



November 21, 2014

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Legal Counsel

Lemieux & O'Neill

Ms. Lisa Kiefel
Planning Portfolio Manager
U.S. Army Corps of Engineers,
Attn: CECW-CE
441 G Street NW.,
Washington, DC 20314-1000

SUBJECT: Support for EMWD Proposed Indirect Potable Reuse Program Feasibility Study

Dear Ms. Kiefel:

Eastern Municipal Water District (EMWD) is pleased to submit the following application to the United States Army Corps of Engineers for consideration under the *Proposals from Non-Federal Interests for Proposed Feasibility Studies and Proposed Modifications to Authorized Water Resources Development Projects or Feasibility Studies for Inclusion in the U.S. Army Corps of Engineers (USACE) Annual Report* for the proposed EMWD Indirect Potable Reuse Program (IPR) Feasibility Study in Perris, California. EMWD is a water, wastewater and recycled water provider in western Riverside County, California serving a 542-square mile service area. EMWD has undertaken a number of aggressive measures to maximize local water supply opportunities and we believe that IPR represents a unique opportunity to expand EMWD's water supply portfolio in a meaningful way by enabling the District to produce highly treated wastewater that will be blended for groundwater recharge. Through this proposed process EMWD is projected to gain an additional 15,000 acre-feet of new water supply annually that will benefit the region.

The IPR Feasibility Study will complement EMWD's existing water supply and will assist the District with providing long-term reliability in a region that is poised for growth in the next several years. EMWD has actively invested in providing stable and reliable water resources to all of its customers. Coupled with the District's existing water supply and efficiency measures, we believe this project will maximize the investments the District has already undertaken and will result in a long-lasting benefit.

Thank you for the opportunity to include the proposed IPR Feasibility Study in the U.S. Army Corps of Engineers Annual Report and we hope you will approve this very important project for funding in the future. If you have any questions or concerns please contact me at (951) 928-6130 or by e-mail at jonesp@emwd.org.

Sincerely,

Paul D. Jones II, P.E.
General Manager

Proposals from Non-Federal Interests for Proposed
Feasibility Studies and Proposed Modifications to
Authorized Water Resources Development
Projects or Feasibility Studies for
Inclusion in the U.S. Army Corps of Engineers
(USACE) Annual Report Funding Opportunity

Eastern Municipal Water District
Indirect Potable Reuse Program Feasibility Study
Perris, California
December 1, 2014

Eastern Municipal Water District
Joe Mouawad, Senior Director of Engineering
Phone: (951) 928-3777 x4463
Fax: (951) 928-6146
mouawadj@emwd.org

Bonnie Wright, Grants and Loans Administrator
Phone: (951) 928-3777 x4323
Fax: (951) 928-6168
wrightb@emwd.org

2270 Trumble Road
P.O. Box 8300
Perris, CA 92572-8300

Eastern Municipal Water District (EMWD) is one of California's largest water agencies, providing water, wastewater, and recycled water services to approximately 768,000 people in a 542-square mile service area located in Riverside County. EMWD has initiated a feasibility study of the Indirect Potable Reuse (IPR) Program to achieve its objectives of fully utilizing recycled water within its service area, maximizing potable water offset, creating new local and sustainable potable water supplies, minimizing cost, and managing groundwater basin salt balance. The IPR Program will improve the reliability of the water supply options available to EMWD, providing increased local supply sources that are less affected by climatic conditions and regulatory restrictions compared to their current imported water sources. The IPR Program is consistent with USACE's goals of managing our natural resources in a sustainable and responsible manner.

1: Provide the name of all non-Federal interests planning to act as the sponsor, including any non-Federal interest that has contributed or is expected to contribute toward the non-Federal share of the proposed feasibility study or modification.

EMWD is the only non-Federal interest planning to act as a sponsor for this study.

2: State if this proposal is for a feasibility study or a modification to an authorized USACE project or feasibility study and, if a modification, specify the authorized project or study.

This proposal is for a new feasibility study for EMWD to be conducted under the USACE.

3: State the project purpose of the proposed study or modification.

The IPR Program will produce highly treated wastewater that will be blended for groundwater recharge, providing up to 15,000 acre-feet per year of water for potable uses by 2030. EMWD seeks to fully utilize recycled water within the service area, maximize potable water offset, create new local and sustainable potable water supplies, minimize cost, and manage groundwater basin salinity. The proposed study will design and execute the pilot testing for the IPR Program and develop the Program Definition Report that will document the framework for the program.

The IPR Program will likely utilize advanced water treatment (AWT), including membrane filtration (MF) and reverse osmosis (RO), to improve the quality of the tertiary recycled water prior to recharge. Brine concentrate, a sidestream of the MF/RO process, will be disposed through semi-enhanced evaporation. EMWD plans to conduct pilot testing of high recovery AWT processes and semi-enhanced evaporation to determine preliminary design criteria and to confirm reliable performance of the selected options. Each pilot study includes an evaluation of alternatives, design, development of testing protocols, construction, operations, and reporting, as described below.

Pilot Testing: Advanced Water Treatment

The AWT pilot testing will evaluate performance of high recovery RO for fouling rates, cleaning efficiency, and water quality, and will be used to develop design criteria for a future full-scale facility and to project water quality characteristics of the concentrated brine. The first stage of the pilot study for AWT will consist of an evaluation of two treatment options. The pilot test design will then be completed based on the selected treatment option, and a protocol for pilot testing will be developed to establish performance goals, program objectives, the testing schedule, and recommended operating conditions.

Once the design is completed, pilot testing equipment will be procured and installed at the selected location. The AWT pilot will be operated for four months, with sampling conducted regularly to evaluate performance. The AWT pilot test report will present the operating data, findings, and

recommendations from the pilot testing, which will determine preliminary design criteria and confirm reliable performance for the AWT to be developed under the IPR Program.

Pilot Testing: Semi-Enhanced Evaporation

Semi-enhanced evaporation will be pilot tested to evaluate reliability, efficiency, and long-term performance over a one-year testing period. This data will be used to develop design criteria and operating costs for a future full-scale facility to be developed under the IPR Program.

The alternatives evaluation will consider locations for the pilot test and sources of brine. Two alternative semi-enhanced evaporation sprayers will be tested to assess their impact on enhanced evaporation and their reliability, efficiency, and long-term performance. Next, the design will be completed and a protocol for pilot testing will be developed to establish performance goals, program objectives, the testing schedule, and recommended operating conditions.

The pilot testing equipment will be procured and installed at the selected location. Periodic monitoring and sampling of the evaporation pond will be conducted. The semi-enhanced evaporation pilot test report will present the operating data, findings, and recommendations to determine preliminary design criteria and confirm reliable performance for the semi-enhanced evaporation ponds to be developed under the IPR Program.

Program Definition Report

The Program Definition Report will advance several technical components of the proposed IPR Program and will establish the framework required to advance the IPR Program. Additional technical work will be completed to establish the recharge approach, conveyance facilities, evaporation pond pre-design, treatment processes pre-design, site selection and development, construction sequencing and schedule, and estimated costs.

4: Provide an estimate, to the extent practicable, of the total cost of the proposed study or modification.

The preliminary estimate for the total cost of this study is \$1,242,000, as shown in Table 1. EMWD has prepared this preliminary cost estimate using professional engineering judgment and previous experience on comparable pilot tests.

Table 1. Preliminary Estimated Costs of Proposed Study

Study Phase	Cost
Pilot Testing	\$862,000
Program Definition Report	\$380,000
Total	\$1,242,000

5: Describe, to the extent practicable, the anticipated monetary and nonmonetary benefits of the proposal including benefits to the protection of human life and property; improvement to transportation; the national economy; the environment; or the national security interests of the United States.

EMWD's IPR Program will improve the reliability of the water supply available to EMWD, providing increased local supply sources that are less influenced by changing climatic conditions and regulatory restrictions compared to current imported water sources. The IPR Program will provide the following benefits to the EMWD's 768,000-person service area:

- **Increased Water Supply Reliability and Resiliency:** The IPR Program will increase water supply reliability and resiliency by providing a long-term sustainable water supply at a reasonable cost. The program will maximize sustainable and responsible management of local water resources including groundwater and surface water.
- **Reduced Reliance on Imported Federal and State Water Supplies:** Reducing EMWD's reliance on imported water will have multiple benefits that affect the EMWD region and the State overall. The IPR Program will reduce the impacts of challenges associated EMWD's imported water sources, such as uncertainties regarding drought shortages, climate change, seismic events, environmental flow restrictions in the Sacramento-San Joaquin River Delta (Delta), and salinity of Colorado River supplies. Aside from the reliability benefits, the IPR Program will also reduce competing demands on the State Water Project and the Federal water supplies from the Colorado River, improve flow conditions in the Delta and tributary rivers as less surface water is exported south, reduce hydropower consumption from pumping Delta exports, reduce EMWD's risk from levee failures in the Delta, and provide an incremental reduction in Delta levee failure risk for other users of Delta water.
- **Regional Salinity Management:** EMWD is participating in several groundwater management efforts to improve both water quality and water supply in the San Jacinto Upper Pressure Management Zone. The IPR Program will contribute to EMWD's progress towards meeting basin-wide salinity and nutrient water quality objectives to the benefit of all users.
- **Maximized Beneficial Use of Recycled Water:** EMWD plans to beneficially utilize one-hundred percent of its recycled water resources in an environmentally responsible manner through the IPR Program. There will be no discharge of recycled water, thereby stretching all of EMWD's water supplies.

The proposed study is an important step in advancing EMWD's IPR Program. The pilot testing will determine preliminary design criteria for the program and confirm reliable performance of the anticipated treatment process and the semi-enhanced evaporation option for brine disposal. The Program Definition Report will advance the engineering approach and design for project components.

6: Describe if local support exists for the proposal.

EMWD maintains excellent relationships with its congressional, state, and local legislative delegations. Elected officials and other stakeholders are well informed and support EMWD's efforts to increase water supply reliability and develop a more drought-proof water supply, both of which would be accomplished through the IPR Program. As a result of the ongoing drought, there is increased local interest and awareness regarding the need for programs such as IPR. EMWD also garners local support for projects because of efforts to pursue external funding to offset project costs. Attached are letters of support from County of Riverside Supervisor Kevin Jeffries and from WaterReuse California, the premier industry organization on recycled water issues throughout the State.

Once the feasibility study for the IPR Program is complete, EMWD will embark on an extensive public outreach campaign to educate the community and customers about IPR and its numerous benefits. EMWD will conduct surveys and focus groups to identify the current understanding and opinions of IPR, and EMWD will use that information to establish a baseline to tailor the campaign content. A number of communication tools will be utilized to educate the community, including workshops,

speaker's bureaus, open house events, tours of the pilot project, videos, a web site, newsletters, social media, and media outreach.

7: State if the non-Federal interest has the financial ability to provide for the required cost share.

EMWD's contribution for the proposed study will be paid for through its Special Projects annual budget and Research and Development Reserve. EMWD has sufficient internal funds to finance the required cost share.

8: Submit a letter or statement of support from each associated non-Federal interest.

Letters of support are included from Riverside County First District Supervisor Kevin Jeffries and WaterReuse California Managing Director Jennifer West. A letter from EMWD expressing the agency's support for this study and the overall IPR Program is attached as the cover letter.

County of Riverside



RIVERSIDE OFFICE:
4080 LEMON STREET, 5TH FLOOR
RIVERSIDE, CA 92501
(951) 955-1010
FAX (951) 955-1019

DISTRICT OFFICE:
31569 CANYON ESTATES DRIVE #113
LAKE ELSINORE, CA 92532
(951) 471-4500
FAX (951) 471-4510

SUPERVISOR KEVIN JEFFRIES FIRST DISTRICT

November 21, 2014

Ms. Lisa Kiefel
Planning Portfolio Manager
U.S. Army Corps of Engineers,
Attn: CECW-CE
441 G Street NW.,
Washington, DC 20314-1000

SUBJECT: Support for Eastern Municipal Water District's Proposed Indirect Potable Reuse Program Feasibility Study in Perris, California

Dear Ms. Kiefel:

I am pleased to support Eastern Municipal Water District's (EMWD) application for *Proposals from Non-Federal Interests for Proposed Feasibility Studies and Proposed Modifications to Authorized Water Resources Development Projects or Feasibility Studies for Inclusion in the U.S. Army Corps of Engineers (USACE) Annual Report* for the proposed EMWD Indirect Potable Reuse Program (IPR) Feasibility Study in Perris, California. The proposed IPR Program will produce highly treated wastewater that will be blended for groundwater recharge. Through this process it is projected that another 15,000 acre-feet of new water supply will be produced annually for local use commencing in 2030.

EMWD provides service to one of the fastest growing regions in the nation. It is prudent that recycled water suppliers, such as EMWD, maximize local water supplies and take steps to develop new water resources. California's long-lasting drought has underscored the necessity of diversification of a district's water supply portfolio. It is critical that water, waste-water and recycled water suppliers pursue forward thinking solutions to serving their growing consumer base. The proposed IPR Program will greatly benefit EMWD and the region it serves, through enhancing the availability of "new" water supplies. Recycled water is a reliable resource and we believe that this feasibility study is an important first step.

I am a proud supporter of this proposed feasibility study and we encourage your approval of this project. If you have any questions regarding this correspondence, please feel free to contact me at (951) 955-1010 or by email at district1@rcbos.org.

Respectfully,

KEVIN D. JEFFRIES
District 1 Supervisor
County of Riverside



November 21, 2014

Ms. Lisa Kiefel
Planning Portfolio Manager
U.S. Army Corps of Engineers,
Attn: CECW-CE
441 G Street NW.,
Washington, DC 20314-1000

SUBJECT: Support for Eastern Municipal Water District's Proposed Indirect Potable Reuse Program Feasibility Study in Perris, California

Dear Ms. Kiefel:

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WaterReuse California is a proud supporter of this proposed feasibility study and we encourage your approval of this project. If you have any questions regarding this correspondence, please feel free to contact me at (916) 669-8401, or by email at Jwest@watereuse.org.

Sincerely,

A handwritten signature in blue ink, appearing to read "J West", is written over a light blue circular stamp.

Jennifer West
Managing Director
WaterReuse California