

***Ponderosa Mutual Domestic Water Consumers
Association Application***

Bureau of Reclamation Grant BOR-DO-19-F005

Ponderosa MDWCA

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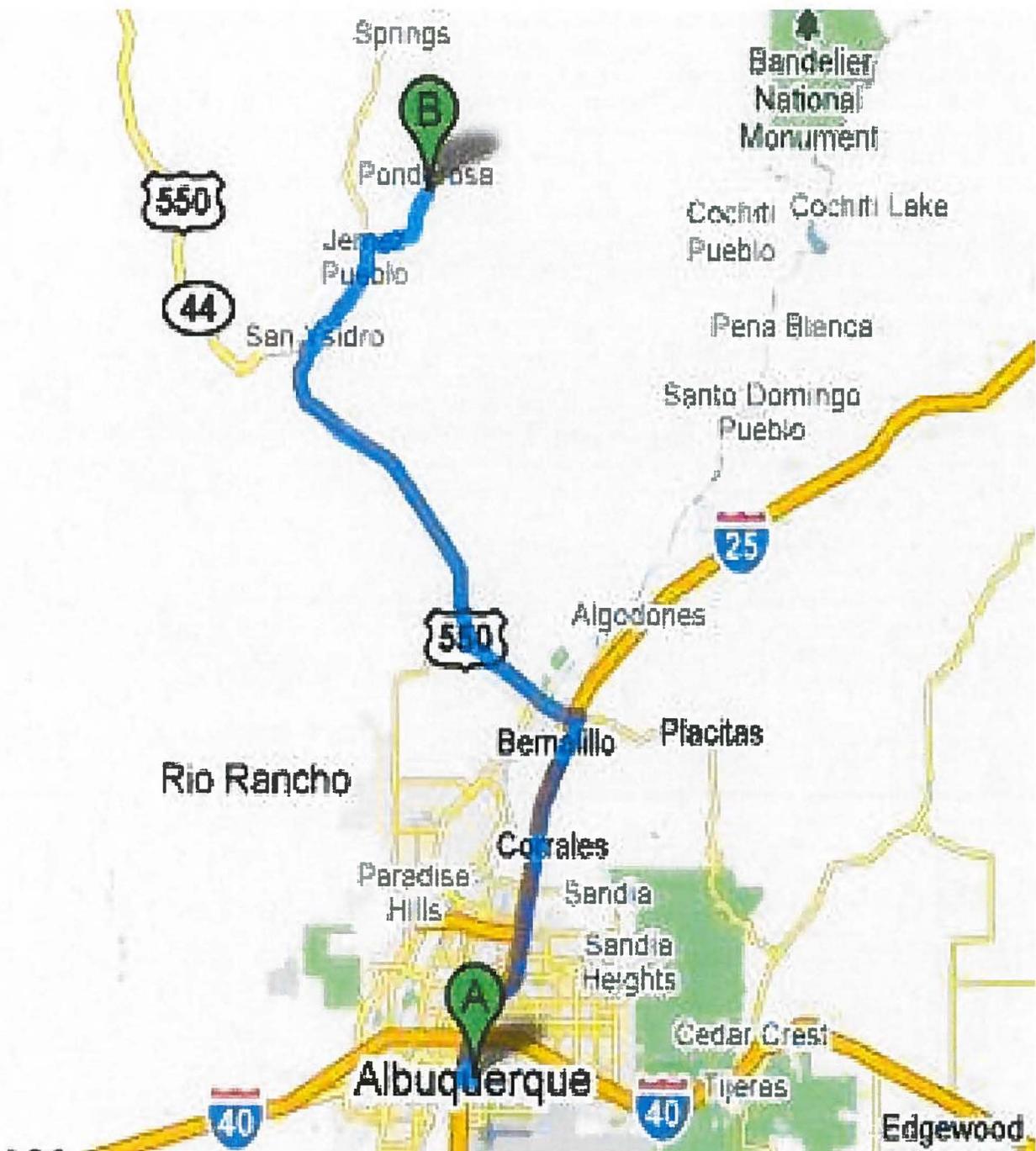
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834-7230***

Replace Ponderosa MDWCA ICI Mechanical Water Meters

ACTIVITY/PROJECT NARRATIVE/TECHNICAL PROPOSAL

Background/Location: The Village of Ponderosa shown below is located approximately 55 miles North West Albuquerque on Highway 290, in the Jemez Mountains.

The Village of Ponderosa Map



Executive Summary

The Village of Ponderosa is a community of about 350 residents at the center of numerous low-income communities throughout Sandoval County; this community has no businesses, schools, or hospitals. Ponderosa's water system is managed by a Mutual Domestic Water Users Association (MDWCA). The community depends on surface water through a filtration system. There are no wells to supply water to the community. Ponderosa is currently in a Moderate Drought area in New Mexico and was in severe to extreme drought for the last two years. Water usage is restricted by imposing higher rates. It is imperative that our community be able to closely monitor our water use during periods of drought. The new solid-state meters will accurately monitor each residents water use when water restrictions are in place on a daily basis.

According to the latest data available from the Census Bureau, in 2010, the average per capita income in the community was less than the national figures. Nearly 30 percent of families in Ponderosa live below the poverty level. The economic picture of the county and reservations shows even less prosperity. In the Village of Ponderosa, the per capita income is \$36,244.00 and income declined by 15.8% since 2010 Census. Nearly a third of the families in Sandoval County live below the federal poverty level.

The Village of Ponderosa has a strong commitment to improving the water system by replacing Ponderosa's old Commercial and residential Mechanical Water Meters. We currently serve 202 water meters. The water is used primarily for domestic use, livestock and animals secondly, and lastly would be used for agriculture. During high demand summer months, there is an increase of water usage by 22% vs winter months.

It is imperative that our community be able to closely monitor our water use during periods of drought and high use. The new solid-state meters will accurately monitor each residents water use when water restrictions are in place (on a daily basis).

Storage Tanks: Two 60,000-gallon storage tanks and one 150,000-gallon Aqua Fir Storage tank. Our water source has an infiltration gallery that is spring fed and uses Micro bag Filters. Thirteen miles of distribution lines service the Village.

Ponderosa MDWCA proposes, with funding, to purchase, install and replace aged meters.

Element A - Scope of Work/Narrative

The Village of Ponderosa views water conservation as one of the most important elements of our sustainability initiative. Recognizing the importance of a vigorous water conservation program, the Village of Ponderosa has committed to provide funding, staff, support, and resources to accomplish the policies per our bylaws and regulations, approved by the Ponderosa Board of Directors.

The proposal requests Bureau of Reclamation funding to assist the Village of Ponderosa with replacing Commercial and residential Mechanical Water Meters during a two-year time line.

Scope of work will include:

- Get competitive bids on meters and related materials
- Order selected water meters and materials
- Select meters for replacement per funds available
- Ponderosa MDCWA field personnel will install the new meters
- Project will be completed in 2-years

Ponderosa, New Mexico

Replacement of Mechanical Meters with Solid State

Mechanical meters vs. Solid state meters

MECHANICAL METERS

Turbine meters measure water flow with a turbine that is forced to rotate by the flow of water. The number of revolutions is then recorded by a register. Positive displacement meters have a disc or piston that moves as the compartment fills and empties with water, driving gears attached to the register. All mechanical meters have moving parts that wear with use. Wear is accelerated by amount of throughput, age, debris in the water and failure to follow manufacturer installation requirements. They require frequent testing for accuracy and can be rebuilt, requiring the utility to inventory parts and employ personnel for the job.

SONIC METERS

Sonic meters do not have moving parts and are based on ultra-sonic measuring principles. "Ultrasonic meters measure the velocity of fluid with ultrasound to calculate volume flow. Using ultrasonic transducers, the flow meter can measure the average velocity along the path of an emitted beam of ultrasound, by averaging the difference in measured transit time between the pulses of ultrasound propagating into the against the directions of the flow or by measuring the frequency shift from the Doppler effect". Sonic meters are the most accurate, reliable meters available to date. They have the longest life span (10-20 years); life span is determined by age and not throughput of water. No maintenance or calibration is required, are easy to install in existing cans, are light weight, require no straight run, and can be mounted in any position (vertical, horizontal, or upside down). These meters are the most cost-effective water measurement devices available.

The Pros of sonic meters:

- Can be used in a wide range of applications
- Not affected by debris, slurry, or waste
- Life of meter is affected by age and is not affected by throughput of water

- Up to 20-year life; meter battery is guaranteed up to 20 years
- No mechanical parts that wear
- No calibration, rebuilding, or maintenance required
- No straight run required
- Less labor, fewer fittings, no strainer, smaller piping configuration
- Light weight makes for easier installation
- Can be installed in a pre-fab meter-set can
- Most accurate and reliable
- Most cost effective of all meter types

The Cons of sonic meters:

- Battery cannot be replaced but are warranted up to 20 years

MECHANICAL METERS

POSITIVE DISPLACEMENT METERS:

Positive displacement meters are designed for residential single-family residence. When a meter starts to fail, it has a gradual decrease in accuracy. This gradual decrease will continue until the meter stops recording. This slow down period can last a year or longer. Thousands of gallons of water can be lost revenue to the village before that meter is replaced. Meter failure rarely favors the utility; 98% of the time it favors the customer.

The Pros of positive displacement meters;

- Sensitive for low flow applications
- Readily available parts
- Easy to rebuild
- Accurate at normal flow operating ranges
- No straight run required.

Cons of positive displacement meters:

- Accuracy relates to age, wear, and water throughput
- Limited applications
- In high demand applications, they have a short life span
- Debris, high water pressure, and temperature extremes can accelerate wear
- Plastic internal parts wear quickly and easily damage by sand, decreasing accuracy and can cause 100% failure

There is no environmental compliance required. The new meters will be installed in the existing meter cans and therefore there is no environmental impact or compliance required.

For this activity/project, the Contractor will submit-annual estimates of water conserved for commercial, and residential water meter AMR replacements. This amount will be included in reports to Reclamation.

The Ponderosa residential Mechanical Water Meters replacement project will be broken into these two phases/ major tasks:

Task 1 – Meter and materials distributors (RFP for Competitive Bids)

Task 2 - Purchasing ICI residential and commercial water meters. A licensed certified small water systems water operator/contractor will be hired and install the purchased meters.

Activity/Project Schedule

The anticipated start date for the activity/project is July 1, 2019 and the targeted completion date is July 30, 2021.

Element B – Supplemental Questions

1. **How will this activity promote good water management and efficient water use?** The average total amount of water supply for the Village of Ponderosa 100,000,000 gallons per year. The estimated amount of water conserved / average annual water supply 0.09% per year.

Most of Ponderosa MDWCA's water meters are old; some as old as 30-years, or older. These old existing water meters have stopped recording accurately. Solid state water meters have been proven to record at 20% more accuracy compared to older model mechanical meters. There are several benefits to the Village water management, including improving water use efficiency from replacement of the Ponderosa residential Mechanical Water Meter proposal

These meters will:

- Alert customers and office staff of leaks
- Give the customers day to day water use which promotes water conservation
- During periods of water restrictions, the water office staff can verify whether customer is complying with restrictions
- Equitable water fees to customers with newer meters pay more for water than customers with meters that have slowed down.

An estimated 990,000/thousand gallon of water could be conserved with this activity/project, again using data from FY 2018.

Along with the long list of “Pros”, previously listed, solid state (sonic) water meters are equipped with leak alarms to notify the utility of any leaks associated with a meter. They pick up leaks at 0.0625 gallons per second, plus/minus percent accuracy. Older mechanical meters do not pick up toilet leaks or evaporative cooler water usage (prevalent in Ponderosa).

How does your organization plan to achieve full implementation of the proposed activity?

Replacing Village of Ponderosa Mechanical Water Meters is an on-going Village water conservation project. If the Village of Ponderosa residential Mechanical Water Meters Project is funded through Reclamation, then the Village of Ponderosa can leverage its funds to complete this project. Once BOR Grant money is approved and received, the money will be used to purchase and install new meters, meter lids, antennas, copper setters, piping materials, and computer software.

2. **How does your organization intend to evaluate the effectiveness of the completed activity?** As part of the Replacement of Ponderosa residential Mechanical Water Meters Grant Proposal, the Office Manager will submit a bi-annual estimate of water savings due to the installation of new residential and Commercial AMR meters from all of the new water meters installed. A comparison chart will be designed to compare water usage month to month with the previous year’s water consumption. The “water savings” is already noted on an Excel spreadsheet and this data is used in the Village of Ponderosa. These estimates of saved water will also be submitted to Reclamation as part of the regular reports and in the final report.
3. **Do you have cost-sharing and/or additional partners?** If this funding is received, the Reclamation cost-share portion would be 50% and the Village funding would be 50%. The Village’s cost sharing (in-kind) will be derived from the installation of the meters, office staff to coordinate work, fill work orders, pay employees for the work. There are no additional partners with the activity.
4. **What is your strategy for monitoring performance?** To monitor the Village of Ponderosa residential and commercial Mechanical Water Meters Replacement Project’s performance; bi-annually the village will supply documentation on where the residential water meter installations took place and estimate the volume of water saved from the water meter replacement. The data regarding water saved, in the form of a month to month comparison chart, will be included in reports to the Village of Ponderosa and Board of Directors, and will be disseminated with the bi-annual BOR grant reports. Meetings are held with the Maintenance personnel/Contractor as needed to address any concerns, etc.

Element C – Budget Proposal Narrative

Replacing Ponderosa residential and commercial Mechanical Water Meters is listed as Implementation Policy in the Ponderosa Water Conservation Plan. The budget for this project is \$50,000 for Contractual Costs with \$25,000 in-kind funding. The Village of Ponderosa will hire a contractor to perform the Replacement of Mechanical Water Meters - at a rate of \$100.00 per hour plus tax, with an estimate of 1.5 hours per meter. The Contractor will receive the water customer’s information supplied by the Village office to contact the water customer, and schedule replacing residential and commercial mechanical water meters at no cost to the water customer.

All Village time, supplies, equipment, travel and other costs will be paid for by the Village for this project as in-kind costs. In-kind staff-time service hours included in the budget are \$25,000.00. For a total of \$25,000.00 Village of Ponderosa in-kind funds. Refer to Funding plan table below (Element D.)

Element D – Funding Plan

The table below outlines the funding plan for the Replacement of Ponderosa residential and commercial Mechanical Water Meters Project. There are no other partners with the activity/project.

In-kind services:

- Maintenance Personal \$700.00 monthly plus mileage
- Office Manager \$792.00 monthly plus mileage
- Office assistant (2) \$300.00 monthly plus mileage
- 6.2% Social Security and 1.45% for Medicare per employee
- Cost of meters approximately \$300.00 each; including install, materials, fittings/ copper setters (\$125.00) as needed

**Replace Ponderosa ICI Mechanical Water Meters Program
Funding Plan**

Funding Sources	% of Total Project Cost	Total Cost by Source
Recipient Funding Village of Ponderosa	50%	25,000.00
Other Non-Federal Funding		
Reclamation Funding Request (BOR)	50%	25,000.00
Total	100%	50,000.00

Points of Contact:

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RESOLUTION

A Resolution describing this grant and funding is scheduled for the July 2019 Governing Body meeting and a copy will be sent after approval and signatures.

Section E.1.2. Evaluation Criterion B – Project Benefit

D.2.2.6 ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

Will the proposed project impact the surrounding environment (e.g., soil (dust), air, water (quality and quantity), animal habitat)? No

Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? No

Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Water of the United States? No

When was the water delivery system constructed?
Approximately in the 1970s to current time period

Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g. head gates, canals, or flumes)? No

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? No

Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands? No

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area? No

PERMIT approval is not required for this proposal? No

The Replaced Ponderosa ICI Mechanical Water Meters Grant Project will be in compliance with the National Environmental Policy Act (NEPA), ESA, NHPA and all applicable state, federal and location environmental, cultural, resource protection laws and regulations including the Clean Water Act.

E.1. Technical Proposal: Evaluation Criteria

E.1.1. Evaluation Criterion A – Project Benefits (35 points)

Up to 35 points may be awarded based upon evaluation of the benefits that are expected to result from implementing the proposed project. This criterion considers a variety of project benefits, including the significance of the anticipated water management benefits and the public benefits of the project. This criterion prioritizes projects that modernize existing infrastructure in order to address water reliability concerns.

Describe the expected benefits and outcomes of implementing the proposed project.

What are the benefits to the applicant’s water supply delivery system?

Replacing Ponderosa residential and commercial Mechanical Water Meter Grant Project will help Ponderosa MDWCA water delivery and billing system’s reliability while increasing revenue.

Extent to which the proposed project improves overall water supply reliability

The proposed project will improve overall water supply reliability through the following:

- Record lower flows; recording down to 0.625 gpm
- Increase revenue by 15-20%
- Will be able to better monitor residents water use by utilizing the meter’s leak alarm
- Encourages residents to conserve water
- Will be better able to prevent the freezing of meters by the meter’s low temperature alarm and allowing Ponderosa MDCWA to take precautions to prevent freezing
- New technology will allow meter reads during winter when snow usually prevents mechanical meters from being read
- Allow Ponderosa MDCWA personnel to better use their time, energy and resources on important duties not related to reading water meters

Replacing Ponderosa residential Mechanical Water Meter grant program geographic scope benefits will help residents water allocation with accurate ICI meter readings, saving water for the village.

E.1.2. Evaluation Criterion B – Planning Efforts Supporting the Project (35 points)

Up to **35 points** may be awarded based on the extent to which the proposed on the ground project is supported by an applicant’s existing water management plan, water conservation plan, System Optimization Review (SOR), or identified as part of another planning effort led by the applicant. This criterion prioritizes projects that are identified through local planning efforts and meet location needs.

Describe how your project is supported by existing planning effort? To conserve water.

Does the proposed project implement a goal or address a need to the problem identified in the existing planning effort? Yes, it is in Village of Ponderosa Bylaws and Rules and Regulations.

Automatic Meter Reading (AMR) technology with an emphasis on the replacement of meters for the users in all residence; which is a Priority in the Village of Ponderosa water and installation efforts.

E.1.3. Evaluation Criterion C – Project Implementation (10 Points)

Up to 10 points may be awarded based upon the extent to which the applicant is capable of proceeding with the proposed project upon entering into a financial assistance agreement. Applicants that describe a detailed plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates will receive the most points under this criterion.

- 1) **Describe the implementation plan for the proposed project. Please include an estimate project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.** 2019: Month 1-3
 - Set-up Grand Administrator who will meet all BOR requirements
 - Request bids on meters, meter lids, materials and meter reading equipment
- 2) Month 4-6
 - Order materials
 - Begin the installation process
 - Set-up meter reading equipment
 - Train personnel on using the reading equipment
- 3) Month 4 – year 2

- Approximately twenty meters will be installed each month (as weather permits) in order to complete the project in 2-years. Three winter months will be excluded from the installation process since the weather conditions prohibits that type of work
 - 4) File BOR required Progress Reports
 - 5) New system analysis on water savings
 - 6) Review goals
- **Describe any permits that will be required, along with the process for obtaining such permits. There will be no need for permits since all existing water meters will be on existing water easements.**
- There will be no need for engineering or design work performed specifically in support of the proposed project, since the Village of Ponderosa MDWCA normally replaces meters as needed.

There will be no need for an environmental compliance estimate in support of the proposed project. Since the Ponderosa MDWCA Department normally replaces meters as needed.

- **Does the applicant receive Reclamation project water?**

No - the Ponderosa Water Supply Project is currently seeking financial assistance for construction to receive Reclamation Project water funding.

- **Is the proposed project connected to a Reclamation project or activity? If so, How? Is the project on Reclamation project lands or involving Reclamation facilities? Is the project in the same basin as Reclamation project or activity?**

Yes – Replacing Ponderosa residential and commercial Mechanical water Meter Grant Project is connected to a Reclamation facility called the Ponderosa Water MDWCA. That would be on the Upper Paliza Drainage. These future water shortages could be helped by accurate water meter reading mitigation to be installed for this proposed Ponderosa MDWCA - water meter management plan.

E.1.5. Evaluation Criterion E – Department of the Interior Priorities (10 points)

Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports the Department of the Interior priorities.

Please address those priorities that are applicable to your project.

Creating a conservation stewardship legacy second only to Teddy Roosevelt

- Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment by proceeding with this grant application.
- Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;

Modernizing our infrastructure

- Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;
- Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;
- Prioritize infrastructure needs to highlight;
- Maintenance;
- Deferred maintenance.