

- **Board of Directors**  
**Water Planning, Quality and Resources Committee**

November 9, 2004 Board Meeting

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**10-2**

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**Subject**

Update on Development of the Hayfield and Chuckwalla Groundwater Storage Programs

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**Description**

The ongoing Colorado River drought has significantly reduced Metropolitan's outlook for surplus Colorado River supplies for the next several years. As such, Metropolitan's immediate need for the Hayfield and Chuckwalla Groundwater Storage Programs along the Colorado River Aqueduct (CRA) has diminished. Metropolitan staff concludes that:

- Metropolitan will not likely have sufficient Colorado River supplies to store in the near future;
- Development of the Hayfield and Chuckwalla Groundwater Storage Programs should be deferred for two years; and
- Because there are significant long-term benefits from the development of storage programs along the CRA, the CRA storage programs should be re-evaluated at the end of 2006 to determine if the development of storage programs should resume.

**Background**

In June 1998, the Board appropriated funds for technical studies for the development of the Hayfield and Chuckwalla Groundwater Storage Programs and authorized a demonstration project at Hayfield. Both of these groundwater basins are adjacent to the CRA, and the programs would function through delivery of Colorado River water to the groundwater basins and recovery in dry years by pumping groundwater into the CRA. These programs were identified in California's Colorado River Water Use Plan to help reduce California's need for Colorado River water in excess of its basic apportionment of 4.4 million acre-feet. The Plan calls for California to have a "soft landing," as the Interim Surplus Guidelines provided Metropolitan access to special surplus water through 2016, depending upon the water surface elevation of Lake Mead. Metropolitan would store these surplus supplies when available and recover water as needed to help meet service area demands. As part of the Hayfield demonstration project, approximately 70,000 acre-feet of surplus Colorado River water was stored in the Hayfield groundwater basin in 2000 and 2001.

In December 2002, the Board authorized full development of the Hayfield Groundwater Storage Program. The scope of the development included additional aquifer characterization activities, including exploratory borings, wells, test spreading activities, geophysical studies, and development of a groundwater model. Information gathered from these additional investigations and the results of the groundwater modeling efforts indicate that the groundwater basin has the capacity to store approximately 400,000 to 500,000 acre-feet of water, with an expected yield capacity ("put" and "take" capacity) of 80,000 to 100,000 acre-feet per year. This amount is less than the storage capacity of 800,000 acre-feet and 150,000 acre-feet per year yield that was estimated during the feasibility study phase of the project. In addition, the original project facility layout, which depended on large-scale spreading on the Hayfield dry lake bed and a localized wellfield, has been updated to include significantly larger spreading basins located away from the low porosity lakebed and groundwater recovery wellfields that have been reconfigured to effectively manage the groundwater as it is stored in the basin and returned to the CRA when needed. The currently proposed Hayfield Groundwater Storage project facilities include approximately 600 acres of spreading basins, 35 to 40 extraction wells, a new pump station forebay, ten miles of pipelines, and associated power, telecommunications and monitoring facilities. Due to the changes in

project scope, the current estimated cost to complete development of the Hayfield Groundwater Project is approximately \$130 million. The amount approved in the CIP is about \$73 million, of which approximately \$10 million has been expended to date.

### **Need for Additional Colorado River Storage**

Only a few years ago – as late as 2001 – hydrologic simulation modeling showed that Metropolitan would likely have the ability to access special surplus supplies nearly every year through 2016. About six million acre-feet of total special surplus supplies were projected to be available to Metropolitan through that period, which would have provided significant opportunities for Metropolitan to fill the groundwater storage programs near the CRA. Five years of record-setting drought on the Colorado River, however, have caused an unprecedented drop in storage in Lake Mead and Lake Powell. As a result, special surplus supplies are no longer available to Metropolitan, and current projections indicate that, even under extremely favorable hydrologic conditions, it may be several years before such surplus water again becomes available.

Without the availability of special surplus supplies from the Colorado River, Metropolitan will not have Colorado River water to place into storage. In the early years of the Quantification Settlement Agreement, water transfer programs that will help fill the CRA are early in their buildup phases and do not produce the full allotment of water supply. For example, the Imperial Irrigation District water transfer to the San Diego County Water Authority, which will ultimately provide 200,000 acre-feet of supply annually, is providing 20,000 acre-feet in 2004. Other water supply programs, such as the All American Canal Lining Project and additional transfers from Imperial Irrigation District dependent upon Salton Sea restoration, have not yet begun, while the fallowing and forbearance program with Palo Verde Irrigation District will begin in 2005. Without special surplus over the next ten years, the outlook for Colorado River supplies is for about 700,000 to 800,000 acre-feet to be available annually, and such water is needed to meet demands in Metropolitan's service area.

Beyond 2010, Metropolitan is projected to have water to store in CRA programs with or without special surplus supplies. The primary reasons for this projection are: (1) the QSA programs, when fully implemented, will eventually provide significant amounts of Colorado River supplies even without special surplus; and (2) with the completion of the Inland Feeder and Ozone Retrofit projects projected in the next five years, Metropolitan will be able to deliver increased supplies from the State Water Project when available, allowing Metropolitan to store Colorado River water. Storage programs, like Hayfield and Chuckwalla, could provide significant benefits to Metropolitan in the next decade.

### **Conclusion**

It is uncertain whether the Colorado River drought will continue or if weather conditions will change, permitting storage levels to recover. It is currently projected that it is unlikely that Metropolitan will receive special surplus supplies from the Colorado River in the near term, and it is unlikely that Metropolitan would be in a position to store Colorado River water in the Hayfield or Chuckwalla groundwater basins in the next five years. Therefore, there is no immediate need to complete development of either of the storage and recovery programs. Staff recommends that the development of the Hayfield and Chuckwalla storage programs be deferred, and that the need for the storage programs be re-evaluated in two years. Such a deferral would not likely have any impact on Metropolitan's Colorado River supplies. Metropolitan staff does recommend, however, that the acquisition of lands needed for the program continue.

Metropolitan has also re-evaluated the potential for early recovery of the 70,000 acre-feet of water currently stored in the Hayfield groundwater basin. At this time, staff concludes that it is not cost-effective to recover this water in advance of the full storage and recovery program. Staff will continue to evaluate the potential recovery of some or all of the water and, if proven cost-effective, would consider early recovery of the water.

### **Policy**

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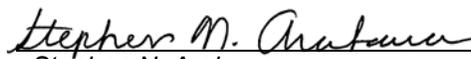
By Minute Item 43066, dated July 14, 1998, the Board appropriated funds for technical studies of the proposed Hayfield and Chuckwalla Programs.

By Minute Item 45111, dated Dec. 10, 2002, the Board authorized development of the Hayfield Program.

**Fiscal Impact**

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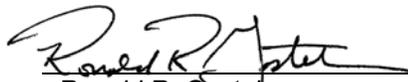
Deferral of \$63 million in the CIP for the next three fiscal years.

  
Stephen N. Arakawa  
Manager, Water Resource Management

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10/15/2004

*Date*

  
Ronald R. Gastelum  
Chief Executive Officer

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10/18/2004

*Date*

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