



IRVINE RANCH WATER DISTRICT

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March 8, 2016

Mr. Michael Markus, P.E.
General Manager
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708

Subject: Budgeting for the Purchase of Imported Water

Dear Mike:

The purpose of this letter is to recommend that Orange County Water District (OCWD) budget every year for the purchase of at least 65,000 acre-feet (AF) per year of imported water for direct or in-lieu recharge into Orange County Groundwater Basin. Through regular purchases of imported water, coupled with setting the Basin Production Percentage (BPP) in accordance with current OCWD policy, water levels in the Basin can quickly be improved to an operating range of between 100,000 AF and 300,000 AF of accumulated overdraft. The following information is offered as the basis for this recommendation.

Current Basin Conditions:

OCWD is currently operating the Basin at approximately 400,000 AF of accumulated overdraft. At this level the OCWD Groundwater Management Plan 2015 Update lists the following constraints as being in affect:

- Reduced supply of water in storage available for dry years;
- Increased pumping costs;
- Increased risk of seawater intrusion;
- Some production wells inoperable because of low water surface elevations;
- Increased risk of land subsidence;
- Potential risk of vertical migration of poor quality water;
- Need to increase purchases of imported water; and
- Difficulty in maintaining a stable BPP.

Basin Production Percentage Policy:

In 2013, the OCWD Board of Directors adopted a policy to establish a stable BPP with the goal of achieving and maintaining a 75% BPP. In pursuit of its goal, and to sustainably manage the

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Basin for future generations, OCWD has established within its Groundwater Management Plan the storage management actions presented in the following table:

Orange County Water District Groundwater Basin
Storage Management Actions

Accumulated Overdraft	Basin Management Actions to Consider
Less than 100,000 AF	Raise BPP.
100,000 to 300,000 AF	Maintain and/or raise BPP towards 75% goal.
300,000 to 350,000 AF	Seek additional supplies to refill basin and/or lower the BPP.
Greater than 350,000 AF	Seek additional supplies to refill basin and lower the BPP.

At the current accumulated overdraft of approximately 400,000 AF, the OCWD Groundwater Management Plan indicates that the District should be preparing to purchase additional imported water supplies and to lower the BPP. By following its own guidelines, OCWD can substantially improve Basin conditions to within 100,000 AF and 300,000 AF of accumulated overdraft.

Commitment to Purchase Water:

In 2015, OCWD signed a purchase order to buy a minimum of 650,000 AF of imported water from the Municipal Water District of Orange County (MWDOC). In making the commitment, it was OCWD's intent that this water be used to recharge the Basin over a 10-year period consistent with the storage management actions described above. The OCWD Groundwater Management Plan states that the water purchases will help OCWD maintain the BPP and assist with managing the Basin within the safe operating range. OCWD should follow through with the purchase of at least the 650,000 AF of imported water over the next 10 years. The first step in this process is for OCWD to financially budget for at least 65,000 AF per year of imported water supplies.

Maintaining Water Reserve Fund:

OCWD maintains a Water Reserve Fund to purchase imported water from MWDOC on an annual basis. Accumulating and maintaining appropriate funding levels for future water purchases is critical to the sustainable management of the Basin. Every year OCWD budgets for water purchases and plans to carry over funds to the next year when water is not available through MWDOC. OCWD staff is currently developing recommendations for the District's budget for Fiscal Year 2016-17 and has not yet finalized recommendations for a budget for imported water purchases. Budgeting now for the purchase of at least 65,000 AF of import water will allow OCWD to purchase additional import water when available by increasing its Water Reserve Fund. Any funds not used in Fiscal year 2016-17 due to Metropolitan Water District of

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Southern California (MWD) implementing its Water Supply Allocation Plan can be carried over until the next year to purchase greater amounts of water.

In-lieu Recharge:

To ensure the ability to recharge a minimum of 65,000 AF of import water into the Basin every year, OCWD should resume offering a voluntary in-lieu recharge program that reimburses participating Groundwater Producers to make the cost of participation equivalent to the cost of producing groundwater. OCWD has historically offered water to the Groundwater Producers through an in-lieu recharge program. OCWD should budget accordingly for recharging imported water with the assumption that some of the imported water recharged into the Basin will be realized through an in-lieu program. While OCWD needs to budget for purchasing MWD Tier 1 untreated water, OCWD should continue working with MWDOC to encourage MWD to resume discounted replenishment sales.

Analytical Results of Imported Water Purchases:

IRWD has performed a preliminary water budget modeling analysis of the Orange County Groundwater Basin which takes into consideration:

- OCWD's commitment to purchase a minimum of 650,000 AF of water from MWDOC over the next 10 years;
- Forecasted future Groundwater Producer pumping requirements of 330,000 acre-feet per year (AFY) assuming a 75% BPP;
- OCWD's current 50 percentile recharge forecasts from both Santa Ana River storm flows and incidental sources (51,600 AFY and 61,900 AFY, respectively);
- Medium-level base flows in the Santa Ana River (52,400 AFY);
- Final expansion of the Groundwater Replenishment System being online in 2020 (130,000 AFY total);
- MWD calling for water supply allocations every two years with 20% reductions in imported supplies being available to OCWD for recharge; and
- Unused water reserve funds available from years when water supply allocations are carried over to the following years.

As a result of this analysis, IRWD has concluded that accumulated overdraft conditions in the Basin will improve quickly if OCWD follows through with its commitment to purchase 650,000 AF of imported water over the next 10 years. The chart attached as Exhibit "A" depicts the estimated rebound in accumulated overdraft that is expected with the purchase of 650,000 AF over 10 years assuming a constant 75% BPP and the water budget assumptions listed above. This chart indicates that accumulated overdraft can be improved to 250,000 AF and 150,000 AF by the years 2019 and 2021, respectively. If Santa Ana River storm flows and incidental recharge are greater than OCWD's 50 percentile statistical forecasts, then the rebound in

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accumulated overdraft will occur more quickly. If the storms flows and incidental recharge are less, then the rebound will occur at a slower rate.

Recommendation:

To reduce the accumulated overdraft in the Basin, IRWD recommends that OCWD budget every year beginning in FY 2016-17 for purchases of at least 65,000 AF of import water. Each year, OCWD should review progress in the reduction of accumulated overdraft and budget for increased purchases as may be necessary. In addition, IRWD further recommends that OCWD adhere to its Groundwater Management Plan and adjust the BPP accordingly to maintain an operating range between 100,000 AF and 300,000 AF of accumulated overdraft.

Like the OCWD Board of Directors, IRWD believes that effective management of the Orange County Groundwater Basin is important to providing secure and reliable water supplies for the residents of Orange County. Maximizing the ability to recharge existing import water supplies available through MWDOC is an important element of operating the Basin in a cost effective and responsible manner. We look forward to working with OCWD and the Groundwater Producers in supporting OCWD's effective management of the Basin.

I look forward to discussing our recommendations in greater detail with you, your staff and the Groundwater Producers. Please contact me at (949) 453-5590 so that we can schedule a meeting to discuss the request.

Sincerely,



Paul A. Cook, P.E.
General Manager

Enclosure

EXHIBIT "A"

**Accumulated Overdraft Assuming a Budget for the Purchase of
65,000 AF of Import Water Every Year**

