AWSA Tier 1 Application

1. **Legal Name:**
   County of Grant

2. **Address:**
   County of Grant
   Attn: Jon Saari
   P.O. Box 1183
   Silver City, NM 88062

3. **Type of Application:**
   Preliminary for Review

4. **Organization:**
   County

5. **Name, e-mail, and phone number of contact person:**
   Jon Saari
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   (575) 574-0008

6. **Type of Applicant:**
   Local Government

7. Brief Project Description:

This application supports the sustainability of current groundwater sources for the City of Bayard and Village of Santa Clara and promotes economic development in the County. The project will involve a storage facility (or multiple storage facilities) in the vicinity of Ft Bayard that will store water for recreational uses and release a continuous steady flow of water downstream of the storage facility/s that will recharge current groundwater source locations for Bayard. The source of water would include effluent discharges from the Bayard Regional Wastewater Treatment Plant. The construction of a pipeline to transport effluent to the Santa Clara/ Ft Bayard area will enable irrigation of ball fields, parks and landscape elements with wastewater effluent thereby freeing-up potable water for other uses. The project will also involve improvements to the Ft Bayard Medical Center Water System.

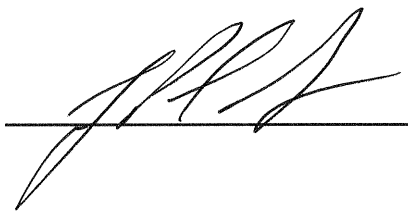
8. Areas Affected:

The primary areas affected would include the municipalities of Bayard and Santa Clara and the nearby unincorporated area of Ft Bayard. Grant County as a whole would be positively affected with recreational/economic benefits.

9. Total Funding Requested in $1,000):	Year Funding Requested:
$9,150	
Element A: $400	2012, 2013
Element B: $750	2014
Element C, D, F: $5,250	2015, 2016
Element E: $ 2,750	2017, 2018

To the best of my knowledge and belief, all data in this application are true and correct, the document has been duly authorized by the governing body of the applicant, and the applicant will comply with attached requirements and assurances if the proposal is accepted.

10. Typed or printed name of Of authorized representative:	11. Title:	12. Phone Number:
Jon Saari	Manager	575-574-2068

13. Signature:	14. Date
	4-29-11

Project Proposal

Project Description:

The project includes the following elements:

1) Element A: Study to evaluate alternatives and determine feasibility of project elements. The study will include the following:
   a) Verification of the availability and quantity of effluent from the Bayard Regional Wastewater Treatment Plant that can be used for the project. Determination of the level of treatment that will be required.
   b) Identification of alternatives for treatment, conveyance and storage of the effluent. Alternatives for a recreational complex, built around the storage facility/s, will also be identified.
   c) Use of groundwater modeling for evaluation of the downstream impacts of identified storage alternatives on the groundwater. A groundwater model developed by Balleau Groundwater Inc. for the Town of Silver City encompasses the applicable area.
   d) A preliminary hydrologic investigation to determine storm runoff rates and effects upon the storage facilities.
   e) A preliminary geologic/geo-technical investigation of potential storage sites.
   f) Preliminary cultural resources and biological investigations.
   g) Elimination of any storage alternatives that could potentially damage the downstream groundwater condition.
   h) Evaluation of alternatives including positive impacts upon water supply, economic/recreational benefits, location/alignment,access, right-of-way requirements, development and construction costs, operation and maintenance costs, environmental impacts, public acceptance and other applicable criteria.
   i) Public input meetings
   j) Identification and evaluation of options for maintenance and operation of the facilities.
   k) Determination of a project priority/phasing plan.
   l) Development of joint powers agreements as necessary

It is anticipated that the study will take eighteen months to two years for completion. Agency participation will include but not be limited to the NMISC, USFS, NMDOT, NMGF, State Parks Division, NMED, State Engineers Office, NM Property Control Division and the municipalities of Bayard, Santa Clara, Hurley and Silver City. The estimated cost of the Study is $400,000.00.

2) Element B: Engineering Design, permitting and right-of-way acquisition for construction elements. If the Study (Element A) shows the project to be feasible and applicable agreements are in place for the development of the project then the design phase will be initiated. It is recommended that preliminary design together with environmental documentation be completed for all construction elements (Elements C-F) of the project. Final design, permitting and right-of-way acquisition could be completed in accordance with the Priority/Phasing Plan developed in the Study.

   The preliminary design and environmental documentation phase will take approximately six to fifteen months for completion. The time for completion is highly dependent upon the scale of storage facility/s selected for the project. Reservoirs which exceed twenty five feet in height or fifty acre-feet in storage capacity require review and approval by the Dam Safety Bureau (State Engineers Office). This is normally a lengthy process. The estimated cost is $750,000.00.

3) Element C: Final Design and construction of pumping facilities and a pipeline/s to carry effluent from the Bayard Regional Wastewater Treatment Plant (WWTP) to storage facilities in the vicinity of Ft Bayard. Element C would also include the construction of lateral pipelines necessary for irrigation of ball-fields, parks and landscape elements in the vicinity of Santa Clara and Ft Bayard.

   The existing WWTP effluent discharge system is equipped with three – 30 HP pumps (800 GPM, 73 ft. TDH). The City of Bayard's Master Plan for the effluent includes: 1) irrigation of ball-fields, parks and the cemetery within the City of Bayard with the first two phases of the plan and 2) conveyance of the balance of effluent to the Santa Clara/ Ft Bayard area for irrigation of ball-fields, parks and landscape elements as a third phase. This project implements and expands upon phase three. It is expected that the effluent line will need to be designed for a capacity of 500 GPM and will include a 10-inch to 12-inch pipeline along US Highway 180, a booster pumping station and tank and lateral pipelines for conveyance of irrigation water to Santa Clara and Ft Bayard. Time for completion of the final design, permitting, right-of-way acquisition is estimated at nine months. Bidding and construction is estimated to take an additional nine months for a total time of one and a half years. The estimated cost of Element C is $3,000,000.00.

4) Element D: Final design and construction of facilities for treatment of the effluent to comply with regulatory nitrogen level requirements. Testing of effluent from the WWTP has yielded good results with recent tests showing nitrogen levels of less than 5 mg/l. The Study will determine the need and level of treatment required. If

supplemental treatment is required then the Study will determine the most feasible location for the treatment facility. It is anticipated, for the purpose of this application, that a filtration system will be needed to treat the effluent water prior to use for irrigation or recreational purposes. Since the proposed storage facilities will not be used for full body contact (swimming), disinfection is not anticipated. Element D, if required will be completed concurrent with Element C. The estimated cost is $1,000,000.00

5) Element E: Construction of a storage facility/s for recreational use and to enable a continuous steady flow of water downstream and lateral pipeline/s for delivery of effluent water to storage site/s. If Element E involves a reservoir or reservoirs that require approval by the Dam Safety Bureau, then it is recommended that final design phase begin concurrent with the final design phase of Element C. The final design, permitting and right-of-acquisition for storage facilities is expected to take considerably more time than the final design phase for other Elements, if Dam Safety Bureau review and approval is required.
The Study will determine whether a single or multiple storage facilities are to be constructed and the site location/s. The storage facilities will be designed so that a continuous steady flow of water downstream is sustained in order to recharge the aquifer in which Bayard's wells are located. The storage site/s will likely be located within USFS land so close coordination with the USFS will be required from the inception of the project. The anticipated time for completion of final design is nine months to fifteen months depending on the scale of the reservoirs and an additional nine months for construction for a total time of about one and one half years. The estimated cost is $2,750,000.00.

6) Element F: Final design and construction of Improvements to the Ft Bayard Water System include 1) fencing at the spring boxes and tanks to protect from human or wildlife intrusion or contamination, 2) rehabilitation of spring boxes, 3) rehabilitation of the elevated tank and 4) installation of backflow prevention devices to prevent contamination of the water supply. Some of the pipelines may also need to be replaced or upgraded. A study is underway to determine the future use of the old Ft Bayard Medical Complex. Based on the outcome of this study the needs for water system improvements may grow. Regardless of the future plans for the facility, the deficiencies in the water delivery system, stated above, must be corrected. Accessibility, to multiple spring boxes and transmission lines, is limited and a great

deal of handwork will be required. It is expected to take approximately six months for the final design phase and approximately six months for bidding and construction for a total time of about one year. The estimated cost is $1,250,000.00.

The total estimated cost of the project is $9,150,000. The project would be implemented over a total time period of seven years.

Criteria:

1) **State whether the proposal is for the "New Mexico Unit", a "water utilization alternative" or both.**

   The proposal is a water utilization alternative

2) **Describe who will operate, construct, monitor and/or manage the proposed project or water utilization alternative.**

   The County of Grant will be responsible for managing, development, construction, operating and monitoring the facilities.

3) **Describe how the proposal will meet a "water supply demand" in the Southwest New Mexico Water planning region.**

   This proposal addresses needs in the Grant County area. The water supply for the communities of Bayard, Santa Clara and Ft Bayard will be positively affected. In addition economic development will affect Grant County as a whole and will provide recreational opportunities for surrounding Counties.

   Purpose and Need for Project:

   Village of Santa Clara:

   The Village of Santa Clara has historically obtained its water from two sources:

   1) The Lone Mountain well field, located approximately three miles south of the Village. The total amount of water that may be diverted from the well-field is 272.9 acre-feet per year. In previous years, Santa Clara has withdrawn more than its appropriated amount of water from this well-field. The State Engineers Office (SEO) has required that Santa Clara "pay back" this over-appropriation by pumping less

from the well-field. It is reported that the average rate of decline in the wells is about one foot per year since the start of production in 1955. There are also two industrial (mining) wells in the immediate vicinity with senior water rights. There is deep concern that an increase in mining use will impact Santa Clara's water supply, as it has in the past.

2) The Twin Sisters Infiltration Gallery located north of Highway 180. The total amount of water that may be diverted from either the surface source, or from well, or both cannot exceed 241.9 acre-feet per year. The maximum with-drawl that Santa Clara has been able to obtain from the Infiltration Gallery is about ninety five acre-feet per year. With the limited capacity of the Infiltration Gallery, the Village has not been able to "prove up" 241.9 acre-feet per year nor have they been able re-pay for the over-appropriation on the Lone Mountain Well Field, as ordered by the SEO, by pumping more water from Twin Sisters. The Village has investigated the development of a well in the Twin Sisters area to supplement or replace the infiltration gallery and have determined that it is not geologically feasible.

Santa Clara would like to prove up the full 241.9 acre feet at Twin Sisters and then either seek a transfer of a portion of the Twin Sisters water rights to the Lone Mountain Well-Field (if possible, using the Balleau Groundwater Model) or develop an alternative diversion point within the administrative block. Recharging the groundwater in the Twin Sisters and/or Cameron Creek areas could enable either of these options. In addition the use of effluent to irrigate parks and ball-fields will free-up potable water for other uses.

<u>City of Bayard:</u>

A major portion of Bayard's water is pumped from wells located between Twin Sister's and Cameron creeks, which serve as recharge sources for the shallow aquifer tapped by the wells. The aquifer depends on infiltration of rainfall and floodwaters into the arroyo streambeds, and water levels are closely tied to precipitation rates. The wells are shallow and groundwater elevations are highly sensitive to the amount of recharge provided by precipitation. Static groundwater elevations have dropped by as much as five to six feet per year during periods of time in which precipitation rates were below average but were re-established during periods in which precipitation rates were above average.

Storing and releasing effluent water from the Bayard Regional Wastewater Treatment Facility to provide a continuous and steady flow of water into Twin Sisters Creek or Cameron Creek or both will provide a dependable source for recharging the Bayard Well Field.

The City of Bayard's Wastewater Treatment and Disposal Master Plan calls for disposal of effluent by irrigating ball-fields, parks and landscaping elements in the Bayard, Santa Clara and Ft Bayard areas. It is projected that seven hundred to eight hundred acre feet of effluent will be generated per year. Approximately one hundred fifty to two hundred acre feet per year would be required for irrigation of the ball-fields, parks, lawns and other uses in the area. The excess effluent, which is not being used for irrigation, could be used for providing recreational facilities and to recharge the Bayard well field.

Ft Bayard Medical Center:

The Ft Bayard Medical Center encompasses approximately four hundred sixty eight acres. Water is provided from springs about seven miles north of the Center with 282 acre feet per year of water rights are available. This appropriation is subject to a set-a-side of approximately 43 acre feet per year to be utilized for irrigation of a national cemetery adjacent to the center. The Water System is composed of fifteen operating spring boxes which serve as water inlet structures that provide drinking water and irrigation water for the facility. In the past the system has provided water for approximately 700 residents at the facility. The spring boxes outlet into a network of carbon steel or transite pipes. The springs join at a stainless steel settling tank from which a six inch carbon steel pipe transmits the water to a chlorination system which feeds a five hundred thousand ground storage tank. A pump then feeds seven hundred fifty gallons per minute to a three hundred thousand gallon elevated storage tank from which it is gravity fed to the distribution system.

This application provides for correction of system deficiencies identified by Sanitary Survey Report (WSS# 382-09). Deficiencies include the following:

1) Lack of fencing at the spring boxes and storage tanks to protect from human or wildlife intrusion or contamination. Access hatches for all spring boxes must be redesigned and replaced to avoid contamination.
2) Structural deterioration of the spring boxes and tanks.
3) The elevated tank needs to be rehabilitated including replacement of the roof, addition of a ladder access, new access hatch and removal and re-application of interior and exterior coating systems.
4) Some of the existing facilities have potential to contaminate the water system. Back flow prevention devices must be installed at a number of locations.

A study is currently underway to determine future uses of the facility. Out of the 239 acre feet (after water for the national cemetery is subtracted) of available water rights, approximately 75 acre feet is needed for irrigating the landscape, leaving about 164 acre

feet for other purposes. If effluent from the Bayard Regional Wastewater Treatment plant is used for irrigation purposes then additional water would become available for other uses.

Economic Development:

The copper mining industry, upon which Grant County is highly dependent for employment of its residents, as well as residents of adjoining counties of Luna and Hidalgo, continues to decline. Jobs have been lost. Between 1980 and 2010 the population declined approximately 9%. The County is in need of economic development.

In addition to providing for the sustainability of water sources for the communities of Bayard, Santa Clara and Ft Bayard this project will provide recreational facilities and increase the attractiveness of Grant County as a tourist destination. Either a single lake, approximately the size of the Bear Canyon Dam (located northeast of Silver City,) or multiple smaller lakes will be included as part of the project. Other funds will be used to develop roads, trails, an RV Park, camping and picnic facilities.

5) **Describe how the proposal will or will not impact the environment and how many negative impacts might be mitigated.**

Depending on the scale and siting of storage facilities, there could be impacts to the cultural and biological resources that may or may not be present. The Study (Element A) would identify possible sites for storage and conveyance and cultural and biological investigations would be conducted to identify possible environmental impacts. Final selection of sites would take impacts to the environment into account and evaluate possible solutions for mitigation.

By recharging the Bayard well field, potential long-term pumping effects of groundwater with-drawl can be reduced or even averted.

6) **Describe whether the proposal addresses the needs of a particular group or many groups, entities, or interests on the issues of**

a) **Historic use, traditions, cultures, and customs:**

The project will enhance the preservation and use of the historic Ft Bayard Medical Complex, established in the late 1800s, by providing a safe and sustainable water supply.
The project also provides recreational opportunities that are readily accessible to those in the county with limited financial resources.

b) **Current and future demands for water in the southwest planning region.**

The project provides for sustainability of groundwater supplying the City of Bayard. By utilizing effluent discharges from the Bayard Regional Wastewater Treatment Plant for irrigation of ball-fields, parks and landscape areas, the project frees up additional water for other uses, including growth.

c) **Environmental Protection and/or enhancement.**

The project will enhance the environment downstream of the storage facilty/s by creating a continuous steady flow of water.