

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

December 14, 2004 Board Meeting

8-2

Subject

Appropriate \$1.42 million for the design of chemical tank farm roofs at the Weymouth, Jensen, and Mills treatment plants (Approp. 15415)

Description

At the time the Weymouth, Jensen, and Mills treatment plants were constructed, environmental regulations did not stipulate requirements for the containment of chemical spills in chemical tank farms. Since then, Metropolitan has upgraded each of these plant's chemical tank farm secondary containment areas and spill storage capacity in order to meet the hazardous material storage guidelines outlined in the Uniform Fire Code.

Within a chemical tank farm, if any chemical spills were to occur, the spills would be captured within the containment areas and trucked offsite for suitable disposal. Similarly, any rainfall captured in the containment areas is considered to be contaminated under prevailing regulations, and cannot normally be released to local storm drainage or sewer systems. Therefore, on an annual basis, Metropolitan incurs a recurring cost to collect and provide suitable off-site disposal of the captured rainfall. In November 2003, staff completed a study and life cycle cost analysis, which evaluated the handling and disposal of rainfall captured in unroofed chemical tank farms at Metropolitan's treatment plants. The life cycle costs of monitoring, handling and disposal of the contaminated liquid were compared to the cost of retrofitting each unroofed tank farm with a roof. This study demonstrated that it is cost-effective to construct tank farm roofs to avoid the formation of contaminated liquids derived from rainfall.

In November 2003, Metropolitan's Board authorized the initial phase of work for the Chemical Tank Farm Roofs Program. The initial scope focused on selected roofs at the Jensen and Weymouth treatment plants. These roofs were addressed first so that they could be coordinated with other activities underway at those plants.

At this time, staff recommends proceeding with the final phase of this program, which addresses design of remaining chemical tank farm roofs for the Jensen, Weymouth and Mills plants. At the Robert B. Diemer Filtration Plant, contaminated liquid is discharged to the Orange County Sanitation District's sewer under an industrial waste discharge permit. This discharge is possible due to an existing holding tank and piping which allows for storage and sampling prior to discharge. Based on foreseeable sewer discharge rates, roofing the Diemer chemical tank farms is not recommended under this program. This recommendation will be reexamined if and when disposal costs increase substantially or regulations change. The Weymouth, Jensen, Mills, and Skinner plants do not have a similar waste conveyance and holding system. Construction of such a system at the other plants would be cost prohibitive. At the Skinner plant, roofs are planned to be constructed for the chemical tank farms in conjunction with other major construction projects.

The design work for the three plants is proposed to be performed by two consulting firms. Montgomery Watson Harza Americas, Inc. (MWH) will perform final design of three roofs at the Jensen plant and four roofs at the Weymouth plant. Lee & Ro, Inc. (Lee & Ro) will perform final design of one roof at the Mills plant. The staffing approach for these design efforts provides for optimal coordination between staff and consultants for the ongoing construction efforts at each plant. The consulting work will be performed under existing professional services agreements. MWH and Lee & Ro were selected through a competitive process (Request for Qualifications 578) to perform this type of work, and authority to enter into the agreements was approved by Metropolitan's Board in June 2003. The final design cost, as a percentage of the estimated total construction cost,

is approximately 15 percent. The Engineering Services goal for design of projects with construction cost less than \$10 million is 9 to 15 percent.

The All Facilities – Install Roofs for Chemical Tank Farms Program (Approp. 15415) has been evaluated and recommended by Metropolitan's Capital Investment Plan Evaluation Team and funds have been included in the fiscal year 2004/2005 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
Metropolitan Water District Administrative Code § 8117: Professional and Technical Consultants

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

Weymouth

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action involves the design, funding, and construction or modification of existing public facilities involving negligible or no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under a Class 1 Categorical Exemption (Section 15301 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under a Categorical Exemption (Class 1, Section 15301 of the State CEQA Guidelines).

Jensen:

To comply with CEQA and the State CEQA Guidelines, Metropolitan as the Lead Agency prepared and processed a Mitigated Negative Declaration (MND) for the Jensen Filtration Plant Oxidation Retrofit Program (Program). The MND was distributed for a 30-day public review period that ended on June 29, 1994. Board approval occurred on August 19, 1994. The current board action solely authorizes the funding for the designing of the roofs for four chemical tank farms at the Jensen plant that had been previously addressed in the MND. Based on the Board's previous approval of the environmental documentation, the proposed action contained in this board letter fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further environmental documentation is necessary for the Board to act on with respect to the proposed action.

The CEQA determination is: Determine that the proposed action relating to the Program has been previously addressed in the adopted 1994 MND and its MMRP, and that no further environmental analysis or documentation is required.

Mills:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action involves the design and funding of existing public facilities with negligible expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under Class 1 Categorical Exemptions (Section 15301 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under a Categorical Exemption (Class1, Section 15301 of the State CEQA Guidelines).

Board Options/Fiscal Impacts

Option #1

Adopt the CEQA determination and

- a. Appropriate \$1.42 million in budgeted funds; and
- b. Authorize final design of roofs for tank farms at the Jensen, Weymouth and Mills treatment plants.

Fiscal Impact: \$1.42 million of budgeted funds under Approp. 15415

Option #2

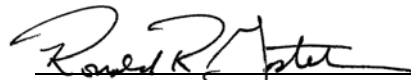
Do not authorize the work described in this letter. Implementation of this option will not realize operations and maintenance costs/benefits identified in Option #1.

Fiscal Impact: None

Staff Recommendation

Option #1

	11/15/2004
_____ Roy L. Wolfe Manager, Corporate Resources	Date

	11/19/2004
_____ Ronald R. Gastelum Chief Executive Officer	Date

Attachment 1 – Detailed Report

Attachment 2 – Financial Statement

Attachment 3 – Location Map

BLA #2929

Detailed Report

Design of Roofs for Chemical Tank Farms (\$1.42 million)

The F. E. Weymouth Filtration Plant (Weymouth plant) was placed into service in 1941 with an initial capacity of 100 million gallons per day (mgd). The plant was expanded twice to its current capacity of 520 mgd. It delivers treated water to Metropolitan's Central Pool portion of the distribution system.

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

The Henry J. Mills Filtration Plant (Mills plant) was placed into service in 1978 with an initial capacity of 150 mgd. The plant was expanded twice to its current capacity of 326 mgd. It consists of four treatment modules and is currently permitted to treat up to 220 mgd. The plant exclusively treats California State project water supplies and delivers treated water to Eastern Municipal Water District and Western Municipal Water District of Riverside County.

The All Facilities – Install Roofs for Chemical Tank Farms Program was established to reduce handling and disposal costs associated with contaminated rainfall and to ensure environmental compliance.

Background/Purpose

At the time the Weymouth, Jensen and Mills plants were constructed, environmental regulations did not stipulate requirements for the containment of chemical spills in bulk storage tank farms. Since then, Metropolitan has upgraded each of these plant's chemical tank farm secondary containment areas and spill storage capacity in order to meet the hazardous material storage guidelines outlined in the Uniform Fire Code as part of Metropolitan's spill containment program effort.

Staff initiated a study in 2002 to examine issues related to the handling and disposal of contaminated rainfall captured in unroofed chemical tank farms. Rainfall thus captured is considered contaminated by regulation and cannot be released to local storm drainage systems. The contaminated liquid may, in some cases, be discharged to sanitary sewers but is more often removed and trucked offsite. Staff evaluated the amount of labor, laboratory analyses, and disposal costs associated with the contaminated rainfall liquid versus the estimated capital costs of retrofitting the open tank farms with roofs. The life cycle present worth cost analysis compared the unroofed and roofed situations.

The cost analysis showed that the chemical tank farm roof retrofits would save approximately \$29 million in labor, laboratory analyses, and disposal costs over the 25-year life span of the roofs at the Jensen, Mills, and Weymouth plants. The estimated payback periods are six years for the Jensen and Weymouth plants and nine years for the Mills plant. The Mills plant has a longer payback period because it receives less rainfall compared to the Jensen and Weymouth plants. In addition to cost savings related to the rainfall, roofs would significantly extend the life of electrical and mechanical components of chemical feed systems. As a result, with increasing disposal costs and toughening environmental regulations, roofing the chemical tank farms at Metropolitan's filtration plants is recommended.

At the Robert B. Diemer Filtration Plant, contaminated liquid is discharged to the Orange County Sanitation District's sewer system under an industrial waste discharge permit. The Diemer plant is unique in that it has a containment system which includes common piping to a holding tank with sufficient capacity to contain rainfall, allowing testing prior to discharge. Based on foreseeable sewer discharge rates, roofing the Diemer chemical tank farms is not recommended under this program. This recommendation will be reexamined if and when disposal costs increase substantially or regulations or permit requirements change. However, installing a roof over the existing Diemer caustic soda tank farm may be warranted for other reasons. The Weymouth, Jensen, Mills, and Skinner plants do not have existing containment systems similar to that at the Diemer plant. Construction of such

a system at the other plants would be cost prohibitive. At the Skinner plant, roofs are planned to be constructed for the chemical tank farms in conjunction with other major construction projects.

The addition of tank farm roofs to Metropolitan's filtration plants is proceeding in phases to permit coordination with the various ongoing improvement programs at each plant. In November 2003, Metropolitan's Board authorized the initial phase of work under the Install Roofs for Chemical Tank Farms Program. At this time, staff recommends proceeding with the second and final phase of design, which focuses on chemical tank farms at the Jensen, Weymouth, and Mills plants.

To most effectively integrate these projects into other programs underway at each plant, staff recommends that MWH perform final design for the tank farm roofs at the Jensen and Weymouth plants and Lee & Ro, Inc. perform final design for the roof at the Mills plant. The Mills roof design will be packaged together with the designs of the adjacent chlorine containment and fluoridation tank farm facilities (which are currently under design) to create one construction bid package.

The consulting work will be performed under existing professional services agreements. MWH and Lee & Ro were selected through a competitive process (Request for Qualifications 578) to perform engineering design of treatment plant improvements. Authority to enter into the agreements was approved by Metropolitan's Board in June 2003.

Project Description

This action authorizes final design of roofs to cover three chemical tank farms at the Jensen plant, four chemical tank farms at the Weymouth plant, and one chemical tank farm at the Mills plant. The roof structures will be constructed of open structural steel framing, metal roofing panels and sidings of appropriate materials.

Project Milestone

February 2007 – Completion of all construction

Financial Statement for All Facilities – Install Roofs for Chemical Tank Farms Program

A breakdown of Board Action No. 2 for Approp. No. 15415 for the All Facilities – Install Roofs for Chemical Tank Farms Program is as follows:

	Previous Total Appropriated Amount (Nov. 2003)	Current Board Action No. 2 (Dec. 2004)	New Total Appropriated Amount
Labor			
Studies and Investigations	\$ 184,000	\$ 0	\$ 184,000
Design and Specifications	0	68,000	68,000
Owner Costs (Program mgmt, permitting, and design review)	77,000	204,000	281,000
Materials and Supplies	0	10,000	10,000
Incidental Expenses	5,000	30,000	35,000
Professional/Technical Services	127,000		997,000
Montgomery Watson Harza Americas, Inc.		817,000	
Lee & Ro, Inc.		53,000	
Equipment Use	0	0	0
Contracts	0	0	0
Remaining Budget	59,000	238,000	297,000
Total	\$ 452,000	\$ 1,420,000	\$ 1,872,000

Funding Request

Program Name:	All Facilities – Install Roofs for Chemical Tank Farms Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15415	Board Action No.:	2
Requested Amount:	\$ 1,420,000	Capital Program No.:	15415-R
Total Appropriated Amount:	\$ 1,872,000	Capital Program Page No.:	E-3
Total Program Estimate:	\$ 8,150,000	Program Goal:	R - Regulatory-Other

