

DRAFT Technical Memorandum

Malibu Valley Joint Salt-Nutrient Management Plan and Groundwater Management Plan

Subject: SNMP-GWMP Goals and Objectives

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Date: May 10, 2014

1 Purpose of Joint SNMP-GWMP

The purpose of the Malibu Valley Groundwater Basin combined Salt and Nutrient Management Plan and Groundwater Management Plan (SNMP-GWMP) is to provide a framework to manage, protect and enhance the groundwater basin in order to sustain the beneficial uses of local groundwater resource. In developing this plan, the City and basin stakeholders hope to achieve the following objectives:

- Develop a better technical understanding of the groundwater basin's hydrogeology, the implications of overlying land uses on the underlying groundwater quality, and groundwater-surface water interactions.
- Develop a forum and collaborative process for defining issues and identifying and implementing actions to manage the groundwater resource (both quality and supply).
- Define implementation measures (if necessary) to ensure the long-term sustainability of the groundwater resource.
- Develop a groundwater monitoring program to coordinate ongoing and future data collection efforts and to facilitate analysis of water quality trends into the future.
- Provide a framework for adaptively managing the groundwater basin and implementing future management activities.

This SNMP-GWMP is being prepared for the Malibu Valley Groundwater Basin in Los Angeles County, California.

2 Overview

The Malibu Valley Groundwater Basin (DWR groundwater basin no. 4-22) is a small alluvial basin, approximately 613 acres in size, located along the Los Angeles County coastline. The basin is bounded by the Pacific Ocean on the south, and by the Santa Monica Mountains, composed of non-water-bearing Tertiary age rocks, on all remaining sides. The valley is typified by steep canyons that generally run north to south, and is drained by Malibu Creek to the Pacific Ocean (DWR, 2003).

The Malibu Valley Groundwater Basin is located in a Mediterranean climate, characterized by cool wet winters and warm dry summers with the majority of precipitation occurs between November and April. This area lies in the semi-permanent high-pressure zone of the eastern pacific. As a result, the climate is mild, tempered by cool sea breezes occasionally interrupted by infrequent periods of extremely hot weather, winter storms or Santa Ana winds. Average annual rainfall is about 12 inches (Jones and Stokes, 2009).

Development overlying the groundwater basin is predominantly urban in nature, and includes a significant amount of residential development and undeveloped land. The basin is flanked on both sides by canyons - the Sweetwater Canyon to the east, and the Winter Canyon to the west. The Malibu Coast Fault is mapped across the basin in an east-west direction and is aligned approximately along Civic Center Way (Leighton, 1994); however, this fault is not a groundwater barrier (DWR, 1975). In general, there are four hydrostratigraphic units within the Malibu Valley Groundwater Basin (from shallowest to deepest): alluvium, a low permeability zone that covers most of the groundwater basin, Civic Center Gravels, and bedrock. Bedrock is at or near land surface in the upland areas, and beneath the unconsolidated sediments that are present in the Civic Center area along Malibu Creek and Lagoon. Historical groundwater use has been from the shallower alluvium, which has been shown to be in hydraulic connection with the adjacent Malibu Creek.

3 Regulations Governing Groundwater Management

3.1 Regulatory Requirements Related to Groundwater Management

Groundwater is a resource shared by numerous users; it does not recognize or adhere to jurisdictional boundaries and cannot be tagged for use by certain users. Groundwater rights in California have evolved through case law since the late 1800s. Currently, four basic methods are available for managing groundwater resources in the State:

- Local agency management under authority granted by the California Water Code;
- Local agency management granted under other applicable state statutes (such as through a GWMP);
- Local government groundwater ordinances or joint powers agreements (JPA);
- Court adjudication

No law requires that any of these forms be applied within a basin. As such, management is often instituted after local agencies or landowners recognize specific issues in groundwater conditions. The level of groundwater management in any basin or subbasin is often dependent on water availability and demand, as well as groundwater quality.

In an effort to standardize groundwater management, the California Legislature passed Assembly Bill (AB) 255 (Stats. 1991, Ch. 903) in 1991. This legislation authorized local agencies overlying basins subject to critical overdraft conditions, as defined in DWR's Bulletin 118-80 (DWR, 1980), to establish programs for groundwater management within their service areas. Water Code §10750 *et seq.* provided these agencies with the powers of a water replenishment district to raise revenue for facilities to manage the basin for the purposes of extraction, recharge, conveyance, and water quality management. Seven local agencies adopted plans under this authority. The Malibu Valley Groundwater Basin has been critically overdrafted in the past. Seawater intrusion occurred in 1950 and again in 1960, when seawater advanced 0.5 miles inland (DWR, 2004). In response to this situation, Los Angeles County Waterworks District 29 (Water District 29) was established as a special district in 1959 by a public election that authorized the formation of the district (reference <http://dpw.lacounty.gov/wwd/web/About/Overview.aspx>). Once established, Water District 29 constructed water distribution systems in Malibu between 1962 and 1970 and started distribution of imported potable water into the basin. Most private potable supply wells were subsequently abandoned.

The provisions of AB 255 were repealed in 1992 with the passage of AB 3030 (Stats. 1992, Ch. 947). This legislation greatly increased the number of local agencies authorized to develop a GWMP and set forth a common management framework for local agencies throughout California. AB 3030, codified in

California Water Code § 10750 *et seq.*, provides a systematic procedure for developing a groundwater management plan by local agencies overlying the groundwater basins defined by DWR's Bulletin 118 (DWR, 1975) and updates (DWR, 1980, 2003). Upon adoption of a plan, the authorizing agency(ies) identified in the GWMP could possess the same authority as a water replenishment district to "fix and collect fees and assessments for groundwater management" (Water Code, §10754). However, the authority to fix and collect these fees and assessments is contingent on receiving a majority of votes in favor of the proposal in a local election (Water Code, §10754.3)

In 2002, the California Legislature passed Senate Bill (SB) 1938 (Stats. 2002, ch. 603) providing local agencies with incentives for improved groundwater management. While not providing a new vehicle for groundwater management, SB 1938 modified the Water Code by requiring specific elements be included in a GWMP for an agency to be eligible for certain funding administered by DWR for groundwater projects. Through AB 3030 and SB 1938, local agencies can now develop GWMPs that guide the sustainable use of the groundwater resource while also providing access to certain State funding sources.

3.2 Regulatory Requirements Related to Salt and Nutrient Management

In February 2009, the State Water Resources Control Board (SWRCB) adopted Resolution No. 2009-0011 establishing a statewide Recycled Water Policy. The policy encourages increased use of recycled water and local stormwater capture and reuse. It also requires local water and wastewater entities, together with local salt and nutrient-contributing stakeholders to develop an SNMP for each groundwater basin or subbasin in California. The Malibu Valley SNMP-GWMP will be developed through a collaborative process initiated in December 2013.

As outlined in the Recycled Water Policy, the required elements of an SNMP are the following:

- A basin/sub-basin wide monitoring plan that includes an appropriate network of monitoring locations.
- A provision for annual monitoring of constituents of emerging concern (CECs) consistent with recommendations by California Department of Public Health (CDPH) and SWRCB.
- Water recycling and stormwater recharge/use goals and objectives.
- Salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.
- Implementation measures to manage salt and nutrient loading in the basin on a sustainable basis.
- An antidegradation analysis demonstrating that the projects included within the plan will, collectively, satisfy the requirements of Resolution No. 68-16.

The degree of specificity of the SNMP is dependent on the complexity of the groundwater basin, source water quality, stormwater recharge, and other factors. The SNMP should be tailored toward local water conditions, and may address other constituents beyond salts and nutrients that adversely affect groundwater quality.

4 Goals and Objectives

At a December 11, 2013 stakeholder meeting, and again at the December 12, 2013 Technical Advisory Committee (TAC) meeting, RMC, in conjunction with stakeholders, identified preferred basin management objectives (BMOs) and goals that the SNMP-GWMP will aim to achieve. This process identified specific goals and objectives for future groundwater use, water recycling, and the reuse of stormwater that will align with anticipated future development overlying the Basin. A critical element of

goal setting was development of goals and objectives for the SNMP-GWMP that did not conflict with those of other plans, studies and projects, and that presented a comprehensive picture of regional groundwater management and current and projected future groundwater use.

Basin management goals and objectives will result in a more reliable supply for the long-term protection of the groundwater basin and will depend on the needs seen by area stakeholders. This chapter also discusses the goals for using recycled water and stormwater in the basin as required for the SNMP.

4.1 Basin Management Goals and Objectives

Basin management objectives to achieve the SNMP-GWMP goals that were identified and discussed with stakeholders during the December meetings include:

- **BMO-1:** Avoidance of groundwater overdraft and associated undesirable effects (such as seawater intrusion)
- **BMO-2:** Protection of surface water resources
- **BMO-3:** Minimize impacts on local water supply
- **BMO-4:** Minimize impacts on groundwater quality

These qualitative BMOs address issues related to groundwater levels, groundwater quality, subsidence, and the interaction of groundwater with surface water. The BMOs will be further developed throughout the plan development process and will be stated quantitatively with triggers and actions to be considered when thresholds are crossed. Additionally, the BMOs will be supported by management actions such as:

- Monitoring;
- Integration of recycled water resources;
- Public education and conservation programs;
- Well ordinances including construction, abandonment, and destruction policies; and
- Identification and mitigation of soil and groundwater contamination.

4.2 SNMP-Specific Goals

Goals for recycling and stormwater capture and use will be based on stakeholder input and on the information contained in relative Urban Water Management Plans (UWMPs) and other planning documents. Additionally, water conservation programs and ordinances will provide a useful basis for understanding and assessing recycling activities. The City and Water District 29 implement extensive water conservation programs, ranging from residential, commercial, industrial and municipal to programs, and the City has implemented a stormwater capture and program through development and implementation of its Legacy Park project.

4.3 Recycled Water Goals

Recycled water goals were based on information provided in Water District 29's 2010 UWMP and current and projected future recycled water usage data. Existing recycled water use is presented in Table 4-1, and is based on current recycled water usage data provided by the City. These values represent present recycled water use within the basin, which is currently used for recharge only. Future plans for the City's recycled water system include providing recycled water to areas of the City for irrigation plus additional groundwater recharge.

Table 4-1 also presents the projected 2035 recycled water use in the basin. These future estimates represent the recycled water goals for the basin.

Table 4-1: Current Use and Future Goals for Recycled Water

Provider	Current Use (AFY)	2035 Use (AFY)
Water District 29	0	0
City of Malibu (Irrigation)	0	140
City of Malibu (Recharge)	30	2,750

4.4 Stormwater Recharge Goals

The City and stakeholders in the Malibu Valley Groundwater Basin are actively working to increase the ability to put stormwater to beneficial use through irrigation and other non-potable uses. The City is engaged in several scientific studies and engineering projects to improve water quality in nearby surface water bodies which include a significant stormwater treatment element. For example in 2007, the City began operating its Civic Center Stormwater Treatment Facility (SWTF), which processes up to 1,400 gallons per minute (gpm) of stormwater runoff from the Civic Center area to remove trash, suspended solids, metals, and indicator bacteria.

In 2010, the Legacy Park Project was completed; this project included developing the Legacy Park site into a public amenity providing education, passive recreation and habitat improvements, in addition to providing stormwater treatment to remove pathogens. Treated stormwater flows are then reused to the maximum extent possible as an irrigation supply for Legacy Park and other landscaping. Dry-and wet-weather flows that exceed the irrigation demand are directed to a 33,000 gallons per day (gpd) dispersal field in the southeast corner of the Legacy Park Site. The project also includes Low Impact Development (LID) features such as bioswales and permeable pavement that increase recharge of stormwater.

The City also recently constructed the Malibu Civic Center Linear Park, which incorporates LID features including stormwater capture and treatment. The linear park includes a 0.5 acre greenbelt planted with native trees and plants and irrigated with either treated stormwater or recycled water.

In addition to the stormwater treatment improvements provided by the SWTF and Legacy Park project, the City has also begun to incorporate stormwater treatment and runoff solutions into their other municipal projects. The recently completed Cross Creek Road Improvement Project provides an excellent example of street improvement projects that protect against water quality degradation from stormwater runoff and maximizes the potential for water reuse. This environmentally superior project provides several benefits, including:

- Minimizes stormwater runoff with:
 - Permeable pavers on street angled vehicle parking
 - Permeable pavement on sidewalk areas
- An enhanced landscaping plan that allows for increased stormwater infiltration
- Connections for an irrigation supply that uses treated stormwater or recycled wastewater that has been treated to Title 22 standards

While these efforts and others are continuing in the basin, the benefit of recharging stormwater (which is likely to be low in TDS) is not included in the groundwater quality analyses in this SNMP-GWMP due to uncertainties in the projected quantity and volumes of stormwater recharge at this time and limited storage volume in the groundwater basin. Not including stormwater in the future water quality analysis at this point is a conservative approach as stormwater would likely decrease TDS and nitrate concentrations in the groundwater basin. Future updates to the SNMP-GWMP may consider these efforts as they

continue to be developed and implemented. Future updates to the SNMP-GWMP could also include quantitative goals for stormwater recharge as they are established through these planned efforts. Stormwater recharge and/or reuse will, however, be addressed in the SNMP-GWMP in a qualitative manner.