

CENTRAL BASIN MUNICIPAL WATER DISTRICT

MARCH 3, 2004 - Water Resources
 Morse, Hawkins
MARCH 22, 2004 - Board Meeting
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INFORMATION CALENDAR

CENTRAL BASIN RECYCLED WATER SYSTEM HYDRAULICS

SUMMARY:

Staff has continued to investigate the hydraulic impacts to the recycled system with the addition of the following new customers:

- Malburg Generation Station (1,200 acre-fee per year (AFY));
- Huntington Park High School (20 AFY);
- General Dyeing (450 AFY);
- Rose Hills, Phases I and II (1,500 AFY); and
- Rancho Los Amigos Golf Course (250 AFY).

The investigation has included conducting field tests, collecting field data at 13 different locations, and generating computer-aided hydraulic analyses. Most recently, the City of Cerritos conducted flow tests of the Cerritos Pump Station. The tests showed that the pumps are capable of at least 11% more flow at 90 psi than the design flow. Staff has re-evaluated the recycled water system based on the pump flow test data. Allowing the system to be divided into five regions (see attached map), the hydraulic impacts would be summarized as follows:

| Region | Hydraulic Impact |
|-------------------|--|
| West | Pressures will be significantly increased and controllable by operations of the Hollydale Pump Station |
| Rio Hondo Channel | Pressures will be lower but still adequate |
| Central | Customers will not notice any pressure changes |
| Southeast | Potential pressure concerns |
| North | Customers will not notice any pressure changes |

West Region (portion of the system west of Hollydale PS)

The entire West Region will benefit by higher pressures with the implementation of the Hollydale Pump Station. The initial discharge pressure of the station will likely be about 130 psi. Based on actual field conditions, this pressure can easily be adjusted to ensure adequate pressure is supplied to all West Region customers, including the Malburg Generation Station.

Rio Hondo Channel Region (portion of the system north of Hollydale PS, running along Rio Hondo Channel)

The impact to pressures in this region is directly correlated to Rancho Los Amigos Golf Course's (Rancho) Irrigation Plan. If Rancho plans to irrigate their turf directly off of the District's mainline, downstream customers (Rio Hondo Golf Course, John Ford Park, etc.) will experience very noticeable pressure drops. Nevertheless, the pressures in this region are

expected to remain adequate at above 40 psi. If actual pressures become lower than predicted, the Hollydale Pump Station with some modification can be utilized to boost pressures in the Rio Hondo Channel Region. However, if Rancho irrigates from their on-site lake as planned, lake filling operations can be scheduled so as not to affect downstream pressures. In this case, no additional modifications will be required to the Hollydale Pump Station.

Central Region (portion of the system from Hollydale PS to pressure reducing valve located along Norwalk Boulevard)

Excess capacity and pressure are available to the Central Region through the Cerritos Pump Station even after the Malburg Generation Station, Huntington Park High School, General Dyeing, and Rancho come on-line. The excess capacity is estimated to be 600 AFY based upon the current recycled water demands of the Cities of Cerritos and Lakewood. The estimate is derived from the January 2004 Cerritos Pump Station pump test results and historical recycled water usage data of the District, Cerritos, and Lakewood. (Per the District's agreement to purchase recycled water via the Cerritos Pump Station, flow is only available to the District after the recycled water demands of Cerritos and Lakewood are satisfied. Therefore, should the demand at the two Cities increase beyond the excess capacity, the District will become challenged to meet recycled water demands).

In anticipating potential future demand beyond 600 AFY, staff has had preliminary discussions with the City of Cerritos concerning modifications of the Cerritos Pump Station so as to increase the amount of available recycled water by an additional 1,100 AFY.

Southeast Region (portion of the system southeast of the pressure reducing valve located along Norwalk Boulevard)

The Southeast Region that is serviced by an undersized 16-inch pipeline, accounts for about 25% (900 AFY) of the District's recycled water demand. The Southeast Region has already had some history of low-pressure conditions. Last summer 2003, significant pressure drops were observed in the field. Staff also received low-pressure complaints from Metro State Hospital and Wheelabrator. Staff alleviated the situation last summer by working with Metro State Hospital to implement a Demand Management Program that shifted Metro State Hospital's irrigation operation away from the recycled water system's peak demand times. The addition of General Dyeing (450 AFY) to the Southeast Region will result in a pressure decrease to all customers in the region and will likely result in borderline-inadequate pressure conditions even if demand management measures were implemented at General Dyeing.

Near-term when General Dyeing comes on-line, a storage tank is recommended and longer-term a storage tank will become essential. One school and one park (130 AFY) in South Whittier may potentially join the Southeast Region in 2006 and La Mirada customers (370 AFY - Biola University, Olive Lawn Memorial Park, La Mirada Park, and La Mirada Golf Course) may potentially connect to the region in 2008.

In order to maintain adequate system pressure during peak demand conditions, the following size storage tanks are recommended:

| Addition of Customers | Projected Demand (AFY) | Recommended Usable Storage (gal.) | Required Pump Capacity (gpm) |
|--|-------------------------------|--|-------------------------------------|
| General Dyeing | 450 | 325,000 | 900 |
| General Dyeing and 2 sites in So. Whittier | 580 | 575,000 | 1,600 |
| General Dyeing, 2 sites in So. Whittier, and La Mirada customers | 950 | 1,285,000 | 3,600 |

* - based on having 6 hours of storage available to meet peak night demand

North Region (portion of the system from Rio Hondo Pump Station south to the pressure reducing valve located along Norwalk Boulevard)

The demands in the entire North Region are met by the pressure and flow provided by the Rio Hondo Pump Station. During current peak demand conditions, the pump station currently runs at about one-third of its capacity. With the future Upper San Gabriel Valley MWD demand (Rose Hills Phase I and II), the pump station will be running at about two-thirds of its capacity during peak demand conditions. With relatively little head loss through the 30-inch pipe that services Upper San Gabriel Valley MWD, pressures throughout the North Region should remain unchanged even with the additional 1,500 AFY demand.

Though the North Region has excess capacity, that capacity isn't able to be shared with the rest of the system. The 30-inch pipeline in the North Region reduces down to a 16-inch pipeline as it heads south towards the Central and Southeast Regions. The hydraulic constraint of the 16-inch pipeline limits the useful flow that can be transferred to the Central and Southeast Regions to about 4,000 gpm, the amount that the North Region is already transferring on a regular basis.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not required.

COMMITTEE STATUS:

This item was reviewed by the Water Resources Committee on March 3, 2004 and agendized to the March 22, 2004 Board meeting as information for discussion.

RECOMMENDED MOTION:

This item is for information only.

LIST OF EXHIBITS:

Exhibit "A" - Map of Central Basin Recycled Water System divided into five regions
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