



## **Bistone Municipal WSD**

*DWSRF GREEN PROJECT RESERVE BUSINESS CASE EVALUATION*

*STATE FISCAL YEAR 2012 INTENDED USE PLAN*

*PROJECT NUMBER 62526*

COMMITMENT DATE: December 6, 2012

DATE OF LOAN CLOSING: March 15, 2013

October 18, 2012

Mr. R. Brent Locke  
Bistone Municipal Water Supply District  
343 LCR Whiterock  
Mexia, TX 76667

**Re: SFY 2012 Drinking Water State Revolving Fund  
Green Project Eligibility**

Dear Mr. Locke:

The Texas Water Development Board (TWDB) received Green Project Information Worksheets from Bistone Municipal Water Supply District (District) for project #9300 in response to an invitation letter dated April 24, 2012. The letter states that should funding be available, the District is eligible for loan forgiveness in an amount up to 15% of the green component cost (also referred to as the Green Project Reserve) if it can demonstrate that the project has green costs greater than or equal to 30% of the total project cost. After reviewing the worksheets, TWDB staff determined the District does meet the 30% green cost threshold based on the following:

- The District's Green Project Information Worksheets dated July 20, 2012 requested that \$3,620,000 of the District's total project cost of \$6,500,000 be considered eligible for the DWSRF Green Project Reserve (GPR). The general element(s) described includes improvements to the existing Groundwater Treatment Plant and Surface Water Treatment Plant as well as the replacement of residential, wholesale, and production water meters with an AMR system.
- The Environmental Protection Agency's (EPA's) *Green Project Reserve Guidance for Determining Project Eligibility* (TWDB-0161) lists replacement of broken/malfunctioning water meters with automatic meter reading systems and leak detection as categorically eligible for the GPR (Part B, 2.3-3), Water Efficiency.
- The Environmental Protection Agency's (EPA's) *Green Project Reserve Guidance for Determining Project Eligibility* (TWDB-0161) lists energy efficient retrofits or upgrades as business case eligible for the GPR (Part B, 3.5-1), Water Efficiency.
- The Environmental Protection Agency's (EPA's) *Green Project Reserve Guidance for Determining Project Eligibility* (TWDB-0161) lists storage tank replacement or rehabilitation to reduce water loss as business case eligible for the GPR (Part B, 2.5-3), Water Efficiency.

**Our Mission**

To provide leadership, planning, financial assistance, information, and education for the conservation and responsible development of water for Texas

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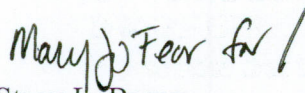
- Information presented on the Green Project Information Worksheets and attachments previously submitted with the Project Information Form provided sufficient information to confirm the eligibility of the proposed improvements for the GPR in accordance with TWDB-0161 Part B, 2.5-2, 2.5-3 & 3.5-1.
- Therefore, at this time the TWDB considers \$2,425,768 of project costs associated with the Water Distribution System and Storage Tank Improvements to be eligible for the DWSRF GPR. This includes estimated construction costs for the project.
- Please note that the District's application for financial assistance must be consistent with the project scope presented on the Green Project Information Worksheets. Inclusion of the green elements within the project will be verified prior to Board commitment. If the project scope or budget related to the approved green components changes during application review, the District should update and resubmit the Green Project Information Worksheets as necessary.

For SFY 2012, the TWDB is required by federal law to allocate no less than 20% of the capitalization grant toward green component costs. Therefore, the TWDB gives first preference for invitations to entities that have a documented percentage of green component cost of at least 30% of the total project cost. The District has demonstrated that it meets/exceeds the 30% green cost threshold. Please continue working with the TWDB on your financial assistance application.

If you have any questions regarding green project eligibility, please feel free to contact James Bronikowski, Project Engineer, by phone at 512-475-0145 or by email at [james.bronikowski@twdb.texas.gov](mailto:james.bronikowski@twdb.texas.gov).

The TWDB appreciates Bistone Municipal Water Supply District interest in the DWSRF.

Sincerely,



Stacy L. Barna  
Director of Program Development  
Project Finance Division

SB:rf

Attachments: 1. Green Project Information Worksheets, Approved  
2. Green Project Cost Summary

# Green Project Reserve

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## Green Project Information Worksheets

**Drinking Water State Revolving Fund  
Intended Use Plan**

The Federal Appropriation Law for the current fiscal year Clean Water and Drinking Water State Revolving Fund programs contains the Green Project Reserve (GPR) requirement. The following Green Project Information Worksheets have been developed to assist TWDB Staff in verifying eligibility of potential GPR projects.

TEXAS WATER DEVELOPMENT BOARD  
DRINKING WATER STATE REVOLVING FUND (DWSRF)  
GREEN PROJECT INFORMATION WORKSHEETS

**PART I – GREEN PROJECT INFORMATION SUMMARY**

Check all that apply and complete applicable worksheets:

**Categorically Eligible**

- Green Infrastructure \$ \_\_\_\_\_
- Water Efficiency \$ 520,000 (Meters)
- Energy Efficiency \$ \_\_\_\_\_
- Environmentally Innovative \$ \_\_\_\_\_

**Business Case Eligible**

- Green Infrastructure \$ \_\_\_\_\_
- Water Efficiency \$ 1,200,000 (GST Replacement)
- Energy Efficiency \$ 1,900,000 (GWTP Rehab)
- Environmentally Innovative \$ \_\_\_\_\_

Total Requested Green Amount \$ 3,620,000

Total Requested Funding Amount \$ 6,500,000


**Type of Funding Requested:**

- PAD (Planning, Acquisition, Design)
- C (Construction)

Completed by:

Name: Eric Gonzales, E.I.T.

Title: Design Engineer

Signature: 

Date: 7/20/2012

**TEXAS WATER DEVELOPMENT BOARD  
DRINKING WATER STATE REVOLVING FUND (DWSRF)  
GREEN PROJECT INFORMATION WORKSHEETS**

**PART II - CATEGORICALLY ELIGIBLE**

Complete this worksheet for projects being considered for the Green Project Reserve (GPR) as categorically eligible. Categorically eligible projects or project components are described in the following sections of the EPA GPR guidance (TWDB-0161):

Green Infrastructure	Part B, Section 1.2
Water Efficiency	Part B, Section 2.2
Energy Efficiency	Part B, Section 3.2
Environmentally Innovative	Part B, Section 4.2

Information provided on this worksheet should be of sufficient detail and should clearly demonstrate that the proposed improvements are consistent with EPA and TWDB GPR guidance for categorically eligible projects. Refer to **Information on Completing Worksheets** for additional information.

**Section 1 – General Project Information**

Applicant: Bistone Municipal Water Supply District PIF #: 618

Project Name: Bistone Municipal Water Supply District Meter Replacement

Contact Name: Brent Bassett, P.E.

Contact Phone and e-mail: 512-342-6868 bbassett@ksaeng.com

Total Project Cost: \$ 520,000 Green Amount: \$520,000  
(Categorically Eligible)

**Brief Overall Project Description:**

An engineering study will evaluate the water meters and provide recommendations for replacing the meters with a reliable and efficient Automated Meter Reading System. The implemented meter system will permit the meters to send a signal to a fixed-base data collector that automatically collects, stores, and manages the meter readings which will allow for the meter reading time to be utilized for other projects.

### Section 3 – Water Efficiency

Certain water efficiency improvements may be considered categorically eligible for the GPR. Refer to EPA and TWDB GPR guidance for a complete list and description of categorically eligible GPR Projects. A few common types of water efficiency projects that may be considered categorically eligible, such as certain water meter improvements and leak detection are listed below. Complete these sections of the worksheet as applicable. For any other water efficiency improvement being considered for categorical eligibility, complete Section 3.3.

#### Section 3.1 - Water Meters

Check all that apply:

- Installation of new water meters in area currently receiving unmetered water service (the following must be provided)
- Attach copy of rate structure for area to be metered
- Replacement of existing broken/malfunctioning meters (the following must be provided)
- Accuracy of meters being replaced \_\_\_\_\_
- Attach supporting documentation (meter accuracy tests, etc)
- Provide description below of proposed meters to be installed
- Retrofitting of existing meters (the following must be provided)
- Provide description below of reason for meter retrofit
- Provide description below of proposed meter system and benefits, including description of features that will result in water loss reduction or promote water conservation

Describe proposed water meter improvements, include reason for project, description of proposed meters and features, resulting benefits, anticipated savings, etc. (attach additional pages if necessary):

The proposed meter system to be installed is a fixed-base Automated Meter Reading System (AMR). The meters used will be equipped with a radio that sends a frequency of information to instrumentation that captures this signal. A fixed-base data collector will automatically collect, store, and manage the meter readings from the specific meters used. The data collector is programmed to read the meters at a specific time and allows the meter readings to be directly uploaded to the utility billing software. The proposed meters will also be able to detect and notify if there is a leak, if the meter has been tampered with, and if there is backflow in the meter which indicates water theft. This system will help reduce the real water loss percentages by eliminating the water loss generated by the existing meters.

In addition, all wholesale meters along with all well, raw water, and production meters at both the ground water treatment plant and surface water treatment plant will be replaced and upgraded as part of this project. They will be upgraded to meters that can be placed on the existing SCADA system in order to produce real-time reporting and leak detection to have an overall reduction in water loss by an estimated 5%.

Green amount associated with water meters:     \$ 520,000    

(Attach detailed cost estimate if necessary)

**TEXAS WATER DEVELOPMENT BOARD  
DRINKING WATER STATE REVOLVING FUND (DWSRF)  
GREEN PROJECT INFORMATION WORKSHEETS**

**PART III - BUSINESS CASE ELIGIBLE**

Complete this worksheet for projects being considered for the Green Project Reserve (GPR) as business case eligible. Business case eligible projects or project components are described in the following sections of the EPA GPR guidance (TWDB-0161):

Green Infrastructure	Part B, Section 1.4
Water Efficiency	Part B, Section 2.4 and 2.5
Energy Efficiency	Part B, Section 3.4 and 3.5
Environmentally Innovative	Part B, Section 4.4 and 4.5

Information provided on this worksheet should be of sufficient detail and should clearly demonstrate that the proposed improvements are consistent with EPA and TWDB GPR guidance for business case eligible projects. Refer to **Information on Completing Worksheets** for additional information.

**Section 1 - General Project Information**

Applicant: Bistone Municipal Water Supply District PIF #: 618

Project Name: Bistone Municipal Water Supply District Ground Water Treatment Plant Rehabilitation

Contact Name: Brent Bassett, P.E.

Contact Phone and e-mail: 512-342-6868 bbassett@ksaeng.com

Total Project Cost: \$3,100,000 Green Amount: \$3,100,000  
(Business Case Eligible)

**Brief Overall Project Description:**

The proposed project will consists of rehabilitating the existing Ground Water Treatment Plant in order to ensure it can reach its registered capacity of 3MGD while upgrading to a more efficient treatment process. The proposed project will consist of replacing the existing 150,000 gallon steel detention tank that has multiple leaks due to major deterioration, with a 500,000 gallon concrete tank. It will also include the installation of a cascade aerator, upgrading the two existing pressure filters, adding an additional pressure filter, and enlarging the backwash pond.





**Section 3.3- Other Water Efficiency Improvements**

Complete this section for water efficiency improvements other than those listed above. Provide reference to the applicable sections of the EPA GPR guidance (TWDB-0161) that demonstrate GPR eligibility. Provide a detailed description of the proposed water efficiency improvements of sufficient detail that clearly demonstrates that the proposed improvements are consistent with EPA GPR guidance (TWDB-0161).

Guidance Reference:  
Part B, 2.5-3

Detailed description of proposed water efficiency improvements (attach additional pages if necessary):

The existing detention tank at the Ground Water Treatment Plant is exhibiting major deterioration and therefore causing constant leaks to occur. The proposed project will include removing the existing bolted steel detention tank and replacing it with a 500,000 gallon prestressed, wire-wound concrete tank. The proposed concrete tank will eliminate all water loss due to the leaks in the existing tank and will reduce the life cycle cost of re-coating a steel tank.

Green amount associated with water efficiency improvements:     \$ 1,200,000      
(Attach detailed cost estimate if necessary)

**Section 4.3 – Other Energy Efficiency Improvements**

Complete this section for energy efficiency improvements other than those listed above. Provide reference to applicable sections of EPA GPR guidance (TWDB-0161) that demonstrate GPR eligibility. Provide a detailed description of the proposed energy efficiency improvements indicating the reason for the project, problems being addressed, resulting benefits, anticipated savings, etc. The description should also include information that is specific to the equipment being proposed and calculations demonstrating substantial energy and financial savings. Energy and financial savings should be quantified to the extent possible. If the project consists of multiple green components, individual component costs should be provided. Supporting information, calculations and/or documentation should be attached as necessary.

**Guidance Reference:**

Part B, 3.5-1

**Detailed Description of proposed improvements:**

The proposed project will consist of installing a cascade aerator on top of the proposed concrete detention tank. All of the existing wells will pump to the aerator and then flow into the detention tank. This layout avoids additional pumping costs by not requiring any intermediate transfer station. In addition, a cascade aerator is proposed as opposed to some mechanical mixer or blower arrangement to save life cycle energy costs for the project.

The project will also consist of upgrading the two existing pressure filters to include air scour, and installing an additional pressure filter. The existing pressure filters only utilize the water level base on the level in the detention tank to backwash the media in the filters. This process does not sufficiently clean the media to allow for effective media filtration of the high levels of iron in the water. The proposed air scour system will help to more efficiently clean the media thereby reducing the water required to backwash the filters by an estimated 50%. An additional pressure filter will be included in order to ensure that the plant can treat 3 MGD and be prepared for future well/groundwater production to meet the existing contractual demands of the Bistone Municipal Water Supply District.

In addition, the proposed project will include enlarging the backwash pond. With the additional detention tank and pressure filter, additional backwash/reclaim water storage is required. In lieu of mechanical dewatering of the sludge generator, the existing pond will be enlarged to accommodate any sludge produced at the plant.

Green amount associated with energy efficient improvements:     \$ 1,900,000      
(Attach detailed cost estimate if necessary)



**TEXAS WATER DEVELOPMENT BOARD**  
P.O. BOX 13231, CAPITOL STATION  
AUSTIN, TX 78711-3231  
**2010 Water Audit Report**

**D. Water Losses**

<b>23. Water Losses</b>	<u>43,282,292.45</u>	
(Line 17 minus Line 22)		

**E. Apparent Losses**

24. Average Customer Meter Accuracy (Enter percentage)	<u>94.00 %</u>	<u>1</u>
25. Customer Meter Accuracy Loss	<u>689,208.51</u>	
26. Systematic Data Handling Discrepancy	<u>0.00</u>	<u>0</u>
27. Unauthorized Consumption	<u>137,420.74</u>	<u>2</u>
<b>28. Total Apparent Losses</b>	<u>826,629.25</u>	

**F. Real Losses**

29. Reported Breaks and Leaks (Estimated volume of leaks & breaks repaired during the audit period)	<u>1,500,000.00</u>	<u>2</u>
30. Unreported Loss (Includes all unknown water loss)	<u>40,955,663.20</u>	<u>0</u>
<b>31. Total Real Losses</b> (Line 29, plus Line 30)	<u>42,455,663.20</u>	
32. Water Losses (Apparent + Real) (Line 28 plus Line 31) = Line 23	<u>43,282,292.45</u>	
33. Non-revenue Water (Water Losses + Unbilled Authorized Consumption) (Line 32, plus Line 20, plus Line 21)	<u>44,170,696.15</u>	

**G. Technical Performance Indicator for Apparent Loss**

34. Apparent Losses Normalized (Apparent Loss Volume / # of Retail Service Connections/365)	<u>10.78</u>	
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**H. Technical Performance Indicators for Real Loss**

35. Real Loss Volume (Line 31)	<u>42,455,663.20</u>	
36. Unavoidable Annual Real Losses, volume (calculated)	<u>8,458,875.00</u>	
37. Infrastructure Leakage Index (calculated) (Equals real loss volume divided by unavoidable annual real losses)	<u>5.01910</u>	
38. Real Losses Normalized (Real Loss Volume / # of Service Connections / 365) (This indicator applies if service connection density is greater than 32 / mile)	<u>553.89</u>	

**TEXAS WATER DEVELOPMENT BOARD**  
**P.O. BOX 13231, CAPITOL STATION**  
**AUSTIN, TX 78711-3231**

**2010 Water Audit Report**

39. Real Losses Normalized	<u>1,453.96</u>	
(Real Loss Volume/Miles of Main Lines/365)		
(This indicator applies if service connection density is less than 32/mile)		
<b>I. Financial Performance Indicators</b>		<b>Assessment Scale</b>
40. Total Apparent Losses (Line 28)	<u>826,629.25</u>	
41. Retail Price of Water	<u>\$0.00730</u>	<u>1</u>
42. Cost of Apparent Losses (Apparent loss volume multiplied by retail cost of water, Line 40 x Line 41)	<u>\$6,034.39</u>	
43. Total Real Losses (Line 31)	<u>42,455,663.20</u>	
44. Variable Production Cost of Water* (*Note: in case of water shortage, real losses might be valued at the retail price of water instead of the variable production cost.)	<u>\$0.00400</u>	<u>2</u>
45. Cost of Real Losses (Real Loss multiplied by variable production cost of water, Line 43 x Line 44)	<u>\$169,822.65</u>	
<b>46. Total Assessment Scale</b>		<u>31</u>
<b>47. Total Cost Impact of Apparent and Real Losses</b>	<u>\$175,857.04</u>	

