MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

- **Board of Directors**
  Engineering and Operations Committee

April 13, 2004 Board Meeting

8-3

Subject

Appropriate $900,000; authorize preliminary design of Solids Handling Facilities and procurement of valves for Module No. 1 filters as part of the Jensen Improvements Program (Approp. 15371); and authorize change orders for Skinner Solids Handling Facilities Project (Approp. 15365)

Description

Jensen Improvements Program ($900,000)

Jensen Solids Handling Facilities Project ($584,000)

Solids produced at the Joseph Jensen Filtration Plant (Jensen plant) are currently being mechanically processed with temporary (leased) equipment. Replacement of the leased equipment with permanent solids handling facilities is the most practical and cost-effective method to meet current and projected solids handling needs for the Jensen plant.

In November 2001, Metropolitan's Board authorized funding to study future on-site solids handling facilities and other issues related to elevated coagulation levels. The current action authorizes preliminary design of the Jensen plant solids handling facilities and preparation of environmental documentation. The preliminary design will be performed by a combination of Metropolitan staff and Montgomery Watson Harza Americas, Inc. (MWH), under an existing professional services agreement. MWH was selected through a competitive process (Request for Qualifications 578) to perform this type of work, and authority to enter into the agreement was approved by Metropolitan's Board in June 2003. Additional assistance will be provided by a geotechnical consulting firm and by an environmental consulting firm, also under existing agreements.

Jensen Module No. 1 Filter Valve Refurbishment ($316,000)

Module No. 1 of the Jensen plant has been in continuous operation for over 29 years. The valves that control flow through the filters have exceeded their expected operational life and are deteriorating. Filter valves are required to provide a positive seal in order to maintain filter performance, prevent inter-mixing of backwash water, and to ensure safe entry into a filter when work is performed in the filter or in the filter effluent conduit. The Module No. 1 valves have been maintained throughout their life. However, no refurbishment or upgrade work has ever been undertaken. During a recent partial plant shutdown, several filter valves were inspected, which revealed deteriorated elastomeric seals in the valve bodies that allow water leakage. Several filter valves leak in excess of 50 gallons per minute.

The filter valves have been continuously operated since installation to control filtration rates, and are recommended to be replaced or refurbished in order to provide continued reliable service. This action authorizes the procurement and installation of four new filter valves. Metropolitan staff will purchase and install the four valves during the next scheduled plant shutdown in January 2005. It is anticipated that the cost of the valve procurement will be within the Chief Executive Officer's contracting authority under Metropolitan's Administrative Code. The remaining valves will be inspected during the same plant shutdown.

The two projects within this action have been evaluated and recommended by Metropolitan's Capital Investment Plan Evaluation Team and funds have been included in the fiscal year 2003/04 capital budget under the Jensen Improvements Program (Approp. 15371).

Skinner Improvements Program

Skinner Solids Handling Facilities Project – No Funds Required

In May 2003, Metropolitan's Board awarded Contract No. 1565 to Gantry Constructors, Inc., in the amount of $3.2595 million, to rehabilitate the solids handling facilities at the Robert A. Skinner Filtration Plant (Skinner plant).

The contractor's work includes furnishing and installing 24 traveling bridge sludge pumps in Modules 1 and 2. The sludge pumps have been purchased and are currently on-site. During installation of the first two pumps, it was discovered that the existing fiberglass reinforced plastic (FRP) inlet and discharge piping had become brittle and was susceptible to cracking and breakage during the pump replacement work. The FRP piping was initially installed in 1976 and has experienced ultraviolet deterioration over the years. During final design, the existing FRP piping was visually inspected and appeared to be in good condition. The FRP brittleness was unanticipated when the original contract to replace the pumps was awarded. Staff now recommends issuance of a change order to Gantry Constructors, Inc. to replace the aged FRP piping with chlorinated polyvinyl chloride plastic piping containing ultraviolet inhibitors. This change order will allow the deteriorated piping on the inlet and discharge to each pump to be replaced along with the pump, and will increase the reliability of the Module 1 and 2 traveling bridge operations.

In October 2003, Metropolitan's Board authorized an increase in the CEO's authority to execute construction change orders for this project from $250,000 to $622,000. This increase was for a change order with Gantry Constructors, Inc. to furnish and install a belt press to accommodate the upcoming Skinner Module No. 7 project.

This action authorizes an increase in the CEO's authority to execute construction change orders from $622,000 to $760,000. This increase in authority is for the FRP piping replacement and to allow for any other unforeseen conditions that may be encountered during the construction. Funds are available for this work within the existing appropriation. No additional funds are required.

The Skinner Improvements Program (Approp. 15365) has been evaluated and recommended by Metropolitan's Capital Investment Plan Evaluation Team and funds have been included in the fiscal year 2003/2004 capital budget.

See **Attachment 1** for the detailed report, **Attachment 2** for the financial statement, and **Attachment 3** for the location map.

Policy

Metropolitan Water District Administrative Code § 5108: Capital Project Appropriation

California Environmental Quality Act (CEQA)

CEQA determinations for Option #1:

Jensen Solids Handling Facilities Project (Preliminary Design)

The proposed actions are categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed actions consist of basic data collection and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource. This may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed actions qualify as a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed actions qualify under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

Jensen Module No. 1 Filter Valve Refurbishment

The proposed actions are categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The overall activities involve the funding, design, minor alterations and replacement of existing public facilities

with negligible or no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed actions qualify under Class 1 and Class 2 Categorical Exemptions (Sections 15301 and 15302 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed actions qualify under two Categorical Exemptions (Class 1, Section 15301 and Class 2, Section 15302 of the State CEQA Guidelines).

Skinner Solids Handling Facilities Project

The funding and replacement of 24 traveling bridge pumps, belt press, and conveyor system at Modules 1 and 2 were previously determined to be categorically exempt by the Board under the provisions of CEQA (Class 2, Section 15302 of the State CEQA Guidelines) on November 20, 2001. Subsequently, it was determined that the existing but deteriorating piping associated with the traveling bridge pumps needed replacement as well. The certified 2003 Final PEIR did address and evaluate other ancillary equipment associated with the Skinner Filtration Plant Improvements Program, including various piping and conduits as related to the overall sludge handling facilities project. Hence, the previous environmental documentation in conjunction with the original project and the replacement piping fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act with regards to the proposed actions.

The CEQA determination is: Determine that the proposed actions have been previously addressed in the 2001 NOE (Class 2, Section 15302 of the State CEQA Guidelines) and in the certified 2003 Final PEIR, adopted findings, adopted SOC, and adopted MMRP, and that no further environmental analysis or documentation is required.

CEQA determination for Option #2:

None required

Board Options/Fiscal Impacts

Option #1

Adopt the CEQA determinations and

a. Appropriate $900,000 in budgeted funds;
b. Authorize the Jensen Solids Handling Facilities Project preliminary design activities;
c. Authorize replacement of four Jensen Module No. 1 filter valves; and
d. Authorize an increase in the CEO's authority to execute construction change orders from $622,000 to $760,000 (no increase in appropriated funds is required) for the Skinner Solids Handling Facilities Project.

Fiscal Impact: $900,000 under Approp. 15371 for Jensen

Option #2

Do not authorize the work described in this letter. Implementation of this option will forego an opportunity to reduce long-term O&M costs and will increase the risk of unplanned partial plant outages.

Fiscal Impact: $0

Staff Recommendation

Option #1

3/22/2004
Roy L. Wolfe *Date*
Manager, Corporate Resources

3/23/2004
Ronald R. Gastelum *Date*
Chief Executive Officer

Attachment 1 – Detailed Report

Attachment 2 – Financial Statement for Jensen Improvements Program

Attachment 3 – Location Map

BLA #2601

Detailed Report

The Joseph Jensen Filtration Plant (Jensen plant) was placed into service in 1972 with an initial capacity of 350 million gallons per day (mgd). The plant was expanded in the early 1990s to its current capacity of 750 mgd. The Jensen plant exclusively treats California State project water supplies and delivers treated water to Metropolitan's Central Pool portion of the distribution system.

The Robert A. Skinner Filtration Plant (Skinner plant) was placed into service in 1976 to supply treated water to Riverside and San Diego counties. Since its original construction, the plant has been expanded three times and now consists of six treatment modules that are operated as two distinct filtration plants (Plants 1 and 2). Plants 1 and 2 have capacities of 240 mgd and 280 mgd, respectively, for a total combined rated capacity of 520 mgd. The plant typically treats a blend of State project water and Colorado River water. Plant 1 uses conventional water treatment processes including coagulation, flocculation, sedimentation, filtration, and disinfection; Plant 2 is a direct filtration plant similar to Plant 1, but without the sedimentation process.

The Jensen and Skinner Improvements Programs were established to implement multiple projects necessary to ensure plant reliability and comply with drinking water and environmental regulations.

Jensen Improvements Program ($900,000)

Jensen Solids Handling Facilities Project ($584,000)

Purpose/Background

Before 1998, thickened solids from the Jensen plant's sedimentation basins were disposed of by discharge to the sanitary sewer system of the city of Los Angeles. From 1998 through 2002, all thickened solids produced at the Jensen plant were disposed of in the Los Angeles Department of Water and Power's (LADWP) sludge lagoons at the adjacent Los Angeles Aqueduct Filtration Plant. LADWP has indicated that it will have a long-term need for full use of its sludge lagoons, which will require Metropolitan to seek a long-term solution to solids handling at the Jensen plant. Since 2002, all solids production at the Jensen plant has been mechanically processed with temporary (leased) equipment. Replacement of the leased equipment with permanent solids handling facilities is the most practical and cost-effective method to meet current and projected solids handling needs for the Jensen plant.

In November 2001, Metropolitan's Board authorized funding to study future on-site solids handling facilities and other issues related to elevated coagulation levels. Montgomery Watson Harza Americas, Inc. (MWH) has completed a conceptual design study which evaluated alternatives for permanent residuals dewatering at the Jensen plant. Staff concluded that two additional sludge thickeners are required to adequately handle the increased solids production rates and to provide operational flexibility and reliability. Staff also recommends the use of sludge lagoons or a permanent belt press and conveyor system to cost-effectively dewater and stockpile sludge prior to disposal off-site. Addition of these facilities will allow Metropolitan to reliably process solids at all anticipated production rates while complying with water quality regulations and existing permit conditions.

Project Description

This project includes preliminary design and preparation of environmental documentation for permanent solids handling facilities. The preliminary design of permanent solids handling facilities will consider two dewatering options: (1) sludge lagoons, and (2) a belt press system with two belt presses, a polymer feed system, a conveyer, a concrete-lined solids holding area, and interconnecting piping, electrical, and control systems. The belt presses and polymer feed system would be housed in a new dewatering building. Selection of the best option will be made after further cost analyses, geotechnical evaluations, and an assessment of future process space needs at the Jensen plant.

The preliminary design work and preparation of environmental documentation will be a combined effort by Metropolitan staff and MWH. MWH's work will be performed under an existing professional services agreement which was authorized by Metropolitan's Board in June 2003. MWH was selected through a competitive process (Request for Qualifications 578). Utilization of MWH for the proposed work is consistent with the scope of the agreement and the planned approach for project implementation. Additional assistance will be provided by a geotechnical consulting firm and an environmental consulting firm, also under existing professional services agreements.

This action appropriates funds and authorizes the preliminary design and preparation of environmental documentation. Staff plans to return to the Board in October 2004 to seek authorization to commence final design.

Project Milestones

August 2004 – Completion of preliminary design

October 2004 – Board authorization and funding for final design

September 2005 – Completion of final design

November 2005 – Board award of construction contract

November 2006 – Completion of construction

Jensen Module No. 1 Filter Valve Refurbishment ($316,000)

Purpose/Background

Filters utilize a number of valves to control and direct flows during the filtration and backwash processes. Filter valves provide a positive seal to maintain filter performance, prevent inter-mixing of backwash water, and ensure safe entry into the filter when work is performed in the filter or in the filter effluent conduit.

Several filter valves in Jensen Module No. 1 have leaks. Module No. 1 has been in continuous operation for over 29 years, and the filter valves have exceeded their expected operational life and are deteriorating. During a recent partial plant shutdown, several filter valves were inspected, which revealed deteriorated elastomeric seals in the valve bodies that allow water leakage. Several filter valves leak in excess of 50 gallons per minute.

The Module No. 1 valves have been continuously operated since installation to control filtration rates, and have been maintained throughout their life. However, no refurbishment or upgrade work has ever been undertaken. The filter valves are recommended to be replaced or refurbished in order to provide reliable service. This action authorizes the procurement and installation of four 16-inch to 48-inch filter valves and operators. The estimated purchase price of the valves is $230,000. Additional funds requested are for Metropolitan labor to procure and install the four valves, and to inspect remaining filter valves. It is anticipated that the cost of the valve procurement will be within the CEO's contracting authority under Metropolitan's Administrative Code.

Project Description

This project includes the procurement and installation of four filter valves for Module No. 1 at the Jensen plant. These four valves will be installed by Metropolitan staff during the planned January 2005 plant shutdown. The four valves will replace those existing valves that exhibit the worst leakage. The remaining valves will be inspected during the same plant shutdown.

Staff plans to return to the Board in May 2005 with a recommendation to replace or refurbish the remaining filter valves.

Project Milestones

January 2005 – Completion of installation of four filter valves

April 2005 – Completion of inspection of remaining valves

May 2005 – Board authorization for the procurement or refurbishment of the remaining Module No. 1 filter valves

Skinner Improvements Program

Skinner Solids Handling Facilities Project – No Funds Required

In May 2003, Metropolitan's Board awarded Contract No. 1565 to Gantry Constructors, Inc., in the amount of $3.2595 million, to rehabilitate the Skinner plant's solids handling facilities.

The contractor's work includes furnishing and installing 24 traveling bridge sludge pumps in Modules 1 and 2. The sludge pumps have been purchased and are currently on-site. During installation of the first two pumps, it was discovered that the existing fiberglass reinforced plastic (FRP) inlet and discharge piping had become brittle and was susceptible to cracking and breakage during the pump replacement work. The FRP piping was initially installed in 1976 and has experienced ultraviolet deterioration over the years. During final design, the existing FRP piping was visually inspected and appeared to be in good condition. The FRP brittleness was unanticipated when the original contract to replace the pumps was awarded. Staff now recommends issuance of a change order to Gantry Constructors, Inc. to replace the aged FRP piping with chlorinated polyvinyl chloride plastic piping containing ultraviolet inhibitors. This change order will allow continuation of the pump replacements while increasing the reliability of the Module 1 and 2 traveling bridge operations.

Cost Estimate

In October 2003, Metropolitan's Board authorized an increase in the CEO's authority to execute construction change orders from $250,000 to $622,000. This increase was for a change order with Gantry Constructors, Inc. to furnish and install a belt press to accommodate the upcoming Skinner Module No. 7 project.

As of the end of March 2004, Contract No. 1565 was approximately 50 percent complete, while approximately $531,000 in change orders have occurred. The not-to-exceed amount of the proposed change order for piping replacement is $63,000, resulting in a revised change order total of $594,000. Due to the rehabilitative nature of this contract and to provide flexibility in case other unexpected conditions arise, staff recommends an additional $166,000 in change order authority be provided to the CEO for a new total of $760,000.

This action authorizes an increase in the CEO's authority to execute construction change orders to $760,000. This increase in authority is for the FRP piping replacement and to allow for any other unforeseen conditions that may be encountered during the construction. Funds are available for this work within the existing appropriation. No additional funds are required.

Project Milestones

- April 2004 – Issue construction change orders
- June 2004 – Completion of Skinner Solids Handling Facilities Project construction

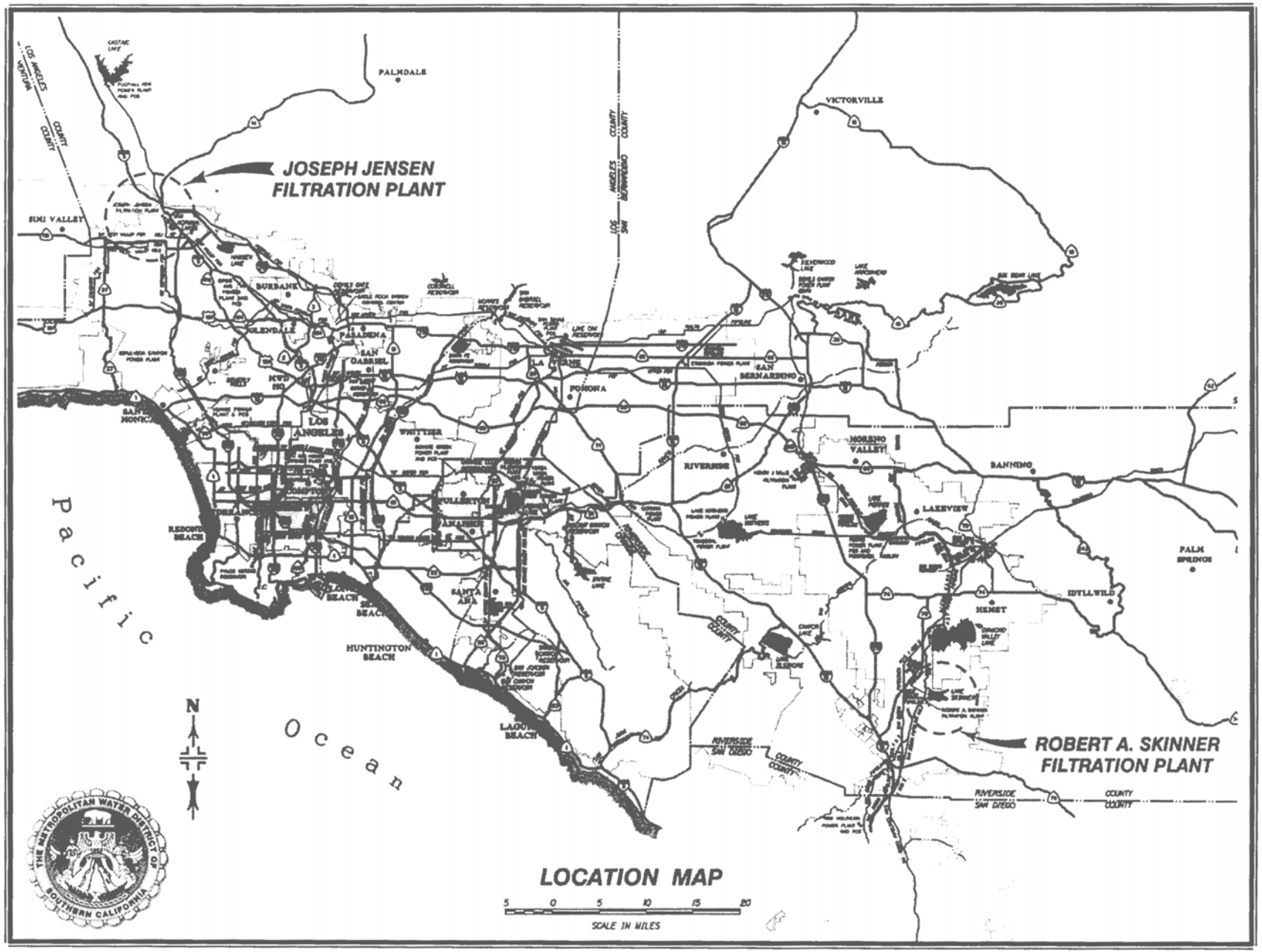
Financial Statement for Jensen Filtration Plant Improvements Program

A breakdown of Board Action No. 5 for Appropriation No. 15371 for preliminary design of solids handling facilities and replacement of filter valves is as follows:

	Previous Total Appropriated Amount (Jun. 2003)	Current Board Action No. 5 (Apr. 2004)	New Total Appropriated Amount
Labor			
Studies and Investigations	$ 440,000	$ 10,000	$ 450,000
Design and Specifications	875,000	20,000	895,000
Owner Costs (Program management, environmental documentation and procurement)	355,000	118,000	473,000
Construction Inspection and Support	450,000	5,000	455,000
Metropolitan Installation and Construction	865,000	17,000	882,000
Materials and Supplies	1,310,000	10,000	1,320,000
Filter Valves		230,000	230,000
Incidental Expenses	75,000	2,000	77,000
Professional/Technical Services	160,000		160,000
Montgomery Watson Harza Americas, Inc.		265,000	265,000
Environmental Planning Consultant		95,000	95,000
Geotechnical Consultant		30,000	30,000
Equipment Use	80,000	0	80,000
Contracts	3,100,000	0	3,100,000
Remaining Budget	1,150,000	98,000	1,248,000
Total	**$8,860,000**	**$900,000**	**$9,760,000**

Funding Request

Program Name:	Jensen Filtration Plant – Improvements Program		
Source of Funds:	Construction Funds (General Obligation, Revenue Bonds, Pay-As-You-Go Fund)		
Appropriation No.:	15371	**Board Action No.:**	5
Requested Amount:	$ 900,000	**Capital Program No.:**	15371-I
Total Appropriated Amount:	$ 9,760,000	**Capital Program Page No.:**	E-51
Total Program Estimate:	$ 11,502,000	**Program Goal:**	I – Infrastructure Reliability


JOSEPH JENSEN
FILTRATION PLANT
ROBERT A. SKINNER
FILTRATION PLANT
LOCATION MAP
SCALE IN MILES
5 0 5 10 15 20
N
Pacific
Ocean
PALMDALE
VICTORVILLE
SUN VALLEY
BURBANK
GLENDALE
PASADENA
SAN GABRIEL
LA
POMONA
SAN BERNARDINO
WHITTIER
RIVERSIDE
MORENO VALLEY
BANNING
LAKEVIEW
FULLERTON
REDONDO BEACH
SANTA ANA
HUNTINGTON BEACH
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