CITY OF OCEANSIDE
WATER UTILITIES DEPARTMENT

Supporting Documentation for Supply Reliability Certification

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On June 1, 2016, the State of California adopted a self-certification approach that allows each water agency or region to conduct a "stress test" certifying whether they have sufficient water supplies available to meet customer demand through 2019, assuming that water supply conditions in 2017, 2018 and 2019 are identical to conditions in 2013, 2014 and 2015. If demand exceeds supply, the agency or region must implement mandatory water use reductions equal to the shortfall.

The State's Supply Sufficiency Calculation

$$\text{Oceanside Potable water use} - \left(\text{SDCWA Water Supply} + \text{Oceanside Local Supply} + \text{SDCWA Water in Storage} \right) = \text{Oceanside Supply Sufficiency (surplus or deficit)}$$

San Diego County water agencies agreed to self-certify as a region under the coordination of the San Diego County Water Authority. Thanks to decades of conservation and water resources development, the San Diego region has more than enough water to meet demand through at least 2019.

On June 21st, Oceanside submitted its request to the State Water Resources Control Board to have its state mandated conservation standard reduced from 12 percent to zero. Although Oceanside's conservation standard will be reduced, the City will continue to promote water use efficiency as a permanent way of life through our commitment to Oceanside as a sustainable community.

Background

On May 9, 2016, Governor Brown issued Executive Order B-37-16 which extended the emergency drought regulations through January 31, 2017. As part of the order, the State Water Resources Control Board adopted a localized self-certification approach that replaces the prior state imposed mandatory conservation standard. This new approach mandates each retail agency, or a region as a whole, to conduct a "stress test," certifying whether they have sufficient available supplies to meet customer demand assuming dry conditions continue for an additional three years.

In support of the region as a whole self-certifying supply sufficiency, on June 9, 2016, the Water Authority Board of Directors adopted Resolution No. 2016-07, instructing the Water Authority General Manager, under Article 22.5 of the SWRCB's Emergency Regulation, to submit to the SWRCB an aggregated conservation standard. The retail water suppliers in San Diego County, including the City of Oceanside, voted to self-certify as a region.

Calculation

The State Water Resources Control Board's supply sufficiency calculation for the San Diego region's service area, under the San Diego County Water Authority, is shown in the formula below:

Member Agency Potable Water Use - (Water Authority Available Supplies + Member Agency Local Supplies + Water Authority Stored Water) = Supply Adequacy

The calculation is used to show that the San Diego County Water Authority's supplies, when combined with member agency local supplies and supplemented by the San Diego County Water Authority's stored water, are sufficient to meet demand under the State Water Resource Control Board's methodology. This results in a zero conservation standard for the San Diego region, including the City of Oceanside, for the period of June 2016 through January 2017.

A breakdown of the regional supply sufficiency calculations for 2017, 2018 and 2019 can be found on the San Diego County Water Authority's or by selecting each of the links below that will take you to the date specific calculation.

2017 Regional Supply Sufficiency Calculation

2018 Regional Supply Sufficiency Calculation

2019 Regional Supply Sufficiency Calculation

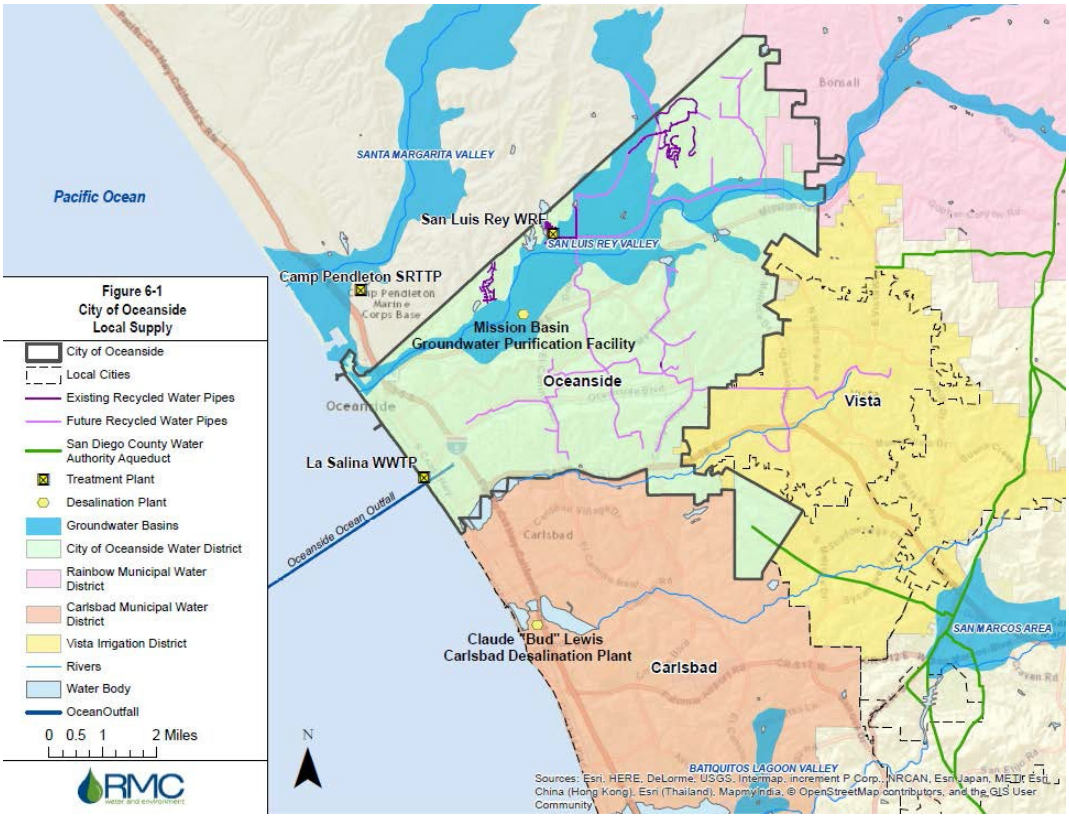
Supporting Analysis of Supply

San Diego County's regional supply sufficiency calculation combines water supplies available through the San Diego County Water Authority, both imported and stored, with its member agencies local supplies. A detailed analysis and documentation of the regional water supplies used in the regional supply sufficiency calculations are available by selecting the underlined links above.

Worksheet 1 – Available Local Supply

The City of Oceanside's local supplies are included in the regional supply sufficiency calculation submitted by the San Diego County Water Authority under member agency local supplies and are comprised of desalted brackish groundwater. Local supplies for Oceanside are projected to be 3,300 acre-feet each year during 2017, 2018 and 2019.

On Oceanside's submitted Worksheet 1: Total available supply for individual water supplier, local desalted brackish groundwater is listed as *OTHER* per instructions to limit entries under the Local Groundwater heading to *non-brackish groundwater supplies*.



The City utilizes groundwater from the Mission Basin subbasin of the San Luis Rey Valley Groundwater Basin. An overview of the Mission Basin, along with a summary of the City's associated facilities and use, is provided here. The Mission Basin is shown on Figure 6-1, City of Oceanside Local Supply (above) taken directly from the City of Oceanside's 2015 Urban Water Management Plan, page 52.

Mission Basin

The Mission Basin is currently designated as a subbasin to the San Luis Rey Valley Groundwater Basin (DWR Bulletin 118 Groundwater Basin No. 9-7). The San Luis Rey Valley Groundwater Basin has been designated a medium priority basin under the California Statewide Groundwater Elevation Monitoring (CASGEM) program, meaning that the state considers it a priority basin for monitoring. The City has volunteered as a monitoring entity for the basin, in conjunction with the County of San Diego.

The Mission Basin is an alluvial basin extending from the Pacific Ocean in the west to just beyond the City's eastern border. The basin is not adjudicated but is estimated to have a natural safe yield of 7,000 to 10,000 AFY. Due to high levels of TDS, ranging between 500 mg/L and 2,000 mg/L, desalting is required prior to distribution and use (MWD, 2007). Trichloropropane (TCP), iron and manganese levels are also of concern in the Mission Basin, but are treated to safe levels at the MBGPF (City of Oceanside, 2015a). No groundwater management plan is currently in place for the Mission Basin, but the City is exploring formation as the Groundwater Sustainability Agency (GSA) for the lower basin, along with designation as a formally-recognized basin separate from San Luis Rey Valley Groundwater Basin.

The City has conducted studies to determine the impact of groundwater pumping on local groundwater levels (Welch, 1996). Those studies concluded that the planned expansion of the MBGPF will result in no significant impacts to existing groundwater-dependent vegetation during extended dry-year periods lasting up to three years. With the addition of the IPR project, advanced treated water would be recharged into the groundwater basin regardless of hydrologic conditions. Therefore, the MBGPF is considered a reliable source of up to 7,130 AFY of potable water during multiple-dry water years.

Mission Basin Groundwater Purification Facility

MBGPF is a desalting treatment facility that treats brackish groundwater extracted from the Mission Basin via eight wells including four "on-site" wells located at the MBGPF site and four "off-site" wells, located in

the eastern portion of the basin near North River Road west of College Blvd. The MBGPF was put into service in 1992 with a capacity of 2.0 MGD, and expanded to its current capacity of 6.37 MGD, or 7,130 acre-feet per year, in 2002.

The primary MBGPF treatment process utilizes reverse osmosis membranes to reduce salt concentrations present in the groundwater. A secondary treatment process, added in 2009, utilizes granular activated carbon to remove 1, 2, 3-trichloropropane (TCP) from six of the wells. A side-stream treatment system is employed to reduce iron and manganese. The reverse osmosis membranes are Hydranautics Model ESPA1 that operate at a feed pressure of approximately 150 psi. The facility is capable of removing many impurities from the groundwater including particles, iron, manganese, TCP, and sodium to meet drinking water standards. Iron and manganese are present in the on-site wells, and manganese is present in the off-site wells.

After the minerals and other impurities are removed through reverse osmosis, the product is then blended with a 20% share of water direct from the well field and subjected to additional post-blend treatment to result in a finished, potable water supply.

Table 6-5: Groundwater Volume Pumped (AFY)

DWR Table 6-1 Retail: Groundwater Volume Pumped						
Groundwater Type	Location or Basin Name	2011	2012	2013	2014	2015
Alluvial Basin	Mission Basin	4,522	3,371	4,575	4,735	3,213
	TOTAL	**4,522**	**3,371**	**4,575**	**4,735**	**3,213**

Table 6-5: Groundwater Volume Pumped (above) taken from page 58 of the City of Oceanside's 2015 Urban Water Management Plan shows the amount of groundwater pumped for the past 5 years. During this period, the City experienced some challenges in groundwater extraction, including mechanical limitations and well production. The City is continuing to make improvements to reduce these challenges, but have determined that the reliable average brackish groundwater supply is 3,300 AFY.