WaterSMART

Water and Energy Efficiency Grants for FY 2014

Response to Funding Opportunity Announcement No. R14AS00001
Funding Group I

Red Creek Piping Project

Duchesne County Water Conservancy District
In Association With
Red Creek Irrigation Company

Submitted by:

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TECHNICAL PROPOSAL

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 project funds will be used to accomplish specific project activities and briefly identifies how the proposed project contributes to accomplishing the goals of this FOA (see Section III.B, "Eligible Projects" in the FOA).*
- *State the length of time and estimated completion date for the project.*
- *Whether or not the project is located on a Federal facility.*

Application Date:	January 22, 2014
Estimated Start Date:	October 1, 2014
Estimated End Date:	April 30, 2016
Applicant's Name:	Duchesne County Water Conservancy District
	In association with Red Creek Irrigation Company
Project Location:	Fruitland, Duchesne County, Utah
Project Title:	Red Creek Piping Project

Project Summary:

The Red Creek Irrigation Company provides irrigation water to about 2,300 acres of agricultural land. The irrigation company stores water in Red Creek Reservoir with a capacity of 5,700 acre-feet. Water is released from the dam and flows in an open conveyance water delivery system for 5,800 feet (1.1 miles) to a downstream diversion structure. At the diversion structure, water is diverted into a pressurized irrigation system that was constructed in 2001 to replace the open ditch and flood irrigation system. The purpose of this project is to pipe the 1.1 miles of open conveyance. Approximately 30 cfs is released during the peak delivery month of July. To determine losses in the open conveyance, field measurements were made with a current meter in July and August of 2013. Based on the measurements, there is a 30% loss of water in the section of open channel amounting to 1,500 acre-feet annually. The significant water losses have a negative impact on company shareholders and the local economy. A grant from Reclamation would make this project financially feasible. The project would not move forward without Reclamation's assistance. This project contributes to accomplishing the goals of this FOA by conserving approximately 1,500 acre-feet of water annually. The conserved water would be stored in Red Creek Reservoir and released in the late irrigation season to extend the irrigation cycle and increase crop yields. In some high runoff years, there may be a circumstance when the conserved water is not needed for irrigation and the water could possibly be released downstream where it would flow to Reclamation's Starvation Reservoir. From Starvation Reservoir, the water could either be stored for future deliveries or flow through to the Duchesne River. The Duchesne River flows to the Green River and then to the Colorado River. This water would help the recovery of endangered fish species in the Colorado River.

Background Data

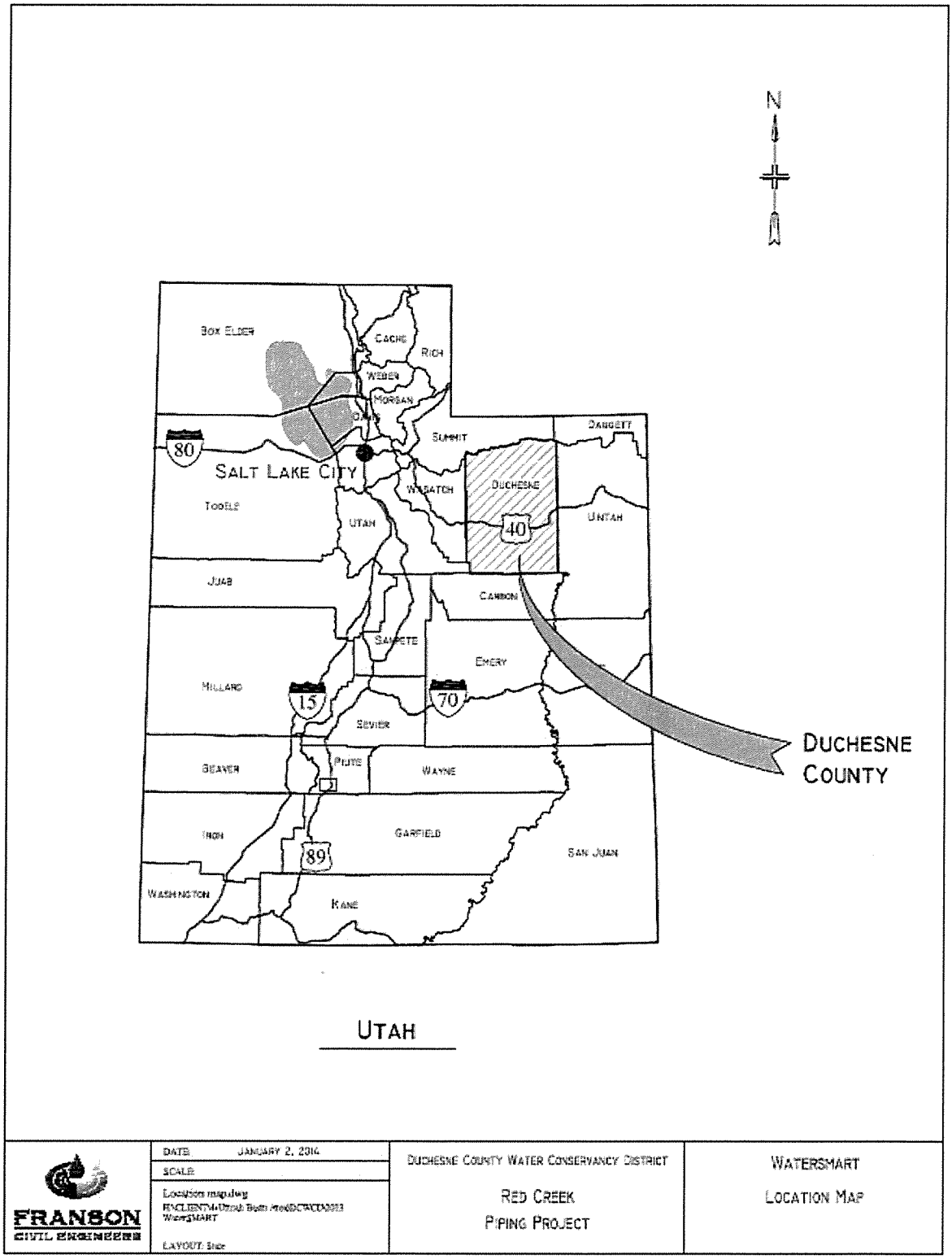

Figure 1. Location Map

As applicable, describe the source of water supply, the water rights involved, current water uses (i.e., 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 the Red Creek Irrigation Company. 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.

The Red Creek Irrigation Company is a nonprofit, mutual irrigation company that provides water to fifty (50) agricultural users in Fruitland, Utah. The company owns several water rights and irrigates 2,300 acres in Duchesne County. Water is stored in Red Creek Reservoir located on Red Creek. The project will convert the 1.1 miles of open irrigation conveyance system to a 30-inch diameter pipe and conserve about 1,500 acre-feet of water. The primary crops irrigated are alfalfa, grass and pasture. The water rights owned by the irrigation company are shown in the table below:

Table 1: Water Rights

Water Right	Source	Priority Date	Use	Consumptive Diversion	Storage
#43-1216	Red Creek	1910	Irrigation	16.24 cfs	3,000 acre-feet
#43-3513	Red Creek	1954	Irrigation	5.00 cfs	3,000 acre-feet

Note: The consumptive diversion is what the crops need in terms of crop consumptive use. The irrigation company will need to divert more than that to account for water losses in the delivery systems.

In addition, 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 (i.e., 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.

The Red Creek Irrigation Company owns conveyance facilities associated with a pressurized irrigation system. The original irrigation system of open canals was replaced with a pressurized irrigation system in 2001. The new system consists of about 20 miles of pipeline and associated sprinkler systems consisting of either center-pivot or side-roll sprinklers. The project will pipe the 1.1 miles of open conveyance between Red Creek Dam and the downstream diversion point, located at the start of the existing pressurized irrigation system.

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

N/A

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

There is a partnering relationship with the DCWCD and Reclamation to plan and implement water resource management projects in Duchesne County. DCWCD is a participant with Reclamation on the Big Sand Wash Reservoir Enlargement that was completed in 2007. There has not been any direct working relationship between Red Creek Irrigation Company and Reclamation.

Technical Project Description

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

If a grant from Reclamation is received, the Red Creek Irrigation Company will finalize a loan from the Utah Division of Water Resources. Once funding is secured, an engineering design report will be prepared to finalize the best alignment options, pipe size, location, and determination of all the required permits. Then, an environmental and cultural review will be done by a registered environmental firm. Once environmental clearance is obtained, the engineering design and construction documents will be completed. It is anticipated that the pipeline will follow the existing gravel road located in close proximity to the existing open water conveyance facility. Preliminary engineering design shows that the pipeline would be 30 inches in diameter.

Evaluation Criteria

Evaluation Criterion A: Water Conservation

Up to 28 points may be awarded for a proposal that will conserve water and improve efficiency. Points will be allocated to give consideration to projects that are expected to result in significant water savings.

Subcriterion No. A.1 – Water Conservation:

For projects with quantifiable and sustained water savings, please respond to Subcriterion No. 1(a) – Quantifiable Water Savings described in this subsection. If the project does not result in quantifiable water savings but will improve water management, please respond to Subcriterion No. 1(b) – Improved Water Management described in this subsection. If the project has separate components that will result in both quantifiable water savings and improved water management, an applicant may respond to both Subcriteria No. A.1(a) and (b). However, an applicant is limited to 20 points total under both Subcriteria No. A.1(a) and (b).

Subcriterion No. A.1(a) – Quantifiable Water Savings

*Up to **20 points** may be allocated based on the quantifiable water savings expected as a result of the project.*

Describe the amount of water saved. *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. Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. 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 (please note, the following is not an exclusive list of eligible project types. If your proposed project does not align with any of the projects listed below, please be sure to provide support for the estimated project benefits, including all supporting calculations and assumptions made).*

This project will conserve 1,500 acre-feet of water per year. See detailed calculations in Appendix B.

In addition, all applicants should be sure to address the following:

- *What is the applicant's average annual acre-feet of water supply?*

The Red Creek Irrigation Company has the water rights to store 6,000 acre-feet per year from Red Creek in the Red Creek Reservoir for use in the irrigation season. The active capacity of Red Creek Reservoir is 5,700 acre-feet. This is based on the company irrigating 2,300 acres. On average, the company water supply is about 4,800 acre-feet.

- *Where is that water currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground, etc.)?*

Water currently lost in the system is seeping into the ground and through evaporation to the atmosphere.

- *Where will the conserved water go?*

The first priority of the conserved water is for use by the irrigation company to remediate irrigation shortages during the late summer months. During some high runoff years, there is a potential for the stored water to be released to Starvation Reservoir where it could be stored for release to the Duchesne River to meet the needs of the objectives of the Upper Colorado River Endangered Fish Species Program for the Colorado River.

Please include a specific quantifiable water savings estimate; do not include a range of potential water savings.

(1) ***Canal Lining/Piping:*** *Canal lining/piping projects can provide water savings when irrigation delivery systems experience significant losses due to canal seepage. Applicants proposing lining/piping projects should address the following:*

a) *How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.*

The water savings of 1,500 acre-feet will be equal to the amount of water that is currently lost through seepage and evaporation.

b) *How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canals.*

Franson Civil Engineers on behalf of the Red Creek Irrigation Company conducted inflow/outflow tests in July and August of 2013 to measure seepage rates. Flow measurements using a current meter were taken at the beginning and ending sections of the 1.1 mile section of the open conveyance system below Red Creek Dam. The measurements indicated that the open conveyance is losing nearly 30% of its flows through seepage, or 1,500 acre-feet of water.

Details of the seepage loss measurements are presented in Appendix B.

c) *What are the expected post-project seepage/leakage losses and how were these estimates determined? (e.g. can data specific to the type of material being used in the project be provided?)*

The open conveyance system will be converted to a 30-inch diameter pipe. With good construction practices, the losses due to seepage would be reduced to zero.

d) *What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of canal included in the project?*

The loss reductions are going to be 1,363 acre-feet per mile each year. This was determined by dividing the total 1,500 acre-feet of conserved water by the 1.1 miles of canal that will be enclosed.

e) *How will actual canal loss seepage reductions be verified?*

A meter will be installed at the inlet of the pipe located at Red Creek Dam and at the downstream diversion point. The flows at the diversion point should be the same as at the inlet point. On average, the water diverted for irrigation should be 1,500 acre-feet more than what has occurred historically.

f) *Include a detailed description of the materials being used.*

Preliminary design indicates that the open conveyance system can be converted to a 30-inch PVC pipe and deliver the required flows of 30 cfs to meet peak irrigation water requirements.

The existing diversion structure plus new isolation valves and flow measuring devices on the new pipeline will be used to improve water management and efficiency.

Subcriterion No. A.1(b) – Improved Water Management

*Up to **5 points** may be awarded if the proposal will improve water management through measurement, automation, advanced water measurement systems, through implementation of a renewable energy project, or through other approaches where water savings are not quantifiable.*

***Describe the amount of water better managed.** For projects that improve water management but which may not result in measurable water savings, state the amount of water expected to be better managed, in acre-feet per year and as a percentage of the average annual water supply. (The average annual water supply is the amount actually diverted, pumped, or released from storage, on average, each year. This does not refer to the applicant's total water right or potential water supply.) Please use the following formula:*

$$\frac{\textit{Estimated Amount of Water Better Managed}}{\textit{Average Annual Water Supply}} = \frac{4{,}800 \text{ acre-feet}}{4{,}800 \text{ acre-feet}} = 100\%$$

All water diverted by the Red Creek Irrigation Company will be better managed because all water will be conveyed through the 30-inch diameter pipeline from the dam to the diversion point located 1.1 miles downstream.

Subcriterion No. A.2 – Percentage of Total Supply

Up to 4 additional points may be allocated based on the percentage of the applicant's total average water supply (i.e., including all facilities managed by the applicant) that will be conserved directly as a result of the project.

Provide the percentage of total water supply conserved: State the applicant's total average annual water supply in acre-feet. Please use the following formula:

$$\frac{\textit{Estimated Amount of Water Conserved}}{\textit{Average Annual Water Supply}} = \frac{1{,}500 \text{ acre-feet}}{4{,}800 \text{ acre-feet}} = 30\%$$

Based on inflow and outflow tests using a current meter, it is anticipated that 30% of the total average annual water supply will be conserved.

Subcriterion No. A.3 – Reasonableness of Costs

Up to 4 additional points may be awarded for the reasonableness of the cost for the benefits gained.

Please include information related to the total project cost, annual acre-feet conserved (or better managed), and the expected life of the improvement. Use the following calculation:

$$\frac{\textit{Total Project Cost}}{\textit{(Acre-Feet Conserved, or Better Managed x Improvement Life)}}$$

Failure to include this required calculation will result in no score for this section.

For all projects involving physical improvements, specify the expected life of the improvement in number of years and provide support for the expectation (e.g. manufacturer's guarantee, industry accepted life-expectancy, description of corrosion mitigation for ferrous pipe and fittings, etc.) Failure to provide this information may result in a reduced score for this section.

All the water used by Red Creek Irrigation Company will be better managed through the system. In addition, the project will conserve approximately 1,500 acre-feet of water annually. It is anticipated that the pipe used will be PVC, which has an industry accepted life expectancy of 50 years. Corrosion resistant fittings will be used to increase life expectancy of all fittings and appurtenances.

$$\frac{\textit{Total Project Cost}}{\textit{AF Conserved or Better Managed x Improvement life}} = \frac{\$737,000}{(4,800)*50} = \$3.07$$

The calculation yields a cost of $3.07 for every acre-foot per year of water better managed.

Evaluation Criteria B: Energy Water Nexus

*Up to **16 points** may be awarded based on the extent to which the project increases the use of renewable energy or otherwise results in increased energy efficiency.*

For projects that include construction or installation of renewable energy components, please respond to Subcriterion No. B.1 – Implementing Renewable Energy Projects Related to Water Management and Delivery. If the project does not implement a renewable energy project but will increase energy efficiency, please respond to Subcriterion No. B.2 – Increasing Energy Efficiency in Water Management. If the project has separate components that will result in both implementing a renewable energy project and increasing energy efficiency, an applicant may respond to both. However, an applicant may receive no more than 16 points total under both Subcriterion No. B.1 and B.2.

Subcriterion No. B.1 – Implementing Renewable Energy Projects Related to Water Management and Delivery

Up to 16 points may be awarded for projects that include construction or installation of renewable energy components (i.e., hydroelectric units, solar-electric facilities, wind energy systems, or facilities that otherwise enable the use of renewable energy). Projects such as small-scale solar resulting in minimal energy savings or production will be considered under Subcriterion No. 2 below.

***Describe the amount of energy capacity**. For projects that implement renewable energy 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.*

N/A

Describe the amount of energy generated. *For projects that implement renewable energy 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.*

N/A

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

- *Expected environmental benefits of the renewable energy system*
- *Any expected reduction in the use of energy currently supplied through a Reclamation project*
- *Anticipated beneficiaries, other than the applicant, of the renewable energy system*
- *Expected water needs of the renewable energy system*

N/A

Subcriterion No. B.2 – Increasing Energy Efficiency in Water Management

If the project is not implementing a renewable energy component, as described in Subcriterion No. B.1 above, up to ***4 points*** *may be awarded for projects that address energy demands by retrofitting equipment to increase energy efficiency and/or through water conservation improvements that result in reduced pumping or diversions.*

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water management project *(e.g., reduced pumping).*

- *Please provide sufficient detail supporting the calculation of any energy savings expected to result from water conservation improvements. If quantifiable energy savings are expected to result from water conservation improvements, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.*
- *Please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements?*
- *Please indicate whether your energy savings estimates originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.*
- *Does the calculation include the energy required to treat the water?*
- *Will the project result in reduced vehicle miles driven, in turn reducing carbon emissions? Please provide supporting details and calculations.*

Piping the canal will result in reduced maintenance and operation costs. The water master will not need to drive the canal alignment as frequently as there will not be screens to clean at the

diversion works. In addition, there will not be a need for burning the canal to eliminate encroaching vegetation. All these activities will reduce carbon emissions.

Describe any renewable energy components that will result in minimal energy savings/production *(e.g., installing small-scale solar as part of a SCADA system).*

N/A

Evaluation Criteria C: Benefits to Endangered Species

*Up to **12 points** may be awarded for projects that will benefit federally-recognized candidate species or up to **12 points** may be awarded for projects expected to accelerate the recovery of threatened species or engendered species, or addressing designated critical habitat.*

Projects that benefit both federally-listed endangered species and federally-recognized candidate species will receive additional consideration under this criterion. Please see <http://www.fws.gov/endangered/index.html> for a complete listing of federally-listed threatened or endangered species and federally-recognized candidate species in your area.

For projects that will directly benefit federally-recognized candidate species, please include the following elements:

1) *Relationship of the species to water supply*
2) *Extent to which the proposed project would reduce the likelihood of listing or would otherwise improve the status of the species*

For projects that will directly accelerate the recovery of threatened species or endangered species or address designated critical habitats, please include the following elements:

1) *How is the species adversely affected by a Reclamation project?*
2) *Is the species subject to a recovery plan or conservation plan under the Endangered Species Act?*
3) *What is the extent to which the proposed project would reduce the likelihood of listing or would otherwise improve the status of the species*

The U.S. Fish and Wildlife's endangered species list was searched and there are no endangered species listed in the immediate project area. However, Red Creek is a tributary to the Duchesne River which is a tributary to the Green River and the Colorado River Basin water supply. There is a potential during high runoff years for some of the conserved water from the Red Creek Piping Project to help meet the objectives of Reclamation's Upper Colorado River Endangered Fish Species Recovery Program. There would need to be a contractual agreement with the appropriate federal agency for the delivery of this water during the wet years.

Evaluation Criteria D: Water Marketing

*Up to **12 points** may be awarded for projects that propose water marketing elements, with maximum points for projects that establish a new water market.*

*Note: Water marketing does **not** include an entity selling conserved water to an existing customer. This criterion is intended for the situation where an entity that is conserving water uses water marketing to make the conserved water available to meet other existing water supply needs or uses.*

***Briefly describe any water marketing elements included in the proposed project.** Include the following elements:*

1) *Estimate amount of water to be marked*
2) *A detailed description of the mechanism through which water will be marketed (e.g., individual sale, contribution to an existing market, the creation of a new water market, or construction of a recharge facility*
3) *Number of users, types of water use, etc. in the water market*
4) *A description of any legal issues pertaining to water marketing (e.g., restrictions under reclamation law or contracts, individual project authorities, or State water laws)*
5) *Estimated duration of the water market*

State laws prohibit the sale or lease of water rights that are designated for a specific plot of land, unless the land itself is sold and taken out of production. The conserved water will alleviate current shortages for other water users. In some high water years, and under a contractual agreement with federal entities, some of the conserved water could possibly be made available to other uses such as delivering water to meet stream flow needs on the Duchesne River, Green River, and Colorado River to meet the objectives of the Upper Colorado River Endangered Fish Species Recovery Program.

Evaluation Criteria E: Other Contributions to Water Supply Sustainability

*Up to **14 points** may be awarded for projects expected to contribute to a more sustainable water supply. This criterion is intended to provide an opportunity for the applicant to explain how the project relates to a WaterSMART Basin Study, how the project could expedite future on-farm improvements, or how the project will provide other benefits to water supply sustainability within the basin. An applicant may receive the maximum 14 points under this criterion based on discussion of one or more of the numbered sections below.*

1) *Points may be awarded for projects that address an adaptation strategy identified in a WaterSMART Basin Study.*

   Proposals that provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a Basin Study (i.e., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other

causes) may receive maximum points under this criterion. Applicants should provide as much detail as possible about the relationship of the proposed project to the adaptation strategy identified in the Basin Study, including, but not limited to, the following:

(a) Identify the specific WaterSMART Basin Study where this adaptation strategy was developed. Describe in detail the adaptation strategy that will be implemented through this WaterSMART Grant project, and how the proposed WaterSMART Grant project would help implement the adaptation strategy.
(b) Describe how the adaptation strategy and proposed WaterSMART Grant project will address the imbalance between water supply and demand identified by the Basin Study.
(c) Identify the applicant's level of involvement in the Basin Study (e.g., cost-share partner, participating stakeholder, etc.)
(d) Describe whether the project will result in further collaboration among Basin Study partners.

Through the WaterSMART Basin Study Program, Reclamation is working with State and local partners, as well as other stakeholders, to comprehensively evaluate the ability to meeting future water demands within a river basin. The Basin Studies allow Reclamation and its partners to evaluate potential impacts of climate change to water resources within a particular river basin, and to identify adaptation strategies to address those impacts. For more information on Basin Studies, please visit: <www.usbr.gov/WaterSMART/bsp>.

This Project does not fall within one of the areas that have a completed WaterSMART Basin Study. However, the project area is located within the Upper Colorado River Basin in which Reclamation recently completed a Water Supply and Demand Study (year 2012). The Red Creek Piping Project would help to alleviate future shortages in the Upper Colorado River Basin of Utah.

2) *Points may be awarded for projects that describe in detail how they will directly expedite future on-farm irrigation improvements, including future on-farm improvements that may be eligible for NRCS funding. Please address the following:*

(a) Include a detailed listing of the fields and acreage that may be improved in the future.
(b) Describe in detail the on-farm improvements that can be made as a result of this project. Include discussion of any planned or ongoing efforts by farmers/ranchers that receive water from the applicant.
(c) Provide a detailed explanation of how the proposed WaterSMART Grant project would help to expedite such on-farm efficiency improvements.
(d) Fully describe the on-farm water conservation or water use efficiency benefits that would result from the enabled 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.
(e) Projects that include significant on-farm irrigation improvements should demonstrate the eligibility, commitment, and number or percentage of shareholders who plan to participate in any available NRCS funding programs. Applicants should provide letters of intent from farmers/ranchers in the affected project areas.
(f) Describe the extent to which this project complements an existing or newly awarded AWEP project.

Note: On-farm water conservation improvements that complement the water delivery improvement projects selected through this FOA may be considered for NRCS funding and technical assistance in FY 2014 to the extent such assistance is available. Complementing NRCS Farm Bill programs include the Environmental Quality Incentive Program (EQIP) and Agricultural Water Enhancement Program (AWEP), which are the primary programs that address water quantity and water quality conservation practices. For more information, including application deadlines and a description of available funding, please contact your local NRCS office or visit <www.nrcs.usda.gov>for further contact information in your area.

The Red Creek Irrigation Company converted their flood irrigation system in 2001 to a pressurized irrigation system that consists of approximately 20 miles of pipes plus the associated center-pivot and side-roll sprinklers. The portion of the pressurized irrigation system that is not piped is the 1.1 miles of open conveyance delivery system located immediately below Red Creek Dam for which this application is being submitted for funding.

Points may be awarded for projects that include other benefits to water supply sustainability.

Projects that do not address a need/adaptation strategy identified in a Basin Study or do not help expedite future on-farm irrigation improvements, may receive maximum points under this criterion by thoroughly explaining additional project benefits. Please provide sufficient explanation of the additional expected project benefits and their significance. Additional project benefits may include, but are not limited to, the following:

(a) Will the project make water available to address a specific concern? For example:

- *i. Will the project address water supply shortages due to climate variability and/or heightened competition for finite water supplies (e.g. population growth or drought)? Is the river, aquifer or other source of supply over-allocated?*
- *ii. Will the project market water to other users? If so, what is the significance of this (e.g., does this help stretch water supplies in a water-short basin)?*
- *iii. Will the project make additional water available for Indian tribes?*
- *iv. Will the project help to address an issue that could potentially result in an interruption to the water supply if unresolved? (e.g., will the project benefit endangered species to maintain an adequate water supply)? Are there endangered species within the basin or other factors that may lead to heightened competition for available water supplies among multiple water uses?*
- *v. Will the project generally make more water available in the water basin where the proposed work is located?*

This project will address water supply shortages and will make more water available to the water users in the Duchesne River basin of which Red Creek is a tributary. The Duchesne River is a tributary to the water supply of the Colorado River. The Duchesne County area is mentioned in Reclamation's Colorado River Basin Report of 2012 as a water shortage area. Environmental benefits to endangered fish species on the Green River and Colorado River may be realized as part of this water conservation project. The project will not affect Indian Tribes.

(b) Does the project promote and encourage collaboration among parties?

i. Is there widespread support for the project?
ii. What is the significance of the collaboration/support?
iii. Will the project help to prevent a water-related crisis or conflict?
iv. Is there frequently tension or litigation over water in the basin?
v. Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?

This project will require collaboration from several entities including Red Creek Irrigation Company, DCWCD, the Utah Division of Water Resources, and possibly the U.S. Department of Interior. The shareholders in the Red Creek Irrigation Company have voted to implement the Red Creek Pipeline Project. With Utah being the second driest state in the country, water conservation projects are widely supported throughout the state. Water conservation is a top priority in the Utah State Water Plan.

(c) Will the project increase awareness of water and/or energy conservation and efficiency efforts?

i. Will the project serve as an example of water and/or energy conservation and efficiency within a community?
ii. Will the project increase the capability of future water conservation or energy efficiency efforts for use by others?
iii. Does the project integrate water and energy components?

This project will conserve a significant amount of water that will set an example of water conservation to the local and surrounding communities. As Red Creek Irrigation Company has followed the example of other companies that have improved their irrigation systems to conserve water, other entities will likewise follow the example of Red Creek Irrigation Company. The reduced maintenance and operation costs and a more reliable supply of water is a win situation for the shareholders, the local community, and surrounding region.

Evaluation Criteria F: Implementation and Results

*Up to **10 points** may be awarded for the following:*

Subcriterion No. F.1 – Project Planning

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

***Does the project have a Water Conservation Plan, System Optimization Review (SOR), and/or district or geographic area drought contingency plans in place? Does the project relate/have a nexus to an adaptation strategy developed as part of a WaterSMART Basin Study?** 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, or other planning efforts done to determine the priority of this project in relation to other potential projects.*

Red Creek Irrigation Company does not have a Water Conservation Plan, but they did convert from flood irrigation to sprinkler irrigation, which improved their irrigation efficiency from 65% to 85%. As part of the funding requirement from the Utah Division of Water Resources, the irrigation company will prepare a Water Conservation Plan in order to obtain funding for this project. This project is in compliance with the Utah State Water Plan. To the irrigation company's credit, it converted its open ditches and flood irrigation to a pressurized irrigation system in 2001, except for the 1.1 miles of open channel in which funding is being sought from this application.

2) *Identify and describe any engineering or design work performed specifically in support of the proposed project.*

A preliminary feasibility study has been completed by Franson Civil Engineers to be used in the funding acquisition portion of the project. Preliminary pipe size, pipe length, costs and water savings have been prepared.

3) *Describe how the project conforms to and meets the goals of any applicable State or regional water plans, and identify any aspect of the project that implements a feature of an existing water plan(s).*

The Utah State Water Plan emphasizes water conservation and efficient management of developed water supplies as key strategies in providing for the present and future water needs in the state. The specific goals met include water conservation and water use efficiency to meet the need for affordable and renewable energy resources.

Subcriterion No. F.2 – Readiness to Proceed

Points may be awarded based upon the extent to which the proposed project is capable of proceeding upon entering into a financial assistance agreement.

Describe the implementation plan of the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. (Please note, under no circumstances may an applicant begin any ground disturbing activities—including grading, clearing, and other preliminary activities—on a project before environmental compliance is complete and Reclamation explicitly authorizes work to proceed).

This project is ready to move forward if the grant is awarded. The remaining funding will be secured from the Utah Division of Water Resources. Once funding is secured, the design work will begin immediately thereafter. A detailed schedule showing major tasks, milestones, and dates is shown in Appendix F.

Please explain any permits that will be required, along with the process for obtaining such permits.

The environmental clearance is not expected to have any major issues. Preliminary check of the National Register of Historic Places and the National Wetlands Inventory showed no apparent issues. A stream alteration permit from the State of Utah may be required to connect the new pipeline to the outlet works at Red Creek Dam. Coordination with Duchesne County will be required for the existing gravel road in which the pipe will be constructed.

Subcriterion No. F.3 – 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 (i.e., water saved, marketed, or better managed, or energy saved). For more information calculating performance measure, see Section VIII.A.1 "FY2014 WaterSMART Water and Energy Efficiency Grants: Performance Measures"

Note: All WaterSMART Grant applicants are required to propose a "performance measure" (a method of quantifying the actual benefits of their project once it is completed). A provision will be included in all assistance agreements with WaterSMART Grant recipients describing the performance measure, and requiring the recipient to quantify the actual project benefits in their final report to Reclamation upon completion of the project. If information regarding project benefits is not available immediately upon completion of the project, the financial assistance agreement may be modified to remain open until such information is available and until a Final Report is submitted. Quantification of project benefits is an important means to determine the relative effectiveness of various water management efforts, as well as the overall effectiveness of WaterSMART Grants.

A water meter will be installed at the beginning of the new pipeline to measure the amount of water released at Red Creek Dam. After leaving the pressure reducing station at the downstream terminus of the new pipeline, the water is immediately diverted into the pressurized irrigation system. There is existing telemetry at the diversion site that will measure the water diverted. The water released at the dam and diverted 1.1 miles downstream should be essentially the same. The amount of water conserved will be reported in the final report submitted to Reclamation.

Evaluation Criteria G: 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.*

$$\frac{\textit{Non-Federal Funding}}{\textit{Total Project Cost}} = \frac{\$437{,}000}{\$737{,}000} = \mathbf{59.3\%}$$

Evaluation Criteria H: Connection 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.*

1) *How is the proposed project connected to Reclamation project activities?*
2) *Does the applicant receive Reclamation project water?*
3) *Is the project on Reclamation project lands or involving Reclamation facilities?*
4) *Is the project in the same basin as a Reclamation project or activity?*
5) *Will the proposed work contribute water to a basin where a Reclamation project is located?*

The project has no direct ties to a Reclamation project. However, there are numerous Reclamation projects within Duchesne County. DCWCD has close ties to Reclamation projects including Starvation Dam and Reservoir and Big Sand Wash Dam Enlargement of the Central Utah Project. Red Creek is a tributary to Starvation Reservoir, a Reclamation facility.

PERFORMANCE MEASURES

All WaterSMART Grant applicants are required to propose a method (or "performance measure") of quantifying the actual benefits of their project once it is completed. Actual benefits are defined as water actually conserved, marketed, or better managed, as a direct result of the project. Quantifying project benefits is an important means to determine the relative effectiveness of various water management efforts, as well as the overall effectiveness of WaterSMART Grants.

Environmental and Cultural Resources Compliance

To allow Reclamation to assess the probable environmental 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. Additional information about environmental compliance is provided in Section IV.D.4, "Budget Proposal," under the discussion of "Environmental and Regulatory Compliance Costs," and in Section VIII.B., "Overview of Environmental Compliance Requirements."

Note: Applicants proposing a Funding Group II project must address the environmental compliance questions for their <u>entire</u> project, <u>not</u> just the first one-year phase.

If you have any questions, please contact your regional or area Reclamation office (see http://www.usbr.gov/main/regions.html) with questions regarding ESA compliance issues. You may also contact Dean Marrone, WaterSMART Program Coordinator, at 303-445-3577, for further information.

Note, if mitigation is required to lessen environmental impacts, the applicant may, at Reclamation's discretion, be required to report on progress and completion of these commitments. Reclamation will coordinate with the applicant to establish reporting requirements and intervals accordingly.

Under no circumstances may an applicant begin any ground-disturbing activities (including grading, clearing, and other preliminary activities) on a project before environmental compliance is complete and Reclamation explicitly authorizes work to proceed. This pertains to all components of the proposed project, including those that are part of the applicant's non-Federal cost share. Reclamation will provide a successful applicant with information once environmental compliance is complete. An applicant that proceeds before environmental compliance is complete may risk forfeiting Reclamation funding under this FOA.

1) *Will the project impact the surrounding environment (i.e. 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 pipe alignment will follow the existing gravel road located in close proximity to the open irrigation conveyance system. There will be minimal, short-term impacts associated with installing the pipe. All land surface disturbances would be confined to the proposed pipe alignment area and small staging areas adjacent to the pipeline. Contract documents will outline the responsibility of the contractor relative to dust control, air and water pollution during construction activities. Minimal environmental disturbance is anticipated and all work will be performed in previously disturbed areas.

2) *Are you aware of any species listed or proposed to be listed as a Federal endangered or threatened 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 List for Utah there are no endangered species in the immediate project area. Therefore, there would be no impacts from construction activities.

3) *Are there wetlands or other surface water 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 project may have.*

The National Wetlands Inventory has been searched and there will not be any construction within wetland areas. There are no anticipated impacts to wetlands or surface water that falls under Clean Water Act (CWA) jurisdiction as "waters of the United States."

4) *When was the water delivery system constructed?*

The original flood irrigation system of open canals was constructed in the early 1900's. The existing pressurized irrigation system was constructed in 2001 and consists of 20 miles of pipeline and sprinkler irrigation systems of either a center-pivot or side-roll nature.

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

The 1.1 miles of open conveyance water delivery system will be replaced with a pressurized pipe. All other pressurized irrigation systems will be unchanged.

6) *Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the Nation 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.*

There are no buildings or features in the project area listed on the National Register of Historic Places database.

7) *Are there any know archeological sites in the proposed project area?*

There are no known historical sites in the area. However, a cultural resource specialist will be hired to conduct a survey before construction begins.

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

The project will not adversely affect low income or minority populations. However, the project area is in a low income area of Utah and the project would enhance the economic benefits to the area. The population of the area is about 350 people with an average annual household income of $26,000.

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

The project will not affect tribal lands.

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

The project will not contribute to the spread of noxious weeds, but would reduce the growth of willows and thistles.

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.

Applicants proposing renewable energy components to Federal facilities should note that some power projects may require FERC permitting or a Reclamation Lease of Power Privilege. To complete a renewable energy project within the time frame required of this FOA, it is recommended that an applicant has commenced the necessary permitting process prior to applying. To discuss questions related to projects that propose renewable energy development, please contact Mr. Josh German at 303-445-2839 or jgerman@usbr.gov.

Note that improvements to Federal facilities that are implemented through any project awarded funding through this FOA must comply with additional requirements. The Federal government will continue to hold title to the Federal facility and any improvement that is integral to the existing operations of that facility. Please see Section III.H1. Reclamation may also require additional reviews and approvals prior to award to ensure that any necessary easements, land use authorizations, or special permits can be approved consistent with the requirements of 43 CFR 429, and that the development will not impact or impair project operations or efficiency.

An environmental clearance will be required before construction can begin. The permit is not expected to have any major issues. Preliminary check of the National Register of Historic Places and the National Wetlands Inventory showed no apparent issues. A stream alteration permit from the State of Utah may be required for modification to the existing diversion structure. All the required permits should be relatively easy to obtain.

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 WaterSMART Grant financial assistance, verifying:

- *The identity of the official with legal authority to enter into 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 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.*

Official resolutions from the DCWCD and the Red Creek Irrigation Company are shown in Appendix A.

Project Budget

The project budget includes: (1) Funding Plan and Letters of Commitment, (2) Budget Proposal, (3) Budget Narrative and (4) Budget Form.

Funding Plan and Letters of Commitment

Describe how the non-Reclamation 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. This is a ***mandatory requirement****. Letters of commitment shall identify the following elements:*

(1) The amount of funding commitment
(2) The date the funds will be available to the applicant
(3) Any time constraints on the availability of funds
(4) Any other contingencies associated with the funding commitment

Commitment letters from third party funding sources should be submitted with your project 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 a WaterSMART Grants project 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.

Red Creek Irrigation Company will acquire a loan from the Utah Division of Water Resources. The loan will only be finalized if funding from Reclamation is granted. Letters of commitment from the board will be submitted as soon as they are available, but no later than June 1, 2014.

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

1) *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).*

The total project cost is $737,000. Red Creek Irrigation Company will apply for a loan from the Utah Division of Water Resources for $371,450. In-kind services of $65,550 will be provided by Red Creek Irrigation Company. The loan will be paid back with assessments to the water users. If the $300,000 grant requested by this application is not approved, it is unlikely that this project will be implemented. Red Creek Irrigation Company shareholders cannot afford to borrow all the

money for the project. If a grant is awarded, Red Creek Irrigation Company will finalize the loan from the Utah Division of Water Resources.

2) *Describe any in-kind costs incurred before the anticipated project start date that you seek to include as project costs. Include:*

(a) What project expenses have been incurred

Incurred project expenses include the engineering costs associated with preliminary design, cost estimating, and funding procurement.

(b) How they benefitted the project

These costs allowed the irrigation company to explore funding options and set a plan for the implementation of the project.

(c) The amount of the expense

The incurred expense amounts to $5,000.

(d) The date of cost incurrence

Costs were incurred between October 2013 and January 2014.

3) *Provide the identity and amount of funding to be provided by funding partners, as well as the required letters of commitment.*

The total of $371,450 will be provided by the Utah Division of Water Resources. The letters of commitment will be submitted as soon as a decision is made by the Utah Division of Water Resources, but no later than June 1, 2014.

4) *Describe any funding requested or received from other Federal partners. Note: Other sources of Federal funding may not be counted towards the applicant's 50-percent cost share unless otherwise allowed by statute.*

No other applications for funds have been requested from any other Federal funding agency.

5) *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 or the Utah Division of Water Resources, the project will not move forward.

Please include the following chart to summarize your non-Federal and other Federal funding sources.

Table 2: Summary of Non-Federal and Federal Funding Sources

Funding Sources	Funding Amount
Non-Federal Entities	
1. Utah Board of Water Resources	$371,450
2. Red Creek Irrigation Company	$65,550
Non-Federal Subtotal	$437,000
Federal Entities	
1. Reclamation	
Federal Subtotal	$0
Requested Reclamation Funding	$300,000
Total Project Funding	**$737,000**

Table 3: Funding Group I Request

	Funding Group 1 Request	
	Year 1 (FY 2015)	Year 2 (FY 2016)
Funding Requested	**$200,000**	**$100,000**

Budget Proposal

The project budget shall include detailed information on the categories listed below (in the Budget Narrative Section) and must clearly identify all project costs and the funding source(s) (i.e. Reclamation or other funding sources). Unit costs shall be provided for all budget items including the cost of work to be provided by contractors. ***Lump sum costs are not acceptable.*** *Additionally, applicants shall include a narrative description of the items included in the project budget. It is strongly advised that applicants use the budget format (below) or a similar format that provides this information.*

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. The types of information to describe in the narrative include, but are not limited, to those listed in the following subsections.

Officials of the DCWCD and the Red Creek Irrigation Company will not earn a salary, wages, fringe benefits or reimbursements from funding obtained to implement this project. All contributions by DCWCD and the Red Creek Irrigation Company will be either volunteered or funded by the respective company's general fund or by in-kind contributions to the project.

All funding secured from Reclamation and the Board of Water Resources 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 below.

Table 4: Funding Sources

Funding Sources	Percent of Total Project Costs	Total Cost by Source
Recipient Funding (In-kind)	8.9%	$65,550
Recipient Funding – Loan	50.4%	$371,450
Reclamation Funding	40.7%	$300,000
Total	**100%**	**$737,000**

Table 5: Costs for Project Management, Engineering and Construction

Budget Item Description	Computation	Total Cost
Project Management, Coordination and Reclamation Reporting	See Appendix C	$17,000
Environmental Services	See Appendix E	$18,000
Engineering Services	See Appendix C	$49,000
Construction Management	See Appendix C	$46,000
Construction Contract	See Appendix D	$607,000
Total Project Costs		**$737,000**

Salaries and Wages

Indicate program manager and other key personnel by name and title. Other personnel may be indicated by title alone. For all positions, indicate salaries and wages, estimated hours or percent of time, and rate of compensation proposed. The labor rates should identify the direct labor rate separate from the fringe rate or fringe cost for each category. All labor estimates, including any proposed subcontractors, shall be allocated to specific tasks as outlined in the recipient's technical project description. Labor rates and proposed hours shall be displayed for each task.

Clearly identify any proposed salary increases and the effective date.

Generally, salaries of administrative and/or clerical personnel will be included as a portion of the stated indirect costs. If these salaries can be adequately documented as direct costs, they should be included in this section; however, a justification should be included in the budget narrative.

This Fee Schedule applies to services rendered during the current year. A new Schedule will be issued at the beginning of each year. These fees include overhead and profit.

Franson Civil Engineers Personnel and Billing Rates

Classification	2014
Principal	$156
Senior Manager	$136
Senior Engineer	$116
Senior Field Manager	$113
Staff Engineer	$101
Senior Designer	$93
Engineer I	$86
Reports Writer/Editor	$85
Designer	$84
Engineering Assistant	$81
Engineering Intern	$70
Office Assistant	$57
Clerk	$51

See Appendix C for the full engineering manpower and cost estimate for all design work and construction management tasks.

Construction contractors have not yet bid on this project; therefore, no salary and wage data are available for construction. The construction cost estimate is based on the engineer's estimate of probable construction costs.

Fringe Benefits

Indicate rates/amounts, what costs are included in this category, and the basis of the rate computations. Indicate whether these rates are used for application purposes only or whether they are fixed or provisional rates for billing purposes. Federally approved rate agreements are acceptable for compliance with this item.

No Fringe Costs are included. The basis of the billing rate computation shown in the Salary and Wages section for Franson Civil Engineers is as follows:

Table 6: Breakdown of Franson Civil Engineers Billing Rate

Average Billable Rate	$99.00
Wage Percent	30%
Benefits	15%
Overhead	40%
Profit	15%

Travel

Include purpose of trip, destination, number of persons traveling, length of stay, and all travel costs including airfare (basis for rate used), per diem, lodging, and miscellaneous travel expenses. For local travel, include mileage and rate of compensation.

There will be no lodging or per diem expenses. The engineer will visit the site during the design phase, and periodically visit the site during construction. Charges related to vehicle travel will be the result of site visits and construction observation. The charge will be at the IRS approved mileage rate plus $0.10, which calculates to be $0.66 per mile. The total direct expenses for traveling are shown in the engineering manpower estimate enclosed in Appendix C.

Equipment

Itemize costs of all equipment having a value of over $500 and include information as to the need for this equipment, as well as how the equipment was priced if being purchased for the agreement. If equipment is being rented, specify the number of hours and the hourly rate. Local rental rates are only accepted for equipment actually being rented or leased for the project. If equipment currently owned by the applicant is proposed for use under the proposed project, and the cost to use that equipment is being included in the budget as in-kind cost share, provide the rates and hours for each piece of equipment owned and budgeted. These should be ownership rates developed by the recipient for each piece of equipment. If these rates are not available, the U.S. Army Corp of Engineer's recommended equipment rates for the region are acceptable. Blue book, Federal Emergency Management Agency (FEMA), and other data bases should not be used.

Not included.

Material and Supplies

Itemize supplies by major category, unit price, quantity, and purpose, such as whether the items are needed for office use, research, or construction. Identify how these costs were estimated (i.e., quotes, past experience, engineering estimates or other methodology).

Costs for materials and supplies are included in the engineering estimate shown in Appendix C. These costs are for printing and copying construction drawings, specifications, reports, letters, permits and other documents related to the project. The cost for printing is as follows:

Copy/Print – 8.5x11	$0.04/page
Copies – 11x17	$0.08/page
Color Copy/Print	$0.25/page
Oversize copies/prints	$1.00/sq. ft

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. If a subrecipient, consultant, or contractor is proposed and approved at time of award, no other approvals will be required. Any changes or additions will require a request for approval. Identify how the budgeted costs for subrecipients, consultants, or contractors were determined to be fair and reasonable.

All funding for the project will be used to pay consultants and construction contractors and subcontractors. These include legal services, engineering services, environmental services, and construction services. Detailed tasks to be completed, estimated time, rates, supplies, and materials for each task is outlined in the Appendices as follows:

1) Appendix C – Engineering Services
2) Appendix D – Construction Services
3) Appendix E – Environmental Services

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 or the recipient in complying with environmental regulations applicable to a WaterSMART Grant, including costs associated with any required documentation of environmental compliance, analyses, permits, or approvals. Applicable Federal environmental laws could include NEPA, ESA, NHPA, and the 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. However, the minimum amount budgeted for environmental compliance should be equal to at least 1-2 percent of the total project costs. If the amount budgeted is less than 1-2 percent of the total project costs, you must include a compelling explanation of why less than 1-2 percent was budgeted.

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. 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.

The costs for environmental services are shown in Appendix E.

Reporting

Recipients are required to report on the status of their project on a regular basis. Failure to comply with reporting requirements may result in the recipient being removed from consideration for funding under future funding opportunities. Include a line item for reporting costs (including final project and evaluation costs).

A total of $2,998 (see Appendix C – Engineering Costs) was budgeted for reporting to Reclamation. This amount would include the costs to create a final construction report and finalize repayment agreements, quarterly construction reports, annual project performance reports, and to coordinate requests for reimbursement. This work will be performed by the consulting engineering firm selected to design the system.

Total Cost

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

The estimated total project cost is $737,000.

Budget Form

In addition to the above-described budget information, the applicant must complete an SF-424A, Budget Information—Nonconstruction Programs, or an SF-424C, Budget Information—Construction Programs.

Forms SF-424C and SF-424D are enclosed with the application for federal assistance SF-424.

Appendix A

Signed Official Resolutions

OFFICIAL RESOLUTION
Of The
DUCHESNE COUNTY WATER CONSERVANCY DISTRICT
REGARDING THE WATERSMART GRANT PROGRAM

RESOLUTION NO. 2014 - 2

WHEREAS, the United States Department of the Interior, Bureau of Reclamation has established the WaterSMART Water and Energy Efficiency Grants in order to prevent water supply crises and ease conflict in the western United States of America, and

WHEREAS, the United States Department of the Interior, Bureau of Reclamation has requested proposals from eligible entities to be included in the WaterSMART Program, and

WHEREAS, the Red Creek Irrigation Company has need for funding to complete an irrigation water conservation project that will pipe a 1.1 mile section of open canal conveyance system so that water can be more efficiently delivered to the water users.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the DUCHESNE COUNTY WATER CONSERVANCY DISTRICT agrees and authorizes that we:

1. Have reviewed and supports the proposal submitted; and

2. The Red Creek Irrigation Company 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, will work with Reclamation and the Red Creek Irrigation Company to meet established deadlines for entering into a cooperative agreement and will be the contracting entity for this WaterSMART application.

DATED: Jan 13, 2014

R. Scott Wilson
General Manager
Duchesne County Water Conservancy District

ATTEST:

Moreen Henderson
Board Chairperson
Duchesne County Water Conservancy District

OFFICIAL RESOLUTION
Of The
RED CREEK IRRIGATION COMPANY REGARDING THE WATERSMART GRANT PROGRAM

RESOLUTION NO. 2014 - 1

WHEREAS, the United States Department of the Interior, Bureau of Reclamation has established the WaterSMART Water and Energy Efficiency Grants in order to prevent water supply crises and ease conflict in the western United States of America, and

WHEREAS, the United States Department of the Interior, Bureau of Reclamation has requested proposals from eligible entities to be included in the WaterSMART Program, and

WHEREAS, the Red Creek Irrigation Company has need for funding to complete an irrigation water conservation project that will pipe a one-mile section of open canal conveyance system so that water can be more efficiently delivered to the water users.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the RED CREEK IRRIGATION COMPANY agrees and authorizes that we:

1. Have reviewed and supports the proposal submitted; and

2. Are 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, will work with Reclamation and the Duchesne County Water Conservancy District to meet established deadlines for entering into a cooperative agreement.

DATED: Jan 12 2014

Nathan Robinson

Nathan Robinson
President, Red Creek Irrigation Company

ATTEST:

Board Member
Red Creek Irrigation Company

Appendix B

Water Savings Calculations

July 26, 2013

Representatives of Franson Civil Engineers met with Nathan Robinson, President of Red Creek Irrigation Company at Red Creek Dam. Flow measurements using the Franson Civil Engineers' velocity meter equipment were made. There is an existing metal flume in the creek channel just below the dam outlet where we took the first set of measurements. The flume was 43 inches wide where the measurement was taken and the water was 25 inches deep. The velocities measured were 3.78 ft/sec and 3.92 ft/sec, which calculate out to an average of 28.7 cfs. The only other inflow to the system is Birch Creek which adds 0.6 cfs. Total inflow is therefore 29.3 cfs.

At the bottom end of the system, Red Creek Irrigation Company diverts most of the flow into their pressurized irrigation system pipeline which has a water measuring meter. At that time, the flow through the pipe was 15.7 cfs. There was another metal flume just downstream of the diversion where a second set of flow measurements was taken. This flume was 35.5 inches wide, with water 5-3/4 inches deep. Flow velocities were both 1.83 ft/sec, which gives 2.6 cfs. Total flow at the bottom of the system was therefore 18.3 cfs. A quick check on the weir upstream of the diversion showed 19.3 cfs, so we are in the ballpark. This means the total losses at this time were 11.1 cfs or 38% of the water from the reservoir.

August 23, 2013

The flow at the flume near the dam was 18.3 cfs. Franson Civil Engineers added 0.6 cfs for Birch Creek to be consistent with last time. With the SCADA flow measurement at the pipe at 4.6 cfs, the losses are 76%. Using the same measurement points as last time, the total losses are 14.3 cfs this time.

Franson Civil Engineers checked the data both times using the 20-foot weir near the pipe entrance. The first time the weir verified the measurement with 19.3 cfs vs. 18.3 cfs on the SCADA system. The second time the results did not match with 8.4 cfs being measured at the weir and 4.6 cfs on the SCADA. Using the weir, the calculated losses were 34% the first time and 56% the second time. There was considerable sediment at the diversion which contributed to the error in reading at the SCADA site.

Due to this likely error, Franson Civil Engineers made an analysis using the weir equation. The most interesting piece of data was using the weir equation, which showed the losses the first time were 10.1 cfs and the second time were 10.5 cfs. These match up pretty well and it makes more sense that the total flow losses would be fairly consistent than having the losses increase dramatically with a lower flow.

Water Loss Conclusion

Franson Civil Engineers feels confident in concluding that the losses are always around 10 cfs. The % losses will vary because the irrigation flows vary, but the amount of water lost is almost constant. The area is underlain by a deep layer of cobble which readily accepts seepage water, leading to the high loss rate. For the irrigation season the losses are estimated to be 1,500 acre-feet per year.

Appendix C

Probable Cost for Engineering Services

(Engineering Design and Construction Management)

Red Creek Irrigation Company

Probable Cost Opinion for Engineering Services

(Rate Table is on Page 27)

Task Description	Hours By Personnel Category								Total Hours	Total Labor Charges	Other Direct Costs	Total Fee
	1	2	3	4	6	7	14	15				
	Principal	Project Manager	Senior Engineer	Staff Engineer	Engineer I	Designer	Office Assistant	Clerk				
Phase 1 - Project Management & Coordination												
Task 1. General Project Management Tasks	2	10							12	$1,598	$120	$1,718
Task 2. Client Coordination Meetings	10	20							30	$4,090	$200	$4,290
Task 3. Environmental Coordination	2	10							12	$1,598	$100	$1,698
Task 4. Coordination with Division of Water Resources		10							10	$1,300	$100	$1,400
Task 5. Coordination with Shareholders	2	10							12	$1,598	$100	$1,698
Task 6. Permits Acquisitions (UDOT)		10							10	$1,300	$200	$1,500
Task 7 Reporting to Reclamation	2	20							22	$2,898	$100	$2,998
Task 8. Loan Closing & Legal Coordination	2	10							12	$1,598	$100	$1,698
SUBTOTAL	20	100	0	0	0	0	0	0	120	$15,980	$1,020	$17,000
Phase 2 - Engineering Design												
Task 1. Design Team Management	10	20	2				5		37	$4,595	$100	$4,695
Task 2. Site Visits/Surveying	10	10	2			5			27	$3,465	$2,000	$5,465
Task 3. Design Criteria Contract	2	5	2				2		11	$1,288	$60	$1,348
Task 4. Coordination with Client & Shareholders	2	8	2				5		17	$1,843	$0	$1,843
Task 5. Hydraulic Analysis and Model	2	5	2	8					17	$1,986	$0	$1,986
Task 6. Air-Valves Sizing	2	2	2	2					8	$990	$0	$990
Task 7. Pressure Reducing Station Mechanical Design	2	2	2	5					11	$1,293	$0	$1,293
Task 8. Pressure Reducing Station Structural Design	2	2	2	5					11	$1,293	$0	$1,293
Task 9. Inlet Structure Design (Trash Rack, Sediment)	2	2	2	10					16	$1,798	$0	$1,798
Task 10. Stream Crossing Design	2	2	2	5					11	$1,293	$0	$1,293
Task 11. Road Crossing Design and Coordination	2	2	2	5					11	$1,293	$0	$1,293
Task 12. Construction Drawings Draft	2	8	15	6	2	80	5		118	$11,246	$522	$11,768
Task 13. Construction Drawings Final	2	8	15	6	2	32	5		70	$6,974	$300	$7,274
Task 14. Construction Specifications	2	5	5	6	2		5		25	$2,586	$400	$2,986
Task 15. Bid & Award Coordination	2	8	5	6			5	5	31	$3,039	$636	$3,675
SUBTOTAL	46	89	62	64	6	117	32	5	421	$44,982	$4,018	$49,000
Phase 3 - Construction Management												
Task 1. Construction Team Management	2	20		20			5		47	$5,193	$0	$5,193
Task 2. On-Site Observation and Documentation		10		150					160	$16,450	$4,000	$20,450
Task 3. Submittal Reviews		5	15	5					25	$2,880	$155	$3,035
Task 4. Contractor Coordination		5	10	20					35	$3,820	$0	$3,820
Task 5. Record Drawings Preparation	1	5	2	10		40	15		73	$6,424	$500	$6,924
Task 6. O&M Manual	1	5	2	10		20	2	8	48	$4,321	$400	$4,721
Task 7. Project Closeout	1	2	2	10			2	2	19	$1,857	$0	$1,857
SUBTOTAL	5	52	31	225	0	60	24	10	407	$40,945	$5,055	$46,000
Project Totals	71	241	93	289	6	177	56	15	948	$101,907	$10,093	$112,000

Appendix D

Probable Cost for Construction Services

Red Creek Irrigation Company

Red Creek Pipeline Project

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
Phase 1 - Red Creek Pipeline				
Mobilization	1	EA	$20,000.00	$20,000
30" Dia. C-905 PVC DR51	4,200	LF	$55.00	$231,000
30" Dia. C-905 PVC DR41	2,400	LF	$65.00	$156,000
30" PVC Fittings with Thrust Blocks	7	EA	$2,000.00	$14,000
Dam Outlet Structure/Pipeline Connection	1	EA	$55,000.00	$55,000
Large Mainline Meter	1	EA	$12,000.00	$12,000
6" Air Valves	3	EA	$5,000.00	$15,000
Pipeline Drains	2	EA	$4,500.00	$9,000
Pressure Reducing Station	1	EA	$45,000.00	$45,000
End Connection to Existing Pipeline	1	EA	$15,000.00	$15,000
Road Restoration	5000	LF	$7.00	$35,000
			Subtotal	**$607,000**

Appendix E

Probable Cost for Environmental Services

(Environmental and Cultural Resources Compliance)

Red Creek Irrigation Company

Probable Cost Estimate for Environmental Services

ITEM DESCRIPTION	HOURS	UNIT COST	TOTAL COST
Fieldwork - Archaeological Inventory			
Project Manager	60	$70.00	$4,200
Staff Archaeologist	60	$60.00	$3,600
		Subtotal	**$7,800**
Report Production, Site Forms & Maps			
Principal Investigator	70	$75.00	$5,250
Staff Archaeologist	60	$60.00	$3,600
		Subtotal	**$8,850**
Direct Costs			
SHPO - Division of State History File Search	1	$130.00	$130
Mileage	660	$0.56	$370
Field Equipment	15	$50.00	$750
Reproduction and Postage	4	$25.00	$100
		Subtotal	**$1,350**
		Total	**$18,000**

Appendix F

Proposed Schedule

Red Creek Irrigation Company
PROJECT SCHEDULE