



- Board of Directors
Engineering and Operations Committee

2/14/2012 Board Meeting

8-4

Subject

Appropriate \$6.9 million; and authorize (1) final design of the Jensen Solids Dewatering Facility and Lagoons; (2) new agreement with MWH Americas; and (3) amendment to existing agreement with Environmental Science Associates (Approp. 15371)

Description

This action authorizes final design of the Solids Dewatering Facility and Lagoons project at the Joseph Jensen Water Treatment Plant. This project will enable on-site dewatering of water treatment residual solids, increase washwater recovery, and improve plant operational flexibility and reliability. This action also authorizes a new professional services agreement for technical support services during final design, and amendment of an existing agreement for preparation of environmental documentation and permitting.

Timing and Urgency

The Jensen facility is Metropolitan's only water treatment plant which does not have on-site solids dewatering capability to process thickened residual solids. Currently, the Jensen plant relies on a combination of two processes for solids handling: air-drying of solids in lagoons leased from the Los Angeles Department of Water and Power (LADWP), and discharge to a city of Los Angeles sanitary sewer. Under design conditions, the existing LADWP lagoons can accommodate only 15 percent of the Jensen plant's maximum capacity solids disposal needs, while sewer discharge can only accommodate an additional 25 percent. Thus, unless improvements are undertaken, the long-term, reliable Jensen flowrate may be reduced from 750 million gallons per day (mgd) to 300 mgd.

Given the variability of State Water Project supply deliveries and water quality, the planned solids handling facilities are needed to meet short-term, high solids loading and long-term, reliable treatment capacity at the Jensen plant. Since the Jensen plant commenced operation in 1972, nine high-turbidity events have occurred, which required either temporary storage of solids in lagoons or excessive discharge to the sanitary sewer. At the present time, any increased sewer discharges above the limitations contained in Metropolitan's discharge permit would require discretionary approval by the city of Los Angeles. Sewer disposal is not considered a feasible alternative for accommodating short-term, high-solids loading.

Metropolitan's long-term plan for solids handling at the Jensen plant is to thicken and dewater all residual solids on-site. This plan will be executed in two stages. During Stage 1, Metropolitan will add an onsite solids dewatering facility and lagoons to provide cost-effective, reliable solids handling of up to two-thirds of the Jensen plant's 750 mgd water treatment capacity. These facilities will support near-term plant water production. In the future, additional belt presses and ancillary equipment will be added during Stage 2 to process the remaining one-third of plant capacity. When Stages 1 and 2 are complete, Metropolitan will no longer be reliant on the LADWP lagoons nor will residual solids be discharged to the sanitary sewer.

Staff recommends moving forward with Stage 1 of this project to provide on-site solids dewatering facilities to support 500 mgd of plant capacity. This project has been reviewed with Metropolitan's updated Capital

Investment Plan (CIP) prioritization criteria and is categorized as a Cost Efficiency/Productivity project. The project is budgeted within Metropolitan's CIP for fiscal year 2011/12.

Background

The Jensen plant was placed into service in 1972 with an initial capacity of 400 mgd. The plant was expanded in the early 1990s to its current capacity of 750 mgd. The Jensen plant exclusively treats water from the West Branch of the State Water Project, and delivers it to Metropolitan's Central Pool portion of the distribution system and to service areas in the western portion of the distribution system.

Residual chemicals and settled solids collected from the Jensen plant's sedimentation basins are currently thickened on-site and then air-dried at the nearby LADWP lagoons. This cooperative arrangement was initiated in February 2005 and is under negotiation to be extended, pending construction of the Jensen on-site lagoons. Under the existing Metropolitan-LADWP agreement, Metropolitan may use two of LADWP's lagoons while Metropolitan's land for on-site Jensen lagoons is leased for recreational purposes. Currently, the LADWP lagoons have sufficient capacity to process only 15 percent of the solids generated at the Jensen plant's maximum flowrate at design conditions. Solids produced at the Jensen plant may also be discharged to the sanitary sewer. However, sewer disposal is expensive and is limited by the discharge permit. For example, in 2005, when all of the Jensen plant's solids were discharged into the sanitary sewer for several days in a row, the discharge fees totaled approximately \$70,000 per day. Under maximum plant capacity of 750 mgd, the sewer discharge can only accommodate approximately 25 percent of the solids generated at the plant's maximum flowrate. Thus, unless improvements are undertaken, the long-term, reliable Jensen flowrate may be reduced from 750 mgd to 300 mgd.

In September 2008, Metropolitan's Board authorized preliminary design phase activities for the Jensen Solids Dewatering Facility and Lagoons project. A combination of on-site mechanical dewatering and air-drying lagoons was selected to improve plant operational flexibility and reliability. A combination of these two processes is required because a lagoon-only option would require excessive amounts of land, while a mechanical-dewatering-only option could not process the very high volumes of solids produced during storm events, which can double the solids generated under normal design conditions. Based on an assessment of future process space needs and geotechnical conditions at the Jensen plant, staff recommends that the on-site lagoons and the mechanical dewatering facility be located at the southern portion of the plant. The proposed location for the on-site lagoons is currently leased to the Los Angeles Department of Recreation and Parks, which subleases the property to the Granada Hills Youth Recreation Center, Inc. (GHYRC). GHYRC operates and maintains several soccer and baseball fields for youth sports on this subleased property. There are ongoing discussions among Metropolitan and the city of Los Angeles (LADWP, Recreation & Parks, and representatives from the Mayor's office) regarding how and where to relocate the GHYRC facilities. In the interim, Metropolitan intends to renew the lease with Los Angeles Department of Recreation and Parks through August 2012, in exchange for an extension on the use of the LADWP lagoons.

Jensen Solids Dewatering Facility and Lagoons, Stage 1 – Final Design Phase (\$6.9 million)

Preliminary design of the Jensen solids handling facilities has been completed, and staff recommends proceeding with final design. The scope of the planned Stage 1 project includes the addition of a new solids dewatering facility, lagoons, decant and filtrate pumping stations, and support facilities; modifications to the existing dry polymer building and solids thickening system; and electrical ductbank replacement. The lagoons and solids dewatering facility will be sized to process two-thirds of the residual solids produced at the Jensen plant's maximum flowrate. For the remaining one-third of solids production, this option requires that the city of Los Angeles sewer permit be revised to increase the allowable annual volume of solids discharged to the sewer until the Jensen solids dewatering capacity is expanded to process all residual solids on-site. Revision of Metropolitan's permit is subject to discretionary approval of the city of Los Angeles.

The lagoons will be sized to process approximately 30 percent of the residual solids produced at the Jensen plant's maximum flowrate, while the solids dewatering facility will be sized to process the remaining amount. The capacity of the lagoons has been determined based on the available on-site space. The lagoons will be used as the primary means to dewater solids because of their lower operation and maintenance cost. In addition, the lagoons will be used to process peak solids production resulting from extreme water quality events, such as

occurred in the winter of 2004/05, when highly turbid water entered the Jensen plant and required greatly increased application of coagulants and polymers to treat the water.

Final design phase activities will include detailed field investigations, engineering design, preparation of drawings and specifications, preparation of environmental-related documents, acquisition of permits, development of a construction cost estimate, receipt of competitive bids, and all other activities in advance of award of a construction contract. The detailed field investigations will include detailed geotechnical investigations, hazardous material testing, and utility potholing. Due to its size and unique location, the Jensen lagoon system is expected to be classified as a dam and thereby fall under the jurisdiction of the California Division of Safety of Dams (DSOD). The DSOD-related activities will include permitting, inundation mapping, conducting hazard analyses, and value engineering. The environmental documentation will include technical studies and a revision of the draft environmental impact report (Draft EIR).

The Draft EIR was prepared during preliminary design of the Jensen Solids Dewatering Facility and Lagoons project, and was circulated for public comment. Subsequently, a new project alternative was identified which includes a different on-site location for the solids dewatering facility. This new alternative will require additional environmental studies.

This action appropriates \$6.9 million and authorizes final design phase activities for Stage 1 of the Jensen Solids Dewatering Facility and Lagoons project. Final design will be performed by Metropolitan staff with specialized assistance from MWH Americas, as described below. Environmental documentation is recommended to be prepared by Environmental Science Associates, as described below. The requested funds include \$3,776,000 for final design; \$564,000 for the detailed field investigations; \$461,000 for permitting; \$235,000 for environmental documentation; \$241,000 for third-party value engineering reviews; \$63,000 for utility easements and right-of-way support; \$655,000 for community outreach, project management, bid advertisement and award, and project controls; and \$905,000 for remaining budget.

The anticipated cost of final design is approximately 12 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 \$28.5 million to \$34.5 million.

Staff will return to the Board at a later date for certification of the EIR and adoption of the Findings of Fact, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Program. Staff will also return to the Board at a later date for award of a construction contract.

Technical Engineering Support – New Professional Services Agreement (MWH Americas)

MWH Americas prepared the preliminary design report for the Jensen Solids Dewatering Facility and Lagoons project, and is recommended to provide technical support, including electrical system design, under a new professional services agreement. This work is highly specialized, and Metropolitan has insufficient technical staff in-house to conduct the electrical system design. MWH was selected through a competitive process via Request for Qualifications No. 927. For this agreement, Metropolitan has established a Small Business Enterprise (SBE) participation level of 18 percent. The scope of work will include electrical system design, specialized technical support relating to solids handling, and updates to preliminary design documents.

This action authorizes an agreement with MWH Americas, in an amount not to exceed \$1,025,000, to provide design and technical support services for the Jensen Solids Dewatering Facility and Lagoons project.

Environmental Documentation – Amendment to Existing Agreement (ESA)

Environmental Science Associates (ESA) prepared the Draft EIR for the Jensen Solids Dewatering Facility and Lagoons project and is recommended to perform additional technical studies (addressing issues such as air quality, traffic, and noise) and prepare environmental documents under an existing professional services agreement. This work is specialized and Metropolitan has insufficient resources in-house to perform these activities. ESA was selected through a competitive process via Request for Qualifications No. 763. Amendment of the existing ESA agreement is consistent with the agreement's scope of work, and with the planned approach for project implementation. For this agreement, Metropolitan has established an SBE participation level of 18 percent.

This action authorizes an increase of \$135,000 to the existing agreement with ESA, for a new not-to-exceed total of \$465,000, to prepare environmental documentation for the Jensen Solids Dewatering Facility and Lagoons project.

Other Specialized Support – No Actions Required

Hydraulic surge analyses for the Jensen Solids Dewatering Facility and Lagoons project are recommended to be conducted by Northwest Hydraulics Consultants, Inc. under an existing professional services agreement. Northwest Hydraulics Consultants, Inc. was selected through a competitive process via Request for Qualifications No. 971; no amendment to the existing agreement is required. For this agreement, Metropolitan has established an SBE participation level of 18 percent. The estimated cost for these services is \$20,000.

Inundation mapping for the Jensen Solids Dewatering Facility and Lagoons project will be performed by West Consultants, Inc. under an existing professional services agreement. West Consultants, Inc. was selected through a competitive process via Request for Qualifications No. 971; no amendment to the existing agreement is required. For this agreement, Metropolitan has established an SBE participation level of 18 percent. The estimated cost for these services is \$90,000.

Geotechnical investigations, risk analyses, and aquifer tests will be performed by two geotechnical consultants under two new professional services agreements, selected through a competitive process via Request for Qualifications No. 931. These agreements are planned to be awarded by the General Manager under his Administrative Code authority. For each of these agreements, Metropolitan has established an SBE participation level of 18 percent. The estimated total cost for these services is \$125,000.

Three value engineering sessions are planned for the Jensen Solids Dewatering Facility and Lagoons project. One session will address design-related issues and two sessions will address constructability of the project. The work will be performed by value engineering consultants under existing professional services agreements, selected through a competitive process via Request for Qualifications No. 949; no amendment to the existing agreements is required. For these agreements, Metropolitan has established an SBE participation level of 18 percent. The estimated cost for these services is \$139,000.

Groundwater sampling and water quality analyses are recommended to be performed by WorleyParsons under an existing professional services agreement. WorleyParsons was selected through a competitive process via Request for Qualifications No. 846; no amendment to the existing agreement is required. For this agreement, Metropolitan has established an SBE participation level of 18 percent. The estimated cost for these services is \$40,000.

Summary

This action appropriates \$6.9 million; authorizes final design phase activities for Stage 1 of the Jensen Solids Dewatering Facility and Lagoons project; authorizes an agreement with MWH Americas; and authorizes an amendment to the existing agreement with Environmental Science Associates. This work has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds have been included in the fiscal year 2011/12 capital budget. See [Attachment 1](#) for the Financial Statement and [Attachment 2](#) for the Location Map.

This project is included within capital Appropriation No. 15371, the Jensen Improvements Program, which was initiated in fiscal year 2001/02. Appropriation No. 15371 also includes other projects such as the Jensen Ferric Chloride Retrofit, Filter Media Replacement, Solids Thickeners Nos. 5 & 6, and the Administration Building

Seismic Upgrades. With the present action for the Jensen Solids Dewatering Facility and Lagoons project, the total funding for Appropriation No. 15371 will increase from \$32,304,521 to \$39,204,521.

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 Milestones

November 2013 - Completion of final design

December 2015 – Completion of construction

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

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 action consists of basic data collection, engineering studies, environmental documentation, 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 action qualifies as a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

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

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination and

- a. Appropriate \$6.9 million;
- b. Authorize final design of Stage 1 of the Jensen Solids Dewatering Facility and Lagoons project to support 500 mgd of plant operation;
- c. Authorize an agreement with MWH Americas in an amount not to exceed \$1,025,000; and
- d. Authorize an increase of \$135,000 to the existing agreement with Environmental Science Associates, for a new not-to-exceed total of \$465,000.

Fiscal Impact: \$6.9 million of budgeted funds under Approp. 15371

Business Analysis: This option will support reliable treatment plant operation with two-thirds of the normally expected Jensen solids dewatering capacity at full plant flow. Additional flow capacity at the Jensen plant is unlikely to be needed over the next 20 years, based on projected system demand.

Option #2

Do not authorize the Jensen Solids Dewatering Facility and Lagoons project at this time.


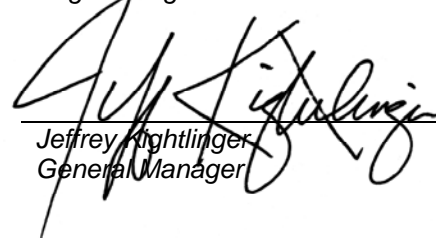
Fiscal Impact: Due to the recent restrictions on State Water Project supplies, reduced demands in the Jensen service area, and favorable source water quality, all residual solids have been handled in recent years using the LADWP solids lagoons. When the Jensen plant's flowrate increases, or source water quality becomes unfavorable, the LADWP solids lagoons' capacity will be insufficient to handle all residual solids from the Jensen plant. The discharge of excess solids (those that exceed the LADWP lagoons' capacity) into the sanitary sewer is estimated to cost between \$3 million to \$5 million per year, based on an annual average

plant flowrate of 300 mgd. This cost would increase with higher plant flowrates. However, plant capacity would be limited based on discharge limitations to the sanitary sewer.

Business Analysis: This option would delay completion of the on-site solids lagoons and dewatering facility. After the agreement for use of the LADWP lagoons expires, the Jensen plant would only discharge to the sanitary sewer. The city of Los Angeles sewer permit would need to be revised to increase the allowable annual volume of solids discharged to the sewer. Revision of Metropolitan’s permit is subject to the discretionary approval of the city of Los Angeles.

Staff Recommendation

Option #1

	1/24/2012
Gordon Johnson Manager/Chief Engineer, Engineering Services	Date
	2/1/2012
Jeffrey Lightlinger General Manager	Date

Attachment 1 – Financial Statement

Attachment 2 – Location Map

Ref# es12607674

Financial Statement for Jensen Improvements Program

A breakdown of Board Action No. 17 for Appropriation 15371 for the Jensen Solids Dewatering Facility and Lagoons project¹ is as follows:

	Previous Total Appropriated Amount (Mar. 2011)	Current Board Action No. 17 (Feb. 2012)	New Total Appropriated Amount
Labor			
Studies & Investigations (Site characterization)	\$ 1,024,850	\$ 270,000	\$ 1,294,850
Final Design	2,339,151	2,881,000	5,220,151
Owner Costs (Program mgmt., permitting, env. doc., bidding process)	3,177,396	977,000	4,154,396
Construction Inspection & Support	2,024,000	-	2,024,000
Metropolitan Force Construction	2,153,400	-	2,153,400
Materials & Supplies	2,236,219	-	2,236,219
Incidental Expenses	164,380	213,000	377,380
Professional/Technical Services	4,011,327	25,000	4,036,327
MWH Americas	-	1,025,000	1,025,000
Environmental Science Associates	-	135,000	135,000
Northwest Hydraulics Consultants	-	20,000	20,000
West Consultants, Inc.	-	90,000	90,000
WorleyParsons	-	40,000	40,000
Geotechnical consultant	-	125,000	125,000
Value engineering consultant	-	139,000	139,000
Underground utility investigation firm	-	45,000	45,000
Hazardous material testing firm	-	10,000	10,000
Equipment Use	104,000	-	104,000
Contracts	14,289,746	-	14,289,746
Remaining Budget	780,052 ²	905,000	1,685,052
Total	\$ 32,304,521	\$ 6,900,000	\$ 39,204,521

Funding Request

Program Name:	Jensen Improvements Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15371	Board Action No.:	17
Requested Amount:	\$ 6,900,000	Capital Program No.:	15371-I
Total Appropriated Amount:	\$ 39,204,521	Capital Program Page No.:	308
Total Program Estimate:	\$ 99,213,000	Program Goal:	I-Infrastructure Reliability

¹ The total amount expended to date on the Jensen Solids Dewatering Facility and Lagoons project is approximately \$2.7 million.

² Includes previous reallocation of \$222,521 from a completed project to Remaining Budget for work completed below budget; and from Remaining Budget to the following projects: (1) \$45,000 for design work on the Jensen Entrance Improvements project to reflect differing site conditions; and (2) \$160,500 for the value engineering-recommended geotechnical investigation and aerial surveying of the new mechanical dewatering facility location for the Jensen Solids Dewatering Facility and Lagoons project.

Joseph Jensen Water Treatment Plant

