage and Datalogger
3. Doyle Lateral - Point 3	Telemetry – Staff Gage and Datalogger
4. Thayne Lateral - Point 4	Telemetry – Staff Gage and Datalogger
5. Zane Lateral - Point 5	Telemetry – Staff Gage and Datalogger
6. Blackburn #1 - Point 6	Telemetry – Staff Gage and Datalogger
7. Blackburn #2 - Point 7	Telemetry – Staff Gage and Datalogger
8. Farnsworth - Point 8	Telemetry – Staff Gage and Datalogger
9. Farnsworth Canal Weir	New Weir
Lake Fork and Yellowstone River Commission Install a repeater station on the Highline Canal to fix the poor telecommunication due to elevation difficulties and allow for real-time data	
1. Highline Canal	Repeater Station
Uinta and Whiterocks River Commission Install a water level sensor and telemetry for the reservoir	
1. Montes Creek Reservoir	Water Level Sensor and Telemetry
Moon Lake Water Users Association Install five new flumes and telemetry at eight locations along the system's canals	
1. Cedarview Canal - Cedarview Flume	Water Level Sensor and Telemetry
2. Cedarview Canal - Rainbow Flume	Water Level Sensor and Telemetry
3. Yellowstone Feeder Canal Flume 1	Flume and Telemetry
4. Yellowstone Feeder Canal Flume 2	Flume and Telemetry
5. Yellowstone Feeder Canal Flume 3	Flume and Telemetry
6. Yellowstone Feeder Canal Flume 4	Flume and Telemetry
7. Monarch Canal Delivery Point 1	Telemetry
8. Monarch Canal Delivery Point 2	Flume and Telemetry

Evaluation Criteria

Evaluation Criterion A: Quantifiable Water Savings

Up to 30 points may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency by modernizing existing infrastructure. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will be allocated to give greater consideration to projects that are expected to result in more significant water savings. All applicants should be sure to address the following:

Water Savings

Describe the amount of estimated water savings. *For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project.*

It is anticipated that approximately 3,907 acre-feet of water will be conserved through the implementation of this project. Table 5 indicates the estimated water conserved by each involved entity. Based on the expertise and experience of the water masters, about 5% of the water has been saved through past similar projects. Water is currently lost to seepage and evaporation throughout all the delivery systems, as well as due to management inefficiencies outside of the water masters' control. These include sudden decreases in water use due to a rain event, water users shutting off their turnouts without notifying the water master, overuse by individual shareholders, and inefficient on-farm water use by irrigators that do not understand proper consumptive use requirements of specific crops. Historically, water users take all the water available to them rather than only using what is needed for their land.

The installation of water meters, telemetry sites, water level sensors, and a repeater station will provide real-time data to water masters and to individual water users to empower them with the knowledge of their water use and specific land needs. The information from the SCADA system would be online and available to the water users so they could monitor their own water use and know the usage status of other water users on the system. This knowledge will contribute to their understanding of how to efficiently irrigate crops which includes being mindful of their water use while producing healthy crops. In addition, the data provided by these measurement devices will allow water masters to identify who is overusing water and analyzing whether the additional water is being used beneficially or wasted. The water master can then focus on specific water management strategies to decrease the volume of water wasted, ensure proper storage in reservoirs to compensate for late-season shortages, and improve the efficiency of the system. With improved management, water stored during wet years that may not be used could potentially be left in reservoirs throughout the winter to provide for dry years.

The water conserved through this project will be due to improved water management using knowledge gained by installing measurement devices as realized through the Phase 1 project.

Table 5: Conserved Water by Entity

Entity	Annual Water Supply (ac-ft)	Estimated Amount of Water to be Conserved (ac-ft)
Dry Gulch Irrigation Company	30,000	1,500
Farnsworth Canal and Reservoir Company	9,000	450
Lake Fork and Yellowstone River Commission	24,600	1,230
Uinta and Whiterocks River Commission	1,276	64
Moon Lake Water Users Association	13,250	663
TOTAL	**78,126**	**3,907**

Current Water Losses

Describe current losses: *Please explain where the water that will be conserved is currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?*

The water conserved through the implementation of this project is currently being lost through ineffective watering techniques, inefficient water management, and overuse by individual irrigators. Due to these factors, the water is mainly only lost at the end of company ditches and wasted on individual farms.

Support/Documentation of Water Savings

Describe the support/documentation of estimated water savings: *Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal.*

The purpose of this project is to better manage available water supplies through measurement. Experience has shown that measurement of water promotes water conservation. Unlike seepage losses that can be measured prior to project implementation, the water conserved by meters and telemetry can only be determined after installation. As stated in Reclamation's document, *Water Measurement Manual: A guide to Effective Water Measurement Practices for Better Water Management*, the following points are made regarding the benefits of better water management:

- Accurate accounting and good records help allocate equitable shares of water between competitive uses both on and off the farm.
- Good water measurement practices facilitate accurate and equitable distribution of water within district or farm, resulting in fewer problems and easier operation.
- Accurate water measurement provides the on-farm irrigation decision-maker with the information needed to achieve the best use of the irrigation water applied while typically minimizing negative environmental impacts.

- Installing canal flow measuring structures reduces the need for time-consuming current metering. Without these structures, current metering is frequently needed after making changes of delivery and to make seasonal corrections for changes of boundary resistance caused by weed growths or changes of sectional shape by bank slumping and sediment deposits.

The amount of water savings for this project, shown in Table 5, was determined using each entities' water supply and the experience of the involved water masters and river commissioners. Each water master or river commissioner has worked with systems before and after telemetry was installed. Based on their personal experience, it was determined that each system would experience five (5) percent water savings with the installment of technological advances that provide real-time data, allowing the system operators to adjust water deliveries in a timely manner and make informed decisions based on exact on-farm usage data. Table 6 lists the system operator and their experience with water systems and real-time data.

Table 6: Experience of Entity Water Masters

Entity	Operator/Years of Experience
Dry Gulch Irrigation Company	Rodger Ames, 11 years
Farnsworth Canal and Reservoir Company	Kirk Christensen,33 years
Lake Fork and Yellowstone River Commission	Leland Carter, 11 years
Uinta and Whiterocks River Commission	Shane Hamblin, 28 years
Moon Lake Water Users Association	Dex Winterton, 11 years

Kirk Christensen, past president of Farnsworth Canal and Reservoir Company with over 33 years of experience, stated that Farnsworth gets an extra week's worth of water for the entire system as result of previous measurement improvements. Each of the entities participated in the WaterSMART Phase 1 Water Efficiency Project which was so successful that it led to them seeking additional funding for continued improvements. In many cases, shareholders have been directly paying for the costs not covered by the grant because these improvements are valuable to them. The observed benefit from these improvements has prompted more shareholders to provide their cost share to install meters and improve system performance.

The water conserved through this project will stay in the tributaries of the Duchesne and Green Rivers and local reservoirs from which the entities divert water. It will be used by the entities to remediate water shortages during the late summer months. In some cases, it will also be used to irrigate lands with valid water rights that have not been previously irrigated due to a lack of water supply.

Project Types

Please address the following questions according to the type of infrastructure improvement you are proposing for funding.

(1) ***Irrigation Flow Measurement:*** *Irrigation flow measurement improvements can provide water savings when improved measurement accuracy results in reduced spills and over-deliveries to irrigators. Applicants proposing irrigation flow measurement projects should address the following:*

a. How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.

Annual water savings were estimated based on the experience of the local system operators who have worked with systems before and after measurement devices were installed. The majority of these operators were involved with similar improvements funded by a previous WaterSMART grant and have been able to experience similar water savings. These operators determined that the proposed improvements will result in a five (5) percent water savings. The water savings were determined using the following formula:

$$Annual\ Water\ Supply * 5\% = Annual\ Water\ Conserved$$

This formula was used for each involved entity, following which, the amounts to be conserved were summed to produce the overall water savings of 3,907 acre-feet annually.

$$\frac{Estimated\ Amount\ of\ Water\ Conserved}{Average\ Annual\ Water\ Supply} = \frac{3{,}907\ \text{acre-feet}}{78{,}126\ \text{acre-feet}} = 5\%$$

b. Have current operational losses been determined? If water savings are based on a reduction of spills, please provide support for the amount of water currently being lost to spills.

It is anticipated that water losses are due to over-deliveries to individual irrigators and excess water at the end of the company ditch. While additional losses are due to seepage and evaporation, these are not expected to change with the implementation of this project. Thus, the full 3,907 acre-feet of water savings is expected to result from improved water management via the installation of measurement devices and will eliminate the majority of on-farm and end-of-ditch losses.

c. Are flows currently measured at proposed sites and if so what is the accuracy of existing devices? How has the existing measurement accuracy been established?

Flows are not currently measured at the proposed telemetry and meter locations.

d. *Provide detailed descriptions of all proposed flow measurement devices, including accuracy and the basis for the accuracy.*

The proposed measurement devices to be installed include several flumes, a weir, a repeater station, the automation of a several water level control sensors, and meters. Accuracy is the relation between the volume shown on the meter's totalizer and the actual volume of fluid which passed through the meter. Under normal operation between its minimum and maximum rates of flow, meters will report within ±2% of the actual flow.

e. *Will annual farm delivery volumes be reduced by more efficient and timely deliveries? If so, how has this reduction been estimated?*

Yes, more accurate water measurements and increased knowledge of the amount of water needed to support crops will result in reduced on-farm water usage and allow operators to ensure efficient and timely water deliveries. Unnecessary water would not be delivered to water users, allowing the water to be delivered only when needed to the land in need. This reduction has been estimated by assuming that upon implementation, the operators will better utilize the full water supply, resulting in full water utilization.

$$\frac{Estimated\ Amount\ of\ Water\ to\ be\ Better\ Managed}{Average\ Annual\ Water\ Supply} = \frac{78{,}126\ acre-feet}{78{,}126\ acre-feet} = 100\%$$

f. *How will actual water savings be verified upon completion of the project?*

Because no measurement devices exist in the install locations proposed in this project, the new systems will initially serve to create a baseline condition of how the system is currently operating. As the operators make changes and adjust the supply and delivery of water utilizing the knowledge from the installed devices, they will be compared to the developed baseline. In addition, the new data will be compared to water master and river commissioner records from previous years. These comparisons will allow the entities to measure pre- and post-project performance.

Evaluation Criterion B: Water Supply Reliability

Up to 18 points may be awarded under this criterion. This criterion prioritizes projects that address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflicts in the region.

Please address how the project will increase water supply reliability. Proposals that will address more significant water supply shortfalls benefitting multiple sectors and multiple water users, will be prioritized. General water supply reliability benefits (e.g., proposals that will increase resiliency to drought) will also be considered. Please provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

- *Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?*
  - *Is there widespread support for the project?*

- *What is the significance of the collaboration/support?*
- *Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?*

There is widespread support for this project among DCWCD, the boards of directors for each involved entity, and individual shareholders within these entities. This collaboration is significant because it involves a large number of separate entities including DCWCD as the project sponsor and large proponent, as well as Dry Gulch Irrigation Company, Farnsworth Canal and Reservoir Company, Lake Fork and Yellowstone River Commission, Uinta and Whiterocks River Commission, and Moon Lake Water Users Association as involved entities actually implementing the project. The project also requires the support of Reclamation as a major funding participant in the project. These entities are already deeply intertwined with one another and would all benefit from the implementation of this project.

This project will conserve 3,907 acre-feet of water and, more importantly, improve water management throughout Duchesne County. These benefits will minimize conflicts and water crises in the future. As indicated by the involvement of individual shareholders, including their direct cost-share, the water users in this area are dedicated to improving their system and providing for the future. This project will give them the keys necessary to analyze their individual water usage and make adjustments to efficiently water their crops and avoid wasting water. Conservation improvements have already been enhanced by the completion of the previous WaterSMART project and will continue to be supported through this project.

- *Will the project make water available to address a specific water reliability concern? Please address:*
  - *Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries.*
  - *Describe where the conserved water will go/how it will be used. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)? Will it be left in the river system?*
  - *Describe how the project will address the water reliability concern.*
  - *Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?*
  - *Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.*
  - *Describe the roles of any partners in the process. Please attach any relevant supporting documents.*
  - *Indicate the quantity of conserved water that will be used for the intended purpose.*

The water users in Duchesne County commonly experience water shortages during late summer months. This is due to inadequate storage capacities and inefficient water management in addition to the natural occurrence of drought in the region. The project would allow for better management of the current water supplies. This would preserve the conserved water to remain in the storage reservoirs longer, providing additional water for fish and wildlife (that has historically not been there) and recreation. The water sources have limited storage and rely on snowpack for flow. The rivers are very susceptible to drought and this project would assist with additional instream flows. All the water sources eventually lead to the Duchesne River, which is also popular for recreation.

The water conserved through this project, 3,907 acre-feet, will remain in the system to remediate some of these shortages. In addition, the data that would be available from the implementation of this project will allow the system operators to improve water management, thereby reducing wasted water and over-deliveries and retain unneeded water in the reservoirs until a water shortage is experienced and the water is needed. This will increase the reliability of the water supply and stabilize deliveries. This will prevent potential conflicts when there are shortages. The system operators will utilize the installed measurement and control devices to ensure the conserved water and remaining water supply each achieve their intended uses and the overall economy of the region increases due to the better-managed water supply. It is anticipated that the entire 3,907 acre-feet of conserved water will be used to remediate late-season shortages experienced by each of the entities. The water would be available to the entities in their water storage facilities as a result of efficient water management.

- *Will the project benefit Indian tribes?*

Yes, members of the Ute Indian Tribe receive water from the Lake Fork and Yellowstone River Commission and the Moon Lake Water Users Association, both project proponents. These shareholders will benefit from the conserved water in the late summer months and improved management of the total water supply that will ensure their water needs are met.

- *Will the project benefit rural or economically disadvantaged communities?*

Yes, the project area includes many rural communities that rely on the crops grown using the involved water supplies. By improving the overall water management and conserving water, it is expected that crop production will increase and stabilize, improving the local economy.

- *Will the project benefit species (e.g., Federally threatened or endangered, a Federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project.*

Yes, Federally-listed fish species involved in the Colorado River recovery program will benefit from improved water management that will aid DCWCD in fulfilling its contractual agreement with the DOI to provide 1,500 acre-feet of water to improve the habitat of the endangered Colorado River fish species that include the Humpback Chub, Bonytail, Colorado Pikeminnow, and Razorback Sucker. Any excess water, likely spring flows, will be left in the Duchesne River as instream flows that will eventually reach the Colorado River to benefit these fish species.

Will the project address water supply reliability in other ways not described above?

Not applicable.

Evaluation Criterion C: Implementing Hydropower

Up to 18 points may be awarded for this criterion. This criterion prioritizes projects that will install new hydropower capacity in order to utilize our natural resources to ensure energy is available to meet our security and economic needs.

If the proposed project includes construction or installation of a hydropower system, please address the following:

***Describe the amount of energy capacity**. For projects that implement hydropower systems, state the estimated amount of capacity (in kilowatts) of the system. Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate.*

Not applicable.

***Describe the amount of energy generated**. For projects that implement hydropower systems, state the estimated amount of energy that the system will generate (in kilowatt hours per year). Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate.*

Not applicable.

***Describe any other benefits of the hydropower project**. Please describe and provide sufficient detail on any additional benefits expected to result from the hydropower project, including:*

- *Any expected reduction in the use of energy currently supplied through a Reclamation project*
- *Anticipated benefits to other sectors/entities*
- *Expected water needs, if any, of the system*

Not applicable.

Evaluation Criterion D: Complementing Future On-Farm Irrigation Improvements

*Up to 10 points may be awarded for projects that describe in detail how they will **complement on-farm irrigation improvements** eligible for NRCS financial or technical assistance.*

If the proposed projects will complement an on-farm improvement eligible for NRCS assistance, please address the following:

- *Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.*
    - *Provide a detailed description of the on-farm efficiency improvements.*
    - *Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?*

- *If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.*
- *Applicants should provide letters of intent from farmers/ranchers in the affected project areas.*

Many water users have already made on-farm improvements funded by the NRCS and other sources. These improvements have consisted of converting to sprinkler irrigation systems and installing water meters at individual water user turnouts. Shareholders involved in the WaterSMART Phase 1 project indicated that they gained a better understanding of their water supply and crop needs through the project and have expanded their sprinkler irrigation systems with NRCS funding because of the knowledge gained through the project.

It is anticipated that as more water users are able to better understand their water supply and water usage, they will seek NRCS funding to install or expand existing sprinkler irrigation systems. These conversions have resulted in individual water users choosing sprinkler systems that will efficiently irrigate their land for a longer period of time rather than relying on flood irrigation for a shorter period of time.

- *Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.*
  - *Will the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how? For example, installation of a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.*

OR

  - *Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?*

The installation of measurement devices will increase the water supply and reliability, allowing irrigators to make on-farm improvements based on their confidence in that supply. In addition, the knowledge gained about the consumptive uses of crops will aid irrigators in deciding to make on-farm improvements. This project will complement ongoing and future improvements and allow the system operators to assist individual users in determining their specific needs.

- *Describe the on-farm water conservation or water use efficiency benefits that would result from the on-farm component of this project.*
  - *Estimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.*

It is anticipated that as individual irrigators convert to sprinkler irrigation, their system efficiencies will increase, and they will be able to grow healthier crops, irrigate land within the irrigation company service area that has not historically had a full water supply, and reduce overall water use. No specific on-farm water conservation values have been determined as this project is intended to complement on-farm improvements rather than depending on these improvements. However, the water conservation and increased efficiency is expected to be significant if improvements are made.

Evaluation Criterion E: Department of the Interior Priorities

Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports the Department of the Interior priorities. Please address those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt*
   a. *Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;*
   b. *Examine land use planning processes and land use designations that govern public use and access;*
   c. *Revise and streamline the environmental and regulatory review process while maintaining environmental standards.*
   d. *Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;*
   e. *Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;*
   f. *Identify and implement initiatives to expand across to DOI lands for hunting and fishing;*
   g. *Shift the balance towards providing greater public access to public lands over restrictions to access.*

It has been demonstrated through many previous projects, including the WaterSMART Phase 1 project, that implementing technologically-advanced equipment such as telemetry, meters, and other measurement devices improve water management and allow users to better adapt to the needs of the environment. By implementing this project, the involved entities will be utilizing scientific innovations to identify and implement best water management practices to adapt to the environment and preserve this scarce resource. The project would allow for better management of the current water supplies. Having the option of using conserved water late in the summer of drought years would help avoid conflicts between shareholders.

2. *Utilizing our natural resources*
   a. *Ensure American Energy is available to meet our security and economic needs;*
   b. *Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;*
   c. *Refocus timber programs to embrace the entire 'healthy forests' lifecycle;*
   d. *Manage competition for grazing resources.*

Not applicable.

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

b. *Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.*

This project helps Reclamation build trust with local communities who have had some contact with Reclamation via the CUP, but may still be unaware of Reclamation's purpose. This project demonstrates that water conservation and management are important to Reclamation and preserving our resources for the future. In addition, many entities including local water authorities, tribes, and communities will be positively affected by the project and Reclamation.

4. *Striking a regulatory balance*
   a. *Reduce the administrative and regulatory burden imposed on U.S. industry and the public;*
   b. *Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.*

Not applicable.

5. *Modernizing our infrastructure*
   a. *Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;*
   b. *Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;*
   c. *Prioritize DOI infrastructure needs to highlight:*
      1. *Construction of infrastructure;*
      2. *Cyclical maintenance;*
      3. *Deferred maintenance.*

The entire purpose of this project is to modernize the existing infrastructure to improve water management and conserve water. Using technological advances, the involved entities intend to enhance their systems with telemetry, water level control sensors, meters, and other measurement devices.

Evaluation Criterion F: Implementation and Results

Up to 6 points may be awarded for these subcriteria.

Subcriterion No. F.1 – Project Planning

Points may be awarded for proposals with planning efforts that provide support for the proposed project.

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? *Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place.*

Provide the following information regarding project planning:

(1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.

The entities have sought funding from the Utah Division of Water Resources for various projects and as such, have Water Conservation Plans in place as a prerequisite to receive this funding. These plans emphasize ways to conserve water for the future and include the installation of measurement devices as a necessary step.

In addition to the water conservation plans, the Utah Division of Water Resources prepared a document titled *Uintah Basin, Planning for the Future,* dated November 2016 (http://www.water.utah.gov/Planning/SWP/Unitah/UintahBasin2016.pdf). Todd Stonely, River Basin Planning Manger stated, *"One of the most exciting takeaways is the region's opportunity to meet a large portion of their future water needs through conservation."* The proposed project is located within the Uintah Basin. This project is in compliance with this plan's goals to conserve water, implement innovative water technologies, and improve overall management.

Approximately 70 percent of the on-farm irrigation systems in the area have already converted to sprinkler irrigation. The telemetry, water meters, repeater station, water level sensors, flumes, and weir proposed by this application will promote district-wide improvements in managing annual water deliveries. DCWCD sees these measures as critical in moving forward and increasing water efficiency. DCWCD is currently working on a county water master plan that will include the importance of measuring devices and real-time data for all irrigation and water delivery systems.

(2) Describe how the project conforms to and meets the goals of any applicable planning efforts, and identify any aspect of the project that implements a feature of an existing water plan(s).

The Uintah Basin water plan and its parent report, the *Utah State Water Plan*, emphasize water conservation and efficient management of developed water supplies as key strategies in providing for the present and future water needs. Water conservation is a top priority. With Utah being the second driest state in the country, water conservation projects are widely supported. The project components in this application will meet these goals by conserving 3,907 acre-feet of water annually and allowing improved water management of the entire system, increasing sustainability and reliability of the water supply. These goals are also reflected in DCWCD's goals as indicated by their sponsorship of the project.

Subcriterion No. F.2 – Performance Measures

Points may be awarded based on the description and development of performance measures to quantify actual project benefits upon completion of the project.

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved).

The performance measure used for this project will be real-time data acquired through the installed measurement devices and telemetry. The data obtained will be compared to an initially-established baseline scenario and historic records kept by each entity's water master or river commissioner. The comparison will allow the entities to calculate water conserved. In addition, the data will allow the operators to adjust delivery amounts and times to better meet the needs of each user and their land. These changes will be quantified with the gathered data as well as observed on-farm by analyzing crop growth and land irrigated in relation to the current condition. Additionally, an increase in irrigated land will indicate a benefit from this project.

Evaluation Criterion G: Nexus to Reclamation Project Activities

Up to 4 points may be awarded if the proposed project is in a basin with connections to Reclamation project activities. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.

- *Is the proposed project connected to Reclamation project activities?*
  - *Does the applicant receive Reclamation project water?*
  - *Is the project on Reclamation project lands or involving Reclamation facilities?*
  - *Is the project in the same basin as a Reclamation project or activity?*
  - *Will the proposed work contribute water to a basin where a Reclamation project is located?*

The proposed project is a continuation of the DCWCD Water Efficiency Project Phase 1 that was awarded a WaterSMART grant in 2013, which included the rehabilitation of the Cottonwood Creek Diversion and installation of flumes, meters and telemetry for local entities. Due to the success and benefits derived from that project, DCWCD and the involved entities are interested in pursuing additional improvements to their systems.

In addition to its connection to previous WaterSMART funding, DCWCD and the involved entities have close ties to Reclamation projects, especially those constructed as part of the CUP Bonneville Unit and Uinta Basin Replacement Projects. These projects include Starvation Dam and Reservoir which stores water from the Duchesne River, the Strawberry Aqueduct which collects from tributaries of the Duchesne River, the Duchesne River Area Canal Rehabilitation Program which included the rehabilitation of approximately 41 miles of existing canals near the Duchesne River and conserved 14,000 acre-feet of water annually, and Bottle Hollow Reservoir which was constructed to compensate the Ute Indian Tribe for economic losses associated with stream fishing. Another project, the Uinta Basin Replacement Project, consists of numerous improvements on the Lake Fork River and Yellowstone River drainages which are also directly impacted by this project. These improvements include: 1) stabilizing 13 high-mountain lakes, 2) modifying the Moon Lake Dam outlet works for winter releases, 3) constructing the Big Sand Wash Feeder Diversion (BSWFD) on the Lake Fork River, 4) constructing a pipeline from the BSWFD to the enlarged Big Sand Wash Reservoir (BSWR), 5) replacing the existing dam at the BSWR and enlarging the off-stream storage, 6) constructing a pipeline from the BSWR to Roosevelt City to deliver M&I and irrigation water,

7) providing mitigation and enhancement locations along these drainages for fish and wildlife, and 8) modifying the Farnsworth Canal on the Lake Fork River and the Yellowstone Feeder Canal on the Yellowstone River.

In addition to these projects, DCWCD has a contractual agreement with the DOI to provide 1,500 acre-feet of water to the endangered fish species in the Colorado River System. The operation of the involved entities' systems directly impacts DCWCD's ability to fulfil this agreement.

- *Will the project benefit any tribe(s)?*

Yes, the Ute Indian Tribe receives water from Lake Fork and Moon Lake and will directly benefit from all water conservation measures and improved water management.

Evaluation Criterion H: Additional Non-Federal Funding

Up to 4 points may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided using the following calculation:

$$\frac{\textit{Non-Federal Funding}}{\textit{Total Project Cost}} = \frac{\$ \quad 357{,}000}{\$ \quad 595{,}000} = \mathbf{60\%}$$

Project Budget

Funding Plan and Letters of Commitment

Describe how the non-Federal share of project costs will be obtained. Reclamation will use this information in making a determination of financial capability.

Project funding provided by a source other than the applicant shall be supported with letters of commitment from these additional sources. Letters of commitment shall identify the following elements:

- *The amount of funding commitment*
- *The date the funds will be available to the applicant*
- *Any time constraints on the availability of funds*
- *Any other contingencies associated with the funding commitment*

Commitment letters from third party funding sources should be submitted with your application. If commitment letters are not available at the time of the application submission, please provide a timeline for submission of all commitment letters. Cost-share funding from sources outside the applicant's organization (e.g., loans or State grants), should be secured and available to the applicant prior to award.

Reclamation will not make funds available for an award under this FOA until the recipient has secured non-Federal cost-share. Reclamation will execute a financial assistance agreement once non-Federal funding has been secured or Reclamation determines that there is sufficient evidence and likelihood that non-Federal funds will be available to the applicant subsequent to executing the agreement.

The funding plan must include all Project costs, as follows:

- *How you will make your contribution to the cost-share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).*

All costs not funded through the WaterSMART grant will be paid for by individual shareholders who directly benefit from the respective portions of the project. These costs will be paid for with monetary contributions by the entity or individual receiving the benefit. The materials will be purchased using monetary contributions and the installation will be either completed by a contractor or with in-kind contributions depending on the recipient. Any in-kind contributions will be based on the usual and customary rate of what a contractor would be paid. As nearly all installations will require some excavation, a contractor will be hired to complete the excavation using monetary contributions from shareholders if the cost is not covered by grant funding. Table 7 shows the summary of non-Federal and Federal funding sources.

- *Describe any costs incurred before the anticipated Project start date that you seek to include as project costs. For each cost, identify:*
  - *The project expenditure and amount*
  - *The date of cost incurrence*
  - *How the expenditure benefits the Project*
  - *Provide the identity and amount of funding to be provided by funding partners*

Not applicable.

- *Describe any funding requested or received from other Federal partners.*

Not applicable. No funding has been requested or received from other Federal entities.

- *Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.*

If funds are not secured from Reclamation, the project is not likely to move forward at this time.

Please include the following chart to summarize all funding sources. Denote in-kind contributions with an asterisk (*).

Table 7: Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. Dry Gulch Irrigation Company	$253,704
2. Farnsworth Canal and Reservoir Company	$36,700
3. Lake Fork and Yellowstone River Commission	$4,671
4. Uinta and Whiterocks River Commission	$4,671
5. Moon Lake Water Users Association	$57,254
Non-Federal Subtotal	**$357,000**
Other Federal Entities	
1. N/A	$0
Reclamation	$238,000
Federal Subtotal	**$238,000**
TOTAL PROJECT FUNDING	**$595,000**

Any in-kind contributions for the installation of meters or telemetry equipment would be based on the usual and customary rate of what a contractor would be paid. It is not known at this time if a contractor would be hired to perform the work or if in-kind contributions would be used.

Budget Proposal

The budget proposal shall include detailed information on the categories listed below and must clearly identify ***all*** *Project costs, including those that will be contributed as non-Federal cost share. Unit costs must be provided for all budget items including the cost of work to be provided by contractors. The budget proposal should also include any in-kind contributions or donations of goods and services that will be provided to complete the project. It is strongly advised that applicants use the budget proposal format shown below or a similar format that provides this information. If selected for award, successful applicants must submit detailed supporting documentation for all budgeted costs.*

All funding secured from Reclamation will be used to pay contractual agreements for implementing the project, including the construction contract and fees for legal, engineering, and environmental services as described in Tables 8 and 9.

Table 8: Budget Proposal

Budget Item Description	Computation	Total Cost
Project Manager and Reclamation Reporting	See Appendix D	$25,000
Engineering and Construction Management	See Appendix D	$10,000
Construction and Materials	See Appendix D	$535,000
Environmental Services	See Appendix D	$25,000
Total Project Costs		**$595,000**

Table 9: Summary of Project Costs by Entity

Entities	Engineering & Reporting	Construction & Material	Environmental	Entity Cost Share	Reclamation Cost Share	Total Entity Cost
Dry Gulch Irrigation Company	$24,874	$380,200	$17,766	$253,704	$169,136	$422,840
Farnsworth Canal and Reservoir Company	$3,597	$55,000	$2,570	$36,700	$24,467	$61,167
Lake Fork and Yellowstone River Commission	$458	$7,000	$327	$4,671	$3,114	$7,785
Uinta and Whiterocks River Commission	$458	$7,000	$327	$4,671	$3,114	$7,785
Moon Lake Water Users Association	$5,613	$85,800	$4,010	$57,254	$38,169	$95,423
Total Project Costs	**$35,000**	**$535,000**	**$25,000**	**$357,000**	**$238,000**	**$595,000**

Budget Narrative

Submission of a budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information. The budget narrative provides a discussion of, or explanation for, items included in the budget proposal. If in-kind contributions or donations of goods and services are included in the budget proposal, the narrative should identify the source(s) and describe how the value of the goods and services was determined. The types of information to describe in the narrative include, but are not limited to, those listed in the following subsections. Costs, including the valuation of in-kind contributions and donations, must comply with the applicable cost principles contained in 2 CFR Part §200, available at the Electronic Code of Federal Regulations (www.ecfr.gov).

Officials of DCWCD, Dry Gulch Irrigation Company, Farnsworth Canal and Reservoir Company, Lake Fork and Yellowstone River Commission, Uinta and Whiterocks River Commission, and

Moon Lake Water Users Association would not earn a salary, wages, fringe benefits, or reimbursements from funding obtained to implement this project. All contributions by these participating entities would be either volunteered as in-kind contributions or funded by the respective company's general fund using monetary contributions of those impacted shareholders. Direct improvements to shareholders, i.e. meters, would be paid for directly by the shareholder and a reimbursement request would be made from the WaterSMART grant funds. All grant funding will be used to pay contractual obligations arising from the construction contract and fees associated with legal, engineering, and environmental services.

Contractual

Identify all work that will be accomplished by subrecipients, consultants, or contractors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task. Identify how the budgeted costs for sub-recipients, consultants, or contractors were determined to be fair and reasonable.

All funding obtained for the project will be used to pay consultants and construction contractors and subcontractors. These include administrative services, environmental services, construction management, and construction services. Detailed tasks to be completed, rates, and materials for each task are outlined in Appendix D. The costs shown in the appendix were prepared by a professional engineering firm. Costs for construction services were estimated using bid abstracts from similar projects.

Environmental and Regulatory Compliance Costs

Applicants must include a line item in their budget to cover environmental compliance costs. "Environmental compliance costs" refer to costs incurred by Reclamation and the recipient in complying with environmental regulations applicable to an award under this FOA, including costs associated with any required documentation of environmental compliance, analyses, permits, or approvals. Applicable Federal environmental laws could include National Environmental Policy Act (NEPA), Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Clean Water Act (CWA), and other regulations depending on the project. Such costs may include, but are not limited to:

- *The cost incurred by Reclamation to determine the level of environmental compliance required for the project*
- *The cost incurred by Reclamation, the recipient, or a consultant to prepare any necessary environmental compliance documents or reports*
- *The cost incurred by Reclamation to review any environmental compliance documents prepared by a consultant*
- *The cost incurred by the recipient in acquiring any required approvals or permits, or in implementing any required mitigation measures*

The amount of the line item should be based on the actual expected environmental compliance costs for the project, including Reclamation's cost to review environmental compliance documentation. How environmental compliance activities will be performed (e.g., by Reclamation, the applicant, or

a consultant) and how the environmental compliance funds will be spent, will be determined pursuant to subsequent agreement between Reclamation and the applicant. The amount of funding required for Reclamation to conduct any environmental compliance activities, including Reclamation's cost to review environmental compliance documentation, will be withheld from the Federal award amount and placed in an environmental compliance account to cover such costs. If any portion of the funds budgeted for environmental compliance is not required for compliance activities, such funds may be reallocated to the project, if appropriate.

A total of $25,000 is budgeted for environmental services as shown in Appendix D. Specific tasks and rates are included in the appendix.

The budget for coordination with and reporting to Reclamation has been estimated as $25,000 based on labor hours and hourly rates as shown in Appendix D.

Total Costs

Indicate total amount of project costs, including the Federal and non-Federal cost-share amounts.

The total project cost is $595,000. Reclamation's contribution is $238,000 and the remaining $357,000 will be provided by individual shareholders via the involved entities.

Environmental and Cultural Resources Compliance

To allow Reclamation to assess the probable environmental and cultural resources impacts and costs associated with each application, all applicants must respond to the following list of questions focusing on the NEPA, ESA, and NHPA requirements. Please answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why. The application should include answers to:

- *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 result in minimal, temporary disturbance to the project area while the telemetry, meters, repeater station, and water level control sensors are installed. All work will be performed in previously-disturbed areas. Contract documents will outline the responsibility of the contractor relative to dust control and air and water pollution during construction activities. The required NEPA environmental documents will be prepared to assess and mitigate any impacts of the project. A Categorial Exclusion was prepared for the Phase 1 project as well as for the project features proposed by Moon Lake Water Users Association.

- *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?*

According to the U.S. Fish and Wildlife Endangered Species IPaC Report for the entire project boundary, there are 12 threatened or endangered species as listed below:

- Birds: Mexican Spotted Owl and Yellow-Billed Cuckoo
- Fishes: Bonytail Chub, Colorado Pikeminnow, Humpback Chub, and Razorback Sucker
- Flowering Plants: Barneby Ridge-Cress, Pariette Cactus, Uinta Basin Hookless Cactus, and Ute Ladies-Tresses
- Mammals: Black-Footed Ferret and Canada Lynx

The critical habitat for the Yellow-Billed Cuckoo is located in a large portion of the project area. While no direct impacts to this species is anticipated with the implementation of this project, each specific project area will be closely monitored prior to construction to ensure there are no adverse impacts to the species. This will be addressed during the NEPA compliance process.

This project will positively impact the listed fish species as it will help ensure DCWCD's contractual delivery of 1,500 acre-feet of water to the Colorado River to enhance the habitat of the endangered fish species.

- *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.*

Based on the National Wetlands Inventory, there are freshwater emergent wetlands within the entire project boundary. However, it appears that these wetlands are within agriculturally-induced wet areas and will not be impacted by the installation of project components. The specific project locations will be assessed for likely jurisdictional wetlands during the NEPA compliance process. All negative impacts will be mitigated. No wetlands were impacted during Phase 1 and a Categorial Exclusion was prepared.

- *When was the water delivery system constructed?*

The majority of the network of canals and laterals impacted by the project were constructed in the early 1900s. The emergence of converting on-farm flood irrigation systems with sprinkler irrigation systems has occurred in the last 20 years.

- *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.*

Not applicable. All proposed project features will be new additions to the 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 Indian Canyon Ranger Station and the Toyack Future Farmers of America Chapter House are listed on the National Register of Historic Places database. While located in the project boundary, these will not be impacted by the proposed project. There are no other buildings or features in the project area that are listed. However, if additional cultural features are identified during the cultural resources survey, they will be avoided if possible and if not possible, mitigation practices will be implemented.

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

There are no known archeological sites in the area impacted by the project. However, a cultural resource specialist will be hired to conduct a survey as part of the NEPA process. If sites are identified, they will be avoided, or impacts will be mitigated.

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

This project will not adversely affect 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?*

The project will not limit access to any Indian sacred sites. All flumes and telemetry to be installed on the Moon Lake system are located on tribal lands, but a cultural resource survey conducted for these sites indicated there is no adverse impact to the tribal lands. This project will not result in permanent impacts to the tribal lands. Additionally, the environmental work has been completed by Reclamation for this portion of the project.

- *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?*

This project will not contribute to the spread of noxious weeds. Disturbed areas will be re-seeded with native species. Work will only be performed in previously-disturbed areas.

Required Permits or Approvals

Applicants must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals.

The required NEPA environmental clearance process will be completed prior to construction of the project. This process will assess and provide mitigation measures to be taken for any necessary impacts of the project. Once environmental clearance has been obtained, the involved entities will work with the necessary stakeholders to obtain permits and easements where needed. It is anticipated that existing canal rights-of-way will be sufficient to complete the proposed work.

Letters of Support

Please include letters from interested stakeholders supporting the proposed project. To ensure your proposal is accurately reviewed, please attach all letters of support/partnership letters as an appendix. Letters of support received after the application deadline for this FOA will not be included with your application.

Letters of Support are included in Appendix B.

Official Resolution

Include an official resolution adopted by the applicant's board of directors or governing body, or for State government entities, an official authorized to commit the applicant to the financial and legal obligations associated with receipt of a financial assistance award under this FOA, verifying:

- *The identity of the official with legal authority to enter into an agreement*
- *The board of directors, governing body, or appropriate official who has reviewed and supports the application submitted*
- *The capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the funding plan*
- *That the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement*

An official resolution meeting the requirements set forth above is mandatory. *If the applicant is unable to submit the official resolution by the application deadline because of the timing of board meetings or other justifiable reasons, the official resolution may be submitted up to 30 days after the application deadline.*

The signed Official Resolution is in Appendix C.

Unique Entity Identifier and System for Award Management

All applicants (unless the applicant has an exception approved by Reclamation under 2 CFR §25.110[d]) are required to:

(i) Be registered in the System for Award Management (SAM) before submitting its application;
(ii) Provide a valid unique entity identifier in its application; and
(iii) Continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by a Federal awarding agency.

DCWCD has an active SAM registration with CAGE code 77LN1. They will maintain an active SAM registration as required.

Appendix A

Water Rights

(not counted in page limitations)

WRINDEX Water Right Information Index Program

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Name	WR/CH/EX #	Type	Status	App #	Cert #
Dry Gulch Irigation Company, Unnamed Springs Priority Date: 01/02/1992	43-10319 0.250 cfs 22.4000 acft	APPL	CERT	A65790	
Dry Gulch Irrigation Co., Yellowsone River Priority Date: 06/22/2012	t38295 90.0000 acft	WD			
Dry Gulch Irrigation Co., Yellowstone River Priority Date: 07/06/1910	43-3098 42.000 cfs	APPL	CERT	A3369	1745
Dry Gulch Irrigation Co., Lake Fork and Yellowstone Rivers & North Fork Dry Priority Date: 03/07/1996	a19911 484.380 cfs	APP			
Dry Gulch Irrigation Co., Yellowstone River Priority Date: 06/21/2012	a38291 90.0000 acft	WD			
Dry Gulch Irrigation Company (owner), Uinta River Priority Date: 02/13/2018	a43346 0.138 cfs 22.5000 acft	UNAP			
Dry Gulch Irrigation Company (owner), Uinta River Priority Date: 09/19/2007	a33540 0.138 cfs 22.5000 acft	LAP			
Dry Gulch Irrigation Company (owner), Uinta River Priority Date: 10/21/1905	43-11997 0.138 cfs 22.5000 acft	APPL	CERT	A623	2171
Dry Gulch Irrigation Company - Owner, Lake Fork River Priority Date: 02/08/1993	a17194 70.0000 acft 26-1/2 shares Dry Gulch Irrigation Co. stock		CERT		
Dry Gulch Irrigation Company - owner, Lake Fork River Priority Date: 07/15/2008	t34631 6.5000 acft	LAP			
Dry Gulch Irrigation Company - Owner, Unnamed Pond Priority Date: 08/08/1990	t90-43-06 7.0000 acft	EXP			
Dry Gulch Irrigation Company - Owner, Cow Canyon Spring #3 Priority Date: 07/15/2004	a29199 0.800 cfs 168.3000 acft	APP			
Dry Gulch Irrigation Company - Owner, Lake Fork River Priority Date: 03/06/1990	a15540 1735.4000 acft	CERT			
Dry Gulch Irrigation Company - Owner, Spring Stream Priority Date: 12/18/2001	a26230 12.0000 acft	CERT			
Dry Gulch Irrigation Company c/o Pennzoil Company, Regulating Pond Priority Date: 05/16/1990	t90-43-03 4.0000 acft	EXP			
Dry Gulch Irrigation Company, Lake Fork River Priority Date: 04/20/1990	t90-43-02 5.0000 acft	EXP			
Dry Gulch Irrigation Company, Unnamed pond Priority Date: 07/27/1990	t90-43-05 6.0000 acft	EXP			
Dry Gulch Irrigation Company, Unnamed pond Priority Date: 01/22/1992	t92-43-03 20.0000 acft	EXP			
Dry Gulch Irrigation Company, Unnamed Pond Priority Date: 02/12/1992	t92-43-04 20.0000 acft	EXP			

Dry Gulch Irrigation Company, Lake Fork River Priority Date: 08/20/1992	t92-43-10 42.3000 acft	EXP
Dry Gulch Irrigation Company, Pond Priority Date: 06/04/1987	t87-43-2 3.0000 acft	EXP
Dry Gulch Irrigation Company, Uintah River Priority Date: 07/14/1988	t88-43-10 3.0000 acft	EXP
Dry Gulch Irrigation Company, Uintah River Priority Date: 10/17/1988	t88-43-12 2.0000 acft	EXP
Dry Gulch Irrigation Company, Unnamed Pond Priority Date: 05/01/1989	t89-43-3 6.0000 acft	EXP
Dry Gulch Irrigation Company, Regulating pond Priority Date: 05/16/1989	t89-43-7 4.0000 acft	EXP

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Name	WR/CH/EX #	Type	Status	App #	Cert #
Farnsworth Canal and Reservoir Company, West Fork of Lake Fork River Priority Date: 07/03/1908	43-10362 28.0000 acft	APPL	CERT	A1931	1464
Farnsworth Canal and Reservoir Company, West Fork of Lake Fork River Priority Date: 07/03/1908	43-10363 26.9400 acft owner	APPL	CERT	A1931	1464
Farnsworth Canal and Reservoir Company, Lake Fork River Priority Date: 11/18/1919	43-2532 1350.0000 acft	APPL	APP	A8386a	
Farnsworth Canal and Reservoir Company, Green River Priority Date: 11/18/1919	43-12365 1350.0000 acft	APPL	LAP	A8386	
Farnsworth Family Limited Partnership, Underground Water Well Priority Date: 09/11/1995	53-1366 1.7300 acft	APPL	LAP	A69275	
Farnsworth Family Properties, LLC, Underground Water Well Priority Date: 01/25/1955	77-1737 2.0000 acft	APPL	CERT	A26637a	
Farnsworth Family Properties, LLC, Underground Water Well Priority Date: 05/09/1950	77-1754 2.0000 acft	APPL	CERT	A21720	4737
Farnsworth Family Properties, LLC, Underground Water Well Priority Date: 05/19/1994	a18067 2.0000 acft		LAP		
Farnsworth Family Properties, LLC, Underground Water Well (Existing) Priority Date: 04/28/1995	a18897 2.0000 acft		LAP		
Farnsworth Family Properties, LLC, Underground Water Well (Existing) Priority Date: 09/09/2005	a18913 1.9340 acft		CERT		
Farnsworth Family Properties, LLC, Underground Water Well Priority Date: / /1904	77-993 1.9340 acft	DIL	CERT		
Farnsworth Family Properties, LLC, Underground Water Well (existing) Priority Date: 12/01/2008	a35083 4.0000 acft		CERT		
Farnsworth Living Trust, Ethel L. Priority Date: / /1885	55-11193 0.161 cfs	DEC			
Farnsworth Living Trust, Ethel L. Priority Date:	55-11288 0.027 cfs	DEC			
Farnsworth Living Trust, Ethel L. Provo River Priority Date:	55-11373 0.093 cfs	DEC			
Farnsworth, Albert Underground Water Well Priority Date: 03/03/1977	51-4638 0.015 cfs	APPL	REJ	A47907	
Farnsworth, Ann H. Underground Water Well Priority Date: 05/07/1977	E1110 2.4000 acft		APP		
Farnsworth, B. A. and Alberta Underground Water Well Priority Date: 03/05/1963	67-333 1.110 cfs	APPL	REJ	A35006	
Farnsworth, Boyd T. Underground Water Wells Priority Date: 07/16/1976	95-1690 0.015 cfs	APPL	WUC	A46737	

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Name	WR/CH/EX #	Type	Status	App #	Cert #
Lake Fork Irrigation Company, Lake Fork River Priority Date: 07/31/1905	43-3027 13.500 cfs	APPL	CERT	A416b1	2071
Lake Fork Irrigation Company, Lake Fork River Priority Date: 07/31/1905	43-3028 1.570 cfs	APPL	CERT	A416C	1669
Lake Fork Irrigation Company, Lake Fork River Priority Date: 08/29/1905	43-3031 7.500 cfs	APPL	CERT	A460a	1850
Lake Fork Irrigation Company, Lake Fork River Priority Date: 08/26/1911	43-3117 12.000 cfs	APPL	CERT	A4203	1749
Lake Fork Irrigation Company, Lake Fork Priority Date: 04/07/1996	a19898 34.570 cfs		LAP		
Lake Fork Irrigation Company, Lake Fork River, Uinta River and Yellowstone River Priority Date: 07/15/2013	a39182 34.570 cfs		APP		
Lake Fork Ranch Inc, Mtn. Sheep Creek & Gibbons Hollow Priority Date: 07/28/1931	43-3210 1.810 cfs	APPL	CERT	A10886	2177
Lake Fork Ranch Inc, Tributary to Mountain Sheep Creek Priority Date: 08/21/1950	43-3424 5.000 cfs	APPL	WUC	A22051	
Lake Fork Ranch Inc, Mountain Sheep Creek Priority Date: 08/21/1950	43-3425 2.500 cfs	APPL	WUC	A22052	
Lake Fork Ranch Inc, Big Hollow,Wilson Hollow,Frisbey Hol Priority Date: 04/29/1959	43-3502 5.000 cfs 140.0000 acft	APPL	WUC	A25590	
Lake Fork Ranch Inc, Underground Water Well Priority Date: 03/02/2000	43-11005 0.015 cfs 1.4860 acft	APPL	APP	A72739	
Lake Fork Ranch Inc., Little Wash Priority Date: 04/06/1959	43-3589 2.000 cfs 415.6846 acft	APPL	CERT	A30850	
Lake Fork Ranch Inc., Cottonwood Draw Priority Date: 10/08/1962	43-3659 5.000 cfs 240.0000 acft	APPL	WUC	A34648	
Lake Fork Ranch Inc., Big Hollow Priority Date: 11/30/1962	43-3669 4.900 cfs	APPL	WUC	A34750	
Lake Fork Ranch Inc., Big Hollow Priority Date: 04/01/2005	t30019 4.0000 acft		LAP		
Lake Fork Ranch Inc., Big Hollow Priority Date: 01/05/2007	t32339 4.0000 acft		LAP		
Lake Fork Ranch Inc., Big Hollow Priority Date: 04/13/2018	t43572 27.8300 acft		APP		
Lake Fork Ranch Inc., Little Wash Priority Date: 05/27/2009	a35605 2.000 cfs		CERT		
Lake Fork Ranch Inc., Little Wash Priority Date: 05/05/2008	t34363 2.3200 acft		LAP		

Lake Fork Western Irrigation Company, Unnamed Spring Area Priority Date: 10/27/1959	43-1409 0.105 cfs	APPL	WUC	A19684	
Lake Fork Western Irrigation Company, Brown`s Gulch Priority Date: 08/02/1955	43-1412 3.000 cfs	APPL	WUC	A27277	
Lake Fork Western Irrigation Company, Lake Fork River Priority Date: 04/11/1996	a19914 29.970 cfs		CERT		
Lake Fork Western Irrigation Company, Lake Fork River Priority Date: 03/06/1995	a18755 29.970 cfs		WD		
Lake Fork Western Irrigation Company, Unnamed Spring Priority Date: 11/16/1961	43-3632 0.500 cfs	APPL	APP	A33927	
Lake Fork Western Irrigation Company, Lake Fork River Priority Date: 09/17/1906	43-3032 1.970 cfs	APPL	CERT	A498	389

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Appendix B

Letters of Support

(not counted in page limitations)

Mr. Clyde Watkins
General Manager
Duchesne County Water Conservancy District
275 West 800 South
Roosevelt, Utah 84066

Re: Water SMART Grant 2018
Water Efficiency Projects

Dear Mr. Watkins:

The Dry Gulch Irrigation Company is providing this letter to confirm our continued interest and support to participate in the Duchesne County Water Efficiency Projects pursued by the Duchesne County Water Conservancy District (DCWCD). We appreciate the funding that we have received to enable us to conserve water by installing telemetry, staff gage, and dataloggers on several water conveyance facilities, and hundreds of water meters for our water users.

We support the DCWCD in applying for funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

Sincerely,

Rodger Ames — 4-23-18

Rodger Ames
President, Dry Gulch Irrigation Company

Date

Mr. Clyde Watkins
General Manager
Duchesne County Water Conservancy District
275 West 800 South
Roosevelt, Utah 84066

Re: WaterSMART Grant 2018
Water Efficiency Projects

Dear Mr. Watkins:

The Farnsworth Canal and Reservoir Company is providing this letter to confirm our continued interest and support to participate in the Duchesne County Water Efficiency Projects pursued by the Duchesne County Water Conservancy District (DCWCD). We appreciate the funding that we have received to enable us to conserve water by installing telemetry, staff gage, and dataloggers on several canals, and construct a small concrete parshall flume.

We support the DCWCD in applying for funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

Sincerely,

Kerry Farnsworth

Kerry Farnsworth
President, Farnsworth Canal and Reservoir Company

4/24/2018
Date

Mr. Clyde Watkins
General Manager
Duchesne County Water Conservancy District
275 West 800 South
Roosevelt, Utah 84066

Re: WaterSMART Grant 2018
Water Efficiency Projects

Dear Mr. Watkins:

The Lake Fork and Yellowstone River Commission is providing this letter to confirm our continued interest and support to participate in the Duchesne County Water Efficiency Projects pursued by the Duchesne County Water Conservancy District (DCWCD). We appreciate the funding that we have received to enable us to conserve water by installing telemetry, staff gage, and dataloggers on several canals and water level sensors.

We support the DCWCD in applying for funding from the Bureau of Reclamation. The project will be beneficial to our community.

Sincerely,

Leland L. Carter — Lake Fork & Yellowstone River Commission — 4/25/2018

Leland L. Carter
Lake Fork and Yellowstone River Commission

Date

Mr. Clyde Watkins
General Manager
Duchesne County Water Conservancy District
275 West 800 South
Roosevelt, Utah 84066

Re: WaterSMART Grant 2018
Water Efficiency Projects

Dear Mr. Watkins:

As the Uinta and Whiterocks River Commissioner, I am providing this letter to confirm my continued interest and support in participating in the Duchesne County Water Efficiency Projects pursued by the Duchesne County Water Conservancy District (DCWCD). The water users and myself as a river commissioner, appreciate the funding that we have received to enable us to conserve water by installing telemetry and automation to the control gate at the bifurcation structure on the Uinta River.

I support the DCWCD in applying for funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

Sincerely,

4/24/18

Shane Hamblin — Date
Uinta and Whiterocks River Commissioner

MOON LAKE WATER USERS ASSOCIATION

P.O. Box 235
263 East Lagoon Street
Roosevelt, Utah 84066
Office: 435-722-2002 Fax: 435-722-2241

Manager:
Dex Winterton
Mobile: 435-823-4174

Mr. Clyde Watkins
General Manager
Duchesne County Water Conservancy District
275 West 800 South
Roosevelt, Utah 84066

Re: WaterSMART Grant 2018
Water Efficiency Projects

Dear Mr. Watkins:

The Moon Lake Water Users Association is providing this letter to confirm our continued interest and support to participate in the Duchesne County Water Efficiency Projects pursued by the Duchesne County Water Conservancy District (DCWCD). We appreciate the funding opportunity for water to be used more efficiently delivered to the water users.

We support the DCWCD in applying for funding from the Bureau of Reclamation. The project will be beneficial to our community.

Sincerely,

Dex Winterton
Manager, Moon Lake Water Users Association

5/3/18
Date

Appendix C

Signed Official Resolution

(not counted in page limitations)

OFFICIAL RESOLUTION
OF THE
Duchesne County Water Conservancy District

RESOLUTION NO. 2018 - 1

WHEREAS, the United States Department of the Interior, Bureau of Reclamation has announced the *WaterSMART Water and Energy Efficiency Grants* in order to prevent water supply crises and ease conflict in the western United States, and has requested proposals from eligible entities to be included in the WaterSMART Program, and

WHEREAS, the Duchesne County Water Conservancy District has need for funding to assist its member irrigation companies with water conservation efforts. The following entities will use the funding to implement the various projects involved: Dry Gulch Irrigation Company, Farnsworth Canal and Reservoir Company, Lake Fork and Yellowstone River Commission, Uinta and Whiterocks River Commission, and Moon Lake Water Users Association.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors agrees and authorizes that

1. The Board of Directors has reviewed and supports the application submitted;

2. The applicant is capable of providing the amount of funding and/or in-kind contributions, specified in the funding plan; and

3. If selected for a WaterSMART Grant, the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement.

DATED: 4/30/18

Clyde Watkins

Clyde Watkins, General Manager
Duchesne County Water Conservancy District

ATTEST:

Adrienne S. Marett

Adrienne S. Marett, Administrative Assistant
Duchesne County Water Conservancy District

Appendix D

Probable Cost for Engineering Services, Materials & Construction Services Environmental Services

(Engineering Design and Construction Management)

Table D-1: Budget Proposal

Budget Item Description	Computation		Quantity Type	Total Cost
	$/Unit	Quantity		
Project Manager and Reclamation Reporting	See Table D-2			$25,000
Engineering and Construction Management	See Table D-2			$10,000
Construction and Materials	See Table D-4			$535,000
Environmental Services	$100	250	Hours	$25,000
Total Project Costs				**$595,000**

A total of $25,000 was budgeted for coordination with Reclamation. This amount would include the costs to create a final construction report and finalize repayment agreements, prepare construction reports, semi-annual project performance reports, and to coordinate requests for reimbursement. Experience has shown there is substantial effort in preparing pay requests for 155+ meters as well as other coordination and reporting for Reclamation. This work would be performed by the consulting engineering firm selected by DCWCD.

Table D-2: Project Manager, Reclamation Reporting, and Engineering and Construction Management Combined

Entity	Type of Engineering Cost	Portion of Engineering Costs
1. Dry Gulch Irrigation Company	Consultation, Design, and Reporting to Reclamation for Grant	$24,874
2. Farnsworth Canal and Reservoir Company	Consultation, Design, and Reporting to Reclamation for Grant	$3,597
3. Lake Fork and Yellowstone River Commission	Consultation and Reporting to Reclamation for Grant	$458
4. Uinta and Whiterocks River Commission	Consultation and Reporting to Reclamation for Grant	$458
5. Moon Lake Water Users Association	Consultation, Design, and Reporting to Reclamation for Grant	$5,613
	TOTAL	**$35,000**

The engineering costs were prorated based on the project's total construction and materials cost. Table D-3 shows the engineering billing rates which include overhead and profit.

Table D-3: Engineers Billing Rate by Labor Category

Labor Category	Billing Rate	Labor Category	Billing Rate
Principal	$169	Engineer 1	$90
Senior Manager	$149	Designer	$79
Senior Engineer	$129	Engineering Assistant	$85
Senior Field Manager	$120	Engineering Intern	$65
Staff Engineer	$110	Office Assistant	$60
Senior Designer	$99	Clerk	$50

Construction contractors have not yet bid on this project; therefore, no salary and wage data are available for construction. The construction and materials cost estimate is based on the engineer's estimate of probable costs as shown in Tables D-5 through D-8 below. Table D-9 is a Construction Bid Estimate for a similar project, the Welby Jacob Canal Water Efficiency Project, which shows justification for the telemetry and flume costs.

Table D-4: Project Costs by Entity for Engineering & Reporting, Construction & Materials, and Environmental

Entities	Engineering & Reporting	Construction & Material	Environmental	Total Project Cost
Dry Gulch Irrigation Company	$24,874	$380,200	$17,766	$422,839
Farnsworth Canal and Reservoir Company	$3,597	$55,000	$2,570	$61,168
Lake Fork and Yellowstone River Commission	$458	$7,000	$327	$7,785
Uinta & Whiterocks River Commission	$458	$7,000	$327	$7,785
Moon Lake Water Users Association	$5,613	$85,800	$4,010	$95,423
Total Project Costs	**$35,000**	**$535,000**	**$25,000**	**$595,000**

Table D-5: Telemetry – Supporting Cost Data

Item	Cost
Telemetry	$4,500
Level Sensor	$1,100
Engineering	$286
Environmental	$400
Total	**$6,286**

Table D-6: Small Flume – Supporting Cost Data

Item	Cost
Flume - small	$5,500
Engineering	$483
Environmental	$346
Total	**$6,329**

Table D-7: Large Flume – Supporting Cost Data

Item	Cost
Flume - large	$10,000
Engineering	$483
Environmental	$345
Total	**$10,828**

Table D-8: Water Meters – Supporting Cost Data

Item	Cost
Water Meter	$1,558
Install	$400
Engineering	$142
Environmental	$100
Total	**$2,200**

Table D-9: Sample Construction Bid Estimate for Telemetry and Flume

Welby Jacob Canal Water Efficiency Project (#4559257)
Owner: Welby Jacob Water Users Company
Solicitor: Franson Civil Engineers
07/21/2016 03:00 PM MDT

Section Title	Line Iter	Item Description	UofM	Quan	Counterpoint Construction Company Engin Estimating Un Ex Unit Price	Extension	SCI Automation Unit Price	Extension	VanCon Inc. Unit Price	Extension	Ellsworth Paulsen Construction Co Unit Price	Extension	Whitaker Construction Unit Price	Extension
Unit Price Bid Schedule				#		$599,150.00		$706,750.00		$737,700.00		$793,836.00		$1,098,895.00
1	1	Mobilization	LS	1	$20,000.00	$20,000.00	$1,000.00	$1,000.00	$15,000.00	$15,000.00	$16,858.00	$16,858.00	$113,000.00	$113,000.00
2	2	Surveying	LS	1	$5,000.00	$5,000.00	$5,440.00	$5,440.00	$4,000.00	$4,000.00	$6,978.00	$6,978.00	$22,600.00	$22,600.00
3	3	Furnish and Install SCADA Equipment (Solar Panel)	EA	28	$4,500.00	$126,000.00	$6,950.00	$194,600.00	$6,400.00	$179,200.00	$6,901.00	$193,228.00	$8,200.00	$229,600.00
4	4	Furnish and Install SCADA Equipment (On-Site Power)	EA	34	$4,500.00	$153,000.00	$6,438.00	$218,892.00	$6,940.00	$235,960.00	$5,380.00	$182,920.00	$7,950.00	$270,300.00
5	5	Furnish and Install Area Velocity Meter	EA	36	$2,200.00	$79,200.00	$4,480.00	$161,280.00	$2,630.00	$94,680.00	$4,372.00	$157,392.00	$2,490.00	$89,640.00
6	6	Furnish and Install 4" Magmeter	EA	9	$2,500.00	$22,500.00	$2,486.00	$22,374.00	$3,200.00	$28,800.00	$4,322.00	$38,898.00	$4,850.00	$43,650.00
7	7	Furnish and Install 6" Magmeter	EA	3	$3,000.00	$9,000.00	$2,774.00	$8,322.00	$3,400.00	$10,200.00	$4,767.00	$14,301.00	$5,610.00	$16,830.00
8	8	Furnish and Install Insertion Meter on 12" Pipe	EA	2	$3,000.00	$6,000.00	$3,382.00	$6,764.00	$3,580.00	$7,160.00	$6,689.00	$13,378.00	$4,760.00	$9,520.00
9	9	Furnish and Install Level Sensor	EA	21	$1,100.00	$23,100.00	$657.00	$13,797.00	$1,160.00	$24,360.00	$432.00	$9,072.00	$985.00	$20,685.00
10	10	Furnish and Install 12" Flume	EA	7	$5,500.00	$38,500.00	$3,677.00	$25,739.00	$4,700.00	$32,900.00	$5,131.00	$35,917.00	$9,550.00	$66,850.00
11	11	Re-set and Level Existing Flume	EA	2	$2,500.00	$5,000.00	$1,020.00	$2,040.00	$830.00	$1,660.00	$638.00	$1,276.00	$10,200.00	$20,400.00
12	12	Furnish and Install Weir Plate	EA	1	$10,000.00	$10,000.00	$8,977.00	$8,977.00	$6,900.00	$6,900.00	$10,919.00	$10,919.00	$12,200.00	$12,200.00
13	13	Install Existing Weir Plate	EA	1	$2,000.00	$2,000.00	$680.00	$680.00	$1,150.00	$1,150.00	$204.00	$204.00	$2,860.00	$2,860.00
14	14	Clean out Existing Weir Box	EA	3	$1,000.00	$3,000.00	$340.00	$1,020.00	$1,000.00	$3,000.00	$153.00	$459.00	$3,770.00	$11,310.00
15	15	Furnish and Install Staff Gage for Weir Box	EA	7	$750.00	$5,250.00	$160.00	$1,120.00	$250.00	$1,750.00	$163.00	$1,141.00	$1,630.00	$11,410.00
16	16	Furnish and Install Baffle for Weir Box	EA	3	$1,700.00	$5,100.00	$961.00	$2,883.00	$1,600.00	$4,800.00	$750.00	$2,250.00	$2,980.00	$8,940.00
17	17	Furnish and Install 24" ADS Manhole or Stilling Well	EA	30	$1,500.00	$45,000.00	$210.00	$6,300.00	$1,780.00	$53,400.00	$1,628.00	$48,840.00	$2,770.00	$83,100.00
18	18	Furnish and Install Repeater Site	EA	2	$7,000.00	$14,000.00	$1,100.00	$2,200.00	$4,690.00	$9,380.00	$7,545.00	$15,090.00	$10,400.00	$20,800.00
19	19	Furnish and Install West Jordan Pond Level Control	LS	1	$8,500.00	$8,500.00	$4,860.00	$4,860.00	$4,900.00	$4,900.00	$20,611.00	$20,611.00	$26,000.00	$26,000.00
20	20	Furnish and Install SCADA Software	LS	1	$19,000.00	$19,000.00	$18,462.00	$18,462.00	$18,500.00	$18,500.00	$24,104.00	$24,104.00	$19,200.00	$19,200.00
Base Bid Total:				#		$599,150.00		$706,750.00		$737,700.00		$793,836.00		$1,098,895.00

Appendix E

Proposed Schedule

Proposed Schedule

Duchesne County Water Efficiency Project: Phase 2

September 2018	Anticipated WaterSMART Grant Award
October 2018	Sign Grant Agreement with Reclamation
May 2019	NEPA Compliance, Easements, and Permitting Complete
September 2019	Engineering Design Complete
September 2019 – March 2020	Install and Construct Project Components
April 2020	Construction of Project Complete
September 2020	Submit Final Progress Report

Appendix F

Referenced Reports

(Only the first page of each report is included. Full copies available upon request)

Water Resources
Research Laboratory

U. S. Department of the Interior
Bureau of Reclamation

WATER MEASUREMENT MANUAL

A WATER RESOURCES TECHNICAL PUBLICATION

Water Measurement web page

A guide to effective water measurement practices for better water management

U.S. Department of the Interior

Bureau of Reclamation

UINTAH BASIN
PLANNING FOR THE FUTURE

November 2016

By:

Utah Division of Water Resources

With input from other State of Utah water agencies
(See inside-back cover for participating agencies)

UTAH STATE WATER PLAN

This document and other state water plans are available online at: www.water.utah.gov

WaterSMART: Water and Energy Efficiency Grants for FY 2018
Duchesne County Water Conservancy District – Duchesne County Water Efficiency Project: Phase 2