



● **Board of Directors**
Engineering and Capital Programs Committee

February 10, 2009 Board Meeting

8-2

Subject

Authorize (1) installation of a prototype well for hydrogeologic investigations of the Hayfield Groundwater Extraction Project; and (2) amendment to existing agreement with Kennedy/Jenks Consultants (Approp. 15402)

Description

This action authorizes installation of a prototype well and hydrogeologic investigations for the Hayfield Groundwater Storage Program. The information acquired from this prototype well is needed to optimize the extraction capabilities for recovering water that has been previously stored in Hayfield groundwater basin. Metropolitan has a total of 70,000 to 100,000 acre-feet of previously stored water in the Hayfield groundwater basin. No funds are required in this action, as sufficient funds have previously been appropriated. This project is categorized as a Supply Reliability project and is budgeted within Metropolitan's Capital Investment Plan (CIP). This project has been reviewed under Metropolitan's updated CIP prioritization criteria, and is a component of Metropolitan's five-year supply plan.

Background

The Hayfield groundwater basin is located south of the Hinds pumping plant adjacent to the Colorado River Aqueduct (CRA). In June 2000, Metropolitan's Board authorized a feasibility study for storing surplus CRA water in the Hayfield basin. In December 2002, the Board authorized detailed investigations of the Hayfield groundwater basin. Data gathered from the field investigations, along with the results of the groundwater modeling effort, indicated that the groundwater basin has sufficient capacity to store up to 400,000 acre-feet of water. As a part of this study, over 70,000 acre-feet of CRA water was discharged into the Hayfield groundwater basin for investigation, modeling, and storage purposes.

In November 2004, the Board deferred the Hayfield Groundwater Storage Program because it was clear that surplus Colorado River water would not be available in the foreseeable future. With Metropolitan's water supplies becoming increasingly limited, staff initiated a study in early 2008 to evaluate the feasibility of extracting the water which had previously been stored in the Hayfield groundwater basin. This action would authorize hydrogeologic investigations including installation of one prototype well. This prototype well will have an extraction capacity of 4,000 to 5,000 acre-feet per year. When fully equipped in the future, this well can be used for extraction of the existing stored water as a stand-alone unit, or may be incorporated into a larger wellfield system if desired.

Hayfield Groundwater Extraction Project – Hydrogeologic Investigations (No funds required)

Under the planned hydrogeologic investigations, a single prototype well will be drilled to the anticipated depth and diameter of a full-scale production well. The prototype well will be cased, sealed, and developed in accordance with State Department of Water Resources well standards. Geotechnical investigations will include water quality sampling and testing of the groundwater, soil sampling and testing of the aquifer materials, and geophysical logging. After the well is developed, it will be pumped with temporary equipment for a minimum of 30 days, and the existing monitoring wells will be measured to characterize the hydrogeologic behavior of the Hayfield aquifer. Based on the information acquired during this investigation, staff will finalize an approach for extraction of Metropolitan's stored water. Several options will be considered including: build-out of the well and

connecting infrastructure for a single stand-alone unit, to be placed on-line as rapidly as possible; and construction of a full wellfield with four to five pumps.

Hydrogeologic investigations will be performed by Kennedy/Jenks Consultants and GeoPentech. These firms are the most knowledgeable about the Hayfield program and can focus on specific components of the work. Staff is confident that a seamless, cohesive work product will be achieved with these firms under the project's expedited schedule. Metropolitan staff will perform project management and permitting. Kennedy/Jenks' planned scope of work is discussed below.

GeoPentech will perform its work under an existing professional services agreement. GeoPentech had previously assisted in the characterization of the groundwater aquifer and developed the groundwater model of the Hayfield basin. For these investigations, GeoPentech will be responsible for the prototype well evaluation and modeling, installation of recording equipment for continuous groundwater monitoring, groundwater quality sampling and testing, geotechnical data collection, and hydrogeologic evaluation during drilling. The estimated cost for these geotechnical support services is \$125,000.

Technical Engineering Support – Amendment to Agreement with Kennedy/Jenks Consultants, Inc.

Kennedy/Jenks Consultants previously performed feasibility studies and aquifer-pumping tests for the Hayfield Groundwater Storage Program during the initial groundwater recharge study phase and has the most experience in drilling wells and production of water within the basin. Specifically, Kennedy/Jenks has experience with the previous detailed investigations of the Hayfield basin, and is recommended to perform design and contract administration for drilling of the prototype well, inspection of the well construction, soil sampling and logging of well, and pump test data collection. The estimated cost for the prototype well construction is \$1.5 million and for Kennedy/Jenks' staff services is \$190,000. Kennedy/Jenks was selected through a competitive process via Request for Qualifications No. 833.

This action authorizes an increase of \$1.5 million to the existing agreement with Kennedy/Jenks, for a new not-to-exceed total of \$1.74 million, for the Hayfield Groundwater Extraction Project. Drilling of the prototype well will be included within the scope of these services, including selection of the drilling firm through a competitive bid process. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 18 percent.

Summary

This action authorizes installation of a prototype well and hydrogeologic investigations for the Hayfield Groundwater Extraction Project, and authorizes amendment of an existing agreement with Kennedy/Jenks for specialized technical support. No new funds are required for this action, as sufficient funds have previously been appropriated. [Attachment 1](#) shows the distribution of previously appropriated funds for this program. The Hayfield Extraction Project was included within the capital budget for fiscal year 2008/09. This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team.

The estimated cost to complete these hydrogeologic investigations is \$1,945,000, including \$1.69 million for Kennedy/Jenks' scope of work; \$125,000 for GeoPentech; and \$130,000 for Metropolitan project management and support, including acquisition of permits and coordination with regulatory agencies; a value engineering review of any future extraction system; and development of a program cost estimate.

This project is consistent with Metropolitan's goals for sustainability by enhancing reliability of the existing conveyance and distribution system in order to maintain reliable water deliveries in the future. See [Attachment 2](#) for the Location Map.

Actions and Milestones

May 2009 – Completion of prototype well

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8117: Professional and Technical Consultants

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

To comply with CEQA and the State CEQA Guidelines, Metropolitan as the Lead Agency prepared a Mitigated Negative Declaration (MND) for the Hayfield Lake/Chuckwalla Valley Groundwater Conjunctive Use Project. The MND was distributed for a 30-day public review period that began on February 25, 1999 and ended on March 26, 1999. The Board later adopted the MND and the Mitigation Monitoring and Reporting Program (MMRP) on April 13, 1999. The present board action is to authorize a contract amendment to install a single prototype well and preliminary design work and not on any changes to the approved project itself. The previously adopted environmental documentation includes the current action and fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further environmental documentation is necessary for the Board to act with respect to the proposed action.

The CEQA determination is: Determine that the proposed action has been previously addressed in the adopted 1999 MND and the MMRP and that no further environmental analysis or documentation is required.

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination and

- a. Authorize hydrogeological investigation for the Hayfield Groundwater Extraction Project; and
- b. Authorize increase of \$1.5 million to the existing agreement with Kennedy/Jenks Consultants, Inc., for a new not-to-exceed total of \$1.74 million.

Fiscal Impact: \$1,945,000 of previously appropriated and budgeted funds under Approp. 15402

Business Analysis: These investigations will provide necessary information to determine groundwater extraction capabilities and support the development of a future extraction system to recover approximately 70,000 to 100,000 acre-feet of previously stored water.

Option #2

Do not authorize hydrogeological investigation of the Hayfield Groundwater Extraction Project.

Fiscal Impact: Higher-cost water supplies may be required in the future.

Business Analysis: Metropolitan would forego an opportunity to develop a cost-effective and efficient approach for recovery of previously stored water from the Hayfield basin.

Staff Recommendation

Option #1



 Roy L. Wolfe
 Manager, Corporate Resources

1/30/2009

 Date



 Jeffrey Kightlinger
 General Manager

1/30/2009

 Date

[Attachment 1 – Financial Statement](#)

[Attachment 2 – Location Map](#)

Financial Statement for Hayfield Groundwater Storage Program

A breakdown of Appropriation No. 15402 is as follows:

	Previous Total Appropriated Amount (Dec. 2002)	Previous Total Appropriated Amount * (Apr. 2007)	Current Budget Redistribution ** (Feb. 2009)	Total Appropriated Amount
Labor				
Studies & Investigations	\$ 500,000	\$ 500,000		\$ 2,000,000
Final Design	2,040,000	-		-
Owners Costs (Program mgmt, envir. monitoring)	3,690,000	3,488,000	125,000	3,613,000
Construction Inspection & Support	-	-	-	-
Metropolitan Force Construction	1,000,000	-	-	-
Materials and Supplies	150,000	69,000	-	69,000
Incidental Expenses	40,000	22,000	5,000	27,000
Professional/Technical Services	11,780,000	6,054,000	1,815,000	7,869,000
Equipment Use	5,000	1,000	-	1,000
Land Purchase	3,150,000	1,450,000	-	1,450,000
Contracts	-	-	-	-
Remaining Budget	3,360,000	3,360,000		3,360,000
Undistributed Funds	-	10,771,000	(1,945,000)	8,826,000
Total	\$ 25,715,000	\$ 25,715,000	\$ -	\$ 27,215,000

Funding Request

Program Name:	Hayfield Groundwater Storage Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15402	Board Action No.:	4
Requested Amount:	\$ 1,945,000	Capital Program No.:	15402
Total Appropriated Amount:	\$ 25,715,000	Capital Program Page No.:	E-31
Total Program Estimate:	\$ 46,693,200	Program Goal:	S- Supply Reliability

*Budget distribution and total program estimate were revised to reflect deferral and transfer of variance to the program in April 2007.

**Reflects the scope of work contained in the present action.

Hayfield Groundwater Storage Program

