THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

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

2/8/2011 Board Meeting

8-5

Subject

Appropriate $3.1 million; and authorize final design of chlorine containment at the Chemical Unloading Facility (Approp. 15346)

Description

This action authorizes final design of a chlorine containment system at Metropolitan's Chemical Unloading Facility (CUF) in Riverside County, which will enhance safety and security at this location and will improve supply-chain reliability.

Timing and Urgency

At the CUF site, liquefied chlorine gas is transferred from vendor-supplied rail cars to Metropolitan-owned cargo trailers. These trailers are then delivered to Metropolitan's water treatment plants where they are housed within chlorine containment facilities, which provide an additional security barrier and have the capability to contain and neutralize a potential chlorine release. Chlorine withdrawn from these trailers is used at the water treatment plants for the disinfection process and to maintain the required disinfectant residual in the distribution system.

Metropolitan's Board has adopted a policy to provide containment facilities where chlorine is stored at Metropolitan's facilities in order to meet up-to-date fire code requirements, to provide a consistent level of safety, and to provide greater security measures to protect against an external threat. Chlorine containment facilities have been completed at Metropolitan's five water treatment plants. CUF is the final location to be addressed.

This project has been reviewed with Metropolitan's updated Capital Investment Plan (CIP) prioritization criteria and is categorized as a Stewardship project. The project is budgeted within Metropolitan's CIP for fiscal year 2010/11.

Background

CUF was constructed in 1975 and is used to transfer liquefied chlorine gas from vendor-supplied rail cars to Metropolitan-owned cargo trailers. These cargo trailers are then delivered by truck to the Diemer, Mills, and Skinner plants. (The Jensen and Weymouth plants receive chlorine deliveries directly by rail.) Although ozone is used as the primary disinfectant at the Mills, Jensen, and Skinner plants, chlorine is still required as a post-disinfectant and as a backup for the ozonation process. At the Weymouth and Diemer plants, ozone will supplant chlorine as the primary disinfectant, but the use of chlorine will remain vital to the water treatment process at both plants.

In April 1999, Metropolitan's Board initiated the multi-phased Chlorine Containment and Handling Facilities Program to construct containment systems at each of Metropolitan's five water treatment plants and at CUF. Chlorine containment facilities have been completed at the water treatment plants and are fully operational. In August 2008, the Board authorized preliminary design phase activities for the CUF Chlorine Containment project. Preliminary design of the project has now been completed, and staff recommends moving forward with final design at this time.

This project is consistent with staff recommendations contained in board reports on chlorine supply and chlorine security that were discussed with the Board in June 2006, June 2007, and February 2008. CUF is one of only two

liquid chlorine transfer facilities in Southern California. The other facility, which is located in Santa Fe Springs, is owned by Metropolitan's current chlorine supplier. Full reliance on a vendor's ability to transload chlorine would increase the risk of interruption to Metropolitan treatment processes if the vendor's transfer operations were delayed or interrupted. For example, chlorine delivery interruptions from the vendor occurred in late 2008 due to equipment failures at the vendor's facility, and in January 2005 due to flooding damage to rail lines. The planned upgrades at CUF will improve chlorine supply-chain reliability by enabling Metropolitan to safely and reliably fill trailers from rail cars. It is critical that Metropolitan preserve full capability at CUF to transfer the needed amount of chlorine at all times, in order to maintain overall water treatment reliability.

CUF Chlorine Containment Facility – Final Design Phase ($3,100,000)

The planned project includes the addition of an enclosed building that will house chlorine rail cars and cargo trailers, trans-loading equipment, chlorine neutralization system, process monitoring room, maintenance area, emergency generator, and chlorine recompression system. The recompression system will allow all chlorine to be recovered during the transloading process, which eliminates losses and speeds the rate of chlorine transfer. The new containment facility will be designed to comply with current fire codes; provide a consistent level of chlorine safety among CUF and the water treatment plants; and incorporate greater access control, boundary protection, and surveillance equipment to enhance security.

Final design phase activities will include detailed engineering design, preparation of drawings and specifications, acquisition of permits, development of a construction cost estimate, receipt of competitive bids, third-party value engineering review, and all other activities in advance of award of a construction contract.

This action appropriates $3.1 million, and authorizes final design phase activities for the CUF Chlorine Containment project. Final design will be performed by Metropolitan staff with specialized assistance from MWH Americas, as described below. The requested funds include $2.71 million for final design; $335,000 for permitting, bidding process, and project management; and $55,000 for third-party value engineering.

The anticipated cost of final design is approximately 11.8 percent of the estimated total construction cost. Engineering Services' goal for design of projects with construction cost greater than $3 million is 9 to 12 percent. The construction cost for this project is anticipated to range from $23 million to $27 million. Staff will return to the Board for award of a construction contract.

Technical Engineering Support – No Action Required (MWH Americas)

MWH Americas provided specialized technical support to Metropolitan staff during preliminary design of the planned trans-loading system at CUF. MWH Americas was selected through a competitive process via Request for Qualifications No. 927. Staff recommends that MWH Americas continue to provide technical support, including chlorine recompression system design, for the final design phase. This work requires highly specialized experience in chlorine recompression, and Metropolitan has insufficient technical resources in-house to perform the design.

The planned scope of work includes preparation of plans and specifications for a defined portion of the facility, and technical support during the bid advertisement period. This work will be performed under the existing board-authorized professional services agreement. For this agreement, Metropolitan has established a Small Business Enterprise (SBE) participation level of 18 percent. No amendment to the existing MWH Americas agreement is required for this work. The estimated cost to provide these services is $110,000.

Other Specialized Support – No Action Required

A value engineering session which addresses constructability and safety provisions of the CUF chlorine containment facility will be performed by a value engineering consultant under a new professional services agreement, selected via Request for Qualifications No. 949. This agreement is planned to be awarded by the General Manager under his Administrative Code authority. For this agreement, Metropolitan has established an SBE participation level of 18 percent. The estimated cost for these services is $55,000.

Summary

This action appropriates $3.1 million and authorizes final design phase activities for the CUF Chlorine Containment Facility. This work will be performed under the Chlorine Containment and Handling Facilities Program (Appropriation No. 15346), which was initiated in fiscal year 1998/99. Past work completed under Appropriation No. 15346 includes chlorine containment facilities at the Diemer, Jensen, Mills, Skinner, and Weymouth plants; filter inlet chlorination improvements at the Diemer and Weymouth plants; and filter outlet chlorination capacity increase projects at the Mills and Skinner plants. The total appropriated amount for this program will increase from $126,770,000 to $129,870,000.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds have been included in the fiscal year 2010/11 capital budget. See **Attachment 1** for the Financial Statement.

This project is consistent with Metropolitan's goals for sustainability by protecting water quality and enhancing the reliability of the existing treatment plant system in order to maintain reliable water deliveries in the future.

Project Milestone

July 2012 – Completion of final design of the CUF Chlorine Containment Facility

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The overall activities involve the funding, design, and minor alterations, reconstruction or replacement of existing public facilities along with the construction of minor appurtenant structures with negligible or no expansion of use and no possibility of significantly impacting the physical environment. In addition, this proposed action involves minor modifications in the condition of land and/or vegetation that do not involve removal of healthy, mature, scenic trees. Accordingly, the proposed action qualifies under Class 1, Class 2, Class 3, Class 4, and Class 11 Categorical Exemptions (Sections 15301, 15302, 15303, 15304, and 15311 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under five Categorical Exemptions (Class 1, Section 15301; Class 2, Section 15302; Class 3, Section 15303; Class 4, Section 15304; and Class 11, Section 15311 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination and

a. Appropriate $3.1 million; and
b. Authorize final design of the CUF Chlorine Containment Facility.

Fiscal Impact: $3.1 million of budgeted funds under Approp. 15346

Business Analysis: This option will enhance safety, provide greater security measures, and improve supply-chain reliability at CUF.

Option #2

Do not proceed with the CUF Chlorine Containment Facility.

Fiscal Impact: None

Business Analysis: This option would forego an opportunity to enhance safety, provide greater security measures, and improve supply-chain reliability at CUF.

Staff Recommendation

Option #1

1/24/2011

Roy L. Wolfe
Manager, Corporate Resources

Date

1/25/2011

Jeffrey Kightlinger
General Manager

Date

Attachment 1 – Financial Statement

Ref# cr12608725

Financial Statement for Chlorine Containment and Handling Facilities Program

A breakdown of Board Action No. 20 for Appropriation No. 15346 for the CUF Chlorine Containment Facility project* is as follows:

	Previous Total Appropriated Amount (Aug. 2010)	Current Board Action No. 20 (Feb. 2011)	New Total Appropriated Amount
Labor			
Studies and Investigations	$ 2,185,000	$ -	$ 2,185,000
Final Design	2,255,650	2,590,000	4,845,650
Owner Costs (Program mgmt., permitting, bidding process)	3,816,162	335,000	4,151,162
Construction Inspection and Support	10,056,874	-	10,056,874
Metropolitan Force Construction	6,341,600	-	6,341,600
Materials and Supplies	4,623,129	-	4,623,129
Incidental Expenses	528,500	10,000	538,500
Professional/Technical Services	8,510,747	-	8,510,747
MWH Americas, Inc.	-	110,000	110,000
Value engineering firm	-	55,000	55,000
Right of Way Fees	118,000	-	118,000
Land Acquisition	7,050,000	-	7,050,000
Equipment Use	495,500	-	495,500
Contracts	75,162,651	-	75,162,651
Remaining Budget	5,626,187	-	5,626,187
Total	**$ 126,770,000**	**$ 3,100,000**	**$ 129,870,000**

Funding Request

Program Name:	Chlorine Containment and Handling Facilities Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15346	**Board Action No.:**	20
Requested Amount:	**$** 3,100,000	**Capital Program No.:**	15346-W
Total Appropriated Amount:	**$** 129,870,000	**Capital Program Page No.:**	200
Total Program Estimate:	**$** 175,900,000	**Program Goal:**	W-Water Quality

* The total amount expended to date on the CUF Chlorine Containment Facility project is approximately $850,000.