TIER-1 APPLICATION TO THE NEW MEXICO INTERSTATE STREAM COMMISSION FOR NEW MEXICO UNIT OR WATER UTILIZATION ALTERNATIVE UNDER THE ARIZONA WATER SETTLEMENTS ACT

APPLICANT INFORMATION (PRINT OR TYPE) **DATE:** 7-14-2011

1. Legal Name: City of Deming	2. Organization: City of Deming
3. Address (street, city, county, state, and zip code): P.O. Box 706 Deming, New Mexico 88031	4. Name, email, and phone number of contract person: Lawrence Brookey (575) 546-8848 lbrookey@cityofdeming.org
5. TYPE OF APPLICATION (check one): [X] Final [ ] Preliminary for review [ ] Revised	6. TYPE OF APPLICANT (CHECK BOX): [X] local governments or municipalities [ ] soil and water conservation districts, irrigation districts or commissions, acequias, or other political subdivision of the State of New Mexico [ ] institutions of higher education or a consortium of such institutions [ ] non-profit organizations or associations [ ] private individual/s [ ] federal agency (ies) [ ] Other (specify)
7. BRIEF PROJECT DESCRIPTION: Reduce demand on the municipal potable water distribution system, on Deming's municipal wells, and on the Mimbres aquifer by expanding Deming's reclaimed wastewater effluent reuse irrigation system. The expansion will add parks and recreational facilities currently served by potable water and will supplement supplies with stormwater from stormwater retention ponds. This project will require the addition of 20,000 feet of pipe to the existing reclaimed water reuse system along with a chemical feed station and ancillary facilities for disinfection.	
8. AREAS AFFECTED (describe by county, municipality, township, etc. as applicable): City of Deming, Luna County, New Mexico	

9. TOTAL FUNDING REQUESTED (in $1.000): 3.035

2012: 965	2013: 1,035.25	2014: 1,034.75	2015:	2016:
2017:	2018:	2019:	2020:	2021:

10a. **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 GOVERNI9NG BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED REQUIREMENTS AND ASSURANCES IF THE PROPOSAL IS ACCEPTED.**

10b. TYPED OR PRINTED NAME OF AUTHORIZED REPRESENTATIVE: Richard F. McInturff	11. TITLE: City Administrator	12. PHONE NUMBER: (575) 546-8848
13. SIGNATURE: Richard F McInturff		DATE: July 13, 2011

14. Evaluation criteria. Comprehensive responses to criteria A through D should be supported where possible by the best available science and scientific data, studies, models, and, where applicable, cite state, regional, or other water plans. Where such data and information is not available, applications should include best estimates and describe how such information would be obtained. Applications that do not include the requested information will not satisfy Tier-1 standards and, therefore, will not be eligible for Tier-2 consideration. Use Form 14a if needed.

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

The effluent reuse expansion project would be for a "water utilization alternative." Water is an invaluable resource, and the extended drought experienced by southwestern United States has had detrimental effects on the City's fresh water supply. In planning for long-term growth, it is vital that the City use all water resources available to it. The City currently expends approximately 20 percent of its annual fresh water consumption on irrigation of parks and recreational facilities. The City has a reclaimed wastewater effluent recycle and reuse system that currently irrigates the City golf course and would like to expand this system to include other parks and recreational facilities to reduce the demand on fresh groundwater. Additionally, the City would supplement the effluent reuse system with stormwater runoff. See attached scope and cost estimate for additional details.

B. Describe how the proposal will meet a "water supply demand" in the Southwest New Mexico Water Planning Region, comprised of Catron, Grant, Hidalgo and Luna Counties.

The U.S. Geological Survey (USGS) has eight monitor wells within 4 miles of Deming, with water level measurements recorded as early as 1940. Water levels in these USGS-monitored wells have decreased at an average rate of 0.74 foot per year (ft/yr). In the recent 40-year water plan (DBS&A, 2009), historical water level trends in one of the monitor wells located within the City limits were projected to 2050, showing that about 100 feet of water column would remain in 2050 if current trends continue.

During December, January, and February, treated wastewater is stored in lined lagoons at the treatment plant, where the City has 130 million gallons of storage capacity. The stored effluent is currently used for irrigation from March through the fall to supplement irrigation of city-owned farms, the cemetery, and the golf course, reducing system diversions by 336 acre-feet per year (ac-ft/yr) and increasing return flow to the aquifer (DBS&A, 2009). This reduces treatment and pumping costs.

The City currently expends approximately 20 percent of its annual water consumption on irrigation of parks and recreational facilities. The City would like to extend the effluent reuse system to include these parks and recreational facilities to further reduce demand on fresh groundwater. Using reclaimed effluent at these facilities could further reduce system demands by as much as 820 ac-ft/yr based on year 2000 water use data (DBS&A, 2009).

References:

Daniel B. Stephens & Associates, Inc. (DBS&A). 2009. *City of Deming 40-year water plan.* Prepared for City of Deming, New Mexico. July 20, 2009.

U.S. Environmental Protection Agency. 2004. *Guidelines for water reuse.* EPA/625/R-04/108. <http://www.epa.gov/nrmrl/wswrd/dw/smallsystems/pubs/625r04108.pdf>

C. Describe how the proposal considers the Gila environment and describe how any negative impacts might be mitigated.

The project is located in the Mimbres Basin and will have no impact to the Gila environment.

Local environmental factors such as increased nutrient load will be considered. When treated effluent is used for municipal park irrigation or for other types of irrigation, some additional nutrient loading will occur in the soils. However, it will be possible to mix pumped water with treated water to reduce these loads and flush nutrients from the soil to maintain appropriate water quality levels. Stormwater runoff will be stored first in a retention area, allowing sediments to settle and improve water quality.

The reclaimed wastewater currently meets class 1A water reuse standards and will continue to meet the same standards and restrictions on human exposure after addition of reclaimed stormwater. Any necessary additional treatment of settled stormwater will be implemented. The only local environmental impacts will be the inclusion of the same use restrictions during irrigation at the new facilities as are currently observed in existing reuse irrigated facilities.

Reference:

U.S. Environmental Protection Agency. 2004. *Guidelines for water reuse.* EPA/625/R-04/108. <http://www.epa.gov/nrmrl/wswrd/dw/smallsystems/pubs/625r04108.pdf>

D. Describe how the proposal considers the historic uses of and future demands for water in the Southwest New Mexico Water Planning Region and the traditions, cultures and customs affecting those uses.

Water conservation and reuse is an important aspect of regional water planning, as it allows the region to make efficient use of and extend existing resources. Given that the largest supplies in the Southwest New Mexico Water Planning Region are in groundwater reservoirs, many of which have very low natural recharge rates, a reliable long-term supply depends on using these resources wisely. Groundwater resources are currently being depleted at an unsustainable rate, such that Deming will not be capable of meeting demands through 2040 with existing wells. By decreasing demand through water reuse, existing supplies can be extended to meet growing demands (DBS&A, 2005).

Wastewater reclamation and reuse is being practiced successfully in many locations in the western United States as a means of increasing or supplementing the available supply of water and preserving potable water for drinking water uses. Treated wastewater has been successfully used throughout the United States for agriculture, recreation, landscape watering, aquifer recharge, manufacturing and industry, and return flow credits (DBS&A, 2005).

The proposed project objective is to achieve sustainable water use to meet municipal supply, so that the traditions, cultures, and customs that have given rise to the current uses and allocations of water can be protected. Other, non-municipal water uses (such as agriculture) would benefit as well because water levels in the areas of the Mimbres aquifer that are most stressed would be able to recover. This would preserve the groundwater resources for current uses as well as future water use increases due to population growth and economic development.

Reference:

Daniel B. Stephens & Associates, Inc. (DBS&A). 2005. *Southwest New Mexico regional water plan.* Prepared for Southwest New Mexico Regional Water Plan Steering Committee, City of Deming, New Mexico, Fiscal Agent. May 2005.

Exhibit A. Interstate Stream Commission Gila Policy Statement, September 2004, and 2004 Arizona Water Settlements Act, Section 212 (i)

INTERSTATE STREAM COMMISSION GILA POLICY STATEMENT, SEPTEMBER 2004:

The Interstate Stream Commission recognizes the unique and valuable ecology of the Gila Basin. In considering any proposal for water utilization under Section 212 of the Arizona Water Settlements Act, the Commission will apply the best available science to fully assess and mitigate the ecological impacts on Southwest New Mexico, the Gila River, its tributaries and associated riparian corridors, while also considering the historic uses of and future demands for water in the Basin and the traditions, cultures and customs affecting those uses.

2004 ARIZONA WATER SETTLEMENTS ACT, SECTION 212 (i)

(i) NEW MEXICO UNIT FUND- The Secretary shall deposit the amounts made available under paragraph (2)(D)(i) of section 403(f) of the Colorado River Basin Project Act (43 U.S.C. 1543(f)) (as amended by section 107(a)) into the New Mexico Unit Fund, a State of New Mexico Fund established and administered by the New Mexico Interstate Stream Commission. Withdrawals from the New Mexico Unit Fund shall be for the purpose of paying costs of the New Mexico Unit or other water utilization alternatives to meet water supply demands in the Southwest Water Planning Region of New Mexico, as determined by the New Mexico Interstate Stream Commission in consultation with the Southwest New Mexico Water Study Group or its successor, including costs associated with planning and environmental compliance activities and environmental mitigation and restoration.

FORM 14A

USE THIS FORM TO COMPLETE ANSWERS TO CRITERIA 1 THROUGH 4. NUMBER EACH ADDITIONAL RESPONSE WITH THE CORRESPONDING CRITERIA NUMER AND SUB-CRITERIA. USE AS MANY PAGES AS NEEDED.

CITY OF DEMING
PROPOSAL FOR THE
ARIZONA WATER SETTLEMENTS ACT

CONTACT: LAWRENCE BROOKEY OR
LEWIS JENKINS
PHONE: (575) 546-8848

Proponent:
City of Deming, P.O. Box 706, Deming, NM 88031

Project name:
City of Deming Effluent-Reuse Project

Project location:
The project would be located in the City of Deming, Luna County, NM.

Project description:
The City of Deming is located in the high plains desert of southern New Mexico. Water is an invaluable resource and is recognized as being an asset to the City. The extended drought that the entire state has experienced has had detrimental effects on the City's fresh water supply. The City currently expends approximately 20% of its annual water consumption on irrigating parks and recreational facilities. These include school extracurricular fields such as the Hooten Complex and the high school, the BMX Park, Lloyd Pratz Park, Scout Park, and the Luna County Court House Park where various events are held to help bring economic development into the City and its citizens. The City has a wastewater effluent recycle and reuse system in place that is currently used to irrigate the City golf course. The City plans to extend the effluent reuse system to the parks and recreational facilities listed above to reduce the drain on the City fresh water supply and enhance the way of life for its citizens.

The extension will include a pump and chemical feed station at one of the golf course lakes, approximately 20,000 linear feet of 8 inch PVC water main, and the associated appurtenances. The City has recently installed a storm water retention pond on the south east side of town. This pond has a capacity of approximately 50 acre-ft of storm water which could be used to supplement the effluent reuse system, if need be. The addition of storm water to the City's effluent reuse system would require 20,000 ft of water main, a pump system, a water quality control system and the associated appurtenances. The project can be broken down into manageable phases that could be completed as funding becomes available through the Arizona Water Settlements Act.

CITY OF DEMING
PROPOSAL FOR THE
ARIZONA WATER SETTLEMENTS ACT

CONTACT: LAWRENCE BROOKEY OR
LEWIS JENKINS
PHONE: (575) 546-8848

Specific ways the Project would meet water supply demand in the Southwest Planning Region:

By utilizing the water from the effluent-reuse system, the City of Deming is contributing to the vital sustainability of the Southwest Regional water supply by utilizing less of the fresh water resources to contribute to the unlikelihood of depletion of water resources. The City of Deming will be able to help the entire Southwest Planning Region in that it would use less of the fresh water resources needed for recreational use and contribute those unused waters in the aquifer. By doing so, the City will save money during these hard economic times which can be used to further help their economic growth and create a sustainable economy for the four county region. The use of these waters would create a substantial amount of water resource savings in the aquifer while enhancing the recreational aspect of our lives.

Any design, engineering, or scoping work that has been completed, and estimated cost:

The City of Deming has worked with Engineers Inc. to develop a scope and cost estimate for the Deming Effluent-Reuse System Expansion to the parks, as well as design (see attached). The engineer's cost estimate is totaled at **$3,035,000.**

Due to the amount of money that will be distributed through the Arizona Water Settlements Act, the City of Deming is willing to phase this project into three phases if this proposal is accepted.

The first phase would provide the required engineering design and documents and construct the effluent and storm water pumping facilities complete including all required power and control electrical work. The second phase will install approximately half of the distribution piping system. Completion of the second phase will provide an operational system to the area covered. The final phase will be completion of the effluent-reuse water main to the remaining recreational parks in a cost effective manner to reduce the amount of overhead.

CITY OF DEMING
PROPOSAL FOR THE
ARIZONA WATER SETTLEMENTS ACT

CONTACT: LAWRENCE BROOKEY OR
LEWIS JENKINS
PHONE: (575) 546-8848

Any anticipated problems or concerns with proposed Project:
The current concern for the proposed project is that it has not been funded. Due to the tough economic times that this country is facing, the City of Deming has been trying to find a funding source to complete this project effectively to reduce the excess use of their fresh water resources. The City proposes to recycle and reuse water from the effluent-reuse system that can be diverted for recreational uses to cut costs on the use of fresh water from the aquifer to irrigate City parks, therefore creating a sustainable, environmental friendly atmosphere for humans and species alike. The City of Deming will ensure that all environmental and historical contexts are taken into account while doing the construction of this project and are dedicated to not only recycling and reusing the water resource, but also to maintain the bird species that inherit these City parks.

ENGINEERS INC

PRELIMINARY OPINION OF PROBABLE COST
DEMING EFFLUENT REUSE SYSTEM EXPANSION

CITY OF DEMING

The unit prices used in this Opinion of Probable costs are based on 2010 construction experience. All costs have been escalated to 2010 dollars. If construction is not completed in 2010, these costs should be escalated annually until construction is complete.

The following is our opinion of most probable project costs based on our best judgment and experience. Since we have no control over the cost of labor, materials, equipment, competitive bidding, or market conditions, we cannot guarantee that actual project or construction costs will not vary from the opinion of probable cost prepared.

ITEM NUMBER	ITEM DESCRIPTION	ITEM UNIT	ESTIMATED QUANTITY	UNIT PRICE	AMOUNT
PHASE 1 - PROJECT ENGINEERING & WATER SOURCE DEVELOPMENT					
1	ENGINEERING BASIC SERVICES	LS	1	297,293.00	300,000.00
2	ENVIRONMENTAL DOCUMENTATION	LS	1	25,000.00	25,000.00
3	SURVEYING	LS	1	12,500.00	12,500.00
4	PERMITTING	LS	1	7,500.00	7,500.00
5	BID ADMINISTRATION	LS	1	5,000.00	5,000.00
6	CLEARING AND GRUBBING	LS	1	5,000.00	5,000.00
7	UNCLASSIFIED EXCAVATION	CU YD	100	30.00	3,000.00
8	SITE GRADING	LS	1	10,000.00	10,000.00
9	PUMP STATION INLET STRUCTURE	LS	2	15,000.00	30,000.00
10	BUILDING FOUNDATION	LS	2	5,000.00	10,000.00
11	BOOSTER PUMP STATION AT GOLF COURSE	LS	1	75,000.00	75,000.00
12	CHEMICAL INJECTION SYSTEM	LS	1	15,000.00	15,000.00
13	PRE-ENGINEERED BOOSTER BUILDING	LS	2	25,000.00	50,000.00
14	STORM WATER BOOSTER STATION	LS	1	75,000.00	75,000.00
15	STORM WATER QUALITY UNIT	LS	1	50,000.00	50,000.00
16	SCADA SYSTEM	LS	1	30,000.00	30,000.00
17	ELECTRICAL	LS	1	35,000.00	35,000.00
				SUBTOTAL	738,000.00
PHASE 2 - DISTRIBUTION SYSTEM - SOCCER FIELDS AND NORTH PARKS					
1	MOBILIZATION	LS	1	25,000.00	12,500.00
2	CONSTRUCTION STAKING	LS	1	25,000.00	12,500.00
3	CONSTRUCTION TRAFFIC CONTROL	LS	1	25,000.00	12,500.00
4	CUT AND PATCH ASPHALT	SQ YD	10,000	60.00	300,000.00
5	8" EFFLUENT REUSE WATER MAIN	LIN. FT.	20,000	35.00	350,000.00
6	8" GATE VALVES	EACH	25	2,500.00	31,250.00
7	YARD PIPING	LS	1	25,000.00	12,500.00
8	COUNTRY CLUB BORE	LIN. FT.	120	250.00	30,000.00
9	RESIDENT REPRESENTATION	LS	1	40,000.00	40,000.00
10	TESTING BY CONTRACTOR	LS	1	10,000.00	5,000.00
				SUBTOTAL	808,250.00
PHASE 3 - DISTRIBUTION SYSTEM COURT HOUSE AND REMAINING PARKS					
1	MOBILIZATION	LS	1	25,000.00	12,500.00
2	CONSTRUCTION STAKING	LS	1	25,000.00	12,500.00
3	CONSTRUCTION TRAFFIC CONTROL	LS	1	25,000.00	12,500.00
4	CUT AND PATCH ASPHALT	SQ YD	10,000	60.00	300,000.00
5	8" EFFLUENT REUSE WATER MAIN	LIN. FT.	20,000	35.00	350,000.00
6	8" GATE VALVES	EACH	25	2,500.00	31,250.00
7	YARD PIPING	LS	1	30,000.00	15,000.00
8	HWY 11 BORE	LIN. FT.	120	250.00	30,000.00
9	RESIDENT REPRESENTATION	LS	1	40,000.00	40,000.00
10	TESTING BY CONTRACTOR	LS	1	10,000.00	5,000.00
				SUBTOTAL	808,750.00
				TOTAL PHASES 1, 2, & 3	2,353,000.00
				NMGRT @ 7.5%	176,000.00
				CONTINGENCY @ 20%	506,000.00
				TOTAL PROJECT COST	3,035,000.00

This project extends the existing wastewater effluent reuse system from the golf course to other areas of town, including the BMX park, Lloyd Pratz Park the Luna County Court House, Scout Park, and the Wooten Complex at the High School, plus Elsie Vega Park and the Hofacket Mid-School athletic fields. The project will also pump storm water from the collection basin on J Street to the effluent reuse system at the wastewater treatment plant.