

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

September 10, 2002 Board Meeting

8-9

Subject

Authorize \$80.1 million for the Jensen and Mills Oxidation Retrofit Program and award a \$69,729,000 construction contract to Kiewit Pacific Company for the construction of oxygen/ozone facilities at the Joseph Jensen Filtration Plant (Approp. 15173)

Description

The Oxidation Retrofit Program (ORP) at the Joseph Jensen and Henry J. Mills Filtration Plants consists of retrofitting these plants with an ozonation process that will replace chlorine as the primary disinfectant. Staff has determined that the ORP is the most cost-effective response to new federal and state regulations that have added treatment requirements and lowered the maximum contaminant levels (MCLs) for trihalomethanes and other disinfection by-products at the Jensen and Mills plants.

In January 2000, Metropolitan's Board of Directors adopted a reduced capacity ORP for the Jensen and Mills plants to comply with Stage 1 of the U.S. Environmental Protection Agency's Microbial/Disinfection By-Products (M/DBP) Rule. Such compliance will provide long-term flexibility to meet future water demands in a staged approach as well as the ability to comply with future water quality regulations, while lowering current program costs. Accordingly, the Jensen ORP was reduced to an ozonation capacity of 500 million gallons per day (mgd) from a maximum plant capacity of 750 mgd. The Mills Plant ORP was reduced to an ozonation capacity of 160 mgd from a maximum plant capacity of 326 mgd.

Approval of the recommendation will appropriate additional funds, authorize award of the construction contract, and provide construction management/support services for the Jensen plant ORP. This request includes the use of budgeted and unbudgeted Capital Investment Plan (CIP) funds. The need for unbudgeted CIP funds stems from several factors, including the 1) the current less favorable bidding environment than that of mid-2000 when the Mills ORP construction project was advertised, and 2) higher than anticipated subcontracting bids to the prime contractor.

The ORP program was evaluated and recommended by the Capital Investment Plan (CIP) Evaluation Team and is included in the Capital Budget for fiscal year 2002/03. Upon Board approval, the CIP expenditure plan will be adjusted to reflect the need for unbudgeted CIP funds. It is presently anticipated that this will be the final request to authorize funds for this appropriation as all work for the Jensen and Mills ORPs will be completed upon successful start-up of the Jensen plant oxygen/ozone facilities in mid-2005.

See [Attachment 1](#) for the detailed report, [Attachment 2](#) for the Abstract of Bids, and [Attachment 3](#) for the Financial Statement.

Policy

Metropolitan Water District Administrative Code § 5108: Capital Project Appropriation
Metropolitan Water District Administrative Code § 8113: Construction Contract Award

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

To comply with CEQA, Metropolitan as the lead Agency prepared a Mitigated Negative Declaration (MND) entitled "Joseph Jensen Filtration Plant Oxidation Retrofit Program MND," (State Clearinghouse

No. 1994061002). The MND was distributed for a 30-day public review period that began on May 31, 1994, and ended on June 29, 1994. Board adoption of the MND and the mitigation monitoring and reporting program (MMRP), along with approval of the Jensen ORP, occurred on August 19, 1994. Based on the Board's previous approval of the environmental documentation, the proposed actions contained in this board letter fully comply with CEQA and the State CEQA Guidelines. As such, no further environmental documentation is necessary for the Board to act on with respect to the two proposed actions, i.e., the funding and construction of the Jensen ORP.

The CEQA determination is: Determine that the proposed actions relating to the Jensen plant ORP have been previously addressed in the adopted 1994 MND and its 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 determination and

- a. Appropriate \$80.1 million in budgeted and unbudgeted CIP funds.
- b. Award a competitively bid contract in the amount of \$69,729,000 for the construction of oxygen/ozone facilities as part of the Jensen plant ORP.

Fiscal Impact: \$80.1 million in budgeted and unbudgeted CIP funds under Appropriation 15173:

- \$63.98 million of budgeted CIP funds
- \$16.12 million of unbudgeted CIP funds.

Option #2

Reject all bids for construction of the Jensen ORP facilities and rebid the project in an attempt to obtain a more favorable bid.

Fiscal Impact: Rebidding the construction package would have an unknown impact on project costs and may jeopardize Metropolitan's ability to have the Jensen ORP facilities in operation by the regulatory on-line date of June 30, 2005.

Staff Recommendation

Option #1

	8/15/2002
Roy Wolfe Manager, Corporate Resources	Date

	8/22/2002
Ronald R. Gastelum Chief Executive Officer	Date

Attachment 1 – Detailed Report

Attachment 2 – Abstract of Bids Received August 2, 2002, at 2:00 p.m.

Attachment 3 – Financial Statement for Jensen and Mills Oxidation Retrofit Program

Detailed Report

Background

In December 1998, the U.S. Environmental Protection Agency promulgated Stage 1 of the Microbial/Disinfection By-Product (M/DBP) Rule. The Rule includes two components: (1) new and reduced Maximum Contaminant Levels (MCLs) for disinfection by-products including trihalomethanes, and (2) implementation of required treatment techniques, such as ozone, for many surface waters. The two plants that will be affected by Stage 1 of the Rule are the Jensen and Mills plants because they treat 100 percent State project water (SPW), which forms greater levels of disinfection by-products with chlorine disinfection than does Colorado River water (CRW). Staff has evaluated several alternatives for complying with the Rule, and has determined that installation of ozone at the Jensen and Mills plants is the most cost-effective method for Metropolitan to achieve the requirements of the M/DBP rule while maintaining control over taste-and-odor compounds. Other alternatives that were extensively evaluated, in conjunction with a member agency workgroup, included granular activated carbon and enhanced coagulation.

The Oxidation Retrofit Program (ORP) consists of retrofitting Metropolitan's filtration plants with an ozonation process so that ozone will replace chlorine as the primary disinfectant in the treatment process at the Joseph Jensen and Henry J. Mills Filtration Plants. In March 1997, the Board directed the General Manager to proceed with the final design of ozone facilities at the Mills and Jensen plants, with scheduled on-line dates of early 2003 and late 2004, respectively, consistent with the Board's continuing commitment to public health and water quality. The treatment technique component of Stage 1 needs to be implemented by June 2005, while compliance with the new MCLs must be achieved by January 2002. In January 2002, the board-approved Action No. 8 to Appropriation No. 15173 to increase funding to \$133.12 million to finance the design and to award a contract for Service Center Demolition and Reclaimed Washwater Line Installation at the Jensen plant.

In January 2000, the Board directed staff to reduce the ozone treatment capacity of the ORP facilities at the Jensen and Mills plants to more closely match the revised flow projections of 500 mgd and 160 mgd, respectively, at each plant.

Impact of Future Regulations. Recently, negotiators agreed upon treatment rules for a second set of M/DBP regulations (Stage 2). These rules are scheduled to be promulgated in late 2003 with compliance required three to eight years after promulgation depending on the California Department of Health Services input and the need to construct capital facilities. Implementing ozone now at Jensen and Mills is also compatible with the proposed Stage 2 agreement. Staff is evaluating the impact of these proposed Stage 2 regulations on Metropolitan's other plants (the Diemer, Skinner and Weymouth plants) that treat a blend of SPW and CRW, and has initiated preliminary design activities.

Project Description. The scope of the construction contract to be awarded with this action consists of all necessary work to retrofit the existing Jensen plant to treat water with an ozone disinfection system. The contract work includes constructing buildings and water-bearing structures, constructing new chemical storage and feed facilities, modifying plant conduits and pipelines, installing Metropolitan-furnished oxygen/ozone equipment, and adding and modifying plant utilities and appurtenances.

A portion of the contract funding authority was previously authorized by the Board in August 2001 under Appropriation 15371 for the construction of ferric chloride tank farm facilities at the Jensen plant. At that time, staff recommended that the permanent ferric chloride tank farm facilities be constructed with the competitively bid Jensen ORP general construction contract due to site restrictions, overlapping work areas, and overlapping construction schedules. In accordance with this recommendation, approximately \$3.1 million of the work under this contract will be charged to Appropriation 15371 for the ferric chloride tank farm construction. Of the total contract award of \$69,729,000 included under the present action, \$66,629,000 will be funded under Appropriation 15173 as shown in Attachment 3, while \$3.1 million has already been authorized under Appropriation 15371, as noted above.

The present action authorizes all required services to complete the ORP work at the Jensen plant, including construction management and inspection, Metropolitan forces construction, control system programming,

purchase of specialized materials including ozone gas diffusers, and other support services. For the Jensen ORP project, the ratio of construction management and inspection costs to the project's overall construction cost is approximately 11 percent.

Bids Received

Four (4) bids were received and opened on August 2, 2002 under Specifications No. 1351, as amended, for the Jensen ORP project. The subject bids are shown on the attached bid abstract in Attachment 2. The low bid of Kiewit Pacific in the amount of \$69,729,000 complies with the requirements of the specifications and is \$43,000 below the next highest bidder and \$9,029,000 above the Engineer's Estimate. Staff has reviewed the Engineer's Estimate with the apparent low bidder to identify the reason for the discrepancy. At this time, it appears that the discrepancy is primarily caused by two factors: (1) the high unit cost of structural concrete, and (2) higher than expected subcontracting bids to the prime contractor. Structural concrete will be utilized for the facilities' most complicated structures, including the ozone building, ozone contactors and water-bearing conduits. The apparent low bidder's recent experience with two large ozone projects is that the unit cost to place and cure high-strength ozone-resistant concrete was much higher on those jobs than for more conventional structures. A reduced number of competitive subcontracting bids also affected the prime contractor bids for the project. Following the bid opening, staff determined that in the areas of electrical work, instrumentation and controls, stainless steel piping, specialty valves, large diameter piping, railroad track installation, paving, and heating ventilating and air conditioning, a limited number of subcontractors (in many instances only one) submitted bids to prime contractors. While Metropolitan received competitive bids from four prime contractors for the Jensen plant ORP, the limited number of subcontractor bids to the primes led to higher-than-expected construction bids for the overall project.

Staff believes that the lowest responsive bid fairly and accurately reflects the work that is required for this project, and it is recommended that a contract be awarded to Kiewit Pacific in the amount of \$69,729,000.

Program Estimate

In January 2000, the program estimate for the Jensen and Mills ORP was reduced from \$263.0 million to reflect up-to-date construction costs based on bids received for the Mills ORP project, and to reflect the board-approved reduction in ozone treatment capacities. The current fiscal year program estimate for the Jensen and Mills ORP is \$197.1 million. This action will increase the program estimate to \$213.22 million. The recommended revision of the program estimate will require the utilization of \$16.12 million in unbudgeted CIP funds. Staff anticipates that this will be the final board action to authorize funds for the appropriation.

Upon review, it has been determined that the need to utilize unbudgeted CIP funds stems from two primary contributing factors: (1) there has been a less favorable bidding environment than Metropolitan experienced in mid-2000 when the Mills ORP construction project was advertised, resulting in higher unit costs for the Jensen ORP work than were received for the Mills ORP; and (2) the relative timing of development of the fiscal year 2002/2003 CIP budget versus availability of final Engineer's Estimate for the Jensen ORP project.

To develop the overall Jensen and Mills ORP program estimate, staff utilized cost information from the actual bids received for the Mills ORP. This methodology allowed staff to reduce the previous total program estimate based on actual historical costs, and to project a probable range of construction costs for the Jensen Plant ORP. Since Metropolitan awarded the Mills ORP for approximately \$29 million in 2000, several other ozone projects have commenced in the Western United States. Staff has been monitoring the progress of these non-Metropolitan projects and has determined that several of the projects have suffered a variety of significant design and construction problems. Staff concludes that prime contractors may now be bidding ozone-related projects in a more cautious and conservative manner than when Metropolitan received the Mills ORP bids two years ago.

A second factor leading to utilization of unbudgeted CIP funds stems from the timing of completion of the Jensen ORP final design and the Engineer's Estimate, relative to the formulation of the fiscal year 2002/2003 CIP budget. The final design of the Jensen ORP was completed in May 2002 and the Engineer's Estimate was completed in early July 2002. Up until July 2002, staff had extrapolated costs and escalated bid results for similar ozone work at the Mills Plant as the basis for estimating the Jensen Plant ORP construction costs, as well

as the overall program estimate of \$197.1 million. Consequently, the ORP program estimate adopted by the Board in June 2002 as part of the fiscal year 2002/2003 CIP was based on the best information available prior to completion of the final Engineer's Estimate.

Upon approval of this action, the fiscal year 2002/2003 CIP expenditure plan will be adjusted to reflect this change.

Business Outreach

Specification No. 1351 required small business participation of at least 30 percent of the total bid. Kiewit Pacific has met the requirement by committing to a small business participation of 33.8 % of the project. Kiewit Pacific will utilize nearly 60 small businesses during the execution of the contract to meet this requirement.

ACTIONS AND MILESTONES

- November 2002 – Start Jensen ORP construction
- January 2003 – Complete Mills ORP construction
- June 2003 – Mills ORP facilities on-line
- April 2005 – Complete Jensen ORP construction
- June 2005 – Jensen ORP facilities on-line

The Metropolitan Water District of Southern California

Abstract of Bids Received August 2, 2002, at 2:00 P.M.

Specifications No. 1351

Construction of the Oxidation Retrofit At the Joseph Jensen Filtration Plant

The contract consists of performing all necessary work to treat water with ozone disinfection system. The contract work includes constructing buildings and water-bearing structures, constructing new chemical storage and feed facilities, modifying plant conduits and pipelines, installing Metropolitan-furnished oxygen/ozone equipment, and adding and modifying plant utilities and appurtenances at the Joseph Jensen Filtration Plant.

Engineer’s Estimate: \$ 60,700,000

Bidder and Location	Total	SBE \$	SBE %	Met SBR*
Kiewit Pacific Co. Santa Fe Springs, CA	\$69,729,000	\$23,573,648	33.8%	Yes
ARB Inc. Lake Forest, CA	\$69,772,000	N/A	N/A	N/A
J.F. Shea Construction, Inc. Walnut, CA	\$71,009,000	N/A	N/A	N/A
Tutor-Saliba/Natkin Sylmar, CA	\$74,777,000	N/A	N/A	N/A

* SBR (Small Business Requirement) Participation set at 30%
 N/A – Not applicable

Financial Statement for Jensen and Mills Oxidation Retrofit Program

A breakdown of Board Action No. 9 for Approp. No. 15173 for construction of the Joseph Jensen Filtration Plant oxygen/ozone facilities is as follows:

	Previous Board Action No. 8 <u>(Jan. 2002)</u>	Current Board Action No. 9 <u>(Sep. 2002)</u>	New Total Appropriated <u>Amount</u>
Previously Completed Contracts	\$ 13,198,814	\$ 0	\$ 13,198,814
Ozone Equipment – (Specifications No. 1346A) ⁽¹⁾	18,638,500	(2,058,500)	16,580,000
Contract – Specifications No. 1367B (Mills ORP)	28,947,000	0	28,947,000
Contract – Specifications No. 1350 (Jensen Service Center Demolition & Reclaimed Washwater Line Installation)	2,030,000	0	2,030,000
Contract – Specifications No. 1351 (Jensen ORP) ⁽²⁾	0	66,629,000	66,629,000
Subtotal Contracts	62,814,314	64,570,500	127,384,814
Labor			
Research/Preliminary Design	11,886,000	0	11,886,000
Final Design/Specifications Preparation	20,105,000	0	20,105,000
Construction Inspection and Support	10,322,000	9,170,000	19,492,000
Control System Programming	370,000	392,000	762,000
Water System Operations (Start-up)	0	452,000	452,000
Metropolitan Forces Construction		1,322,000	1,322,000
Owner Services (Contract Admin., Environmental, Permitting, Project Mgmt/Coordination, O & M Manuals)	3,800,000	3,516,000	7,316,000
Subtotal Labor	46,483,000	14,852,000	61,335,000
Materials and Supplies	844,500	802,500	1,647,000
Incidental Expenses	902,000	390,000	1,292,000
Professional/Technical Services	12,200,000	580,000	12,780,000
Office Space	2,300,000	0	2,300,000
Operating Equipment	305,000	427,000	732,000
Remaining Budget ⁽³⁾	<u>7,271,186</u>	<u>(1,522,000)</u>	<u>5,749,186</u>
Total	<u>\$133,120,000</u>	<u>\$ 80,100,000</u>	<u>\$ 213,220,000</u>

(1) Reduced contract amount by \$2.058 million in Board Action No. 9 to reflect credit back to Metropolitan for deleted work scope

(2) Amount reflects \$3.1 million of contract funding authority that has previously been appropriated for construction of ferric chloride tank farm in August 2001 for Appropriation 15371

(3) Reduced Remaining Budget in Board Action No. 9 to reflect limited uncertainty in final remaining phases of the program

FUNDING REQUEST

Program Name:	Jensen and Mills Oxidation Retrofit Program		
Source of Funds:	Pay as You Go		
Appropriation No.:	15173	Board Action No.:	9
Requested Amount:	\$ 80,100,000	Capital Program No.:	15173-W
Total Appropriated Amount:	\$ 213,220,000	Capital Program Page No.:	E-42
Total Program Estimate:	\$ 213,220,000 *	Program Goal:	W- Regulatory- Water Quality

* The capital budget for fiscal year 2002-03 reflects a program estimate of \$197.1 million. Upon board approval the CIP expenditure plan will be adjusted to reflect this increase.