Improving Water Efficiency
For the Eureka Water Company
by Updating Water Meters

Submitted by:
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January 16, 2024
Eureka Water Company
Rocky Ford, Otero County, Colorado
Category A Applicant

The Eureka Water Company is located in Otero County, just west of the Town of Rocky Ford, Colorado, along the south side of U.S. Highway 50. Located in the eastern plains of Colorado, Rocky Ford is approximately 55 miles from Pueblo. The service area consists of approximately 4.7 square miles of rural agricultural area. This application to the Bureau of Reclamation will be a small project that is ultimately part of a much larger water system improvement project. This portion of the project will include new radio-read meters meter pits for a portion of the system and software to accompany the smart meters. Replacing the existing meters with radio-based devices will result in several benefits including improved accuracy of water usage reading, reduced man-hours, improved performance of meters, improved efficiency, reduced liability, and improved sustainability. These benefits will help to significantly reduce unaccounted-for-water loss in the system and gain efficiencies in meter reading and billing. This project will take approximately 90 days and will be completed by October 31, 2026. This project is not located on a federal facility.

Project Location

The Eureka Water Company (EWC) is located in Otero County, just east of the Town of Rocky Ford, Colorado, along the south side of U.S. Highway 50. Located in the eastern plains of Colorado, Rocky Ford is approximately 55 miles from Pueblo. The service area consists of approximately 4.7 square miles of rural agricultural area. The coordinates for Rocky Ford are 38.0525° N, 103.7202° W.

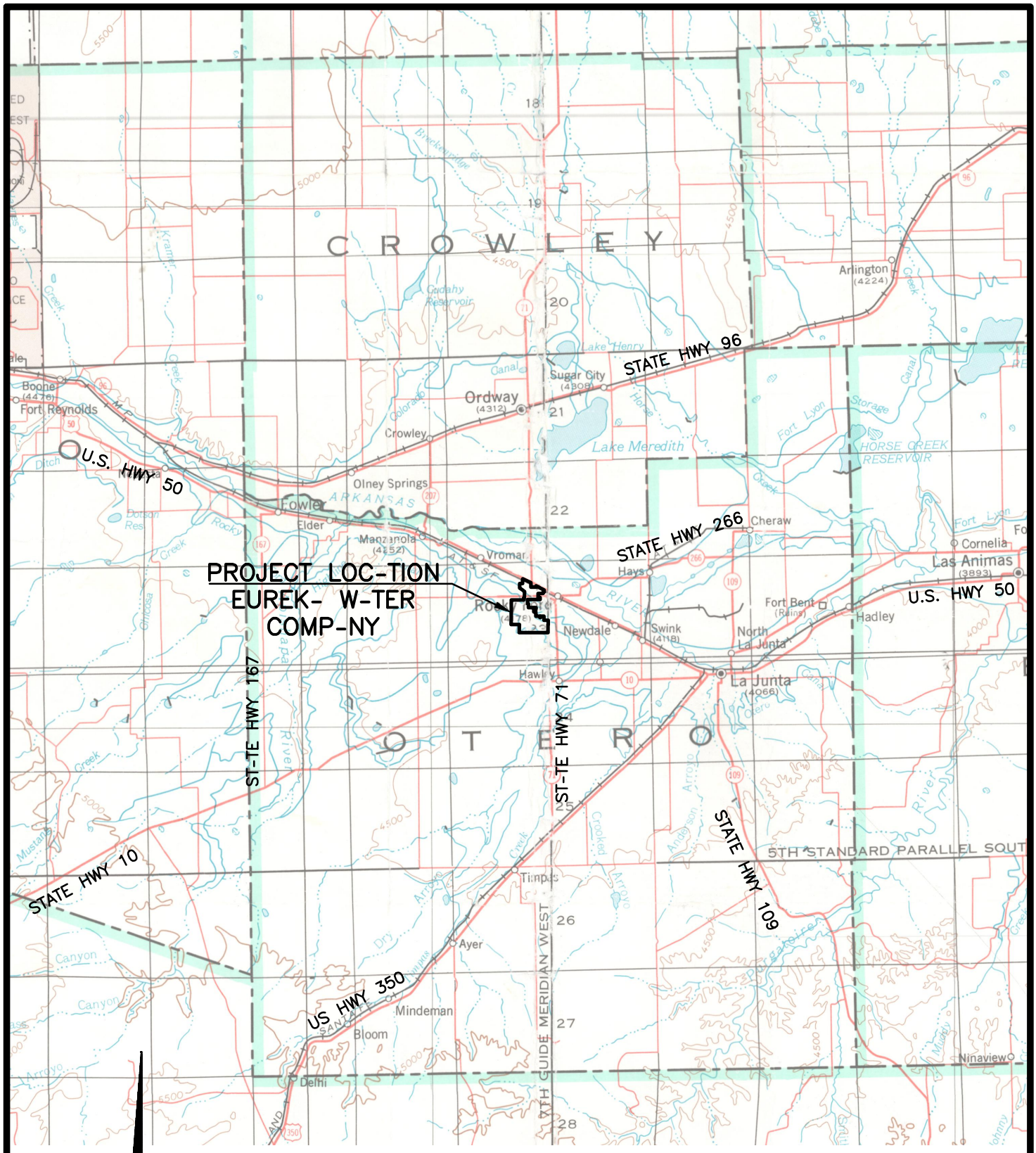


FIGURE 1.DWG

FIGURE 1
LOC-TION M-P
EUREKA WATER COMPANY

GMS, INC.

CONSULTING ENGINEERS
611 N. WEBER, SUITE 300
COLORADO SPRINGS, COLORADO 80903

JANUARY 2024

Technical Project Description

Eureka Water Company (EWC), a private not-for-profit corporation since 1956, operates a public drinking water system providing potable water under the Colorado Department of Public Health and Environment (CDPHE), with 134 active water members and 12 stand-by members. A Preliminary Engineering Report (PER) was completed in August 2020, to evaluate the water system in its entirety and make recommendations for improvements. An addendum to the PER for the water system was completed in 2023.

EWC derives its water supply from ground water sources. It has three wells that draw from the non-tributary Dakota Sandstone Formation. All three of the wells are pumped to the EWC treatment plant where they are metered and discharged to a raw water tank. The distribution system was installed around 1956 and is timeworn with leaks and breaks. It is difficult to locate leaks and breaks due to high ground water conditions from the March – November irrigation season. Identifying and repairing leaks and breaks is one of the goals of this water meter improvement proposal.

All customers are required to have water meters, which are located in the water meter pit at each location. Meters are read manually once a month and manually entered into the billing system. Meters are also located at the wells. Total water usage, determined by water meters at the wells, is reported annually to the Colorado Division of Water Resources. Well meters are verified for accuracy every three years and do not need to be replaced.

The American Water Works Association (AWWA) recommends an unaccounted-for-water goal of 10%. Conservatively, the EWC currently has a water loss value of 20%. This unaccounted-for-water is attributed to unmetered uses, such as storage tank overflows, unmetered customers, meter inaccuracies, and pipeline leaks and breaks within the distribution system. EWC customer water meters and meter setters are in various conditions, the older of which are reporting to be under-registering. The PER recommends changing manual-read meters to a radio-read metering system with accompanying data management and billing system.

The meter-related improvements required for this project include:

- 58 new meters including dual check meter setter, 5/8" x 3/4" meter, radio transmitter register, removal of existing meter and setter, new meter pit, and connection to existing service line.
- 88 new meters including 5/8" x 3/4" meter, radio transmitter register and removal of existing meter
- Radio-read data collector including software and training

The challenge to improving the water system in this remote community is funding. EWC assesses monthly user charges to all its customers, both active and inactive, as well as a water usage fee. This is the primary source of water system revenue. Additionally, new water service requires the connecting party to cover the cost of the physical connection for the water service from the EWC's main, up to and including, the meter pit assembly, as well as the extension of the service line piping beyond the meter assembly to the point of use. EWC does not charge a tap fee.

This self-contained project is part of the overall EWC water system improvement plan. Replacing old meters with smart meters and deteriorating meter pits with new ones is a relatively simple process. The smart meters will be replaced system wide where the meter pits will only be as required. Once funding is in place and notice to proceed is received, the project will be advertised to bid, as the EWC does not have the manpower to implement this project. This project will not proceed until after October 31, 2024.

Assisting the EWC in this endeavor is GMS, Inc., Consulting Engineers. This firm will design, oversee, and manage the overall project. This includes the administrative requirements for the funding being pursued for the project. GMS, Inc. has undertaken these types of projects since 1978 and has successfully performed these services on projects across the state. Given GMS, Inc.'s experience, expertise and professionalism, EWC is confident the project will be managed to the highest of standards.

Evaluation Criteria

Evaluation Criterion A—Project Benefits (35 points)

Benefits to Eureka Water Company's Water Delivery System

Replacing the existing meters with radio-based devices will result in several benefits:

- *Improved accuracy of water usage reading* – Unintended error while recording water usage at the point of reading the meter and manually entering the data for billing purposes will be eliminated. New meters will transmit the water usage of each customer over a defined period, ensuring precisely recorded consumption, while identifying anomalies in the system and helping to prevent customer fraud.
- *Reduced man-hours* - The data collection from each customer will automatically occur, rather than manual meter reading once a month at the customer's location. Additionally, the system will not require someone to manually enter the usage data for billing purposes.
- *Improved performance of meters* – Eliminating the need to open each pit to access the meters reduces the potential for meters freezing in the winter months. Smart meters will alert EWC when a meter is no longer measuring water usage or loses efficiency.
- *Improved efficiency* – Meter data will be downloaded directly into the water billing software and billing will occur automatically, reducing time and improving accuracy. This also allows each customer to be billed on their consumption, making an equitable billing system.
- *Reduced liability* – replacing meters will reduce the potential liability from completing manual reading hard to reach meters.
- *Consequences of status quo* – If this project is not funded, none of the above items will be realized. There will be no improvement in unaccounted-for-water loss, manual meter reading will continue, meter performance will continue to decline, and the risk of liability will climb over time.

Broader Benefits

The area impacted by upgrading water meters for EWC is minimal with only 146 meters improved. The broader benefit is in consideration of drought and water scarcity. Colorado is chronically in drought conditions so having the ability to detect leaks and breaks in the water supply means the

repairs will be made more quickly, thereby minimizing waste and reducing water scarcity (though on a small scale).

Therefore, it will NOT

- Improve broader water supply reliability at the sub-basin or basin scale
- Increase collaboration and information sharing
- Benefit species, recreation, or economic development
- Complement work being done in coordination with NRCS.

The primary broader benefit of replacing the old meters with newer devices is to *improve sustainability*. With smart meters, the water supplier will have the advantage of quickly identifying anomalies in the system to repair leaks and breaks, prevent fraud, and replace defective meters. This in turn, will reduce water waste and improve sustainability.

Evaluation Criterion B—Planning Efforts Supporting the Project (25 points)

Plan Description & Objectives

The Eureka Water Company was issued an Enforcement Order by the Colorado Department of Public Health and Environment (CDPHE), in 2000 for non-compliant levels of radium and gross alpha emitters in the potable water. This was the beginning of a very long and arduous journey for 34 water suppliers in the Lower Arkansas Valley. After years of research, at both State and local levels, it was determining that the most cost-effective compliance alternative is to connect EWC to the Arkansas Valley Conduit (AVC). With that decision made and efforts moving forward to connect EWC to the AVC, EWC is now ready to tackle additional improvements in its system. As a stand-alone project, replacing meters and meter pits will not be impacted by other improvements EWC undertakes. The sole objective for this project is to replace aged manual read meters with smart readers and the software to collect data and prepare the billing to customers.

Plan Development

The overall water system improvement plan is included in the PER after a lengthy and thoughtful evaluation. GMS, Inc. Consulting Engineers completed the PER in 2020, with the addendum being completed in 2023. The improvement measures addressed in the PER include this water meter project. The project includes the replacement of 146 manual read meters with radio-read meters and the accompanying software to collect the data and provide the associated billing statements. EWC is in full support of this project, which is self-contained and will not require implementation of any other improvements in the water system.

Support for the Project

- *Is the project identified specifically in the planning effort?* Yes. The PER specifically addresses improvements to the customer meters, recommending radio-read metering for customers across the EWC system and associated software for data gathering and billing.
- *Is this type of project identified in the planning effort?* Yes, this water meter replacement project is identified in the planning effort.
- *Explain whether the proposed project implements a goal, objective, or addresses a need or problem identified in the existing planning effort.* The goal of this project is to reduce

unaccounted-for-water loss and improve efficiencies in the system. There are currently unaccounted-for-water losses of approximately 20%, as described in the Technical Description above. Installing smart meters, will allow the water system supplier to quickly identify where leakages are occurring, and ensure reliable, accurate meter readings.

- *Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.* EWC has been an integral part of reviewing, evaluating and moving this water system improvement project forward. This metering project was identified by both EWC and GMS, Inc. through the PER. Its inclusion in the overall water system improvement plan is essential.

Evaluation Criterion C—Implementation and Results (20 points)

This project will be put out to bid since the EWC does not have the capacity to perform the work on its own. The following describes the nature of the work performed for the implementation and completion of the project.

- No design and engineering will be required for this project. The exact meter pit locations will need to be determined which will be completed prior to grant award.
- Create the bid document – This will take approximately 30 days upon receipt of Notice to Proceed from Bureau of Reclamation and pending the funding for the larger project.
- Advertise the bid document per federal guidelines.
- No permits are required for this project.
- All other federal guidelines for construction projects will be followed.
- EWC will select the contractor to remove old manual read meters and install the new ones after the submitted bids have been reviewed.
- Contractor will open the meter pit, remove the old meter with hand tools and install the new meter along with the new radio head. This process will be duplicated for every water meter being replaced.
- It is estimated that this project will be completed within 90 days of contract execution with the contractor replacing the meters. The work will begin after October 31, 2024, and will be completed by October 31, 2026.

Evaluation Criterion D—Nexus to Reclamation (5 points)

Yes, this project does demonstrate a nexus with a Reclamation project. The elevated radionuclides are common in the Dakota Formation ground water wells and are impacting several water suppliers in the Arkansas Valley. The Arkansas Valley Conduit (AVC) project, a part of the 1960s Fryingpan - Arkansas project, is to bring Pueblo Reservoir water to communities in the Arkansas Valley. The first segment of the AVC project is underway. The next phase proposed is to extend the AVC conduit to Rocky Ford. The AVC is the solution for EWC to provide drinking water in compliance with drinking water standards. Southeastern Colorado Water Conservancy District (SECWCD) will manage the AVC and together with Reclamation requires that water efficiency for communities to connect to the AVC is at 10% of unaccounted-for-water; replacement of meters is one component of achieving this water loss.

Evaluation Criterion E—Presidential and Department of the Interior Priorities (15 points)

Sub-criterion No. E1. Climate Change

By replacing aged, underreading water meters with smart meters, this project will help prevent, identify and repair unaccounted-for-water losses due to leaks and breakage in the distribution system. Therefore, this project strengthens water supply sustainability to increase resilience to climate change.

Sub-criterion No. E2. Disadvantaged or Underserved Communities

According to the White House Council on Environmental Quality's Interactive Climate and Economic Justice Screening Tool, Rocky Ford is identified as disadvantaged because it meets more than one burden threshold and the associated socioeconomic threshold. Disadvantaged status is in:

- *Climate Change*: the projected wildfire risk is in the 92nd percentile (above the 90th percentile - Projected risk to properties from wildfire from fire fuels, weather, humans, and fire movement in 30 years) and low income in in the 93rd percentile (above 65th - people in households where income is less than or equal to twice the federal poverty level, not including students enrolled in higher education).
- *Health*: diabetes is in the 94th percentile (above 90th Percentile – share of people ages 18 years and older who have diabetes other than diabetes during pregnancy): heart disease in the 95th percentile (above 90th percentile - share of people ages 18 years and older who have been told they have heart disease); low life expectancy is in the 92nd percentile (above 90th percentile – average number of years a person can expect to live); low income is in the 93rd percentile (above 65th percentile – people in households where income is less than or equal to twice the federal poverty level, not including students enrolled in higher education.
- *Workforce Development*: low median income is in the 97th percentile (above 90th percentile – comparison of median income in the tract to median incomes in the area); poverty is in the 92nd percentile (above 90th percentile – share of people in households where income is at or below 100% of the federal poverty level); unemployment is in the 94th percentile (above 90th percentile – number of unemployed people as a part of the labor force); high school education is in the 23% (above 10% - percent of people ages 25 years or older whose high school education is less than a high school diploma)

Otero County as a whole does not fare much better. It has disadvantaged status in the Health and Workforce Development categories.

The benefits of this project include *public safety* by ensuring there is adequate water supply to manage a fire in the vicinity; *economic development* by ensuring a stable water supply and system for potential residential and commercial growth in the area.

Sub-criterion – Tribal Benefits

There are no tribal benefits to this project because there are no Tribes in this census tract.

Budget Proposal

Funding Plan and Letters of Funding Commitment
The total project budget for this meter project is $224,000. This proposal request is for $100,000 from the Bureau of Reclamation. The EWC will provide the matching $124,000 through the Drinking Water Revolving Fund (DWRF).

Table 1. – Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
Drinking Water Revolving Fund	$124,000
Non-Federal Subtotal	$124,000
REQUESTED RECLAMATION FUND	$100,000

Table 2. – Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed with requested Federal funding	$100,000
Costs to be paid by the applicant	$124,0000
Value of third-party contributions	
TOTAL PROJECT COST	$224,000

Table 3. – Budget

BUDGET ITEM DESCRIPTION	$/UNIT	QUANTITY	TOTAL COST
Materials & Supplies			
New meter including dual check meter setter, 5/8" x 3/4" meter, radio transmitter register, removal of existing meter and setter, new meter pit, and connection to existing service line.	$2,900	58	$168,200
New meter including 5/8" x 3/4" meter, radio transmitter register and removal of existing meter	$600	88	$52,800
Radio read data collector including software & training	$3,000	1	$3,000
Subtotal			$224,000
TOTAL ESTIMATED PROJECT COSTS			$224,000

Budget Narrative
This project will be put out to bid since the EWC does not have the capacity to perform the work on its own.

- No design and engineering are required for this project.
- No permits are required for this project.
- Davis-Bacon wages will be paid and all other federal guidelines for construction projects will be followed.
- It is estimated that this project will be completed within 90 days of contract with the construction contractor. The work will begin after October 31, 2024, and will be completed by October 31, 2026.

Following information demonstrates possible details included in the bid advertisement.

- Remove existing meter, furnish and install new meter in existing meter pit complete with cover with 1¾" predrilled hole, radio-read 5/8" x 3/4" meter with MIU.
- Remove existing meter, furnish and install new meter and dual check meter setter in existing meter pit complete with cover with 1¾" predrilled hole, radio-read 5/8" x 3/4" meter with MIU.

Environmental and Cultural Resources Compliance

The project of new meter installation will be fully within existing disturbed areas, which would most likely classify the project as a Categorical Exclusion (CE) to NEPA, as there will be no new ground disturbance related to this project specifically, however, new meter pits will be installed in a portion of the system which will require minimal ground disturbance. If awarded this grant for this sub project, the EWC recognizes that Reclamation will complete its own environmental review process and determine the required compliance with NEPA.

It is also recognized that Reclamation will also consider if the project will cause effects to historic properties. In previous water projects of similar scope, SHPO determined there would be no adverse effect. As with the NEPA review, the EWC recognizes that Reclamation may require a Section 106 review.

Required Permits or Approvals
No permits or approvals are required for this project.

Overlap or Duplication of Effort Statement
At the time of submission, there are no overlap or duplication of effort.

Conflict of Interest Disclosure
Per the Financial Assistance Interior Regulation (FAIR), 2 CFR §1402.112, the EWC does not have any known conflicts of interest. If during the award process a conflict arises, the EWC will inform Reclamation.

Uniform Audit Reporting Statement
The EWC recognizes that any organizations expending $750,000 in U.S. Federal award funds within one year will require a Single Audit report. After the project is complete, the EWC will determine if a Single Project Audit is required and will complete if necessary.

Letters of Funding Commitment (if not above)
The larger project has secured a Small Communities Grant (SCG) but this particular grant is funded through the Water Infrastructure Improvements for the Nation (WIIN) via the EPA. Therefore, it cannot be used as a match. However, the EWC is in the process of pursuing funds through the Drinking Water Revolving Fund (DWRF) but does not have approvals yet. The DWRF process is underway and funds are expected to be committed later in 2024. The DWRF fully supports communities connecting to the AVC to resolve the exceedance of the MCL for radionuclides which is part of the larger project.

Certification Regarding Lobbying
This request for funding is for $100,000 in Federal funding. No Certification Regarding Lobbying is required; however, one has been provided with this application to ensure compliance with this requirement.

Letters of Support
Please see Appendix B.

Official Resolutions
The official resolution will be submitted under separate cover within 30 days.

Unique Entity Identifier
Eureka Water Company UEI: XYUCSP8XGEL5

APPENDIX A – LETTER OF SUPPORT

Rob Oquist **-** Commissioner Dist. 1
Tim Knabenshue **-** Commissioner Dist. 2
Jim Baldwin **-** Commissioner Dist. 3
Nathan Shultz **-** County Attorney
Amy White-Tanabe **-** County Administrator

Office of the Commissioners

January 3, 2024

U.S. Bureau of Reclamation
Water Resources and Planning Office
Mail Code: 86-6300
PO Box 25007
Denver, CO 80225

Subject: Endorsement of Eureka Water Company's Grant Application for WaterSMART Small-Scale Water Efficiency Project

Dear Ms. Graber,

We extend our full support to the Eureka Water Company in their pursuit of the WaterSMART Small-Scale Water Efficiency Project Grant. The Eureka Water Company has diligently endeavored to enhance its water system, and as involved stakeholders, we recognize the significance of this project.

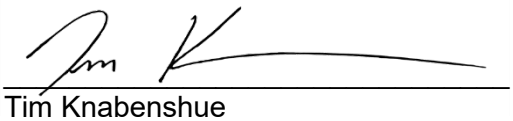
As the Otero County Commissioners, we collaborate closely with all communities within our jurisdiction, including the Eureka Water Company. While the company strives to upgrade its water system, the constraints of limited resources necessitate external assistance for crucial enhancements. Among these essential upgrades, the infrastructure improvement project holds significant promise. Its implementation will yield multiple efficiency benefits, primarily by fortifying the delivery infrastructure and ensuring readiness to receive conduit water without system leaks that lead to wastage upon delivery.

The proposed upgrade to the Eureka Water Company's system is pivotal in enhancing overall water system efficiency.

We express our gratitude for considering this project's funding application for the WaterSMART Small-Scale Water Efficiency Project Grant. We firmly believe that the judicious utilization of funds by the Eureka Water Company will not only benefit the residents of Otero County by reducing operational costs but also contribute to a more water-conscious and sustainable water system.

Sincerely,

Rob Oquist, Chairman



Tim Knabenshue