MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

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

January 13, 2004 Board Meeting

**8-1**

## Subject

Authorize $120,000 for preliminary design to replace floating cover and repair lining at Palos Verdes Reservoir (Approp. 03403)

## Description

Covers are required for all reservoirs containing potable water to avoid cross connections. The cover at Palos Verdes Reservoir has reached the end of its useful life as evidenced by the increased frequency of repairs and the increased difficulty of the repairs. The typical life expectancy of a floating cover is between 15 and 20 years. The cover at Palos Verdes Reservoir is 16 years old.

A preliminary design effort is proposed to improve key design features of the new cover to minimize operational and maintenance difficulties that are currently experienced. The preliminary design will address new materials, joints at fixed boundaries such as the inlet/outlet tower, and improved rainwater collection and pumping systems. The effort will also assess the viability of reuse of the existing covers as part of the reservoir's liner, and address the need for subdrain systems and lining repairs.

**Preliminary Design of Palos Verdes Reservoir Floating Cover Replacement and Lining Repair ($120,000)**

Palos Verdes Reservoir, constructed in 1939, is the terminus finished water reservoir for the Sepulveda Feeder and is located in the city of Rolling Hills Estates in Los Angeles County. The reservoir is pear-shaped and has a capacity of 1,108 acre-feet with a surface area of 27 acres. The finished water reservoir has a floating cover which was originally installed in 1988. The synthetic rubber floating cover is at the end of its useful life and needs to be replaced.

The reservoir's existing gunite lining also has several areas of significant damage. In one location, the gunite lining has separated from the slope and slid down into the reservoir. The lining failure was probably caused by uplift from groundwater and seepage forces, which may require the installation of a subdrain system to collect and convey flows and reduce excess hydrostatic pressures. This action authorizes preliminary design and preparation of environmental documentation for replacement of the reservoir cover and repair of damaged lining at Palos Verdes Reservoir. Preliminary design and preparation of the environmental documentation for the Palos Verdes Reservoir will be conducted under an existing on-call agreement with Montgomery Watson Harza (MWH). MWH was selected through a competitive process, and an on-call agreement was authorized by the Board in September 2003.

See **Attachment 1** for the detailed report, **Attachment 2** for the financial statement and **Attachment 3** for a photo of Palos Verdes Reservoir.

## 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:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed project consists 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).

CEQA determination for Option #2:

None required

## Board Options/Fiscal Impacts

**Option #1**

Adopt the CEQA determination and authorize $120,000 in budgeted funds for preliminary design and preparation of environmental documentation for the replacement of the floating cover and repair of damaged lining at Palos Verdes Reservoir.
**Fiscal Impact:** $120,000 of budgeted CIP funds under Appropriation 03403.

**Option #2**

Defer replacement of the floating cover and lining repair. Should further damage to the floating cover or liner occur, the ability to perform effective repairs in a timely manner is unknown.
**Fiscal Impact:** Increased costs.

## Staff Recommendation

Option #1

Roy L. Wolfe — 12/22/2003
*Roy L. Wolfe* — *Date*
*Manager, Corporate Resources*

Ronald R. Gastelum — 12/23/2003
*Ronald R. Gastelum* — *Date*
*Chief Executive Officer*

**Attachment 1 – Detailed Report**

**Attachment 2 – Financial Statement for Reservoir Cover and Replacement Program**

**Attachment 3 – Photo of Palos Verdes Reservoir**

BLA #2625

## Detailed Report

***Background/Purpose***

Regulatory requirements mandate that all reservoirs containing potable water be covered to avoid cross connections (Section 64600 of the California Waterworks Standards - CCR Title 22, Division 4, Chapter 16, Article 3). The synthetic rubber floating cover at Palos Verdes Reservoir is at the end of its useful life and needs to be replaced. This has been evidenced by the increased frequency of tears in the cover and in the increased difficulty of the repairs. The materials are such that they deteriorate over time and deteriorate more rapidly with exposure to ultraviolet rays. Repair adhesives no longer provide acceptable bonding to the materials and as such, repairing tears is ineffective. The most extensive repairs have been experienced at the Palos Verdes Reservoir Secondary Inlet in 2000.

**Preliminary Design of Palos Verdes Reservoir Floating Cover Replacement and Lining Repair**

Palos Verdes Reservoir, constructed in 1939, is the terminus finished water reservoir for the Sepulveda Feeder, located in the city of Rolling Hills Estates in Los Angeles County. The reservoir is pear-shaped and has a capacity of 1,108 acre-feet with a surface area of 27 acres. The finished water reservoir has a floating cover which was originally installed in 1988. The reservoir's existing gunite lining has experienced significant damage. At one location, a sizable portion of the gunite lining has separated from the slope and slid down to the toe of slope. The rough gunite surface beneath the floating cover is the major cause for some of the more significant tears. The lining failure was probably caused by uplift from groundwater and seepage forces, and may require the installation of a subdrain system to collect and convey flows and reduce excess hydrostatic pressures. Should more extensive damage to the cover occur, the ability to perform effective repairs in a timely manner is questionable given the current condition of the cover material.

The scope of work for preliminary design includes the following: repair existing liner and/or replace with new flexible membrane liner; install subdrain collection system; install new floating cover; upgrade reservoir electrical system, and install surface drainage to accommodate new cover dewatering pumps. In addition, staff will coordinate with Department of Health Services (DHS) and Division of Safety of Dams (DSOD) for applicable permits and prepare environmental documentation.

This action authorizes planning and engineering studies, preliminary design, and environmental documentation preparation to replace the reservoir cover and repair the lining at Palos Verdes Reservoir.

***Actions and Milestones***

September 2004 – Complete preliminary design and CEQA documentation

November 2004 – Board authorization for final design

June 2005 – Board authorization and funding for construction

**Financial Statement for the Reservoir Cover and Replacement Program**

A breakdown of Board Action No. 1 for Appropriation No. 03403 for preliminary design of the Palos Verdes Cover Replacement Project is as follows:

| | Board Action No. 1 (Jan. 2004) | New Total Appropriated Amount |
|---|---|---|
| Labor | | |
| Owner Costs (Program management, environmental permitting) | $20,000 | $20,000 |
| Materials and Supplies | 0 | 0 |
| Incidental Expenses | $5,000 | $5,000 |
| Professional/Technical Services | | |
| Environmental Documentation | $20,000 | $20,000 |
| Preliminary Design | $60,000 | $60,000 |
| Remaining Budget | $15,000 | $15,000 |
| **Total** | **$120,000** | **$120,000** |

**Funding Request**

| | | | |
|---|---|---|---|
| **Program Name:** | Reservoir Cover and Replacement Program | | |
| **Source of Funds:** | Construction Funds (General Obligation, Revenue Bonds, Pay-As-You-Go Fund) | | |
| **Appropriation No.:** | 03403 | **Board Action No.:** | 1 |
| **Requested Amount:** | $120,000 | **Capital Program No.:** | 03403-S |
| **Total Appropriated Amount:** | $120,000 | **Capital Program Page No.:** | E-64 |
| **Total Program Estimate:** | $ 12,903,000 | **Program Goal:** | Supply & Delivery Reliability |

**Palos Verdes Reservoir**