

# Section 1: Introduction

---

The Salt and Nutrient Management Plan (SNMP) for the Antelope Valley (AV) has been prepared in cooperation with the water and wastewater agencies, the cities of Lancaster and Palmdale, Edwards Air Force Base, private home owners, and other stakeholders in the Antelope Valley. It fulfills the State Water Resources Control Board (State Board) requirements of the Recycled Water Policy (SWRCB 2009) and its amendment (SWRCB 2013), which encourages every region in California to develop an SNMP to address long-term groundwater basin sustainability.

## 1.1 The Salt and Nutrient Management Plan

In February 2009, the State Board adopted the Recycled Water Policy to provide direction to the Regional Water Quality Control Boards, proponents of water use and recycled water projects, and the public regarding the appropriate criteria to be used by the State and Regional Boards in issuing permits for recycled water projects. The Recycled Water Policy includes State Board goals for statewide increases in the use of recycled water, which is considered a drought-proof, reliable, and sustainable water resource. The State Board addresses the concern for protecting the beneficial uses of groundwater basins by its intention for every groundwater basin in California to have a SNMP. The Recycled Water Policy expects salt and nutrient loading in groundwater basins/sub-basins to be addressed through the development of a management plan by the collaborative stakeholder process rather than imposing requirements on individual recycled water projects by the regional regulating agency.

In response to the adoption of the Recycled Water Policy, Los Angeles County Waterworks Districts and Sanitation Districts of Los Angeles County, with support of the Lahontan Regional Water Quality Control Board (Regional Board) staff, initiated efforts to organize a stakeholder group to develop a regional SNMP for the Antelope Valley. Stakeholders include, but are not limited to, water importers, purveyors, stormwater management agencies, wastewater agencies, the Regional Board, and other significant salt/nutrient contributors, in addition to the recycled water stakeholders. Stakeholder participation is described in Section 1.3. This SNMP is a result of stakeholder collaborations and meets the intentions of the Recycled Water Policy.

## 1.2 Purpose and Goals of the Salt and Nutrient Management Plan

The purpose of developing a regional SNMP for the Antelope Valley is to address the management of salts and nutrients (and possibly other constituents of concern) from various sources within the basin to maintain water quality objectives and support beneficial uses of the region's groundwater. The intention is to involve all users of water in the Antelope Valley basin to participate in efforts to minimize the anthropogenic accumulation of salt and nutrients that would degrade the quality of water supplies in the Antelope Valley to the extent that it may limit their use.

Additionally, the SNMP is developed to satisfy the Recycled Water Policy, and thus allow for a streamlined process in getting recycled water projects approved and permitted by the Regional Board. The Antelope Valley is an arid region that requires careful management of its water supplies to meet the needs of its residents. Increasing recycled water use will allow for increased available potable water supplies for the people of the Antelope Valley.

One goal of the SNMP is to address salt and nutrient loading to the Antelope Valley groundwater basin region through the development of a management plan by the collaborative stakeholder process rather than the regional regulating agency imposing requirements on individual water projects. The AV SNMP has been prepared to be included as an appendix to the updated 2013 Antelope Valley Integrated Regional Water Management Plan<sup>1</sup> (AVIRWMP) and for acceptance by the Regional Board. The involvement of local agencies in developing an SNMP may lead to more cost-effective means of protecting and enhancing groundwater quality, quantity, and availability.

Another goal is to assess impacts with potential long-term basin-wide effects on groundwater quality that result from activities such as projects involving surface water, groundwater, imported water, and/or recycled water, as well as other salt/nutrient contributing activities, through regional groundwater monitoring. The design and implementation of a regional groundwater monitoring program shall involve the stakeholders.

The completion and implementation of the SNMP may lead to the potential for enhanced partnering opportunities and potential project funding between water and wastewater agencies, or other stakeholders, for developing and protecting water supplies.

### **1.3 Stakeholder Participation**

The collaborative stakeholder process is an essential method to ensure that this SNMP reflects the needs of the Antelope Valley region, promotes the formation of partnerships, and encourages coordination with agencies. One of the benefits of this process is that it brings together a broad array of groups into a forum to discuss and better understand shared needs and opportunities.

Over twenty stakeholder meetings were held periodically, since August 2009, to raise awareness and engage stakeholders and other interested parties on salt and nutrient issues and management plan development efforts in the Antelope Valley region. The meetings were open to the public and were geared toward water, groundwater, and wastewater agency representatives, regulators, and community stakeholders. Neither a financial contribution nor agency status are required to be part of the collaborative SNMP development process. Copies of the meeting agendas, minutes, and presentations are available online and accessible via the AVIRWMP website<sup>2</sup>.

The Antelope Valley SNMP development efforts were led by the Los Angeles County Waterworks District No. 40 (Waterworks) and the County Sanitation Districts Nos. 14 and 20 of Los Angeles County (Sanitation Districts). Both agencies are interested in increasing recycled water use in the region. For the most part, staff from these two agencies led the stakeholder meetings and prepared the meeting agendas, minutes, and presentations.

The stakeholders assisted in the development of the SNMP in addition to helping with data collection. Data compilation and analysis was conducted by staff from Waterworks and the Sanitation Districts and presented to stakeholders at the SNMP meetings. Stakeholders provided feedback, upon which revisions were made by the Waterworks and the Sanitation Districts staff. This SNMP document was prepared by Waterworks and Sanitation Districts staff. An initial draft was prepared in early 2013 and made available on the AVIRWMP website in July 2013. Stakeholder and Regional Board comments on the July 2013 draft SNMP are incorporated, as appropriate and applicable, into this Final SNMP.

---

<sup>1</sup> The Antelope Valley IRWMP was updated in December 2013, prior to completion of the SNMP. A draft version of this plan is included in Appendix G of the 2013 IRWMP update.

<sup>2</sup> <http://www.avwaterplan.org/>

The following is a list of roles and responsibilities in developing the SNMP:

Stakeholders:

- Attend SNMP stakeholder meetings
- Review meeting materials and other documentation
- Provide comments and feedback
- If applicable, provide data or other information related to the SNMP

Lead Agencies Staff (Waterworks and Sanitation Districts):

- Lead SNMP stakeholder meetings
- Ensure that meetings were announced to a broad distribution list via e-mail and related meeting materials were made available on the AVIRMP website
- Prepare meeting agendas, minutes, and presentations
- Prepare Scope of Work for presentation to Regional Board
- Compile and analyze data
- Prepare SNMP document
- Address comments from stakeholders and Regional Board staff

Regional Board Staff:

- Attend SNMP stakeholder meetings
- Provide guidance on regulatory issues
- Ensure that regulatory compliance standards and goals are adequately addressed
- Review meeting materials and other documentation
- Provide comments and feedback
- Consider SNMP for acceptance

Members of the stakeholder group have included:

Association of Rural Town Councils (ARTC)

Antelope Acres Town Council

Antelope Valley Building Industry Association (BIA)

Antelope Valley Board of Trade

Antelope Valley Resource Conservation District

Antelope Valley United Water Purveyors/White Fence Farms Mutual Water Co.

Antelope Valley-East Kern Water Agency (AVEK)

Boron Community Services District

Bureau of Reclamation

California Department of Water Resources (DWR)

California Department of Public Health (CDPH)

California Water Services Company

City of California City

City of Lancaster

City of Palmdale

Edwards Air Force Base (EAFB)

GEI Consultants (on behalf of Rosamond Community Services District)

General public and residents of the Antelope Valley

Kennedy Jenks

Kern County Farm Bureau

Los Angeles County Farm Bureau

Los Angeles County Waterworks District No. 40 (Waterworks)

County Sanitation Districts Nos. 14 and 20 of Los Angeles County (Sanitation Districts)

California Regional Water Quality Control Board, Lahontan Region (Regional Board)

Lake Los Angeles Park Association  
Lakes Town Council  
Leona Valley Town Council  
Littlerock Creek Irrigation District  
National Water Research Institute (NWRI)  
Palmdale Water District  
Quartz Hill Water District  
Rosamond Community Services District (RCSD)  
RMC Water and Environment  
Sundale Mutual Water Company  
US Bureau of Reclamation (USBR)

## 1.4 Scope of Work

AV SNMP stakeholders and Regional Board staff developed a Scope of Work detailing tasks to be completed in developing a SNMP for the Antelope Valley (see Appendix A). The Scope of Work was developed using elements described in the State Board's "SNMP Suggested Elements"<sup>3</sup> and Recycled Water Policy.

The Regional Board distributed the draft Scope of Work for public comment on August 29, 2011 and no comments were received. Regional Board staff and stakeholder representatives updated Members of the Regional Board on the Antelope Valley SNMP development efforts at the October 2011 Regional Board meeting. Regional Board Members provided positive feedback on the proposed Scope of Work, finding it acceptable, and praised the SNMP development process. As a result, the Regional Board issued an acceptance letter (see Appendix B) for the Scope of Work, which the stakeholders then finalized in the January 24, 2012 stakeholder meeting.

## 1.5 SNMP Definitions

The following definitions were accepted by the AV SNMP stakeholder group.

**Salts:** The dissolved ions in water. Salts are observed by measuring total dissolved solids (TDS).

**Nutrients:** Constituents in the environment that an organism needs to live and grow. While nutrients may include a variety of substances, nitrate specifically was considered in the SNMP because it may be detected at significant levels in groundwater. Substances such as potassium, phosphorous or ammonia are not found at concerning levels, or often times are not even detected, in the Antelope Valley groundwater. This plan expresses nitrate concentration in units of milligrams per liter as nitrogen (mg/L as N).

**Constituents of Emerging Concern (CECs):** A class of unregulated substances, such as pharmaceuticals and personal care products (PPCPs) and perfluorinated compounds (PFCs), that previously had not been detected or are being detected at levels that may be significantly different than expected. A "blue ribbon" science advisory panel, convened by the State Board, prepared a report titled, "Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water", which presented recommendations for monitoring CECs in municipal recycled water used for groundwater recharge. Future monitoring of CECs will be incorporated, as applicable, under the direction of the State Board.

---

<sup>3</sup> [http://www.swrcb.ca.gov/losangeles/water\\_issues/programs/salt\\_and\\_nutrient\\_management/SNMP\\_Elements.pdf](http://www.swrcb.ca.gov/losangeles/water_issues/programs/salt_and_nutrient_management/SNMP_Elements.pdf)

**SNMP Water Quality Management Goal:** Goal(s) set at a level for a particular constituent in groundwater for the purposes of this plan. The water quality management goal take into consideration the water quality objectives established by the Regional Board for the reasonable protection of the area's beneficial use(s) of water.

**Baseline Conditions:** Average concentration of a particular constituent measured in the water (e.g., surface or groundwater) from 2001 to 2010. This is also referred to as the historical condition.

**Current Ambient Conditions:** Average concentration of a particular constituent measured in the water (e.g., surface or groundwater) for the most recent 5-year averaging period.

**Assimilative Capacity:** Difference between the SNMP water quality management goal and the ambient condition of a particular constituent is the amount of assimilative capacity available for a particular basin, sub-basin, or sub-area. If the ambient water quality is the same or poorer than the water quality goal, then assimilative capacity does not exist. If the ambient condition is better than the water quality goal, then assimilative capacity exists.

The assimilative capacity is a moving figure, as water quality may change over time. The baseline assimilative capacity (see Section 4) is the difference between the SNMP water quality management goal and an established baseline condition, whereas the current assimilative capacity is based on the current condition.

$$\text{Assimilative Capacity} = (\text{SNMP Water Quality Management Goal}) - (\text{current or baseline ambient condition})$$

**Antidegradation:** Defined by the State Board's Antidegradation Policy (SWRCB 1968), which is aimed at maintaining high quality waters to the maximum extent possible. The Antidegradation Policy requires the quality of California's waters be maintained until it has been demonstrated to the State that any change will be consistent with the maximum benefit to the people of the State, will not unreasonably affect present and potential beneficial uses and will not result in water quality lower than applicable standards.

**Future Planning Period:** A 25-year planning period (2011-2035) was used to simulate current and future basin activities and their impacts to the Antelope Valley Basin. The planning period is consistent with the future planning period in the AVIRWMP. The Recycled Water Policy requires at least a ten year planning period be used.

Per Regional Board suggestion, the following definitions are included:

**Pollution:** Defined in the California Water Code, section 13050(l) to mean that beneficial uses of water are unreasonably affected.

**Degradation:** Condition in which the natural water quality is adversely altered, but still satisfies water quality objectives to support beneficial uses.

## 1.6 List of Acronyms:

AF	Acre-Feet
AFY	Acre-Feet per Year
AV	Antelope Valley
AVEK	Antelope Valley East Kern Water Agency
AVIRWMP	Antelope Valley Integrated Regional Water Management Plan
CDPH	California Department of Public Health
CECs	Constituents of Emerging Concern
DPR	Department of Pesticide Regulation
DWR	Department of Water Resources
EAFB	Edwards Air Force Base
EIR	Environmental Impact Report
GAMA	Groundwater Ambient Monitoring & Assessment
LACSD	Los Angeles County Sanitation Districts
LACWD	Los Angeles County Waterworks Districts
LADWP	Los Angeles Department of Water and Power
LCID	Littlerock Creek Irrigation District
LLNL	Lawrence Livermore National Laboratory
MCL	Maximum Contaminant Level
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
mg/L as N	Milligrams per Liter as Nitrogen
MG	Million Gallons
MGD	Million Gallons per Day
M&I	Municipal and Industrial
MWC	Mutual Water Company
ND	Non-Detect
NL	Notification Level
NWIS	National Water Information System
PRID	Palm Ranch Irrigation District
PWD	Palmdale Water District
QHWD	Quartz Hill Water District
RCSD	Rosamond Community Services District
SMCL	Secondary Maximum Contaminant Level
SNMP	Salt and Nutrient Management Plan
SWP	State Water Project
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WRP	Water Reclamation Plant
WVCWD	West Valley County Water District