

October 27, 1998

To: Board of Directors (Engineering and Operations Committee--Action)
(Water Planning and Resources Committee--Action)

From: General Manager _____

Submitted by: Debra Man, Chief _____
Planning and Resources

Subject: Authorization to enter into an agreement with Woodward Clyde International Americas, Inc. for the development of feasibility plan and environmental studies for the Hayfield/Chuckwalla Groundwater Storage Demonstration Program.

Reference: Appropriation No. 15325

RECOMMENDATION

It is recommended that the Board authorize the General Manager to enter into an agreement with Woodward Clyde International Americas, Inc., in an amount not to exceed \$1,950,000, for consulting services for the development of a demonstration project, the facility plans and the environmental studies needed for the Hayfield/Chuckwalla Groundwater Storage Demonstration Program.

EXECUTIVE SUMMARY

The Hayfield and Chuckwalla groundwater basins are located in the Mojave Desert adjacent to the Colorado River Aqueduct (CRA) between Eagle Mountain and Hinds pumping plants. Preliminary feasibility analyses have been completed, which indicate that groundwater storage in the Hayfield and Chuckwalla basins is technically feasible and cost effective. As currently proposed, Metropolitan would store approximately 500,000 to 1,000,000 acre-feet (AF) of available CRA water in the Hayfield and Chuckwalla groundwater basins. During years of shortage, this stored water would be recovered and placed in the CRA for use in Metropolitan's service area. The preliminary feasibility analysis indicates that the expected recharge and return capacity of the Hayfield and Chuckwalla groundwater basins is about 150,000 to 250,000 AF per year.

At the July 14, 1998 meeting of the Board of Directors, \$2,200,000 was appropriated for completion of a demonstration project, technical studies and environmental documentation needed for the Hayfield/Chuckwalla Valley Groundwater Storage Program (Program). The studies and actions to be assessed with the appropriated funds are necessary to assist in optimizing the proposed facilities for potential implementation of a full-scale water storage program in the Hayfield/Chuckwalla Basin. These studies will provide the technical information needed to locate and size future facilities for ultimate project implementation. The demonstration portion of these

investigations will be conducted using available Colorado River supplies and will initiate groundwater storage in the Hayfield Valley.

To accomplish these studies, The Woodward Clyde International Americas, Inc. (Woodward Clyde) consultant team was selected based on Metropolitan's standard consultant selection procedure. Request for Proposals No. 343 was advertised in local newspapers on July 15, 1998, and mailed directly to eight firms expressing interest in the Program. A pre-proposal conference was conducted on July 29, 1998 and on August 10, 1998 four proposals were received. Interviews were conducted with the respondents on September 9, 1998. Staff selected the Woodward Clyde team based on their experience, approach, methodology, management abilities and cost effectiveness.

In summary, the full scale project will allow Metropolitan to store Colorado River water, an essential component of the California 4.4 Plan, and to then have access to this water on demand as a valuable dry-year source. Additionally, the indigenous groundwater has low total dissolved solids that could provide a water quality benefit to water in the CRA.

JUSTIFICATION

The studies and actions to be undertaken with the requested funds are necessary to: (1) optimize the design and operation of these facilities; (2) complete the necessary environmental documentation for the Demonstration Project; and (3) gather sufficient information so that the Board may determine whether to proceed with implementation of a full-scale Groundwater Storage Program in the Hayfield Valley.

ALTERNATIVE TO PROPOSED ACTION

This Program is a part of Metropolitan's effort to comply with the requirements of the California 4.4 Plan. The alternative to compliance with the California 4.4 Plan is to accept a lower water supply reliability of Metropolitan's Colorado River supplies. The action requested in this letter is to contract with Woodward Clyde to supply consulting services to conduct needed environmental and geotechnical studies and undertake implementation of the demonstration facilities. The alternative to contracting with Woodward Clyde would be to re-bid the proposed services thereby experiencing a delay of approximately a 120-days.

ACTIONS AND MILESTONES

The initial feasibility study for the project has been completed. The technical studies and Groundwater Storage Demonstration Project will commence following Board approval and will take approximately 12 months to complete. If authorized by the Board, final design and construction would be completed by January, 2001.

CONTRACT SUMMARY

Contract Status: New	Type of Selection: Competitive Proposals RFP No. 343
Contract Form: Professional Services	Firms Receiving RFP:: 8
Contract Type: Time and Materials	Proposals Submitted: 4
Evaluation Criteria: Evaluation based on qualifications, expertise, methodology, and cost-effectiveness.	

MBE / WBE

The Minority-Owned Business Enterprises (MBE) and Women-Owned Business Enterprises (WBE) anticipated levels of participation and actual participation levels are shown below:

	MBE	WBE
Anticipated Levels of Participation	15%	5%
Actual Levels of Participation	16%	10%

DETAILED REPORT

As part of the Phase I Resources Procurement Process for Colorado River Resources, staff has established a process to secure supplemental water supplies and regional storage through the development and execution of cost-effective transactions with both public and private-sector organizations. This process has allowed Metropolitan to identify and evaluate numerous potential groundwater storage programs located along the Colorado River Aqueduct (CRA).

The Hayfield and Chuckwalla groundwater basins are located in the Mojave Desert along the Colorado River between Eagle Mountain and Hinds pumping plants. As currently proposed, Metropolitan would store approximately 500,000 to 1,000,000 acre-feet (AF) of available CRA water in the Hayfield and Chuckwalla groundwater basins. During years of shortage, this stored water would be recovered and placed into the CRA for use in Metropolitan's service area. The preliminary feasibility analysis indicates that the expected recharge and return capacity of the Hayfield and Chuckwalla groundwater storage basins is about 150,000 to 250,000 AF per year. The basin characteristics are based on preliminary feasibility studies, some of which were conducted at the time of the construction of the CRA in the 1930s.

Technical Studies and Demonstration Project

To confirm the analyses that have been accomplished to date and to assist in determining the full-scale facility sizing and location, it is recommended that Woodward Clyde be retained to undertake detailed technical studies and to implement a Groundwater Storage Demonstration Project (Demonstration Project). The Demonstration Project will serve the purposes of initiating the storage portion of the full-scale project as well as supplying essential data as part of the technical studies. These technical studies will provide valuable information pertaining to the potential for adverse chemical reactions that could occur as a result of mixing imported Colorado River water with indigenous groundwater, basin infiltration and extraction characteristics, and

environmental documentation in compliance with the California Environmental Quality Act (CEQA) requirements.

The Demonstration Project will consist of storing up to 100,000 AF in the groundwater basin underlying Metropolitan property in Hayfield Valley near Hinds Pumping Plant. The water would be released from the CRA downstream from the Hinds Pumping Plant into several contiguous 10-acre infiltration basins. The basins will be formed by low retention dikes about 2 to 3 feet in height using adjacent borrow material. It is estimated that the total size of the infiltration basins will be approximately 200 acres. It is assumed that the infiltration basins constructed for the Demonstration Project will ultimately become an integral part of full-scale project facilities. A full-scale production well for aquifer testing will be constructed in the area considered most likely to be used for the full-scale well field. In addition, monitoring wells will be constructed to measure drawdown during aquifer testing. It is planned that the production well will become part of the long-term project facilities. The production well will undergo extensive testing in order to quantify the hydrologic characteristics of the aquifer. These tests will provide important data for refinement of the numerical model of the groundwater aquifer which is to be employed in the design of the full-scale project facilities.

One element of the feasibility phase of the proposed Program is environmental documentation for the proposed Demonstration Project. In accordance with the requirements of CEQA and State CEQA Guidelines, the required CEQA documentation assessing the potential impacts associated with the Demonstration Project will be prepared. Based on the results of the technical studies and the Demonstration Project, additional environmental documentation for the full-scale project will be developed for the Board's review and approval.

Recommendation

To confirm the analyses that have been accomplished to date and to assist in the full-scale facility sizing and location, it is recommended that additional detailed technical studies and a Groundwater Storage Demonstration Project be undertaken. To accomplish this work, Woodward Clyde has teamed with Camp Dresser & McKee (CDM), Wildermuth Environmental, and other minority and women-owned subconsultants, exceeding Metropolitan's established MBE/WBE goals for this project. Based on the submitted proposals and interviews, the Woodward Clyde team was judged to be best qualified. Dames & Moore, CH2MHill, and Bookman-Edmonston Engineering, Inc. were the other competing firms.

DWR:jpa