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Santa Clara Valley East Subbasin Salt and Nutrient Management Plan Substitute Environmental Document

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Prepared for

Los Angeles Regional Water Quality Control Board

K/J Project No. 1444237*00

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Acronym List

ACOE	Army Corps of Engineers
AF	Acre-feet
AFY	Acre-feet per year
AGR	Agricultural Supply
ASR	Aquifer storage and recovery
BO	Basin Objective
CASGEM	California Statewide Groundwater Elevation Monitoring
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CESA	California Endangered Species act
CLWA	Castaic Lake Water Agency

CWS	Community Water System
DWR	California Department of Water Resources
FESA	Federal Endangered Species Act
GHG	Greenhouse gas
Gpd	gallons per day
gpd/ft	gallons per day per foot
IRWMP	Integrated Regional Water Management Plan
LARWQCB	Los Angeles Regional Water Quality Control Board
LID	low impact development
LOS	Level of Service
LSCE	Luhdorff & Scalmanini Consulting Engineers
mg/L	Milligrams per liter
MLD	Most Likely Descendant
MS4	Municipal Separate Storm Sewer System
Msl	mean sea level
MUN	Municipal and Domestic Supply
MZ	Management Zone
NAHC	Native American Heritage Commission
NO3	Nitrate
NPDES	National Pollutant Discharge Elimination System
OVOV	One Valley One Vision
PRC	Public Resources Code
PROC	Industrial Process Supply
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAQMD	Southern California Air Quality Management District
SCVSD	Santa Clarita Valley Sanitation District
SCWD	Santa Clarita Water Division
SEA	Significant Ecological Area
SED	Substitute Environmental Document
SNMP	Salt Nutrient Management Plan
SRWS	Self-regenerating water softeners
SWPPP	Stormwater Pollution Prevention Control Plan
SWRCB	State Water Resources Control Board
TDS	Total dissolved solids
TMDL	Total Maximum Daily Load
USCR	Upper Santa Clara River
USFWS	United States Fish and Wildlife Service
UWMP	Urban Water Management Plan
WQO	Water Quality Objective
WRP	Water Reclamation Plant

Executive Summary

In accordance with the State Water Resources Control Board's (SWRCB's) Recycled Water Policy (Policy), the Upper Santa Clara River Integrated Regional Water Management Planning Group of stakeholders, including the Castaic Lake Water Agency (CLWA), City of Santa Clarita, CLWA Santa Clarita Water Division (SCWD), Santa Clarita Valley Sanitation District (SCVSD), Newhall County Water District (NCWD), Valencia Water Company (VWC), and other interested community members worked collaboratively to prepare a Salt and Nutrient Management Plan (SNMP) for the Santa Clara River Valley East Groundwater East Subbasin (East Subbasin).

The purpose of the SNMP is to determine the current (ambient) water quality conditions in the East Subbasin and ensure that all water management practices, including the use of recycled water, are consistent with water quality objectives. The SNMP is intended to provide the framework for water management practices to ensure protection of beneficial uses, and allow for the sustainability of groundwater resources consistent with the Basin Plan. As part of the SNMP, a monitoring plan has been developed for the East Subbasin which identifies key monitoring locations within the basin for both surface and groundwater.

The California Regional Water Quality Control Board, Los Angeles Region (Regional Board) is the lead agency for evaluating the environmental impacts of the SNMP. Any water quality control plan, state policy for water quality control, and any other components of California's water quality management plan as defined in Code of Federal Regulations, title 40, sections 130.2(k) and 130.6, proposed for board approval or adoption must include or be accompanied by Substitute Environmental Documentation (SED) and supported by substantial evidence in the administrative record. This SED analyzes environmental impacts that may occur from implementing the SNMP, very similar to a California Environmental Quality Act (CEQA) evaluation. This SED is based on a proposed SNMP that will be considered by the Regional Board and, if approved by the Regional Board, will revise the implementation plan to the California Water Quality Control Plan, Los Angeles Region (Basin Plan) consistent with Water Code Section 13242. The proposed SNMP is described in the Staff Report, Tentative Board Resolution, and Tentative Basin Plan Amendment available on the Regional Board website. This SED analyzes foreseeable methods of compliance with the SNMP and provides the public information regarding environmental impacts, mitigation, and alternatives.

The SED will be considered by the Regional Board when the Regional Board considers adoption of the SNMP as a Basin Plan Amendment. Approval of the SED is separate from approval of a specific project alternative or a component of an alternative. The approval process for the SED includes (1) addressing public comments received during the 45-day comment period, (2) confirming that the Regional Board considered the information in the SED, and (3) affirming that the SED reflects independent judgment and analysis by the Regional Board (CEQA Guidelines Section 15090 (Title 14 of CCR), Division 6, Chapter 3).

The SNMP for the Upper Santa Clara River is intended to fulfill the requirements of the Statewide Recycled Water Policy and provide the framework for the environmentally safe discharge of water containing salts and nutrients in the Upper Santa Clara River groundwater basins in compliance with the Basin Plan. This would be achieved through the implementation of management measures in areas of the groundwater basin where the salt and nutrient loads

would exceed the water quality objectives for the sub-basin if recycled water projects were to be implemented.

This SED analyzes three Program Alternatives and both structural and non-structural Implementation Alternatives that encompass actions within the jurisdiction of the Regional Board and implementing municipalities and agencies. A No Project Alternative is analyzed to compare the impacts of approving a proposed alternative and its components compared with the impacts of not approving the proposed alternative. The SED analyzes the potential environmental impacts in accordance with significance criteria. CEQA requires the Regional Board to conduct a program level analysis of environmental impacts (Public Resources Code §21159(d)). This analysis fulfills that requirement.

A “reasonable range” does not require an examination of every site, but a reasonably representative sample of them. The statute specifically states that the alternatives section shall not require the agency to conduct a “project-level analysis” (Public Resources Code § 21159(d)). Rather, a project-level analysis must be performed by the local agencies that are required to implement the requirements of the SNMP (Public Resources Code §21159.2). Notably, the Regional Board is prohibited from specifying the manner of compliance with its regulations (Water Code §13360), and accordingly, the actual environmental impacts will necessarily depend upon the compliance strategy selected by the local agencies and municipalities who intend to provide recycled water within the groundwater basin. Municipalities and agencies that will implement recycled water projects resulting in the need for management measures to address salt and nutrient loading in the Upper Santa Clara River groundwater basin may use this SED to help with the selection and approval of project alternatives.

Approval of projects (i.e., project alternatives or components of project alternatives) refers to the decision of either the implementing municipalities or agencies to select and carry out an alternative or a component of an alternative. In most cases the components assessed at a project-level do not have specific locations/designs at this time; the specific locations/designs will be determined by implementing municipalities and agencies. The project-level components will be subject to additional environmental review, including review by cities and municipalities implementing the management measures (Implementation Alternatives) identified in the SNMP.

Many of the specific projects and Best Management Practices (BMPs) analyzed in this SED will involve infrastructure projects that will reduce salt and nutrient loading in the groundwater basin. Construction and operation of infrastructure projects generate varying degrees of environmental impacts. The potential impacts can include, for example, noise associated with construction, air emissions associated with vehicles to deliver materials during construction, traffic associated with increased vehicle trips and where construction or attendant activities occur near or in thoroughfares, additional light and glare. Additionally, operation of infrastructure, such as water recycling or other water treatment facilities (e.g. desalination, regional water softening) would result in additional air and greenhouse gas emissions, primarily through an increase in energy use. Some of this gas emission impacts would be offset, in part, if recycled water is used in place of potable supplies due to the decreased need to transport and treat potable water.

To address the potential environmental impacts from construction and operation of the management measures identified in the SNMP, responsible parties can employ a variety of techniques, BMPs, and other mitigation measures to minimize potential impacts on the environment. Mitigation measures for construction projects include implementation of BMPs to

reduce noise impacts, including sound barriers, developing detailed traffic plans in coordination with police or fire protection authorities, and using lower emission vehicles to reduce air pollutant emissions. Operational mitigation measures include use of renewable energy sources, noise reducing equipment and other BMPs.

Many of the mitigation measures identified in the SED are common practices currently employed to reduce impacts associated with construction and operation of infrastructure projects. Mitigation measures are suggested to minimize site specific impacts to less than significant levels. Mitigation of adverse environmental impacts is strictly within the discretion of the individual implementing agency. It is the obligation of responsible parties to mitigate adverse environmental impacts associated with reasonably foreseeable means of compliance when impacts are deemed significant (14CCR§15091(a)(2)).

This SED finds that foreseeable methods to implement the SNMP, including both nonstructural and structural management measures, would not cause significant impacts that cannot be mitigated through commonly used construction, design and operational practices. The SED identifies mitigation methods for impacts with potentially significant effects and finds that these methods can mitigate potentially significant impacts to levels that are less than significant. To the extent that there are significant adverse effects on the environment due to the implementation of this SNMP, there are feasible alternatives and/or feasible mitigation measures that would substantially lessen significant adverse impacts in most cases. The SED can be used by implementing municipalities and agencies to assist with any additional environmental analysis of specific projects required to comply with the SNMP.

Section 1: Introduction

1.1 Recycled Water Policy and SNMP

In February 2009, the State Water Resources Control Board (State Water Board) adopted the Recycled Water Policy (Resolution No. 2009-0011), in a statewide effort to increase recycled water use while protecting groundwater resources. The Recycled Water Policy, provided as Appendix C, was subsequently revised by an amendment adopted by the State Water Board in April 2013 (Resolution No. 2013-0003).

The Recycled Water Policy prescribes permitting criteria that enable a streamlined and statewide consistent permit process for most recycled water projects while allowing the Regional Water Quality Control Boards (RWQCB) to focus on site-specific conditions. Rather than imposing specific requirements on individual recycled water projects, the Recycled Water Policy promotes a broader approach to expedite the implementation of recycled water projects in a manner that implements State and Federal water quality laws. Accordingly, the Recycled Water Policy requires the development of regional or sub-regional salt and nutrient management plans (SNMPs) to manage salts and nutrients from all sources on a basin-wide or watershed-wide basis while ensuring attainment of water quality objectives and protection of beneficial uses. SNMPs are required to be tailored to address the water quality concerns in each basin or sub-basin and must be completed by 2014, in some cases by 2016, as is the case for the East Santa Clara River Sub Basin SNMP. Upon completion and approval of the SNMP, the Regional Water Board may adopt the implementation measures of the SNMP into the Water Quality Control Plan (Basin Plan).

1.2 CEQA

The Recycled Water Policy requires that SNMPs comply with the California Environmental Quality Act (CEQA). CEQA requires state and local agencies to determine the potential significant environmental impacts of proposed projects and identify measures to avoid or mitigate those impacts where feasible. The basic purposes of CEQA are to 1) inform decision makers and the public about the potential significant environmental effects of a proposed project, 2) identify ways that environmental damage may be avoided or mitigated, 3) prevent significant, avoidable damage to the environment by requiring changes in projects through the selection of feasible project alternatives or mitigation measures, and 4) disclose to the public why an agency approved a project if significant effects are involved (California Code of Regulations (CCR), title 14, § 15002(a)).

The State and Regional Boards' basin planning process is exempt from certain requirements of CEQA, including preparation of an initial study, negative declaration, and environmental impact report. However, the basin planning process is subject to other provisions in CEQA (Public Resources Code [PRC]. Section 21000 et seq.), such as the requirement to avoid significant adverse effects to the environment where feasible.

The *Regional Water Board Assistance in Guiding Salt and Nutrient Management Plan Development in the Los Angeles Region*, issued in 2012, provides guidance for the preparation of SNMPs within the Los Angeles Region and outlines the CEQA requirements for LARWQCB adoption of an Implementation Plan based on the SNMP into the Basin Plan. The document was used as guidance to prepare this SED, and is included as Appendix D.

1.3 SED Purpose and Objectives

While the basin planning process is exempt from certain CEQA requirements, it is subject to the substantive requirements of CCR, title 23, § 3777, which requires that any water quality control plan (as defined in Code of Federal Regulations, title 40, sections 130.2(k) and 130.6) proposed for board approval or adoption must include or be accompanied by Substitute Environmental Documentation (SED) and supported by substantial evidence in the administrative record. The SED shall consist of a written report containing an environmental analysis of the project, a completed Environmental Checklist, and other documentation as found necessary by the board.

This SED presents the results of the environmental analysis conducted for the Santa Clara River Valley East Sub-basin SNMP. Specifically, this SED provides a description of the proposed activity – the Santa Clara River Valley East Sub-basin SNMP, an analysis of reasonable alternatives, identification of reasonably foreseeable significant or potentially significant adverse environmental impacts of the SNMP, and an analysis of reasonably foreseeable mitigation measures to minimize those impacts. The Environmental Checklist is provided in Section 5 of this document.

The SED serves as a program-level environmental analysis, which takes into account a reasonable range of environmental, economic, and technical factors, population, geographic areas, and specific sites, which are examined based on a representative sample. The project-level analysis must be performed by the local agencies that will implement the strategies and projects identified in the SNMP (PRC § 21159). The RWQCB is prohibited from specifying the manner of compliance with its regulations (California Water Code §13360). Hence, the actual environmental impacts will necessarily depend upon the compliance strategy selected by the local agencies and other permittees. The analysis of program alternatives presented in this SED assumes that implementation of individual projects will occur in accordance with applicable laws, regulations, ordinances, and formally adopted municipal and/or agency codes, standards, and practices.

Preparation of the environmental analysis for this SED may involve utilization of numerical ranges or averages where specific data are not available; however the analysis does not involve speculation or conjecture (CCR, title 23, § 3777).

1.4 Basin Plan Amendment and CEQA Lead Agency

The applicable Basin Plan for this SNMP is the Water Quality Control Plan for the Los Angeles Region, issued by the Los Angeles Regional Water Quality Control Board (LARWQCB) in 1994. The Basin Plan is intended to preserve and enhance water quality and protect the beneficial uses of the regional waters in the Los Angeles Region, through implementation of established Water Quality Objectives. Upon completion, the SNMP will serve as the basis for a revised Implementation Plan that will be adopted as a Basin Plan amendment, by the LARWQCB. The

LARWQCB's goal in this process is to incorporate regional salt and nutrient management strategies rather than relying on imposing requirements on individual projects. Additionally, the LARWQCB's Basin Plan Amendment may allow for streamlined permitting and elimination of separate anti-degradation analyses for the vast majority of projects.

CEQA analysis is a required component of the Basin Plan amendment adoption process for which the LARWQB acts as the lead agency. As set forth in the Recycled Water Policy, the SNMP proponents, in this case the Santa Clara River Valley East Sub-basin stakeholders, are responsible for funding and developing the SNMP and conducting the required environmental analysis. As a result, the development of this SED and the SNMP required close collaboration between the LARWQCB and the Santa Clara River Valley East Sub-basin stakeholders.

The environmental analysis of the SNMP will be conducted primarily by the stakeholders with oversight and review by LARWQCB. Following the release of the Draft SED for public review, it is anticipated that there will be comments on its technical and regulatory aspects. LARWQCB will take the lead in responding to the comments that reference the regulatory process, while the basin stakeholders will be the lead for responding to technical comments.

Once the SNMP has been approved and specific projects are to be implemented, the stakeholders will be responsible for conducting project-specific environmental analyses, when applicable, in accordance with CEQA while meeting all other applicable regulatory requirements.

The SED will be considered by the LARWQCB as part of the adoption of the implementation measures and proposed major recycled water projects described in the SNMP. Approval of the SED is separate from approval of a specific project or a component of a program alternative. Approval of the SED refers to the process of: (1) addressing comments, (2) confirming that the LARWQCB considered the information in the SED, and (3) affirming that the SED reflects independent judgment and analysis by the LARWQCB (California Code of Regulations [CCR], Title 14, Division 6, Chapter 3 Guidelines for Implementation of the California Environmental Quality Act [CEQA Guidelines], Sections 10590 and 15090).

1.5 CEQA Scoping Meeting

Pursuant to California Public Resources Code section 21083.9, a CEQA Scoping Meeting was held on December 8, 2015, to receive comments on the appropriate scope and content of the SED. The purpose of this meeting was to scope the proposed projects and/or strategies for groundwater basin management and to determine, with input from interested agencies and persons, if those means would result in significant adverse impacts to the environment.

As the lead agency for the CEQA process, LARWQCB prepared and issued the Notification of the CEQA Scoping Meeting to all interested parties and was the designated entity to receive public comments regarding the scope and content of the proposed SED. The Scoping meeting was held by the LARWQCB and basin stakeholders on December 8, 2015 at the Newhall County Water District. An overview of the SNMP was presented to the regional stakeholders, along with a description of why an SED is required, and also the environmental resources that may be impacted by implementation of the SNMP.

A 30-day public comment period was established by LARWQCB and comments were also solicited during the CEQA Scoping Meeting. Three stakeholders submitted comments on the proposed environmental analysis; these are provided as Appendix B in this SED.

Information garnered from this public participation process was considered during development of this SED.

1.6 Organization of the SED

This SED is organized as follows:

- Section 1 – Describes the purpose of the SNMP and SED, Basin Plan Amendment and CEQA lead agency, the program-level CEQA analysis, and the organization of this document.
- Section 2 – Describes the project background and environmental baseline conditions in the Santa Clara River Valley East Sub-basin.
- Section 3 – Summarizes the SNMP Implementation Plan, including the implementation measures and planned major recycled water projects in the Santa Clara River Valley East Sub-basin.
- Section 4 – Describes the program alternatives, including the Recommended Program Alternative, and project level alternatives that were developed by the LARWQCB and Santa Clara River Valley East Sub-basin stakeholders based on the primary objectives of the SNMP and Recycled Water Policy.
- Section 5 – Contains the CEQA Checklist with an analysis of potential direct and indirect impacts for each identified environmental resource.
- Section 6 – Describes other environmental considerations for the Recommended Program Alternative, including cumulative environmental impacts and growth-inducing effects.
- Section 7 – Provides the CEQA determination and findings.
- Section 8 – Provides a list of references citied in this SED. Supporting materials are attached as the following appendices to this SED.

Section 2: Environmental Setting

This section describes the environmental setting of the Santa Clara River Valley East Sub-basin in order to provide context for the assessment of reasonably foreseeable impacts and mitigation measures associated with the alternatives proposed in this SED (see Section 4).

2.1 Study Area Location

The Santa Clara River Valley East Sub-basin lies within the Upper Santa Clara River (USCR) watershed, which encompasses approximately 786 square miles within Los Angeles County, approximately 243 square miles within Ventura County, and one square mile within Kern County. Elevations range from approximately 800 feet above mean sea level (msl) on the valley floor, to approximately 6,500 feet above msl in the San Gabriel Mountains. The headwaters of the Santa Clara River are at an elevation of approximately 3,200 feet above msl at the divide that separates the USCR Watershed from the Antelope Valley to the east. The Santa Clara River flows westward, towards the Pacific Ocean. It is one of the few natural river systems remaining in Southern California.

The East Subbasin is part of the larger Santa Clara River Valley Groundwater Basin and encompasses approximately 66,200 acres in the northwestern portion of Los Angeles County. It is bound to the north by the Piru Mountains, to the south by the Santa Susana Mountains, to the south and east by the San Gabriel Mountains, and to the west by the outcrops consisting of the Modelo and Saugus formations. The main surface drainage features include the Santa Clara River, Bouquet Creek, San Francisquito Creek, and Castaic Creek.

Water agencies in the region include CLWA, the wholesale water agency, and three retail water purveyors, SCWD, NCWD, and VWC. The service area boundary for each agency and the watershed boundary is provided as Figure 1 in Appendix A.

The Subbasin underlies the City of Santa Clarita, as well as unincorporated communities of Los Angeles County, including Stevenson Ranch, Val Verde, and Castaic. The predominant land uses overlying the East Subbasin are urban residential and open space. Other existing land use categories identified within the East Subbasin include among others agriculture, commercial; industrial; public facilities, and parks. Refer to Figure 2 in Appendix A for regional land uses.

2.2 Climate and Drought

Climate in the Study Area is characterized by an arid climate. Summers are typically dry with temperatures as high as 100°F. Most precipitation falls during the winter months when temperatures can drop as low as 20°F. The long-term average precipitation is 18.2 inches (based on data from 1960 to 2011 at the Newhall weather station), though average precipitation decreases to the east and to the north in the Subbasin. Intermittent periods of less than average precipitation are typically followed by periods of greater than average precipitation in cyclical patterns of typically one to five years. In general, periods of less than average precipitation are longer and more moderate than periods of greater than average precipitation.

Since 2012, the state has been experiencing one of the driest periods in recorded history, with the 2014 water year ending as the state's third driest on record (California Department of Water Resources [DWR] 2015). The severity of the statewide drought has also strained water resource conditions within the project area, including through severe cuts in imported water supplies and reductions in groundwater recovery and recharge.

2.3 Groundwater Basins Overview

The East Subbasin lies within the DWR designated USCR Hydrologic Area and is the sole source of local groundwater for water supply in the Santa Clara River Valley. The East Subbasin is comprised of two primary aquifer systems, the shallow Alluvium and the deeper underlying Saugus Formation. The Alluvium generally underlies all of the Santa Clara River and its several tributaries within the East Subbasin, to maximum depths of approximately 200 feet. The Saugus Formation underlies practically the entire study area, to depths of at least 2,000 feet. There are also some scattered outcrops of terrace deposits in the subbasin that likely contain limited amounts of ground water. However, since these deposits are located in limited areas situated at elevations above the regional water table, and are also of limited thickness, they are of no practical significance as aquifers for municipal water supply. Consequently, these deposits have not been developed for any significant water supply in the subbasin, and are therefore not included as part of the existing or planned ground water supplies (DWR, 2006).

The East Subbasin consists of six management zones (MZs), the first five are all located in the Alluvium:

- Management Zone 1 (MZ-1) Santa Clara-Mint Canyon,
- Management Zone 2 (MZ-2) Placerita Canyon,
- Management Zone 3 (MZ-3) South Fork,
- Management Zone 4 (MZ-4) Santa Clara–Bouquet and San Francisquito Canyons,
- Management Zone 5 (MZ-5) Castaic Valley, and
- Management Zone 6 (MZ-6) Saugus Formation.

See Figure 3 in Appendix A for their locations.

2.3.1 Alluvium

The Alluvium consists primarily of stream channel and flood plain deposits of the Santa Clara River and its tributaries, ranging from unconsolidated, poorly bedded, poorly-sorted to well-sorted sand, gravel, silt and clay with cobbles and boulders. The aquifer is deepest along the center of the present river channel, and thins toward the flanks of the adjoining hills and toward the eastern and western boundaries of the subbasin and, in the tributaries, becomes a mere veneer in their upper reaches.

Groundwater generally moves westward toward the outlet of the subbasin, which is also the outlet of the USCR Hydrologic Area. Thus, groundwater movement in the alluvium beneath the tributaries is toward their confluence with the Santa Clara River and then westward. From approximately Castaic Junction to Blue Cut, the Alluvium thins and narrows (Geomatrix, 2006 and Santa Clarita Valley Sanitation District [SCVSD], 2008). This configuration forces groundwater to rise, keeping the depth to water at or approaching land surface. The general groundwater flow direction has remained unchanged whether groundwater levels have been high or intermittently depressed. The San Gabriel and Holser Faults traverse the subbasin, but neither fault measurably affects groundwater levels or flows in the Alluvium (DWR, 2006).

Alluvial wells are distributed throughout the subbasin along the Santa Clara River and its southwest draining tributaries (see Figure 4 in Appendix A). The Alluvium is the most permeable of the local aquifer systems. Transmissivity values have been estimated ranging from 50,000 to 500,000 gallons per day per foot of drawdown, with the higher values occurring where the alluvium is thickest (Kennedy/Jenks, 2008). Groundwater recharge occurs from surface water recharge from the Santa Clara River, subsurface flow from the upgradient adjacent subunits, recharge from the Saugus Formation, and mountain front recharge. The amount of groundwater in storage in the Alluvial Aquifer can vary due to the effects of recharge, discharge, and pumping. The maximum storage capacity has been estimated to be 240,000 acre-feet (AF) (DWR, 2006).

Historical groundwater data collected from the Alluvium over many hydrologic cycles provides assurance that groundwater elevations return to normal in average or wet years following periods during which the groundwater elevations have declined. Management of pumping during dry periods limits the lowering of water levels, and normal-to-wet period recharge results in a rapid return of groundwater levels to historic highs. High rainfall totals in only one to two years generally will cause water levels within the aquifer to rise quickly, and by a relatively large amount (Luhdorff & Scalmanini Consulting Engineers [LSCE], 2012). Such water level response to rainfall is a significant characteristic of permeable, porous, alluvial aquifer systems that occur within large watersheds.

2.3.2 Saugus Formation

The Saugus Formation, of Pliocene to Pleistocene geologic age, has traditionally been divided into two stratigraphic units: the lowermost, geologically older Sunshine Ranch Member, which is of mixed marine to terrestrial (non-marine) origin; and, the overlying, or upper, portion of the Saugus Formation, which is entirely terrestrial in origin (Winterer and Durham, 1962). The Sunshine Ranch Member has a maximum thickness of approximately 3,000 to 3,500 feet in the central part of the Valley (2014 Integrated Regional Water Management Plan [IRWMP]); however, due to its marine origin and fine-grained nature, it is not considered to be a viable source of ground water for municipal or other water supply. Overlying the Sunshine Ranch Member, the upper portion of the Saugus Formation is coarser grained, consisting mainly of lenticular beds of sandstone and conglomerate that are interbedded with lesser amounts of sandy mudstone. These units were deposited in stream channels, flood plains, and alluvial fans by one or more ancestral drainage systems in the Valley. The sand and gravel units that represent aquifer materials in the upper part of the Saugus Formation are generally located between depths of approximately 300 and 2,500 feet.

The Saugus Formation is much thicker and more spatially extensive throughout the East Subbasin when compared to the Alluvium. It is also significant in terms of ground water storage and individual well capacity. However, the Saugus Formation has typically lower values of transmissivity (i.e., in the range of 80,000 to 160,000 gallons per day per foot [gpd/ft]), with the higher values found in the upper portions (2014 IRWMP). The storage capacity of the Saugus Formation has most recently been estimated to be 1.65 million acre-feet (AF) (DWR, 2006) between depths of 300 feet and approximately 2,500 feet (to the base of the Saugus Formation, or to the base of fresh water if shallower than 2,500 feet).

Groundwater recharge to the Saugus Formation occurs primarily through infiltration of rainfall and percolation from the overlying Alluvium. Groundwater in the Saugus Formation generally flows to the north in the southern portion and to the south in the northwestern portion of the subbasin towards the Santa Clara River.

2.4 Groundwater Quality

The groundwater quality within each subunit is primarily the result of the quality of recharge water. Therefore, the natural surface run-off, stormwater and dry weather flows from urban development, septic system leakage, return flow from agricultural practices, underflow from Castaic Dam, discharged treated wastewater into the Santa Clara River and applied recycled water as irrigation will contribute to the quality of ground water in the Alluvium and Saugus Formation. To an extent, the quality of groundwater flowing from outside the East Subbasin and from re-entrant canyon areas will also contribute to the quality of groundwater within the East Subbasin.

As required by the Recycled Water Policy, the SNMP includes salt and nutrient source identification, basin assimilative capacity and loading estimates, and an analysis of fate and transport of the identified salt and nutrients. The following sections provide an overview of these analyses from the SNMP, including a summary of the existing groundwater quality determined from the SNMP analysis.

2.4.1 Salt and Nutrients Analyzed

During the SNMP analysis, ambient concentrations and assimilative capacities for Total Dissolved Solids (TDS), chloride, nitrate, and sulfate were established for all six MZs (refer to Figure 3 in Appendix A). Each of the MZs (with the exception of MZ 6, the Saugus Formation) has established WQOs for TDS, chloride, nitrate, and sulfate. It is important to note that for the purposes of this report, “nitrate” is reported as NO_3. For MZ 6, the LARWQCB recommended the interim use of the most conservative basin objective of the alluvial MZs for the calculation of assimilative capacity for TDS, chloride and nitrate. However, due to the lack of supporting historical data for sulfate, no decision has been made with regards to the WQO for sulfate in MZ 6.

The significant variability of water quality in the Saugus Formation needs to be further evaluated to establish meaningful WQOs. In addition, after consulting with the LARWQCB, MZ 1 was split into two zones in order to isolate a localized area that may be associated with elevated levels of sulfate and TDS due to an unknown source. This area in MZ 1 was designated as MZ1b while

the remaining area was designated as MZ 1a. Average groundwater concentrations and assimilative capacities were calculated for each of these zones separately.

2.4.2 Salt and Nutrient Fate and Transport

Fate and transport describes the distribution, transport, and transformation of a constituent in the environment, in this case salt and nutrients in groundwater. These processes may be influenced by numerous factors, including among other factors ground water flow direction and rates, characteristics of the constituents, and certain aquifer characteristics.

Salts and nutrients occur as dissolved constituents in groundwater. When natural or anthropogenically applied water reaches the groundwater system, it mixes with the existing groundwater and flows down gradient due to gravity. These waters ultimately leave the East Sub-basin at the down gradient end of Castaic Valley subunit as surface/subsurface flows.

The historical assessment of mass loading changes and concentration changes for salt and nutrients conducted as part of the SNMP indicates that salt and nutrients enter the hydrologic system from both natural and anthropogenic sources and exit the system in the form of surface flow, extracted groundwater, rising water, evapotranspiration, or as subsurface flows. During a prolonged dry period, when less inflow is present, it is anticipated that salt and nutrient mass loading will increase, resulting in increased concentrations in groundwater. However, the system historically recovers during wet periods, thus removing and reducing salt and nutrient mass from the system through outflows.

2.4.3 Water Quality Objectives and Beneficial Uses

The LARWQCB Basin Plan sets water quality objectives for surface waters and groundwater, which must be attained or maintained to protect the designated beneficial uses and conform to the State's anti-degradation policy. The LARWQCB Basin Plan objectives for the East Subbasin groundwater subunits are shown in the following Table 1. Units are in milligrams/Liter (mg/L)

The beneficial uses designated for the East Subbasin include Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Services Supply (IND), and Industrial Process Supply (PROC). All of these beneficial uses apply to all of the groundwater subunits, except for the Saugus Formation, to which only MUN has been designated.

2.4.4 Existing Salt and Nutrient Conditions

The average TDS, chloride, nitrate, and sulfate concentrations for each MZ were determined by preparing concentration contours of the median concentration values for the years 2001-2011 from wells in each MZ. The average groundwater concentration values were determined based on the areal and vertical distribution of the median concentration contours. The average median concentration value for each constituent in each MZ is considered to be the ambient groundwater concentration. The ambient concentration for each constituent was subtracted from the specific WQO for that constituent and MZ to determine the available assimilative capacity. Calculated ambient groundwater concentrations are provided in Table 1 below along with each MZ's WQO.

TABLE 1 AMBIENT GROUNDWATER QUALITY AND BASIN OBJECTIVES

(Table 1-3 in the Draft Final SNMP)

Groundwater Subunit	Water Quality Status Comparison	TDS (mg/L)	Chloride (mg/L)	Nitrate as NO3 (mg/L)	Sulfate (mg/L)
Santa Clara-Mint Canyon (MZ-1a)	Water Quality Objective	800	150	45	150
	Ambient Water Quality	728	89	20	138
Santa Clara-Mint Canyon (MZ-1b)	Water Quality Objective	800	150	45	150
	Ambient Water Quality	833	72	21	269
Placerita Canyon (MZ-2)[1]	Water Quality Objective	700	100	45	150
	Ambient Water Quality	NA	NA	NA	NA
South Fork (MZ-3)[1]	Water Quality Objective	700	100	45	200
	Ambient Water Quality	NA	NA	NA	NA
Santa Clara-Bouquet and San Francisquito Canyons (MZ-4)	Water Quality Objective	700	100	45	250
	Ambient Water Quality	710	77	16	189
Castaic Valley (MZ-5)	Water Quality Objective	1,000	150	45	350
	Ambient Water Quality	727	77	8	246
Saugus Formation (MZ-6)[2]	Water Quality Objective[1]	700	100	45	NA
	Ambient Water Quality	636	28	14	235

1 Insufficient data to establish trend.

2 Water Quality Objectives have not been established for the Saugus Formation. Therefore the CDPH secondary maximum contaminant level is used for comparison.

Note: red values indicate exceedance of WQOs.

The SNMP analysis indicates that the average groundwater concentrations (ambient) are generally lower than the WQOs and assimilative capacity is available for all constituents for all MZs with the exception of TDS for MZs 1b and 4 and sulfate for MZ 1b. MZ 2 and 3 have no data set to compare with the basin objectives and, as mentioned previously, no WQO has been set for MZ 6 sulfate or any other constituent.

2.4.5 Future Salt and Nutrient Conditions

Salt and nutrients in the East Subbasin come from both natural and anthropogenic sources. The quantification of salt and nutrient loading was developed by determining the potential volume of

water coming from each source and applying an appropriate loading factor based on water quality sampling data and the distribution of potential salt loads by land use. The salt and nutrient loads were applied to the annual water balances for each MZ to evaluate the annual and overall changes in salt and nutrient concentrations for the study period.

A spreadsheet model was used to predict future groundwater quality and trends, as well as the percentage of the assimilative capacity to be used by implementation of individual projects and all projects combined, for the period from 2012 through 2035. This 24-year period was selected by the Regional Water Management Group since it falls within the planning range incorporated by the 2010 UWMP and incorporates the time period in which planned projects described herein will be implemented or will be in the process of implementation.

In order to evaluate the impacts of proposed projects, the simulated results were compared to baseline results. The baseline model run represents a predictive scenario for salt and nutrient loading and parameter concentrations under existing conditions ("Land Use Build-Out" conditions) projected into the future. Future hydrologic conditions were simulated using the hydrologic conditions from 1980 through 2003. Future land use changes in the Santa Clarita Valley were also taken into account by using the combined land use planning projected by the 2011 City of Santa Clarita General Plan and the 2012 Santa Clarita Valley Plan - "One Valley One Vision" (OVOV) which plans future land uses in both the City of Santa Clarita and unincorporated Los Angeles County. In addition to the change in land use, the appropriate water use factors were also input into the Regional Model annually for each MZ to simulate the change in water use with change in land use.

The proposed projects were identified by the members of the SNMP Task Force. Brief project descriptions are provided below.

SCVSD Wastewater Treatment Plant Chloride Compliance Program

SCVSD proposes to produce wastewater effluent that will meet a combined discharge of chloride from the Saugus and Valencia Water Reclamation Plants (WRPs) equal to 100 mg/L as a three-month average.

The process will include further treatment and blending of recycled water with water treated using the reverse osmosis process. The Saugus WRP would discharge up to 150 mg/L chloride, while limiting discharges from the Valencia WRP to a concentration less than 100 mg/L – such that the combined discharge from the two plants would be 100 mg/L downstream of the Valencia WRP. Recycled water to be purchased by CLWA is estimated to increase to 10,275 acre-ft/yr (AFY) by 2035. CLWA-purchased recycled water will remain at current concentrations to be used for landscape irrigation.

SCWD Water Use Efficiency Program

This project consists of ten (10) programs designed to conserve 4,437 AFY in water use by conserving approximately 634 AFY from 2014 through 2020, thereby reducing residential and commercial urban water use and urban run-off. For this analysis it is assumed that one-half of the water conservation will occur by a reduction of outside applied water, and the other one-half from lower indoor water use, reducing flows to the sewer.

Vista Canyon Water Reclamation Plant
Will be constructed to serve Vista Canyon Development, located in MZ 1. The project will require the use of 190 AFY of potable water and will generate 439 AFY of treated wastewater. The project proposes to use 190 AFY of the treated wastewater for landscape irrigation on site and the remainder will be placed into percolation ponds near the Santa Clara River. The water not required on site may also be used as part of a recycled water project that supplies irrigation water to nearby large landscaped areas. During wet years, when recycled water is not in demand, the project will percolate all of the recycled water into percolation ponds.

CLWA Recycled Water Master Plan
Proposes to incorporate additional recycled water for use in the Valley for landscape irrigation. Currently, approximately 400 AFY of recycled water is used for landscape irrigation. In accordance with the intent of the Recycled Water Policy, CLWA is planning to incrementally increase use of recycled water to about 2,000 AFY for Phase 2A, 2B, and 2C planning areas by the year 2035. Approximately 1,000 AFY will be used in areas upstream of the Saugus WRP and 1,000 AFY will be used in the Phase 2C planning area.

CLWA Santa Clarita Valley Water Use Efficiency Strategic Plan (SCV WUE SP)
Plans to conserve 683 acre ft/yr for a total planned reduction of 3,287 AF over a five-year span – which will also result in a decreased need of 380 AFY of imported water. The planned reductions will be achieved primarily through reduction in residential use and urban run-off. The full project benefits will be achieved between 2015 and 2026.

Newhall Ranch Water Reclamation Plant and Recycled Water Use
The Newhall WRP will service development in the Newhall Ranch Specific Plan and may also serve Newhall Land owned Westside Communities and the unincorporated area known as Val Verde, which are included in OVOV. It is anticipated to come online in 2023 and will be constructed initially to treat a flow rate of 2.0 MGD with a 4.0 MGD capability to accommodate full-build-out of the Newhall Ranch Specific Plan by 2033. The plant could also be expanded to accommodate the Westside Communities (0.4 MGD) and Val Verde area (1.3 MGD). However, the SNMP analysis does not include this additional potential capacity. The project will use recycled water primarily for landscape irrigation. However it is anticipated that some recycled water will be discharged to the Santa Clara River – generally during the months of November through March during wet, dry, and average years through 2035. At complete build-out, recycled water demand will be near 7,164 acre-ft/yr with approximately 566 AFY of discharge to the Santa Clara River. Recycled water discharged to the river will be treated by reverse osmosis (RO) and will have a maximum average chloride concentration of 100 mg/L, while recycled water used for landscape irrigation is expected to have a chloride concentration of approximately 125 mg/L.

Table 2 below summarizes the average TDS, chloride, nitrate and sulfate concentrations as a result of “Land Use Build-Out” conditions (i.e., changes in land use in accordance with local and regional land use plans but without the addition of any new water conservation or recycled water projects for the period 2012 through 2035).

TABLE 2. SALT AND NUTRIENT CONCENTRATIONS UNDER LAND USE BUILD-OUT CONDITIONS

(Table 1-2 in the Draft Final SNMP)

Water Quality	MZ 1a		MZ 1b		MZ 2		MZ 3		MZ 4		MZ 5		MZ 6	
Constituent	WQO[1]	LUB[2]	WQO[1]	LUB[2]	WQO[1]	LUB[2]	WQO[1]	LUB[2]	WQO[1]	LUB[2]	WQO[1]	LUB[2]	WQO[1]	LUB[2]
TDS	800	739	800	790	700	-	700	-	700	709	1,000	728	700	636
Chloride	150	89	150	72	100	-	100	-	100	93	150	79	100	46
Nitrate	45	19	45	23	45	-	45	-	45	19	45	11	45	19
Sulfate	150	150	150	225	150	-	200	-	250	166	350	248		251

1 WQO = Water Quality Objective
2 LUB = Land Use Build-Out
Notes: MZ-2, MZ-3 and sulfate in MZ-6 have insufficient data for preparation of analysis
Negative (-) values denote an decrease in assimilative capacity

Review of the table above indicates that only sulfate in MZ 1b will exceed the WQO under Land Use Build-Out conditions. The spreadsheet model also indicates, in some cases, Land Use Build-Out conditions will use assimilative capacity at a rate greater than the thresholds established by the LARWQCB Recycled Water Policy for projects. However, the addition of all proposed projects will have varying but generally beneficial effect by decreasing the amount of assimilative capacity used, as compared to the projected Land Use Build-Out conditions alone. Implementation of the proposed projects in the East Subbasin will result in a "maximum benefit" to the people of the state by providing additional water supply and conservation activities while decreasing the total amount of assimilative capacity used, as compared to the Land Use Build-Out conditions (i.e., no projects).

The impacts of the proposed projects were evaluated by determining the water quality changes that will occur as a result of implementing the project for the MZ(s) in which the water quality change will occur. Table 3 below provides a comparison of the assimilative capacity used between Land Use Build-Out conditions and the "All Projects" scenario.

TABLE 3 COMPARISON OF ASSIMILATIVE CAPACITY USED – LAND USE BUILD-OUT VS. ALL PROJECTS

(Table 1-3 in the Draft Final SNMP)

Water Quality	MZ 1a		MZ 1b		MZ 2		MZ 3		MZ 4		MZ 5		MZ 6	
Constituent	LUB[1]	AP[2]	LUB[1]	AP[2]	LUB[1]	AP[2]	LUB[1]	AP[2]	LUB[1]	AP[2]	LUB[1]	AP[2]	LUB[1]	AP[2]
TDS	-15%	14%	129%	143%	-	-	-	-	12%	70%	0%	3%	-1%	-1%
Chloride	0%	6%	0%	1%	-	-	-	-	-71%	-49%	-3%	3%	-24%	-25%
Nitrate	3%	2%	-9%	-9%	-	-	-	-	-10%	-11%	-8%	-8%	-17%	-17%
Sulfate	-102%	-76%	37%	37%	-	-	-	-	39%	41%	-2%	-2%	-	-

1 LUB = Land Use Build-Out
2 AP = All Projects
Notes: MZ-2, MZ-3 and sulfate in MZ-6 have insufficient data for preparation of analysis
Negative (-) values denote an decrease in assimilative capacity used or, alternatively, more available assimilative capacity after implementation.

The anti-degradation analysis shows that in the absence of projects, groundwater constituent concentrations will increase above the ambient plus 10% assimilative capacity concentration threshold by 2035. The implementation of single projects and the combined projects in general will increase assimilative capacity of salt and nutrient concentrations. However, where assimilative capacity is decreased and concentrations are (1) above the ambient plus 10% assimilative capacity concentration for single projects or (2) the ambient plus 20% assimilative capacity concentration for combined projects; the decrease is similar to that resulting from Land Use Build-Out only concentrations.

Therefore, if no projects are implemented, assimilative capacity will cross thresholds established in the Recycled Water Policy set forth to evaluate recycled water projects. Implementation of the proposed projects represents a “maximum benefit” to the people of the State by providing beneficial uses for recycled water and decreasing the use of assimilative capacity, as compared to not adding planned projects to the East Subbasin.

Implementation measures will serve to lower ambient concentrations of salts and nutrients, though the amount of decrease is unknown and pending further design of the implementation measures. With some or all of the measures in place, the assimilative capacity of all of the groundwater MZs, all other things being equal, would increase.

In summary, this analysis indicates that several approaches to future assessment of assimilative capacity should be considered:

1) Less assimilative capacity is used as a result of implementation of all the projects when compared to Land Use Build-Out conditions only.

2) Water quality in MZ 1b will experience a beneficial impact from implementation of all projects as compared to Land Use Build-Out conditions only.

3) Water quality is moved closer to the WQOs as a result of implementation of the proposed projects.

4) Calculated assimilative capacity should be based on comparison of Land Use Build-Out changes with single project and All Projects conditions, since changes from Land Use Build-Out represents actual baseline conditions (i.e., predicted ambient increases from year to year) going forward in the Subbasin.

5) WQOs should be re-evaluated to determine whether existing WQOs are appropriate for current water quality conditions and proposed groundwater management strategies. WQOs for MZ 6 should be prepared by the LARWQCB for future assessments.

6) The assimilative capacity, and thus the ambient plus 10% or 20% assimilative capacity concentrations, should be re-calculated when new data sets are collected from the proposed monitoring program (Section 12). New data sets should be used to update and refine the spreadsheet model and confirm the current anti-degradation analysis.

Implementation of the proposed projects represents a “maximum benefit” to the people of the State by providing beneficial uses for recycled water by increasing the assimilative capacity for each constituent which will result under Land Use Build-Out conditions.

Section 3: SNMP Implementation Plan

This section provides an overview of the SNMP implementation plan, which includes an evaluation of proposed projects that were identified by the members of the SNMP stakeholder group. These projects were analyzed as part of the anti-degradation analysis in the SNMP in order to determine whether or not collective project impacts would consume less than 20% of the available assimilative capacity calculated for each groundwater subunit (MZ). Results provide valuable information for sustainably managing salt and nutrient loading in the East Subbasin while expanding recycled water use in the project area.

The proposed projects included in the implementation plan, provide the basis for program alternatives described and evaluated in Section 4 of this SED.

3.1 Implementation Measures

The region has long been concerned about salinity and nutrient discharges in order to, among other things, allow for the use of recycled water. In the Santa Clarita Valley, the principle sources of chloride to the sewerage system include potable water supply, self-regenerating water softeners, treatment plant disinfection using chlorine, and other miscellaneous residential, commercial and industrial sources. Due to the importance of the East Subbasin as a water supply source, projects have been implemented over the years to manage salt and nutrient concentrations in the groundwater. Historic aggressive activities conducted to reduce salt and nutrient loads in the East Subbasin have included restrictions on brine discharges from water softeners into sewage systems, prohibition of installation of new residential self-regenerating water softeners, water softener removal rebate programs, chlorine discharge limits, implementation of total maximum daily loads for nitrogen compounds in the Santa Clara River, water reclamation plant upgrades, and a large-scale water softening treatment for drinking water in the Valencia Water Company service area.

The Recycled Water Policy states that within one year of the receipt of a proposed SNMP, the LARWQCB shall consider for adoption revised implementation plans, consistent with Water Code Section 13242, for those groundwater basins where Water Quality Objectives (WQOs) or Basin Objectives (BOs) for salt and nutrients are being, or are threatening to be, exceeded. Accordingly, the need for, or lack of need for, implementation measures was determined by comparing existing and projected future groundwater quality with respect to the BOs for TDS, chloride, nitrate, and sulfate.

Existing (ambient) concentrations and assimilative capacities are presented in Section 6.5 of this SNMP. Projected future groundwater quality is summarized in Sections 7.3.4 and 9.4.1 of the SNMP. Ambient groundwater exceeds the BOs for TDS and sulfate in MZ-1b and TDS in MZ-4. Under Land Use Build-Out conditions (2012-2035), TDS and sulfate will decrease below the BO in MZ-1b, and TDS will decrease below the BO in MZ-4. The decrease in concentrations and resulting increase in assimilative capacity is a result of existing implementation measures and groundwater management strategies. Never-the-less, future predictions described in Section 9.0 of the SNMP indicate that under Land Use Build-Out conditions, the assimilative capacity for some constituents will be used in greater percentages than the thresholds set forth in the Recycled Water Policy for recycled water projects. Therefore, the projects simulated in

Section 9.0 of the SNMP represent additional implementation measures to decrease salt and nutrient loading in the future and increase the assimilative capacity in the MZs, as compared to Land Use Build-Out conditions.

Implementation measures (IM) are classified as existing, planned, or conceptual. Each implementation measure addresses stormwater/runoff management, groundwater recharge, wastewater salinity/nutrient source control, source water salinity control, public education/outreach, institutional measures, regulatory/non-regulatory requirements, land use regulation, conservation and/or TMDLs. Each measure is described in the following sections, and summarized in Table 4 below. The table also identifies how the implementation measure can impact the groundwater basin; either they can decrease the salt and nutrient loading, or they can decrease the concentration of salt and nutrients in groundwater. As reported in the SNMP (Section 9.0), all of the projects proposed in the SNMP will have a beneficial impact on the Basin, as compared to conditions that will result from on-going and approved changes in land use (Land Use Build-Out conditions). Therefore, all of the projects are considered implementation measures.

3.1.1 Existing and Conceivable Implementation Measures

Since existing implementation measures are projects/programs that have already been put into place, they are considered part of the baseline conditions. A brief description of the existing implementation measures as provided in Section 10 of the SNMP is provided below.

Stormwater/Runoff Management:

- Municipal Storm Water Permitting Program: Regulates storm water discharges from municipal separate storm sewer systems (MS4s) through permits issued by the LARWQCB. National Pollutant Discharge Elimination System General Permit (NPDES) storm water permits have been adopted for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 people) municipalities that require the discharger to develop and implement a Storm Water Management Plan/Program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). In addition, compliance with stormwater permitting requires the treatment/infiltration of the first 0.85 inches of any storm.

Wastewater Salinity/Nutrient Source Control:

- Treatment Process Upgrade at the Valencia and Saugus WRPs: Upgrades include nitrification/denitrification. As a result, nutrient concentrations in the effluent have decreased.

- Industrial Wastewater Source Control Programs: Ongoing source control programs that allow WRPs to achieve NPDES permit compliance.

- SCVSD Automatic Water Softener Rebate Program: Also a Public Education/Outreach program that provides reimbursement to Self-Regenerating Water Softener (SWRS) owners for their removal. Phase I of the program commenced in November, 2005 and resulted in the removal of 431 units. Phase II commenced in May, 2007.

Source Water Salinity Control:

- LACDPW Stormwater "First Flush" Policy: Low Impact Development Guide that lists requirements for infiltration and other stormwater quality.

- Brine Line to Ventura County: Proposed Brine Line in the lower sections of the Santa Clara River Valley that could be extended to Los Angeles County.

Institutional:

- 1999 SCVSD Ordinance Prohibiting Installation of New Residential SWRSs: Ordinance that took effect in March 2003 and prohibits the installation of new SRWSs.

- SCVSD Measure S: Measure on the November, 2008 ballot that requires the removal and disposal of all remaining active SRWSs connected to SCVSD's sewerage system. Responsible for the removal of approximately 8,000 SRWSs.

- SCVSD Commercial and Industrial Sector Regulations: Program added to the source control program for NPDES permit compliance. Enforces the SRWS ban and implementation of chloride discharge limits of 100 mg/L, or performance-based chloride limits that reflect the implementation of chloride reduction practices.

Regulatory/Non-Regulatory:

- Wastewater, Recycled Water, Surface Water/Stormwater, Imported Water and Groundwater Monitoring: Compliance with requirements of SB7x-6, CASGEM monitoring and the Sustainable Groundwater Management Act.

- State Regulations for Groundwater Replenishment Using Recycled Water: Facilitation of artificial recharge for purposes of groundwater recovery to supplement Eastside wells.

- LARWQCB Permits for Groundwater Recharge: Facilitation of artificial recharge for purposes of groundwater recovery.

- Recycled Water Non-Potable Reuse Regulations, Guidelines and Permits: Facilitation of nonpotable reuse by defining limits of human contact and streamlining permitting for projects.

- CASGEM Monitoring: Enhanced monitoring and reporting ensures compliance with requirements of SB7x-6 and coordinates groundwater level monitoring among all of the users in the subbasin.

- State Regulations for Potable Reuse: SWRCB and CDPH are required to publish recommended regulations for potable reuse of recycled water by no later than 2017.

Land Use Regulation:

- City/County Model Water Efficient Landscape Ordinance: Ordinances requiring new development to minimize exterior water use and implemented by land use planning agencies and local water retailers.

Conservation:

- Water Conservation Act of 2009 (Senate Bill X7-7): Requires all water providers above a minimum size to increase water use efficiency by demonstrating a 10% reduction in potable water demand by 2015 and 20% reduction by 2020. The bill also requires, among other things, that the Department of Water Resources, in consultation with other state agencies, develop a single standardized water use reporting form, which would be used by both urban and agricultural water agencies.

- Emergency Drought Mandates: Emergency measures to reduce water use and minimize drought impacts on customers while conforming to statewide drought mandates. Includes a list of prohibitive activities.

TMDLs:

- TMDLs for Chloride, Bacteria and Nitrogen: Requires the review of all sources of pollution and all aspects of a watershed's drainage system be reviewed to help manage water quality within applicable water quality standards.

Groundwater Recharge:

- Aquifer storage and recovery (ASR) in Saugus Formation: Recharge in the Saugus formation using SWP water during wet years with recovery during dry years. Maximum input and recovery would be 5,000 AFY.

3.1.2 Planned Projects

In addition to the existing implementation measures, the following projects are planned to be implemented in the near future. These are described in more detail in Section 10 of the SNMP, and briefly in Section 2.4.5 of this SED.

Stormwater/Runoff Management:

- P-1. SWRCB Statewide NPDES for CWS: State Division of Drinking Water regulation of small potable water suppliers.

Groundwater Recharge:

- P-2. Projects from Recon Study: Includes possible rubber dams and moving up to 10,000 acre-ft/yr (AFY) of Saugus WRP and Valencia WRP water to discharge points in the eastern part of the subbasin for groundwater recharge.

- P-3. Vista Canyon WRP: Project will generate 439 AFY of treated wastewater that will be used for landscape irrigation or placed into percolation ponds near the Santa Clara River.

- P-4. Newhall Ranch WRP: WRP to service development in the Newhall Ranch Specific Plan and Westside communities, thereby also serving as a Wastewater Salinity/Nutrient Source Control program. It will also provide water for landscape irrigation.

- P-5. City/County MS4 Stormwater Infiltration Basins: Also a Regulatory/Non-Regulatory project that would provide basins needed to implement the MS4 permit requirements.

Wastewater Salinity/Nutrient Source Control:

- P-6. SCVSD Wastewater Treatment Plant Chloride Reduction Program: Further treatment and blending of recycled water so that all discharged effluent will have a chloride concentration of no greater than 100 mg/L.

Source Water Salinity Control (and Conservation):

- P-7. Santa Clarita Valley Water Use Efficiency Programs: Suite of water conservation programs/projects to be implemented from the updated Santa Clarita Valley Water Use Efficiency Plan (2015).

- P-8. Santa Clarita Water Division (SCWD) Water Use Efficiency Programs: Ten (10) programs designed to conserve water and reduce residential and urban use, run-off and sewage flows.

Conservation:

- P-9. CLWA Recycled Water Master Plan: Plans to incorporate additional recycled water for use in landscape irrigation.

Regulatory/Non-Regulatory:

- P-10. SNMP Monitoring: Increased groundwater level and water quality monitoring as recommended in Section 11.0 of the SNMP. The monitoring program data will allow preparation of updated ambient water quality for the MZs every three years.

- P-11. Sustainable Groundwater Management Act Plan/Programs: Long term planning and monitoring to ensure sustainable yield of the subbasin by all of the groundwater stakeholders.

TABLE 4 SANTA CLARA RIVER VALLEY EAST SUBBASIN SNMP IMPLEMENTATION MEASURES

Timeframe	Number	Management Strategy	Category	Management Zone	Impact to Loading	Impact to Concentrations
Existing	IM-1	Municipal Stormwater Permitting Program	Stormwater/Runoff Management	All	Decrease	Decrease
Existing	IM-2	Treatment Process Upgrade at the Valencia and Saugus WRPs	Wastewater Salinity/Nutrient Source Control	4	Decrease	Decrease
Existing	IM-3	Industrial Wastewater Source Control Programs	Wastewater Salinity/Nutrient Source Control	All	Decrease	Decrease
Existing	IM-4	SCVSD Automatic Water Softener Rebate Program (Phase I and II)	Wastewater Salinity/Nutrient Source Control and Public Education/Outreach	3, 4, and 5	Decrease	Decrease
Existing	IM-5	LACDPW Stormwater "First Flush" Policy	Source Water Salinity Control	4	Decrease	Decrease
Existing	IM-6	1999 SCVSD Ordinance Prohibiting Installation of New Residential Self-Regenerating Water Softeners	Institutional	3, 4, and 5	Decrease	Decrease
Existing	IM-7	SCVSD Measure S	Institutional	3, 4, and 5	Decrease	Decrease
Existing	IM-8	SCVSD - Commercial and Industrial Sector Regulations ban on SRWS and Chloride Discharge Limits of 100 mg/L	Institutional	3, 4, and 5	Decrease	Decrease

Timeframe	Number	Management Strategy	Category	Management Zone	Impact to Loading	Impact to Concentrations
Existing	IM-9	Wastewater, Recycled Water, Surface Water/Stormwater, Imported Water, and Groundwater Monitoring	Regulatory/Non-Regulatory	All	-	-
Existing	IM-10	State Regulations for Groundwater Replenishment Using Recycled Water	Regulatory/Non-Regulatory	All	Decrease	Decrease
Existing	IM-11	LARWQCB Permits for Groundwater Recharge	Regulatory/Non-Regulatory	All	Decrease	Decrease
Existing	IM-12	Recycled Water Non-Potable Reuse Regulations, Guidelines, and Permits	Regulatory/Non-Regulatory	All	Decrease	Decrease
Existing	IM-13	CASGEM Monitoring	Regulatory/Non-Regulatory	All	-	-
Existing	IM-14	City/County Model Water Efficient Landscape Ordinance	Land Use Regulation	All	Decrease	Decrease
Existing	IM-15	Water Conservation Act of 2009 (Senate Bill X7-7)	Conservation	3, 4, 5 and 6	Decrease	Decrease
Existing	IM-16	Emergency Drought Mandates	Conservation	All	Decrease	Decrease
Existing	IM-17	TMDLs for Chloride, Bacteria and Nitrogen	TMDLs	All	Decrease	Decrease
Planned	IM-18	SWRCB Statewide NPDES for CWS	Stormwater/Runoff Management	All	Decrease	Decrease

Timeframe	Number	Management Strategy	Category	Management Zone	Impact to Loading	Impact to Concentrations
Planned	IM-19	Projects from Water Supply Reconnaissance Study	Groundwater Recharge	1	Decrease/Increase [3]	Decrease/Increase [3]
Planned	IM-20	Vista Canyon WRP	Groundwater Recharge	1	Increase	Decrease[1]
Planned	IM-21	Newhall Ranch WRP	Groundwater Recharge and Wastewater Salinity/Nutrient Source Control	5	Increase	Increase[2]
Planned	IM-22	City/County MS4 Stormwater Infiltration Basins	Groundwater Recharge and Regulatory/Non-Regulatory	All	Decrease	Decrease
Planned	IM-23	SCVSD Wastewater Treatment Plant Chloride Reduction Program	Wastewater Salinity/Nutrient Source Control	4 and 5	Increase	Decrease
Planned	IM-24	SCV Water Use Efficiency Programs	Source Water Salinity Control and Conservation	All	Decrease	Decrease
Planned	IM-25	SCWD Water Use Efficiency Programs	Source Water Salinity Control and Conservation	1, 2, 3, and 4	Decrease	Decrease
Planned	IM-26	CLWA Recycled Water Master Plan	Conservation	3 and 4	Increase	Decrease
Planned	IM-27	SNMP Monitoring	Regulatory/Non-Regulatory	All	-	-
Planned	IM-28	Sustainable Groundwater Management Act Plan/Programs	Regulatory/Non-Regulatory	All	Decrease	Decrease
Conceptual	IM-29	ASR in Saugus Formation	Groundwater Recharge	2 and 3	Increase	Decrease

Timeframe	Number	Management Strategy	Category	Management Zone	Impact to Loading	Impact to Concentrations
Conceptual	IM-30	Brine Line to Ventura County	Wastewater Salinity/Nutrient Source Control	All	-	-
Conceptual	IM-31	State Regulations for Potable Reuse	Regulatory/Non-Regulatory	All	-	-

Notes:

(1) The implementation measure will both increase and decrease concentrations depending on the constituent. Overall the implementation measure will decrease salt concentrations.

(2) The implementation measure will both increase and decrease concentrations depending on the constituent. Overall the implementation measure will increase salt concentrations.

(3) Implementation measures from the "Recon" study may include both stormwater capture and recharge and redistribution of recycled water discharge points. Stormwater capture and recharge implementation measures are anticipated to decrease loading and salt and nutrient concentrations. Recycled Water redistribution will both increase and decrease concentrations depending on the constituent.

Section 4: Program Alternatives/Implementation Measures

4.1 Program Alternatives

In accordance with the requirements addressed by this SED, three reasonable program alternatives were evaluated and are described in this section. The evaluation includes a discussion of mitigation measures to avoid or reduce significant or potentially significant adverse environmental impacts. The alternatives selection was based in part on CCR, Title 14, Section 15126.6, which only requires consideration of alternatives necessary to permit a reasoned choice and that will foster informed decision making and meaningful public participation. Program alternatives evaluated as part of this SED capture the full spectrum of potential implementation scenarios, ranging from a "No Future Projects" alternative (Program 1) to complete implementation of all potential projects proposed by stakeholders (Program 3).

4.1.1 Program 1: No Future Projects/Land-Use Buildout Conditions Only

Under Program 1, only the existing projects and programs identified in Section 3.1.1 of this document (land-use buildout conditions) would be implemented. This program alternative corresponds to the continuation of existing conditions.

The intent of the Recycled Water Policy is to promote expanded recycled water use from municipal wastewater sources in accordance with State and Federal Water quality laws. In addition, as required by the Recycled Water Policy, the SNMP must include implementation measures to sustainably manage salt and nutrient loadings in the basin. As a result, the "No Future Projects" alternative does not meet the objectives or requirements of the Recycled Water Policy or the East Subbasin SNMP. Therefore, Program 1 is not considered further in this SED.

4.1.2 Program 2: Land-Use Buildout Conditions and Implementation of all Planned Projects

The Program 2 alternative evaluates the water quality assuming land-use buildout conditions and consists of the implementation of all 11 proposed projects evaluated in the SNMP and described in Section 3.1.2. These projects encompass the recycled water projects in addition to those projects that have water conservation and water quality improvement benefits.

4.1.3 Program 3: Land-Use Buildout Conditions and all Existing and Conceptual Implementation Measures

The Program 3 alternative evaluates the water quality assuming land-use buildout conditions and consists of the implementation of all existing and conceptual implementation measures described in Section 3.1.2. Because of the speculative nature of these implementation measures as to their location, water quality impacts, and schedule, they have only be qualitatively evaluated in the SNMP, and as shown in Table 4. Therefore, Program 3 is not considered further in this SED.

4.2 Recommended Program Alternative

The Program 2 alternative consists of landuse buildout conditions and all 11 proposed projects in the SNMP (and described in Section 3.1.2) that are planned to be implemented in the near future and that would directly expand recycled water use and production in the project area as well as conservation projects. These proposed projects have direct recycled water and conservation benefits. They would only be allowed if the subbasin has sufficient available assimilative capacity to accommodate the recycled water project or action without resulting in an exceedance of the water quality objectives for that subbasin. Development of these projects would be allowed until there is no remaining assimilative capacity. If no assimilative capacity is available, all projects within the subbasin that would increase groundwater salts/nutrients levels would be prohibited and no other management measures would be implemented. This alternative would be consistent with the State's Recycled Water Policy by allowing for the development of recycled water.

Section 5: Environmental Analysis of the Recommended Program Alternative

This section presents the environmental analysis of the recommended program alternative – Program 2, including the identification of reasonably foreseeable significant adverse environmental impacts associated with implementation of Program 2 and reasonably foreseeable mitigation measures to minimize potentially significant adverse environmental impacts.

Implementation measures can impact the groundwater basins in two ways: 1) they can decrease the salt and nutrient loading, 2) they can decrease the concentration of salt and nutrients in groundwater, or both. This distinction is important in understanding the different types of benefits of implementation measures in the context of salt and nutrient management. The impacts are differentiated by the source water quality and whether one source water replaces another of different water quality. As reported in Section 9.0, all of the projects proposed in this SNMP will have a beneficial impact on the Basin, as compared to conditions that will result from on-going and approved changes in land use (Land Use Build-Out conditions). Therefore, all of the projects are considered implementation measures.

The evaluation presented in this SED was conducted on a broad program level and based on the Environmental Checklist, which addresses the following environmental resources categories: earth, air, water, plant life, animal life, noise, light and glare, land use, natural resources, risk of upset, population, housing, transportation/circulation, public services, energy, utilities and service systems, human health, aesthetics, recreation, greenhouse gas emissions, and archaeological/historical.

It is important to note that potential environmental impacts associated with implementation of Program 2 depend on the specific implementation alternatives selected, which would be subject to detailed project-level analyses in compliance with CEQA by the project lead agency and other environmental laws and regulations. However, it is assumed that potential projects captured by this SED analysis would be designed, installed and maintained in compliance with and according to all applicable laws, regulations, ordinances, and formally adopted municipal and/or agency codes, standards, and practices.

Section 5.1 presents the Environmental Checklist (based on the State CEQA Guidelines Checklist but not identical) which provides a summary of the potential reasonably foreseeable impacts according to the level of significance of the potential impact. The levels are described below.

a. "Potentially Significant Impact": applies if there is substantial evidence that an impact may be significant. If there are one or more "Potentially Significant Impact" entries on the checklist, the SED must include an examination of feasible alternatives and mitigation measures for each such impact, similar to the requirements for preparing an environmental impact report.
b. "Less than Significant with Mitigation Incorporated" applies if mitigation measures are incorporated that will reduce an impact that is "Potentially Significant" to a "Less than Significant Impact."

c. “Less than Significant” applies if the impact will not be significant, and mitigation is therefore not required.
d. “No Impact” applies when no adverse change in the environment is expected

Section 5.2 provides a detailed discussion on the results of the environmental evaluation, including identification of reasonably foreseeable mitigation measures that could be considered at the program level.

5.1 SED Environmental Checklist

No.	Environmental Resource	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
1	**Earth. Will the program result in:**				
a.	Unstable earth conditions or in changes in geologic substructures?		X		
b.	Disruptions, displacements, compaction or overcoming of the soil?		X		
c.	Change in topography or ground surface relief features?		X		
d.	The destruction, covering or modification of any unique geologic or physical features?		X		
e.	Any increase in wind or water erosion of soils, either on or off the site?		X		
f.	Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?		X		
g.	Exposure of people or property to geologic hazards, such as earthquakes, landslides, mudslides, ground failure, or similar hazards?		X		
2	**Air. Will the Program result in:**				
a.	Substantial air emissions or deterioration of ambient air quality?		X		
b.	The creation of objectionable odors?		X		
c.	Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?			X	

No.	Environmental Resource	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
3	**Water. Will the Program result in:**				
a.	Changes in currents, or the course of direction or water movements, in either marine or fresh waters?				X
b.	Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff?		X		
c.	Alterations to the course of flow of flood waters?				X
d.	Change in the amount of surface water in any water body?			X	
e.	Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen, or turbidity?		X		
f.	Alteration of the direction or rate of flow of groundwaters?			X	
g.	Change in the quantity or quality of groundwaters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?			X	
h.	Substantial reduction in the amount of water otherwise available for public water supplies?				X
i.	Exposure of people or property to water related hazards such as flooding or tidal waves?				X
4	**Plant Life. Will the Program result in:**				
a.	Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, microflora and aquatic plants)?		X		
b.	Reduction of the numbers of any unique, rare or endangered species of plants?		X		

No.	Environmental Resource	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
c.	Introduction of new species of plants into an area or in a barrier to the normal replenishment of existing species?		X		
d.	Reduction in acreage of any agricultural crop?			X	
5	**Animal Life. Will the Program result in:**				
a.	Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects or microfauna)?		X		
b.	Reduction of the numbers of any unique, rare or endangered species of animals?		X		
c.	Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?		X		
d.	Deterioration to existing fish or wildlife habitat?		X		
6	**Noise. Will the Program result in:**				
a.	Increases in existing noise levels?		X		
b.	Exposure of people to severe noise levels?		X		
7	**Light and Glare. Will the Program result in:**				
a.	Produce new light or glare?		X		
8	**Land Use. Will the Program result in:**				
a.	Substantial alteration of the present or planned land use of an area?			X	
9	**Natural Resources. Will the Program result in:**				
a.	Increase in the rate of use of any natural resources?				X

No.	Environmental Resource	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
b.	Substantial depletion of any nonrenewable natural resource?				X
10	**Risk of Upset. Will the Program involve:**				
a.	A risk of an explosion or the release of hazardous substances (including, but not limited to: oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?		X		
11	**Population. Will the Program:**				
a.	Alter the location, distribution, density, or growth rate of the human population of an area?			X	
12	**Housing. Will the Program:**				
a.	Affect existing housing, or create a demand for additional housing?			X	
13	**Transportation/Circulation. Will the Program result in:**				
a.	Generation of substantial additional vehicular movement?		X		
b.	Effects on existing parking facilities, or demand for new parking?			X	
c.	Substantial impact upon existing transportation systems?		X		
d.	Alterations to present patterns of circulation or movement of people and/or goods?		X		
e.	Alterations to waterborne, rail or air traffic?			X	
f.	Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?		X		
14	**Public Service. Will the Program have an effect upon, or result in a need for new or altered governmental services in any of the following areas:**				
a.	Fire protection?			X	

No.	Environmental Resource	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
b.	Police protection?				X
c.	Schools?				X
d.	Parks or other recreational facilities?			X	
e.	Maintenance of public facilities, including roads?		X		
f.	Other governmental services?		X		
15	**Energy. Will the proposal result in:**				
a.	Use of substantial amounts of fuel or energy?			X	
b.	Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?			X	
16	**Utilities and Service Systems. Will the Program result in a need for new systems, or substantial alterations to the following utilities:**				
a.	Power or natural gas?			X	
b.	Communications systems?			X	
c.	Water?			X	
d.	Sewer or septic tanks?			X	
e.	Stormwater drainage?			X	
f.	Solid waste and disposal?			X	
17	**Human Health. Will the Program result in:**				
a.	Creation of any health hazard or potential health hazard (excluding mental health)?		X		
b.	Exposure of people to potential health hazards?		X		

No.	Environmental Resource	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
18	**Aesthetics. Will the Program result in:**				
a.	The obstruction of any scenic vista or view open to the public?		X		
b.	The creation of an aesthetically offensive site open to public view?			X	
19	**Recreation. Will the Program result in:**				
a.	Impact upon the quality or quantity of existing recreational opportunities?				X
20	**Archeological/Historical. Will the Program:**				
a.	Result in the alteration of a significant archeological or historical site structure, object or building?		X		
21	**Greenhouse Gas Emissions**				
a.	Generate greenhouse gas emissions directly or indirectly and cause a significant impact?		X		
b.	Conflict with adopted plans or policies for the purpose of reducing greenhouse gases?		X		
22	**Mandatory Findings of Significance**				
a.	**Potential to Degrade:** Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		

No.	Environmental Resource	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
b.	**Short-Term:** Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time, while long-term impacts will endure well into the future.)			X	
c.	**Cumulative:** Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)		X		
d.	**Substantial Adverse:** Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

5.2 Discussion of Environmental Resource Evaluation

5.2.1 Earth

Would the program result in:

a) Unstable earth conditions or in changes in geologic structures

b) Disruptions, displacements, compaction or overcoming of the soil?

c) Change in topography or ground surface relief features?

d) The destruction, covering or modification of any unique geologic or physical features?

e) Any increase in wind or water erosion of soils, either on or off the site?

f) Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?

g) Exposure of people or property to geologic hazard, such as earthquakes, landslides, mudslides, ground failure or similar hazards.

With implementation of mitigation measures, potential impacts would be reduced to less than significant.

a and g)

The study area is located in a seismically active region, with several known active or potentially active faults located in the vicinity. The largest faults capable of causing major damage within and near the study area include the San Andreas Fault and the San Gabriel Fault. The San Andreas Fault Zone is located north/northeast of the study area. The length and active seismic history of this fault indicate a high potential for large-sale ground movement in the near future. The San Gabriel Fault zone - runs in northwest direction through the City of Santa Clarita. The length of this Fault and its relationship with the San Andreas Fault system result in potential for future activity (LA County, 2012).

In the event of an earthquake, substantial ground movement and ground failure could be experienced within the study area that could potentially result in structural damage to facilities and public health risks. However, necessary measures would be taken during program implementation so as not to increase exposure to these risks as a result of program implementation. All proposed facilities would be designed and built in accordance with seismic design provision of the Uniform Building Code. Both the City of Santa Clarita and the County of Los Angeles enforce structural requirements of the Building Code.

Facility designs will incorporate design standards to withstand the local groundshaking predicted for the area as a result of the regional fault zones. Incorporating such seismic design standards will prevent catastrophic failure of the facilities in the event of an earthquake or other disaster, based on a reasonable standard of professional design care.

Areas most susceptible to liquefaction-induced damage are underlain by loose, water-saturated, granular sediment within 40 feet of the ground surface. These geological and ground-water conditions exist in portions of the study area underlain by unconsolidated alluvium, such as along the Santa Clara River and tributary washes (LA County, 2012). At project sites that have been previously developed and paved, the potential for liquefaction is considered to be negligible. Site-specific risks of liquefaction will be evaluated as part of geotechnical investigations during project-level review, which will allow incorporation of site-specific designs to mitigate hazards.

Landslides may result from either natural conditions or human activity that trigger a slope failure. Several factors can may influence their occurrence, including seismic activity, soil moisture and composition, and subsurface geology. Due to the varied relief within the study area, earthquake-induced landslide zones have been identified nearly all across the study areas. Prior to project implementation, zones identifying where slope stability must be evaluated and countermeasures undertaken in the design and construction of facilities.

All projects associated with the proposed program would be designed in accordance with the recommendations of a site-specific geotechnical investigation and in compliance with State Building Code. This investigation would provide data on geological and soil conditions to minimize and avoid impacts and potential hazards related to unstable and/or expansive soils,

including landslides, subsidence, and liquefaction. The building codes provide requirements for construction, grading, excavation, use of fill, and foundation work, including type of materials, design, procedures, etc., which are intended to limit the probability of occurrence and the severity of consequences from geologic hazards.

b, e and f)

Soil erosion, displacement and associated loss of topsoil could potentially occur with projects that will result in soil disturbance as part of construction, such as excavation and grading. The fugitive dust control program anticipated to be implemented as an air quality mitigation measure (see below) would help minimize wind erosion.

Projects will be implemented in compliance with local policies and permits. As such, projects would be required to implement minimum best management practices (BMPs) in accordance with the Los Angeles County MS4 Permit, which would include erosion and sediment control for construction sites. Additionally, the OVOV Area Plan includes policies to mitigate potential erosion by water and air and promote conservation of topsoil.

Construction projects that result in land disturbance of 1 acre or more require coverage under the NPDES Construction General Permit, which requires preparation and implementation of a Stormwater Pollution Prevention Control Plan (SWPPP). The SWPPP identifies BMPs to control erosion and sedimentation associated with runoff from construction sites in order to minimize and avoid soil erosion, loss of topsoil and water pollution.

Implementation of erosion-related mitigation measures and local, regional and national compliance requirements would minimize and avoid changes to the siltation of local streams and overall minimize potential soil erosion impacts to less than significant.

c and d)

The One Valley One Vision (OVOV) Area Plan states that with respect to geologic resources, primary conservation issues are hillside development and ridgeline protection. Grading related to construction activities may result in changes to surface relief and/or topography, however these changes are not anticipated to be significant. In addition, the nature of projects associated with the program, such as water reclamation plants, does not lend itself to facility siting along ridgelines or on hillsides. Therefore, it is not anticipated that program implementation would impact these geologic resources.

Mitigation Measures

The following is a list of mitigation measures considered to be reasonably foreseeable for implementation of the proposed program.

- Earth – 1: Prior to construction of new facilities and infrastructure, a design-level geotechnical investigation, including collection of site specific subsurface data if appropriate, shall be completed. The geotechnical evaluation shall identify all potential seismic hazards including fault rupture, and characterize the soil profiles, including liquefaction potential and expansive soil potential. In addition, the design-level geotechnical investigation shall identify potential geologic hazards, including sinkholes, subsidence, and soil corrosivity, and characterize the soil profiles for their potential to

lead to the aforementioned hazards. The geotechnical investigation shall recommend site-specific design criteria to mitigate for seismic and geologic hazards, such as special foundations, avoidance of problem areas, and structural setbacks. These recommendations shall be incorporated into the design of individual proposed projects.

- Earth – 2: The structural design and construction of new structures will, at a minimum, be in accordance with the requirements of the most recent Uniform Building Code and California Building Code including the latest supplements for Groundshaking Zone 4 as described in the 2010 California Building Code and all other applicable City, County, State and Federal laws, regulations and guidelines.

5.2.2 Air

Would the program result in:

a) Substantial air emissions or deterioration of ambient air quality?

b) The creation of objectionable odors?

c) Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?

Potential air impacts from program implementation may result from short-term emissions from construction activities in addition to long-term emissions from operation of new facilities and/or equipment.

During construction, temporary emissions may be generated from the following construction activities: (1) site preparation, grading, and excavation; (2) construction worker travel to and from construction sites; (3) delivery and hauling of construction supplies to and debris from the construction site; (4) fuel combustion by on-site construction equipment; and (5) construction of structures, installation of equipment, paving and landscaping. Temporary air emissions would be related to fumes, primarily nitrous oxides (NOx), from diesel-powered construction vehicles and equipment, fugitive dust (PM2.5 and PM10) from soil disturbance, and volatile organic compounds (VOCs) from paving and application of architectural coatings.

Amounts of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities and construction schedule of individual projects. Detailed emissions analyses will be conducted on a project-specific basis during project-specific environmental review process. Specific mitigation measures to minimize and/or avoid air quality impacts would also be identified during that process.

Facility operations from implementation of the proposed program are not anticipated to result in significant long-term air quality impacts. Potential emission sources of operational activities could primarily include emissions from powering of new facilities and vehicular trips for facility maintenance and operation. Collectively, proposed program projects are not anticipated to result in large numbers of new employees, and therefore related additional vehicle emissions would be minimal. Similarly to construction activity emissions, details on operational emissions will be obtained during project-level analyses and review.

It is important to note that the proposed program will be implemented with the intention of increasing recycled water use, which can reduce and off-set demand on imported water supplies. Imported water supplies, such as State Water Project water which is used in the region, are generally energy intensive and can produce accordingly high levels of greenhouse gas and other air emissions. By contributing to reducing demands on imported water supplies, the proposed program may have beneficial impacts on air quality by reducing emissions associated with water supply imports.

Project-level review, which will involve detailed analyses of greenhouse gas emissions and air quality impacts will provide more details on potential impacts from project-emissions. The study area is located within the South Coast Air Basin under the jurisdiction of the South Coast Air Quality Management. During project-level review, emission analyses would consider SCAQMD suggested emissions thresholds.

b)

Objectionable odors may be produced during construction and operation of facilities.

During construction activities resulting from implementation of the proposed program, exhaust from equipment may produce discernible odors typical of most construction sites. Such odors may create a nuisance to potential receptors, but they would be temporary and intermittent in nature and would not be considered a significant impact.

According to SCAQMD (2005), types of facilities or operations that are prone to generate objectionable odors include agriculture (farming and livestock), chemical plants, composting operations, dairies, fiberglass molding, landfills, refineries, rendering plants, rail yards, wastewater treatment plants. The proposed program would involve the construction or modification of wastewater treatment facilities (reclamation plants) to increase recycled water production and use. However, odor control systems, which are commonly implemented at such treatment facilities, are in place at existing wastewater treatment facilities in the study area and new facilities would similarly be equipped with such odor control systems. Overall, standard odor control measures and monitoring would be implemented at all facilities to reduce and avoid odor impacts to offsite receptors.

As a result of these factors, collectively, odor impacts would be considered less than significant. Specific analyses of potential impacts will be conducted on a project by project basis.

c)

It is not anticipated that the proposed program would result in the alteration of air movement, moisture or temperature. However, program activities may generate greenhouse gas (GHG) emissions from a variety of sources, which are known to contribute to climate changes at various scales including regional. Project-level emissions analyses will provide details on potential GHG emission levels and specific mitigation measures to minimize and/or avoid emissions impacts would also be identified during that process.

Mitigation Measures

The following is a list of mitigation measures considered to be reasonably foreseeable for implementation of the proposed program.

- Air-1: The construction contractor shall maintain and properly tune all construction equipment in accordance with manufacturer's specifications.

- Air-2: The construction contractors shall minimize idling times either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points.

- Air-3: The construction contractor shall use off-road diesel-powered construction equipment (greater than 50 horsepower) that meets the Tier 3 emission standards, where available. In the event equipment that meets Tier 3 emission standards is not available, diesel-powered construction equipment shall meet a minimum of Tier 2 emission standards.

- Air-4: The construction contractor shall use alternative fueled (e.g., compressed natural gas, liquefied natural gas, propane), or electric-powered construction equipment, as available.

- Air-5: The construction contractor shall implement activity management (e.g. rescheduling activities to avoid overlap of construction phases, which would reduce short-term impacts).

- Air-6: All on-road heavy-duty diesel trucks used during construction with a gross vehicle weight rating greater than 14,000 pounds shall have a 2007 model year engine or newer, or be equipped with a particulate matter trap.

- Air-7: All trucks hauling loose material, such as debris or fill, shall fully cover their loads while operating off-site.

- Air-8: Construction trucks shall be routed away from congested streets or sensitive receptor areas to the greatest extent possible.

- Air-9: A fugitive dust control program shall be implemented, which should include the following procedures:

    - The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.

    - Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.

    - All trucks shall be required to cover their loads as required by California Vehicle Code §23114.

    - All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic

watering, application of environmentally-safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.

- Graded and/or excavated inactive areas of the construction site shall be monitored at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally-safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until plant growth is evident, or periodically treated with environmentally-safe dust suppressants, to prevent excessive fugitive dust.

- Signs shall be posted on-site limiting traffic to 15 miles per hour or less.

- During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site. The site superintendent / supervisor shall use his/her discretion in conjunction with the APCD in determining when winds are excessive.

5.2.3 Water

Would the program result in:

a) Changes in currents, or the course of direction or water movements, in either marine or fresh waters?

b) Changes in absorption rates, drainage patterns or the rate and amount of surface water runoff?

c) Alterations to the course of flow of flood waters?

d) Change in the amount of surface water in any water body?

e) Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen, or turbidity?

f) Alteration of the direction or rate of flow of groundwaters?

g) Change in the quantity or quality of groundwaters, either through direct additions or withdrawals, or through interceptions of an aquifer by cuts or excavations?

h) Substantial reduction in the amount of water otherwise available for public water supplies?

i) Exposure of people or property to water related hazards such as flooding or tidal waves?

a)

The proposed program is not anticipated to result in significant changes to currents or water movements in marine or fresh waters. No significant changes to discharges or withdrawals from local streams are anticipated that could cause significant changes to currents, course of direction or water movements. Potential changes to groundwater operations are also not anticipated to be substantial enough to have significant impacts on groundwater movements. Stormwater capture or runoff management measures that may be implemented as part of this program may have impacts on flows, however are not anticipated to be significant enough to affect the current, course or water movement.

Implementation measures that would utilize recycled water for groundwater recharge are not expected to change the current in groundwater flow, however the discharge location throughout the basin may change.

In the case that project implementation may impact the course of a stream, approval by the CDFW would be required in the form of a Streambed Alteration Agreement.

b and e)

Project implementation will occur in compliance with local, state and federal regulations and policies, which will help mitigate and avoid water resource impacts and in many cases result in water resources benefits. Program implementation is anticipated to have overall positive impacts on water resources.

Potential runoff impacts related to construction activities would be mitigated through implementation of stormwater quality programs that help reduce and avoid polluted construction site runoff, and related sedimentation. BMPs and design requirements as part of these programs may include implementation of low impact development (LID) design features or similar in order to minimize pervious surfaces and changes to stormwater infiltration and runoff flows. Construction projects that result in land disturbance of 1 acre or more require coverage under the NPDES Construction General Permit, which requires preparation and implementation of a Stormwater Pollution Prevention Control Plan (SWPPP). By taking drainage patterns of pre- and post-construction conditions into consideration, the SWPPP guides implementation of BMPS and design features to reduce changes to runoff amounts and limit pervious surfaces, as well as to prevent stormwater pollution.

These measures help reduce the loads of pollutants, such as sediments, heavy metals, and pesticides, from reaching surface water bodies that could result in impaired water quality conditions. Potential impacts during the construction phase of individual projects are therefore not anticipated to be significant.

In addition, the proposed program will be implemented with the intent of improving water quality in the area and meeting state and regional requirements. Implementation measures and projects have been chosen in consideration of existing water quality standards and waste discharge requirements. Program implementation will reduce salt and nutrient loads in discharged wastewater thereby resulting in improved surface water conditions. As a result, project implementation is anticipated to positively benefit water quality.

c)

The proposed program is not anticipated to result in the alteration of the course of flow of flood waters. In compliance with local planning requirements, and other flood management guidance, development within flood-prone areas would be limited, thereby minimizing the potential impact on the course of flood flows.

100-year flood zones exist within the study area along the Santa Clara River and tributaries. While final project locations have not yet been determined, all project implementation will occur in compliance with County and City Municipal ordinances, which govern land uses and construction of structures within floodplains. Program implementation is therefore not anticipated to impeded or redirect flows within a 100-year flood hazard zone.

d)

The proposed program is not anticipated to result in significant changes to surface runoff, which could result in changes in the amount of surface water in any water body. Various mitigation measures, such as limiting pervious surfaces as described above, will reduce changes in surface runoff.

Additionally, the program is not anticipated to result in substantial changes to direct withdrawal or discharges to local surface water bodies.

However, local recycled water and water use efficiency projects, which are the main focus of this program will help reduce dependence on imported water supplies, including from the Sacramento-San Joaquin Delta and the Colorado River. As a result, this project could have positive impacts on the amounts of water in those surface water bodies.

f and g)

Program implementation will have net positive benefits on groundwater supplies. Implementation measures include groundwater recharge activities that would directly replenish groundwater supplies. In addition, expanded recycled water use, which is the primary objective of program implementation, will augment local water supplies thereby helping to reduce pressures on existing groundwater supplies.

Any changes to groundwater operations are not anticipated to result in substantial and/or negative impacts to the direction or rate of groundwater flows. However, the increased use of recycled water that would otherwise displace imported water for irrigation use and would decrease slightly the amount of water being discharged to the Santa Clara River. An Indirect Potable Reuse project has the potential to change the location of effluent discharge, but then in return will capture most of that water in potable wells in another location. This is considered less than significant and will largely displace greater imported water in the future as opposed to reducing current flow levels.

h)

Program implementation would result in enhanced reliability of local water supplies through the increased use of recycled water and other water resource management measures, such as

water use efficiency programs. As a result, the proposed program will positively affect availability of public water supplies.

i)

The proposed program is not anticipated to expose people or property to water related hazards. Implementation is not anticipated to result in changes to the course of flood flows and implementation will occur in compliance with local planning requirements, which limit development within flood-prone areas. As a result, exposure of people or property to flood hazards will be avoided. In addition, water related hazards would be mitigated through implementation of local safety plans, which outline procedures for response and recovery from potential hazards, including identification of inundation areas and evacuation routes.

Mudflows have the potential to occur in the case of slope failure, similar to landslides. Prior to project implementation, hill slope stability will be evaluated, where necessary, and countermeasures will be undertaken in the design and construction of facilities to reduce associated risks to public health and infrastructure.

The study area is not located in the immediate vicinity of the coastline where a tidal wave could create a potential hazard.

Mitigation Measures

The following is a list of mitigation measures considered to be reasonably foreseeable for implementation of the proposed program.

- Water-1: Implementing agency shall prepare a stormwater pollution prevention plan (SWPPP) to address the potential for contaminated surface water resulting from construction activities to be discharged from the site. Where applicable, use of products that are safe for use in and around aquatic environments shall be required during construction activities.

- Water-2: Implementing agency shall ensure that facility designs direct runoff into subsurface percolation basins and traps which would remove urban pollutants, fertilizers, pesticides, and other chemicals from surface water runoff prior to discharge from the site.

- Water-3: Implementing agency shall ensure that new facilities are designed to be elevated at least one foot above the 100-year flood zone elevation, that bank stabilization and erosion control measures are implemented along creek crossings, and facilities are sited outside of tsunami hazard zones.

5.2.4 Plant Life

Would the program result in:

a) Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, microflora and aquatic plants)?

b) Reduction of the numbers of any unique, rare or endangered species of plants?

c) Introduction of new species of plants into an area or in a barrier to the normal replenishment of existing species?

d) Reduction in acreage of any agricultural crop?

a and b)

Direct impacts to biological resources, such as plant life, typically result from construction activities which would occur for new facilities or facility upgrades. These activities may cause disturbance to plant communities, including special interest plant species. Indirect biological impacts to existing populations of sensitive species may occur from construction activities, resulting from soil erosion, dust accumulation, changes in runoff, loss of potential habitat, displacement of local populations, and disruptions to behavioral patterns. The construction of facilities associated with the proposed program therefore have the potential to impact existing species, habitat and sensitive natural plant communities within the vicinity of program implementation.

The study area encompasses the Santa Clara River Valley, the east extension of the Santa Susana Mountains, the western reaches of the San Gabriel Mountains, and the southern slopes of the Sierra Pelona range. As a result of the range of ecosystems in the geographic setting, the study area contains a wide variety of valuable habitat that supports a large diversity of plant species. One of the primary wildlife movement corridors in the study area is the Santa Clara River, which is the largest undeveloped riparian system remaining in Southern California. Further, the River is one of several biologically important areas, known as Significant Ecological Area (SEA), identified in and around the study area. As a result of the ecosystem and biological values found within the study area, conservation and protection of those resources is high importance.

The watershed of the USCR is host to over 30 special status plant species, including federally and California endangered and threatened species and California rare plant species, which was confirmed based on a query of the California Natural Diversity Database performed for the study area. Among these are the California Orcutt grass, Nevin's barberry, slender mariposa-lily, slender-horned spineflower, and spreading navarretia.

There are several local policies and plans intended to ensure that resource conservation and urban development is balanced in a sustainable way. The principal local land use planning documents for the study area are the Los Angeles Countywide General Plan and the OVOV Area Plan. These plans contain policies and guidance that aim to protect sensitive habitat, species and natural resources from the adverse impacts of development. The County General Plan and OVOV Area Plan have adopted policies to protect areas identified as SEAs and in order to maintain biological diversity within those areas. Local ordinances applicable to program implementation include, among others, the Oak Tree Preservation Ordinance restricting impacts on protected oak trees.

There are also several federal and state regulations applicable to the proposed program that aim to ensure protection of biological resources and that potential project-related adverse effects to biological resources are minimized. These regulations include the Army Corps of Engineers' (ACOE) no net loss policy for wetlands, the CDFW Section 1602 Lake and Streambed Alteration Agreement, the federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA), among others.

Program implementation is anticipated to be consistent with local land use planning and will occur in compliance with local, state and federal regulations. Additionally, construction-related activities of the proposed program are anticipated to occur primarily within already developed and/or disturbed areas where sensitive habitat is not highly supported. As a result, significant adverse impacts on local biological resources, including native plant species, are not anticipated from program implementation.

The ultimate locations of individual projects to be implemented as part of the program have not all been finalized, which prevents a more definitive assessment of potential impacts on plant species. However, project-level environmental analyses will be conducted to assess the potential for impacts on biological resources and identify necessary mitigation measures to minimize potentially significant impacts. Generally, mitigation measures require that focused surveys be conducted prior to and during construction activities to ensure that sensitive plant species and their habitat would be identified and significant impacts avoided. Careful siting and planning can help mitigate impacts to the biological resources in the study area. To the extent possible, project facilities would be designed to avoid temporary and permanent adverse effects on riparian habitat, wetlands, and sensitive communities.

c)

Introduction and spread of invasive species can occur through transportation on construction equipment contaminated with invasive species. Equipment however is anticipated to be contracted locally, thereby minimizing potential introduction of invasive species not already existing within the study area. In addition, in the case of land disturbance activities that require revegetation, revegetation will occur with a native plant mix, not containing invasive species. Therefore, implementation of the proposed program is not anticipated to introduce new species of plants into the area or result in a barrier to the normal replenishment of existing species.

d)

Land uses within the study area include agricultural lands that are designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Local land use planning documents, including the Los Angeles Countywide General Plan and the Santa Clarita Area Valley OVOV Area Plan, contain policies that support and protect existing and future agricultural use from urban encroachment and conversion. Program implementation is anticipated to be, to the extent possible, consistent with local land use planning. Therefore is it not anticipated that implementation of the proposed program would lead to a conversion of agricultural land to non-agricultural uses or conflict with established agricultural use zoning. Further, it is not likely that program implementation would indirectly result in conversion of Farmland to non-agricultural use.

The locations and details of new facilities associated with the proposed program are subject to change. As the projects move forward in the development and implementation process, project-specific CEQA analyses will assess potential impacts to agricultural resources in more detail.

Mitigation Measures

The following is a list of mitigation measures considered to be reasonably foreseeable for implementation of the proposed program.

- PLANT -1: Prior to construction in areas that could support special-status plants, a qualified biologist shall conduct a pre-construction floristic inventory and, if deemed necessary, a focused rare plant survey of project areas to determine and map the location and extent of special-status plant species populations within disturbed areas. This survey shall be conducted during the typical blooming periods of the identified potentially-occurring special-status plants. The plant survey shall follow the CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW, 2009).

- PLANT -2: The limits of construction shall be staked, flagged, fenced, or otherwise clearly delineated to avoid and minimize impacts on adjacent habitats that have been determined to support special-status plant species.

- PLANT -3: To the extent feasible, the implementing agencies shall avoid and/or reduce the footprint of construction and staging areas in areas having potential occurrences of special-status plant species.

- PLANT.4: Earth-moving equipment shall avoid maneuvering in areas outside the identified limits of construction in order to avoid disturbing areas that would remain undeveloped. Where natural open space areas are located adjacent to construction areas, the limits of construction shall be identified on the site plans.

- PLANT.5: Once projects are completed, vegetated areas disturbed due to construction activity shall be restored to pre-construction conditions. Re-vegetation plans shall be developed and included in project design specifications. The plant palette shall include native plants, when feasible, and exotic or invasive plants shall be avoided.

- PLANT.6: If permanent unavoidable impacts to special-status plant populations are identified within a disturbance area, the implementing agencies shall retain a qualified biologist to develop and implement a plant mitigation and restoration program. This program shall contain the following items: responsibilities and qualifications of the personnel to implement and supervise the program; site selection; site preparation and planting implementation; schedule; maintenance plan/guidelines; monitoring plan; long-term preservation; and performance standards.

- PLANT.7: If temporary construction-related impacts to special-status plant populations are identified within a disturbance area, the implementing agencies shall retain a qualified biologist to prepare and implement a special-status species salvage and replanting plan. The salvage and replanting plan shall include measures to salvage (if feasible), replant, and monitor the disturbance area until native vegetation is re-established, in accordance with requirements of the CDFW and United States Fish and Wildlife Service (USFWS).

- PLANT.8: If trees could be impacted by project construction, an arborist shall conduct a tree survey. If any Oak trees or other protected trees will be impacted by Program 2, the required county or city permits shall be obtained, as directed by the arborist. All terms and conditions of the permits shall be implemented.

5.2.5 Animal Life

Would the program result in:

a) Change in the diversity of species, or number of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects or microfauna)?

b) Reduction of the numbers of any unique, rare or endangered species of animals?

c) Introduction of new species of animals into an area or in a barrier to the normal replenishment of existing species?

d) Deterioration to existing fish or wildlife habitat?

a-d)

As described above, direct impacts to biological resources, such as animal life, typically result from construction activities which would occur for new facilities or facility upgrades. These activities may cause disturbance to wildlife communities, including special interest and sensitive animal species. Indirect biological impacts to existing populations of sensitive species may occur from construction activities, resulting from soil erosion, dust accumulation, changes in runoff, loss of potential habitat, displacement of local populations, and disruptions to behavioral patterns. The construction of facilities associated with the proposed program therefore have the potential to impact existing species, habitat and sensitive natural wildlife communities within the vicinity of program implementation.

The study area encompasses the Santa Clara River Valley, the east extension of the Santa Susana Mountains, the western reaches of the San Gabriel Mountains, and the southern slopes of the Sierra Pelona range. As a result of the range of ecosystems in the geographic setting, the study area contains a wide variety of valuable habitat that supports a large diversity of animal species. One of the primary wildlife movement corridors in the study area is the Santa Clara River, which is the largest undeveloped riparian system remaining in Southern California. Further, the River is one of several biologically important areas, known as Significant Ecological Area (SEA), identified in and around the study area. As a result of the ecosystem and biological values found within the study area, conservation and protection of those resources is high importance.

The watershed of the Upper Santa Clara River is host to over 40 special status wildlife species, including federally and California listed species, and California Department of Fish and Wildlife special animal species, which was confirmed based on a query of the California Natural Diversity Database performed for the study area. Among these are the least Bell's vireo, southwestern willow flycatcher, unarmored threespine stickleback, quino checkerspot butterfly, California red-legged frog, and arroyo toad.

There are several local policies and plans intended to ensure that resource conservation and urban development is balanced in a sustainable way. The principal local land use planning documents for the study area are the Los Angeles Countywide General Plan and the OVOV Area Plan. These plans contain policies and guidance that aim to protect sensitive habitat, species and natural resources from the adverse impacts of development. The County General

Plan and OVOV Area Plan have adopted policies to protect areas identified as SEAs and in order to maintain biological diversity within those areas.

There are also several federal and state regulations applicable to the proposed program that aim to ensure protection of biological resources and that potential project-related adverse effects to biological resources are minimized. These regulations include ACOE no net loss policy for wetlands, the California Fish and Wildlife Section 1602 Lake and Streambed Alteration Agreement, California Water Code Section 1211 review for changes in water discharges, the FESA and the CESA, among others.

Program implementation is anticipated to be consistent with local land use planning and will occur in compliance with local, state and federal regulations. Additionally, construction-related activities of the proposed program are anticipated to occur primarily within already developed and/or disturbed areas where sensitive habitat is not highly supported. As a result, significant adverse impacts on local biological resources, including animal species, are not anticipated from program implementation and measures would be taken to avoid and/or minimize impacts to wildlife movement.

The ultimate locations of individual projects to be implemented as part of the program have not all been finalized, which prevents a more definitive assessment of potential impacts on animal species. However, project-level environmental analyses will be conducted to assess the potential for impacts on biological resources and identify necessary mitigation measures to minimize potentially significant impacts. Generally, mitigation measures require that focused surveys be conducted prior to and during construction activities to ensure that sensitive animal species and their habitat would be identified and significant impacts avoided. Careful siting and planning can help mitigate impacts to the biological resources in the study area. To the extent possible, project facilities would be designed to avoid temporary and permanent adverse effects on riparian habitat, wetlands, and sensitive communities.

Mitigation Measures

The following is a list of mitigation measures considered to be reasonably foreseeable for implementation of the proposed program.

- ANIMAL-1: Prior to ground disturbing activities in areas that could support sensitive biological resources, a habitat assessment shall be conducted by a qualified biologist to determine the potential for special-status wildlife species to occur within affected areas. If the habitat assessment determines that a special-status wildlife species has the potential to be present within 500 feet of the construction zone, the qualified biologist shall consult with the implementing agency to determine whether a focused survey shall be conducted prior to project implementation to determine the presence or absence of the species.

- ANIMAL-2: If a special-status wildlife species is determined present within the limits of construction activities, a qualified biologist shall conduct pre-construction surveys of proposed work zones and the 500-foot buffer around each area within 14 days prior to ground disturbing activities. Any potential habitat capable of supporting a special-status wildlife species, such as burrows, shall be flagged for avoidance, as necessary; any additional habitat features, if any, shall also be identified and flagged as necessary.

- ANIMAL-3: If the habitat assessment concludes that there is potential for listed special-status wildlife species to occur and the area of potential presence cannot be avoided, appropriate protocol-level surveys shall be conducted by a qualified biologist in accordance with the requirements of the appropriate regulating agency (USFWS or CDFW). If a listed species is determined to have the potential to be present in or adjacent to the area of disturbance, a mitigation plan shall be prepared by a qualified biologist and, if necessary, approved by the USFWS and/or the CDFW prior to any ground disturbing activities.

- ANIMAL-4: Project design and construction specifications shall be modified to avoid potential impacts to special-status wildlife species by eliminating construction activities to the greatest extent possible within areas where those species are detected through surveys. Tunneling or jack and bore construction methods under drainages that may support listed special-status wildlife species shall be recommended in areas where those species have the potential to occur or where presence has been confirmed.

- ANIMAL-5: All construction areas, staging areas, and right-of-ways shall be staked, flagged, fenced, or otherwise clearly delineated to restrict the limits of construction to the minimum necessary near areas that may support special-status wildlife species as determined by a qualified biologist.

- ANIMAL-6: Silt fencing or similar impermeable barriers to exclude small wildlife species from entering the active work areas shall be installed around future work areas that occur within or adjacent to undisturbed habitats, or near areas of documented occurrences of special status wildlife as determined during pre-construction surveys by a qualified biologist. Such impermeable barriers shall be verified by a qualified biologist prior to initiating construction activities.

- ANIMAL-7: If construction is initiated or vegetation removal is proposed between February 1 and August 31, then a qualified biologist shall conduct a pre-construction survey for breeding and nesting birds within 500 feet of the construction area limits to determine and map the location and extent of breeding birds that could be affected by the project. Active nest sites located during the pre-construction surveys shall be avoided and a non-disturbance buffer zone shall be established, consisting of 300 feet for any passerine (or similar) species and 500 feet for any raptor or special-status species, or distances otherwise determined by a qualified biologist. Nest sites shall be avoided with approved non-disturbance buffer zones until the adults and young are no longer reliant on the nest site for survival, as determined by a qualified biologist.

- ANIMAL-8: All active bird nest buffer areas shall be clearly demarcated with stakes, flags, or fence material. The installation of buffer areas shall be verified by a qualified biologist prior to the initiation of ground disturbing activities.

- ANIMAL-9: A qualified biologist shall conduct a survey for bat roost sites prior to the initiation of any construction activities in areas where potential roost sites may occur, such as abandoned structures, bridges, or hollow trees. If a bat roost is identified, a minimum 300-foot buffer shall be established by a qualified biologist or as otherwise determined in consultation with the CDFW.

5.2.6 Noise

Would the program result in:

a) Increases in existing noise levels?

b) Exposure of people to severe noise levels?

a and b)

Noise associated with the project would result from short-term construction activities as well as operational activities of the proposed facilities. The program's contribution to the ambient noise level will vary, however project implementation is not anticipated to noticeably increase the ambient noise level beyond the individual project sites.

The proposed program would involve the installation of new or upgrade of existing facilities, which may include construction activities such as grading, excavation, paving and trenching. Noise impacts associated with construction would be short-term and limited to construction phases.

The noise levels created by construction equipment would vary depending upon factors such as the type and specific model of the equipment, the operation being performed and the condition of the equipment. The average sound level of the construction activity also depends upon the duration that the equipment operates and the intensity of the construction during the time period. Construction equipment reasonably foreseeable to be used during construction activities include loaders, trucks, backhoes, pavers, compactors, generators, and bulldozers. Noise generated by construction equipment will occur with varying intensities and durations during the various phases of construction. Potential impacts related to construction noise depend on proximity to noise-sensitive receptors.

In addition to noise from the operation of construction equipment at the project sites, the construction phase would also cause minor increases in traffic noise along access routes to and from construction sites from the movement of equipment, materials and workers. This short-term impact would be anticipated to be less than significant.

Operations of newly constructed facilities or facility upgrades are not anticipated to result in significant increases in ambient noise levels. Facility modifications would not generate significantly different noise levels than produced at the existing facility. To reduce operational noise impacts to less than significant levels, the implementing agency for each project would implement design features to comply with applicable city and county noise level requirements. It is anticipated that new facilities and facility upgrades would include noise abatement and noise attenuation features as standard equipment.

Overall potential noise impacts will highly depend on actual project locations, facility design and other project-specific features. More detailed noise impact analyses will be conducted on a project-level.

Mitigation Measures

The following is a list of mitigation measures considered to be reasonably foreseeable for implementation of the proposed program.

- NOISE-1: If necessary, include design measures where feasible to reduce the construction noise levels to comply with local noise ordinances. These measures may include, but are not limited to, the erection of noise barriers/curtains, use of advanced or state-of-the-art mufflers on construction equipment, and/or reduction in the amount of equipment that would operate concurrently at the construction site. The construction contractor shall keep equipment properly maintained. Provide noise shielding and muffling devices on construction equipment per the manufacturer's specifications.

- NOISE-2: The construction contractor shall use rubber-tired equipment rather than track equipment.

- NOISE-3: The construction contractor shall turn off noise-generating equipment when not in use. Minimize the effects of equipment with the greatest peak noise generation potential via shrouding or shielding to the extent feasible. Examples include the use of drills, pavement breakers, and jackhammers.

- NOISE-4: The construction contractor shall ensure that all stockpiling and vehicle staging areas are located away from noise-sensitive land uses.

- NOISE-5: The construction contractor shall establish a public liaison for project construction that shall be responsible for addressing public concerns about construction activities, including excessive noise. The liaison shall determine the cause of the concern (e.g., starting too early, bad muffler, etc.) and shall work with the construction contractor to implement reasonable measures to address the concern.

- NOISE-6: The construction contractor shall develop a construction schedule to ensure that activity shall be completed quickly to minimize the time noise-sensitive land uses that would be exposed to construction noise. Locate stationary construction noise sources as far from adjacent noise-sensitive receptors as possible, and require that these noise sources be muffled and enclosed within temporary sheds, insulation barriers if necessary to comply with local noise ordinances.

- NOISE-7: The construction contractor shall use electric- and hydraulic-powered rather than diesel- and pneumatic-powered equipment, as feasible. Place noise and groundborne vibration-generating construction equipment whose specific location on a construction site may be flexible (e.g., operation of compressors and generators, cement mixing, general truck idling) as far as possible from the nearest noise- and vibration-sensitive land uses such as residences, schools, and hospitals.

- NOISE-8: Prior to construction work, residences, businesses, and other properties located along the pipeline alignment shall be notified of the location and dates of construction. For major construction projects, identify a liaison for surrounding residents and property owners to contact with concerns regarding construction noise and vibration. The liaison's telephone number(s) shall be prominently displayed at construction locations.

- NOISE-9: Haul routes shall be on major arterial roads within non-residential areas, as feasible.

- NOISE-10: The construction contractor shall coordinate with the site administrators for institutional land uses (e.g., schools) along the alignment to discuss construction activities that generate high noise levels. Coordination between the site administrator and construction contractor shall continue on an as-needed basis to mitigate potential disruption of classroom activities.

- NOISE-11: For construction activities during non-standard working hours or hours that are not exempt from compliance with applicable city or county noise ordinances (e.g., 24-hour well drilling), the implementing agency will secure a noise waiver from the appropriate jurisdiction if available.

5.2.7 Light and Glare

Would the program:

a) Produce new light or glare?

The urbanized portion of the study area includes significant existing sources of light and glare, such as street lights along roadways, parking lots and walkways, lighted recreation facilities, and light emitted from residential and nonresidential buildings. A source of new light and/or glare would result from interior or exterior facility lighting, such as security lighting or construction lighting and light reflection off of new reflective surfaces. Program implementation is not anticipated to create a new source of substantial light or glare.

Construction activities may require temporary light installations, which have the potential to affect day or nighttime views in the vicinity. New facilities implemented as part of the program may require new exterior daytime and/or nighttime lighting for operational and security purposes. Lighting fixtures added as part of improvements to existing facilities will not add a new source of substantial light or glare. Temporary and permanent lighting impacts resulting from program implementation could be minimized by shielding and directing light away from surrounding light-sensitive areas.

Mitigation Measures:

The following mitigation measure is considered to be reasonably foreseeable for implementation of the proposed program.

- Light – 1: Lighting fixtures used during construction or installed as permanent fixtures shall be shielded and pointed away from surrounding light-sensitive land uses. When possible, lighting should be directed downward to avoid any light spill onto neighboring lands or into nighttime skies.

5.2.8 Land Use

Would the program result in:

a) Substantial alteration of the present or planned land use of an area?

Program implementation will be consistent with local land use plans, including the OVOV Area Plan and City of Santa Clarita General Plan. These plans designate land uses appropriate for the projects associated with the program. In addition, these plans include policies to preserve local habitat and natural resources and protect all designated SEAs from incompatible development. Facilities implemented as part of the proposed program are not anticipated to physically divide an established community or change present or planned land use designations.

Impacts are anticipated to be less than significant.

5.2.9 Natural Resources

Would the program result in:

a) Increase in the rate of use of any natural resources?

It is not anticipated that program implementation would result in an increase in the rate of use of any natural resources.

Program implementation will enhance availability of water, a natural resource, and in some cases will promote use efficiency through water use efficiency programs.

Construction of new or expansion of existing facilities may require use of sand, gravel and rock, however it is not anticipated that a substantial increase in the use of these resources over existing conditions would occur. Additionally, these mineral resources and extraction activities are regulated by the Surface Mining and Reclamation Act, which encourages protection and conservation of minerals.

Construction and operations of program elements will require use of natural resources for electricity generation, whereby construction would result, at the most in a short-term increase in the use of fuel. Facility expansions are not anticipated to result in substantial changes to electricity and thereby natural resources use rates, compared to existing conditions. Electricity demands of new operations and related impacts on natural resources will be evaluated in more detail during project-level analyses. Overall, resources consumption is not anticipated to occur at levels that would cause significant adverse impacts.

5.2.10 Risk of Upset

Would the program result in:

a) A risk of an explosion or the release of hazardous substances (including, but not limited to: oil, pesticides, chemicals, or radiation) in the event of an accident or upset conditions?

Construction activities could involve the use of potentially hazardous materials, including petroleum products, solvents, degreasers and other construction materials. Use, disposal and transportation of hazardous and/or toxic materials would be conducted in accordance with existing laws and regulations to prevent hazardous conditions to the public and the environment. In instances where construction and operation of the proposed project facilities

require use of hazardous materials, implementation of mitigation measures HAZ-1, HAZ-2, and HAZ-3 will reduce potential hazards to a less than significant level.

Both during construction and operation at facilities, a potential exists for accidental release of hazardous materials. Such accidental releases of hazardous materials are readily controlled to a less than significant level of hazard through control or remediation of the material accidentally released. Implementation of mitigation measures HAZ-1 through HAZ-3 can prevent any significant exposures to hazardous or toxic materials by the public or employees at the location of an accidental spill. These measures are sufficient to control or limit the adverse impact of accidental releases to a less than significant impact level.

Construction and operation at facilities would be required to occur in compliance with State and federal laws including the California Accidental Release Prevention Program, requiring development of a Risk Management Plan. The California Hazardous Materials Release Response Plans and Inventory Program requires facilities that store hazardous materials on site to prepare a Hazardous Materials Business Plan and Emergency Response Plan.

Transportation of hazardous materials, which may be required during facility construction or operation would occur in compliance with California Department of Transportation requirements. Therefore all transport of hazardous materials would be tracked by Caltrans and delivery vehicles would be required to utilize roadways approved for transportation of hazardous materials. Transporters of hazardous waste would be required to be certified by Caltrans.

Compliance with applicable hazardous materials laws and regulations, as well as implementation of reasonably foreseeable mitigations measures listed below would reduce potential risks to the public and environment to less than significant.

Mitigation Measures

The following is a list of mitigation measures considered to be reasonably foreseeable for implementation of the proposed program.

- HAZ-1: All spills or leakage of hazardous wastes during construction shall be remediated in compliance with applicable state and local regulations regarding cleanup and disposal of the contaminant released. All contaminated material shall be delivered to a licensed treatment, disposal or recycling facility that has the appropriate systems to manage the contaminated material without significant impact on the environment.

- HAZ-2: All construction equipment shall be regularly inspected for leaks.

- HAZ-3: A prevention and response plan shall be prepared that will incorporate best management practices (BMPs) designed to minimize the potential for accidental release of hazardous materials or wastes. The developed plan shall assess the potential accidental release scenarios and identify the equipment and response capabilities required to provide immediate containment, control and collection of any released material, and assess potential exposure pathways.

5.2.11 Population

Would the program:

a) Alter the location, distribution, density, or growth rate of the human population of an area?

Program implementation will be consistent with local land use plans and would therefore not result in changes to the location or distribution of existing populations within the study area. The proposed program is not anticipated to induce substantial growth in the study area either directly or indirectly. No facilities will be constructed that would accommodate housing and projects are not anticipated to crease a substantial number of jobs that would have a noticeable effect on population. The program will result in the increase of recycled water use and thereby increased local water supply reliability. However, these program benefits are intended to meet the demand of the current and projected population, rather than induce additional growth.

5.2.12 Housing

Would the program:

a) Affect existing housing, or create a demand for additional housing?

No facilities will be constructed that would accommodate housing and the program is not anticipated to result in the need for additional housing. Program implementation will not displace a substantial number of existing housing or people, which would necessitate construction of replacement housing. Project implementation will occur consistent with local land use plans.

5.2.13 Transportation/Circulation

Would the program result in:

a) Generation of substantial additional vehicular movement?

b) Effects on existing parking facilities, or demand for new parking?

c) Substantial impact on existing transportation systems?

d) Alterations to present patterns of circulation or movement of people and/or goods?

e) Alterations to waterborne, rail or air traffic?

f) Increase in traffic hazards to motor vehicles, bicycles or pedestrians

a and c)

Program implementation would not result in the generation of substantial additional long-term vehicular movement. Minor traffic increases may result from construction activities, but these potential impacts would be short-term and intermittent. Operation and maintenance activities may result in minor traffic, but the increase in new employees is not expected to be significant and maintenance activities generally occur intermittently. Overall the amount of additional road

trips associated with program implementation would not cause a substantial increase in traffic in relation to existing traffic load and capacity conditions.

Similarly, the increase in new employees is not expected to result in substantial impacts to other transportation systems. Further, program implementation would not affect planned alternative transportation routes or modes or conflict with adopted policies, plans and programs supporting alternative transportation.

b)

The proposed program is not anticipated to increase overall traffic and will therefore not require additional parking capacity. Parking for new facilities would be incorporated into facility design and is not anticipated to impact existing public parking.

d)

Short-term and limited construction-related traffic would not create a substantial impact on traffic volumes nor change traffic patterns in such a way as to substantially affect the level of service or vehicle to congestion ratio on study area roadways. Long-term operating traffic would be minor. The project would not involve the alteration of existing roadways nor would it result in incompatible uses that may alter movement of people and/or goods.

Proposed facilities will be designed to satisfy the emergency requirements of the Fire and Police departments. Therefore, access to and from the treatment facilities in the case of an emergency would not be impacted by project implementation.

Additionally, while site locations of new facilities have not yet been finalized, project locations are not anticipated to interfere with road way circulation. Potentially heightened traffic during the short-term of construction phases of individual projects is not anticipated to create significant interference to potential emergency road ways. Construction vehicles have the potential to use the same routes as first response vehicles, however this impact would be temporary and the local Fire Department would be notified of construction schedules and access routes prior to construction, so that impacts would be less than significant. Construction and operation of the proposed project is not anticipated to affect the activities of any emergency first response services on the long-term, nor are project activities and proposed facilities anticipated to have potential to permanently impact emergency evacuation or response plans.

e)

Program implementation is not anticipated to involve substantial amounts of air, waterborne or rail traffic. Potential needs of construction materials may require rail transportation, however impacts on rail traffic are not anticipated to be significant.

f)

Potential alterations to traffic circulation during construction may have impacts on potential traffic hazards. Construction activities could result in partial closures of street lanes, sidewalks and bike lanes. These impacts would be temporary. Implementation of traffic control plans will help mitigate potential impacts.

The proposed program would involve the construction of water reclamation facilities and groundwater recharge basins, which are not anticipated to increase hazards as a result of design features.

As site locations of new facilities and facility designs have not yet been finalized, potential traffic hazards are not known. Potential impacts will be evaluated in more detail during project-level analyses.

Mitigation Measures

The following is a list of mitigation measures considered to be reasonably foreseeable for implementation of the proposed program.

- TRANS-1: A Traffic Control/Management Plan, subject to approval by appropriate local jurisdictions, shall be prepared and implemented by the construction contractor prior to commencement of any construction activities. The Traffic Control/Management Plan shall include the following as applicable.

- TRANS-2: The implementing agency of the project shall identify all roadway locations where special construction techniques (e.g., horizontal boring, directional drilling or night construction) could be used to minimize impacts to traffic flow, and implement such techniques when feasible.

- TRANS-3: The implementing agency of the project shall develop traffic management and detour plans to minimize impacts to local street circulation, including bikeways. This may include the use of signing and flagging to guide vehicles and cyclists through and/or around the construction zone.

- TRANS-4: The implementing agency of the project shall encourage construction crews to park at staging areas to limit lane closures in the public ROW.

- TRANS-5: Peak travel periods shall be avoided where possible when implementing partial road closures.

- TRANS-6: The implementing agency of the project shall consult with nearby school districts at least one month prior to construction to coordinate bus stop relocations (if necessary), alternative busing routes, alternative safe routes to school programs, and other traffic circulation provisions to reduce potential interruption of student transit services.

- TRANS-7: The implementing agency of the project shall consult with Caltrans to obtain permits for the transport of oversized loads, and to obtain encroachment permits for any work along roadways.

- TRANS-8: The implementing agency of the project shall require the construction contractor to consult with local jurisdictions if bicycle or pedestrian facilities would be directly affected by construction activities. If required, the construction contractor shall develop circulation and detour plans to minimize impacts to bikeways and pedestrian facilities. This may include the use of signing and flagging to guide vehicles, cyclists, and pedestrians through and/or around the construction zone. After construction is complete,

implementing agencies shall ensure that bicycle or pedestrian facilities are restored to pre-construction conditions.

- TRANS-9: The implementing agency of the project shall require the construction contractor to consult and coordinate with VCTC or other local transit agencies at least one month.

5.2.14 Public Service

Would the program have an effect upon, or result in a need for new or altered governmental services in any of the following areas:

a) Fire protection?

b) Police protection?

c) Schools?

d) Parks?

e) Maintenance of public facilities, including roads?

f) Other governmental services?

Implementation of the proposed program is not forecast to change land uses, increase the number of residential units, cause an increase in population or otherwise create activities that would increase demand for public services beyond that anticipated in the existing General Plan and Area Plan. Overall levels of public services will be increased based upon the future population and associated public services demands. As this project will have no population inducing impacts, this project has no potential to impact the need or demand for schools, parks, and other public facilities such as libraries.

Program implementation is not anticipated to warrant additional emergency response services or providers, such as fire or police protection. Project facilities will be required to meet or exceed the minimum standards for the applicable building codes by state law and all local fire ordinances will be followed in design, construction and operation of the proposed project facilities. No potential for any significant demand for fire protection services is identified. The type of facilities being proposed do not have a potential to create new demand for police services and common safety features are anticipated to be implemented, including controlled site access, to prevent illegal trespass to the facilities. No potential for any significant demand for police protection services is identified.

Potentially increased road use resulting from construction activities would be temporary and would not result in substantial impacts to public services.

5.2.15 Energy

Would the program result in:

a) Use of substantial amounts of fuel or energy?

b) Substantial increase in demand upon existing sources of energy, or required the development of new sources of energy?

a and b)

Construction activities related to implementation of the program would require fuel and energy, including for heavy equipment and vehicles. Energy demands during construction will be temporary and are not anticipated to result in substantial use or substantial increases in demands. Mitigation measures implemented to address air quality and greenhouse gas concerns will help mitigate impacts on fuel and energy demands, including use of energy efficiency vehicles and equipment.

Operational energy demands for existing facilities are not anticipated to be substantially greater upon implementation of upgrades. Operation of new facilities could result in substantial use and increases in energy demands for the treatment of wastewater. However, the amount of energy use and potential increase in energy demands will highly depend on facility design details as new facilities and facility upgrades may incorporate renewable energy sources.

More details on potential impacts on energy use will be determined during project-level analyses.

5.2.16 Utilities and Service Systems

Would the program result in a need for new systems or substantial alterations to the following utilities:

a) Power or natural gas?

b) Communications systems

c) Water?

d) Sewer or septic tanks?

e) Stormwater drainage?

f) Solid waste and disposal?

a)

As described above, the potential impacts on energy demands, including power and natural gas systems, will be determined through project-level analyses as design details are not yet available for program elements.

b)

Program implementation is not anticipated to result in the need of new or alterations to existing communication systems. Program activities, including but not limited to facility construction and operations, will make use of existing communication systems without resulting in the need for expansion.

c and d)

The proposed program will result in an increased availability of local water supplies by expanding the use of recycled water. Construction activities may require additional water use for activities such as dust control, however these impacts on existing water supplies would be minimal.

This program involves the construction and expansion of wastewater treatment facilities in order to expand recycled water use. Program implementation would not generate any wastewater or indirectly result in increased wastewater production. Overall program impacts will be positive on existing water and wastewater systems.

e)

The proposed program is not anticipated to result in substantial increases in stormwater runoff, which would require additional stormwater drainage capacity. As a result, program implementation will not result in a need for new or alterations to existing stormwater drainage systems. However, specific projects or individual project designs, may involve alterations of existing stormwater drainage systems for purposes of stormwater capture and enhanced runoff infiltration. These changes would provide positive benefits to existing stormwater drainage systems.

f)

The proposed program would not have substantial solid waste disposal needs. Minor amounts of solid waste are anticipated to be generated during construction activities. Disposal of this waste would occur in accordance with federal, state, and local regulations. Disposal would occur at permitted landfills, and construction contractors would be encouraged to recycle construction materials, as feasible.

5.2.17 Human Health

Would the program result in:

a) Creation of any health hazard or potential health hazard (excluding mental health)?

b) Exposure of people to potential health hazards?

a and b)

As described above, program activities have the potential to create human health hazards, such as through accidental hazardous materials or chemical exposure, geologic or water related hazards, or traffic hazards. However, implementation of mitigation measures associated with these potential hazards, and compliance with all applicable laws and regulations would reduce potential human health risks to less than significant.

One hazard not discussed above is potential wildfire hazards. The study area is susceptible to wildland fires because of its hilly terrain, dry weather conditions, and native vegetation. The Los Angeles County Fire Hazard Severity Zones map shows that a large portion of the area is located within Very High Fire Hazard Severity Zones. The Fire Department has adopted

programs directed at wildland fire prevention, including adoption of the State Fire Code standards for new development in hazardous fire areas. Project implementation will be consistent with local plans and ordinances, which require facilities within fire hazard areas to maintain defensible space around structures by clearing dry brush and vegetation. Project design will incorporate other fire hazard reduction measures, including landscape guidelines with recommended plant materials.

Compliance with existing policies and ordinances will ensure that potential risks are less than significant.

5.2.18 Aesthetics

Would the project result in:

a) The obstruction of any scenic vista or view open to the public?

b) The creation of an aesthetically offensive site open to public view?

a and b)

A scenic vista may be described as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. The diverse topography of the Santa Clarita Valley, which encompasses the study area, provides numerous scenic views and resources including mountain backdrops, hillsides and ridgelines, canyons and streams, natural open spaces, as well as greenbelts and parks within the built environment.

Implementation of the proposed program may create temporary impairment and obstruction of scenic vistas, as a result of the implementation of program components involving construction activities. Temporary ground disturbance and the presence of construction equipment and materials maybe visible from public vantage points, however these impacts would be temporary. The impact from construction on scenic vistas are anticipated to generally be localized and short-term, lasting for the duration of construction activities.

It is expected that program elements requiring construction may occur within already developed, urban areas, or relatively undeveloped settings. In urban settings, structures could be designed with aesthetic qualities consistent with existing structures in the vicinity in order to reduce impacts to scenic vistas. In undeveloped settings, facilities would generally be somewhat removed from public thoroughfares, which would reduce impacts to views from the public. Overall, efforts will be encouraged to locate facility improvements and construction in a way to minimize impacts on the area's aesthetic resources and scenic vistas. Additionally, revegetation of graded areas with native vegetation will help blend developed areas with natural spaces.

New facilities or facility upgrades are anticipated to be consistent with features of existing buildings, consistent with existing building codes and under consideration of aesthetics. As a result, the creation of an aesthetically offensive site will not occur.

Measures will be taken to reduce impacts on the visual character and quality, to the extent possible, including locating projects in a way to minimize visual and aesthetic impacts, and implementation of revegetation and landscaping of any disturbed landscapes in order to blend those area with existing visual character and quality of the site.

Mitigation Measures:

The following is a list of mitigation measures considered to be reasonably foreseeable for implementation of the proposed program.

- AES-1: Staging of construction equipment and materials shall be conducted in such a way as to minimize the visual impact from adjacent viewing areas to the extent practicable. This may be accomplished by utilizing the minimum area needed for staging, confining all overnight staging of equipment and materials to designated areas and use of visual screening. This measure shall be included in contractor bid specifications.

- AES-2: Proposed aboveground buildings/structures shall be designed to be consistent with the aesthetic qualities of existing structures in the vicinity to minimize contrasting features.

- AES-3: A revegetation plan shall be prepared during project design and implemented as soon as practical upon project completion, in areas where natural vegetation will be impacted from earth-disturbing activities. The revegetation plan shall be prepared and implemented with the objective of restoring disturbed areas to pre-project conditions or better to minimize impacts on aesthetic and scenic resources.

- AES-4: Newly constructed facilities shall be sited, to the extent practical, in such as manner that minimizes impacts on topography and overall scenic resources.

5.2.19 Recreation

Would the project result in an:

a) Impact upon the quality or quantity of existing recreational opportunities?

The proposed program and individual projects would not increase the use of existing recreational opportunities, including parks or other recreational facilities, and would not introduce new housing or population that would increase demand on such opportunities. The program does not require the construction or expansion of recreational facilities. Accordingly, there would be no recreation-related impacts.

5.2.20 Archaeological/Historical

Would the project:

a) Result in the alteration of a significant archaeological or historical site structure, object or building?

Construction activities associated with the proposed program that require ground disturbance and excavation have the potential to impact archaeological and historical resources.

The study area was pre-historically inhabited by Native American groups, identified as the Tataviam peoples. The Tataviam were found to have lived primarily on the upper reaches of the Santa Clara River, east of Piru Creek and extending from the Antelope Valley to the San Gabriel

Mountains. The Native American Heritage Commission (NAHC) has identified three sites of Native American cultural significance near the Santa Clara River, registered as CA-LAN-361, CA-LAN-366, and CA-LAN-367. In addition, research indicates that almost 70 Native American archeological sites have been identified near the Upper Santa Clara River.

The study area is also rich in other historical sites that are under preservation and protection by the City of Santa Clarita and County of Los Angeles. Numerous significant historical properties, sites and landmarks exist in the study area, including at least one listed on the National Register of Historic Places and 13 recognized by the State of California (LA County, 2012).

Program activities that result in land disturbance, such as grading or excavation, have the potential to make a through historic resources evaluation an essential part of the project-specific review process. The cultural resources analysis will be included as a mitigation measure in order to avoid and/or minimize impacts to these cultural resources.

Historic buildings would not be damaged or altered with implementation of the program.

Mitigation Measures

The following is a list of mitigation measures considered to be reasonably foreseeable for implementation of the proposed program.

- CUL-1: The implementing agency shall retain a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional qualifications in archaeology, to conduct a study of the potentially impacted area(s) for all individual projects that involve ground disturbance. The archaeologist shall conduct a cultural resources inventory designed to identify potentially significant resources. This inventory would be developed based on a cultural resources records search conducted at the South Central Coastal Information Center located at California State University Fullerton and a field survey of the area deemed appropriate by the archaeologist. The archaeologist shall also provide recommendations for additional work for those resources that may be affected by a proposed project.

- CUL-2: For project components that include or affect existing structures that are 50 years old or greater, the implementing agency shall retain a qualified architectural historian, defined as meeting the Secretary of the Interior's Standards for historic preservation, to determine the need for a project-specific historic architectural study. If warranted, the architectural historian shall identify and evaluate potentially affected historic resources (eligible for the National Register, California Register, or local designation) prior to project implementation.

- CUL-3: The implementing agency shall avoid impacts, if feasible, to identified cultural resources that are eligible for listing in the National Register, California Register, or local designation, or that qualify as a unique archaeological resource under CEQA, including prehistoric and historic archaeological sites, locations of importance to Native Americans, human remains, and historical buildings, structures and landscapes. Methods of avoidance may include, but should not be limited to, project re-route or re-design, project cancellation, or identification of protection measures such as capping or fencing. If avoidance is determined not to be feasible, then a qualified archaeologist shall develop and implement a cultural resources treatment plan. This treatment plan

shall include provisions for analysis of data in a regional context, curation of artifacts and data at an approved facility, and dissemination of reports to Local and State repositories, libraries, and interested professionals.

- CUL-4: The implementing agency shall retain archaeological monitors (and Native American monitors, where deemed appropriate) to assess project-related ground-disturbing activities that have the potential to impact significant archaeological resources as determined by a qualified archaeologist. If appropriate, a qualified archaeologist shall develop a Cultural Resources Monitoring and Mitigation Plan (CRMMP). The CRMMP shall specify the location, duration and timing of monitoring and establish emergency procedures applicable upon the potential discovery of unanticipated significant archaeological resources. The CRMMP shall include, at a minimum, procedures for: the re-direction of ground disturbing activities in the event of a discovery of unanticipated significant archaeological resources; the evaluation and protection of archaeological resources encountered; notification protocols; treatment options in the event avoidance is determined to be infeasible; and reporting.

- CUL-5: For all individual projects that involve ground disturbance, construction workers will receive paleontological awareness training prior to commencement of fieldwork. This training shall emphasize applicable State, Federal, and Local laws, and include information on what to do in case an unanticipated discovery is made by a field worker. All construction personnel shall be informed of the possibility of encountering fossils, and instructed to immediately inform the field supervisor if any bones or other potential fossils are unearthed in the project area and a paleontological monitor is not present (for example, if a sensitive formation is encountered subsurface that is not mapped at the surface, thus not necessitating the presence of a paleontological monitor for this work). In such a case, workers shall immediately cease all activity within a 20-foot radius of the discovery site and notify the Construction Manager.

- CUL-6: For all individual projects that involve ground disturbance, if human remains are discovered, work in the immediate vicinity of the discovery site shall promptly be suspended and the Los Angeles County Coroner shall be contacted. If the remains are deemed Native American in origin, the Coroner shall contact the NAHC and identify a Most Likely Descendant (MLD) pursuant to Section 5097.98 of the PRC and CEQA Guidelines (CCR, Title 14, Section 15064.5). Work may commence only after consultation and treatment have been completed. Work may continue on other parts of the project while consultation and treatment are conducted.

5.2.21 Greenhouse Gas Emissions

Would the project:

a) Generate greenhouse gas emissions directly or indirectly and cause a significant impact?

b) Conflict with adopted plans or policies for the purpose of reducing greenhouse gases?

a) and b)

Potential greenhouse gas impacts from program implementation may result from short-term emissions from construction activities in addition to long-term emissions from operation of new facilities and/or equipment.

During construction, temporary emissions may be generated from the following construction activities: (1) site preparation, grading, and excavation; (2) construction worker travel to and from construction sites; (3) delivery and hauling of construction supplies to and debris from the construction site; (4) fuel combustion by on-site construction equipment; and (5) construction of structures, installation of equipment, paving and landscaping. Temporary air emissions would be related to fumes, primarily nitrous oxides (NOx), from diesel-powered construction vehicles and equipment, fugitive dust (PM2.5 and PM10) from soil disturbance, and volatile organic compounds (VOCs) from paving and application of architectural coatings.

Amounts of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities and construction schedule of individual projects. Detailed emissions analyses will be conducted on a project-specific basis during project-specific environmental review process. Specific mitigation measures to minimize and/or avoid air quality impacts would also be identified during that process.

Facility operations from implementation of the proposed program are not anticipated to result in significant long-term air quality impacts. Potential emission sources of operational activities could primarily include emissions from powering of new facilities and vehicular trips for facility maintenance and operation. Collectively, proposed program projects are not anticipated to result in large numbers of new employees, and therefore related additional vehicle emissions would be minimal. Similarly to construction activity emissions, details on operational emissions will be obtained during project-level analyses and review.

It is important to note that the proposed program will be implemented with the intention of increasing recycled water use, which can reduce and off-set demand on imported water supplies. Imported water supplies, such as State Water Project water which is used in the region, are generally energy intensive and can produce accordingly high levels of greenhouse gas and other air emissions. By contributing to reducing demands on imported water supplies, the proposed program may have beneficial impacts on air quality by reducing emissions associated with water supply imports.

Project-level review, which will involve detailed analyses of greenhouse gas emissions and air quality impacts will provide more details on potential impacts from project-emissions. The study area is located within the South Coast Air Basin under the jurisdiction of the South Coast Air Quality Management. During project-level review, emission analyses would consider SCAQMD suggested emissions thresholds.

It is not anticipated that the proposed program would result in the alteration of air movement, moisture or temperature. However, program activities may generate greenhouse gas (GHG) emissions from a variety of sources, which are known to contribute to climate changes at various scales including regional. The use of recycled water will have a net benefit on GHG emissions due to decreased need to pump and treat imported water. Project-level emissions analyses will provide details on potential GHG emission levels and specific mitigation measures to minimize and/or avoid emissions impacts would also be identified during that process.

Mitigation Measures Air-1 through Air-9 are recommended to reduce potential greenhouse gas impacts to less than significant.

5.3 Mandatory Findings of Significance

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

The program is anticipated to result in a less than significant impact with mitigation incorporated.

Implementation of the proposed program will be consistent with existing local, State and federal regulations and policies that ensure that the program will not have significant adverse impacts on the environment, including fish, wildlife and plant communities in the study area. Numerous mitigation measures are anticipated to be implemented in order to minimize and avoid potential impacts on biological resources.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

The program is anticipated to result in a less than significant impact with mitigation incorporated.

Potential impacts identified in this SED are primarily short-term impacts from construction activities. These short-term impacts would not result in cumulatively considerable impacts. Potential long-term impacts are mostly minor and are not likely to contribute to incremental effects that would be cumulatively considerable. In both cases, mitigation measures are anticipated to be implemented in order to reduce impacts to less than significant.

An important factor in minimizing cumulative impacts is compliance with local planning documents and ordinances. These guidance documents and policies are aimed at allowing development while maintaining and protecting the existing resources in the area and community character. Program implementation is anticipated to be consistent with local planning documents and policies, as well as State and federal regulations. As a result, potential impacts would be reduced to less than significant and are less likely to result in cumulatively considerable impacts.

The following summarizes the potential for cumulatively considerable impacts by resource.

Aesthetics

The proposed program is not anticipated to have significant impacts on aesthetics. Scenic resources may be temporarily impacted during construction activities, however, mitigation measures will be implemented to reduce impacts. To the extent possible, project siting and design will occur in a way to minimize visual and aesthetic impacts and help blend in facilities with existing visual character and quality of the site.

Agricultural Resources

Program implementation is not anticipated to result in significant impacts on agricultural resources, including converting farmland to non-agricultural uses. Potential impacts will be evaluated on a project-level based on individual project design and location.

Air Quality

The proposed program would increase air emissions, however most significant impacts will be short-term during construction activities. Long-term operational emission increases are anticipated to be minimal and would likely lie below significance thresholds.

Biological Resources

As mentioned above, implementation of the proposed program will be consistent with existing local, State and federal regulations and policies which will help ensure that the program will not have significant adverse impacts on biological resources. Potential impacts will be mitigated to less than significant and not likely to contribute to cumulatively considerable impacts.

Cultural Resources

Some individual projects may require land disturbance, thereby creating the potential to reveal and impact previously unidentified cultural resources. However, mitigation measures will be implemented to ensure any human remains or other potentially valuable cultural resources are appropriately handled in the unlikely event that they are unearthed.

Geology and Soils

The study area is located in a seismically active area. Appropriate mitigation measures have been proposed to avoid and lessen seismic hazards. Program implementation would not contribute to cumulatively considerable impacts on these resources.

Greenhouse Gas Emissions

The proposed program would increase air emissions and potentially greenhouse gas emissions, however most significant impacts will be short-term during construction activities. Long-term operational emission increases are anticipated to be minimal and would likely lie below significance thresholds.

Hazards and Hazardous Materials

The program will involve use, transport and storage of potentially hazardous materials during the construction and operation phase. Potential impacts are anticipated to be less than significant and are not likely to result in cumulatively considerable impacts. However, mitigation measures will be implemented to ensure appropriate handling of hazardous materials are included with the project and will avoid significant impacts.

Hydrology and Water Quality

The program is not anticipated to result in significant impacts on hydrology or water quality. Implementation of the project is in fact anticipated to create positive water quality benefits by reducing salt and nutrient loads in wastewater discharges. Compliance with applicable regulations, including stormwater pollution prevention programs, will help reduce potential construction-related impacts to less than significant levels. Program implementation will have net positive benefits on groundwater supplies. Implementation measures include groundwater recharge activities that would directly replenish groundwater supplies. In addition, expanded recycled water use, which is the primary objective of program implementation, will augment local water supplies thereby helping to reduce pressures on existing groundwater supplies.

Any changes to groundwater operations are not anticipated to result in substantial and/or negative impacts to the direction or rate of groundwater flows. However, the increased use of recycled water that would otherwise displace imported water for irrigation use and would decrease slightly the amount of water being discharged to the Santa Clara River. An Indirect Potable Reuse project has the potential to change the location of effluent discharge, but then in return will capture most of that water in potable wells in another location. This is considered less than significant and will largely displace greater imported water in the future as opposed to reducing current flow levels.

Overall impacts are not anticipated to contribute to cumulatively considerable adverse impacts.

Land Use and Planning

As implementation of the proposed program is anticipated to occur consistent with existing local land use planning, the program is not anticipated to have significant impacts, either stand-alone or cumulatively.

Mineral Resources

No impacts are anticipated with program implementation. Hence, no cumulatively considerable impacts are anticipated.

Noise

The proposed program would create and increase noise, however it is not anticipated that noise associated with individual projects would noticeably increase the ambient noise levels or generate noise levels in excess of local noise criteria. Greatest noise impacts will occur during construction, which are short-term impacts. Project-level review would identify necessary mitigation measures to reduce potential impacts to less than significant.

Population and Housing, Public Services, Recreation

Implementation of the proposed program is not anticipated to change land uses, increase the number of residential units, induce population growth or otherwise result in an increase in demand for public services or facilities. No cumulatively considerable impacts are therefore expected.

Transportation/Traffic

The proposed program would add temporary construction traffic and minor additional traffic during operations. These additions are anticipated to be minor in comparison to roadway capacity or significantly impact the local Level of Service (LOS) standard.

Utilities and Service Systems

Minor amounts of solid waste are anticipated to be generated during construction activities. Disposal of this waste would occur in accordance with federal, state, and local regulations. Disposal would occur at permitted landfills, and construction contractors will be encouraged to recycle construction materials as feasible. The program does not involve new housing or induce population growth, which would increase demands on potable water or wastewater capacity. Rather, the program will involve construction of new wastewater treatment facilities and facility expansions to increase recycled water use and increase local water supply reliability.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The program is anticipated to result in a less than significant impact with mitigation incorporated. Therefore, no identified substantial adverse effects on human beings are anticipated to occur, either directly or indirectly.

Section 6: Other Environmental Considerations for the Recommended Program Alternative

This section provides an overview of other environmental considerations for the recommended program alternative (Program 3), including unavoidable significant environmental potential impacts, cumulative impacts, growth-inducing impacts and irreversible environmental impacts.

6.1 Cumulative Impacts

On a program-level, implementation of the proposed program is not anticipated to result in cumulatively considerable impacts. In the case that construction of all program-related projects occurred during the same timeframe, and/or if other non-SNMP projects were being implemented at the same time, cumulative impacts may occur. However, actual cumulative impacts will depend on the locations of individual projects and nature of work occurring simultaneously. Additionally, construction-related impacts are generally short-term in nature, thereby reducing the likelihood of significant impacts.

Cumulative impacts in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects were discussed in Section 5.3.

6.2 Unavoidable Significant Environmental Effects

Based on the environmental impact evaluation presented in this SED, program implementation is not anticipated to result in any unavoidable significant environmental effects, or otherwise significant impacts that cannot be reduced to less than significant levels through mitigation measures.

6.3 Significant Irreversible Environmental Changes

According to CEQA Guidelines (CCR, Section 15126.2 [c]), potential significant, irreversible changes may include commitment of nonrenewable resources to uses that future generations will not be able to reverse, irreversible damage that may result from accidents associated with a project, or irretrievable commitment of resources.

Although program implementation would require resources, such as construction materials and energy resources, their use would not represent a substantial commitment of resources. In addition, the proposed program will be implemented with the objectives of increasing recycled water use to enhance local water supplies, as well as managing salts and nutrients in the basin to improve water quality. Therefore, implementation of the program will result in potentially significant environmental benefits and may avoid or mitigate against irreversible changes to environmental quality that could occur if the program was not implemented.

6.4 Growth-Inducing Impacts

Implementation of the proposed program will not have growth-inducing impacts, including foster economic or population growth, or result in the construction of additional housing.

The creation of jobs in the region or elsewhere as a result of construction, operations, and maintenance activities would be minor.

Growth-inducing impacts are defined by the State CEQA Guidelines as (CEQA Guidelines, Section 15126.2(d)):

The ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are impacts which would remove obstacles to population growth. Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects... [In addition,] the characteristics of some projects… may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It is not assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Growth inducement could indirectly result in adverse environmental effects if the induced growth is not consistent with or accommodated by the land use plans and growth management plans and policies. Local land use plans provide for land use development patterns and growth policies that encourage orderly urban development supported by adequate public services, such as water supply, roadway infrastructure, sewer services, and solid waste disposal services.

Public works projects that are developed to address future unplanned needs (i.e., that would not accommodate planned growth) could result in removing obstacles to population growth. Direct growth inducement would result if, for example, a project involved the construction of new wastewater treatment facilities to accommodate populations in excess of those projected by local or regional planning agencies. Indirect growth inducement would result if a project accommodated unplanned growth and indirectly established substantial new permanent employment opportunities (for example, new commercial, industrial, or governmental enterprises) or if a project involved a construction effort with substantial short-term employment opportunities that would indirectly stimulate the need for additional housing and services. Growth inducement also could occur if the project would affect the timing or location of either population or land use growth, or create a surplus in infrastructure capacity.

Implementation of the program will help increase local water supply reliability, which is often a limiting factor in growth. The increase in recycled water supplies resulting from program implementation will make additional potable water supplies available. However, additional water supplies are not anticipated to induce growth. Rather, the planned additional supplies will help sustain the existing population as well as the projected population. The projected population is based on continuation of baseline conditions.

Population growth is growth in the number of persons that live and work in the USCR SNMP planning area. Population growth occurs from natural causes (births minus deaths) and net emigration to or immigration from other geographical areas. Emigration or immigration can occur in response to economic opportunities, life style choices, or for personal reasons.

Although land use growth and population growth are interrelated, land use and population growth could occur independently from each other. This has occurred in the past where the housing growth is minimal, but population within the area continues to increase. Such a situation results in increasing population densities with a corresponding demand for services, despite minimal land use growth.

Overall, development in the Santa Clarita Valley and USCR SNMP planning area is governed by the General Plans adopted by the County and the City of Santa Clarita, which are intended to direct land use development in an orderly manner. The County or city's General Plan is the framework under which development occurs, and, within this framework, other land use entitlements (such as variances and conditional use permits) can be obtained. Because the General Plan adopted by a city or the County guides land use development and allows for entitlements, it does not represent an obstacle to land use growth.

Implementation of measures that require construction would generate jobs throughout the region and elsewhere where goods and services are purchased or used to develop new facilities or upgrade existing facilities. As a result the alternatives would generate employment opportunities both directly and indirectly.

Although the construction activities associated with implementation of management measures would increase the economic opportunities in the area and region, this construction is not expected to result in or induce substantial or significant population or land use development growth because the majority of the new jobs that would be created by this construction are expected to be filled by persons already residing in the area or region, based on the existing surplus of unemployed persons in the area and region. However, development of new facilities such a regional RO treatment plant or desalination plant would generate new additional jobs to operate and maintain these facilities. This also would not generate substantial or significant population or land use development growth because these facilities are not anticipated to require a large number of employees for operation and maintenance.

The second area of potential indirect growth inducement is through the removal of obstacles to growth. As discussed above, obstacles to growth could include lack of water supply to allow land development or population growth to occur. The objective of the proposed SNMP is management of salt and nutrient loading in the groundwater basin resulting from implementation of recycled water projects. These projects would provide additional sources of water within the LSCR groundwater basin and could remove an obstacle to future growth within the region particularly with cycles of drought. However, in many cases these projects could replace existing sources of water supply, such as groundwater pumping or imported water. As such, while implementation of the proposed SNMP could cause some indirect growth inducement in general it is anticipated that the recycled water projects facilitated by the implementation of the SNMP would provide alternate sources of water to replace some existing supplies.

Section 7: Determination and Findings

The LARWQCB staff, with assistance from the SNMP stakeholders evaluated the Recommended Program Alternative against the potentially significant environmental effects identified in this SED to determine whether to recommend it for approval. Upon review of the environmental information generated for this program level CEQA analysis and in view of the entire record supporting the Recommended Program, LARWQCB staff has determined that the identified potential environmental effects can be mitigated such that significant adverse environmental impacts associated with the implementation of the Program would be less than significant.

The implementation of the proposed Basin Plan Amendment will result in improved groundwater quality in the Santa Clara River Valley East Sub-basin and will have significant positive impacts to the environment (including the preservation of groundwater beneficial uses) and the economy over the long term. Additionally, the program level CEQA analysis further concludes that when the Program is implemented in combination with non-SNMP projects in the region, there would be less than significant cumulative impacts on the environment.

The Santa Clara River Valley East Sub-basin SNMP, Basin Plan Amendment, and this SED provide the necessary information pursuant to PRC Section 21159 to conclude that when properly designed and implemented, the recommended Program generally should not have a reasonably foreseeable significant adverse effect on the environment. As specific projects are implemented under the Program, subsequent and separate project level CEQA assessments would occur where applicable and necessary. Any project specific potential environmental impacts would be identified through the subsequent project level CEQA process and the implementing agencies (i.e. SNMP stakeholders) would be responsible for identifying the recommended mitigation measures. In accordance with CEQA, the lead agency for each project would be responsible for mitigating all the significant environmental impacts they identify, unless they have reason not to do so.

This program level CEQA assessment identifies all reasonably foreseeable impacts and provides mitigation measures that can be applied to individual projects associated with the Program in order to reduce impacts below significance thresholds. In addition, in the event that project level CEQA assessments identify unavoidable or immitigable impacts that would present unacceptable hardship upon nearby receptors, venues, or resources, the implementing agencies would have a variety of alternative SNMP implementation measures available that could be used instead to avoid such unavoidable or immitigable impacts.

References

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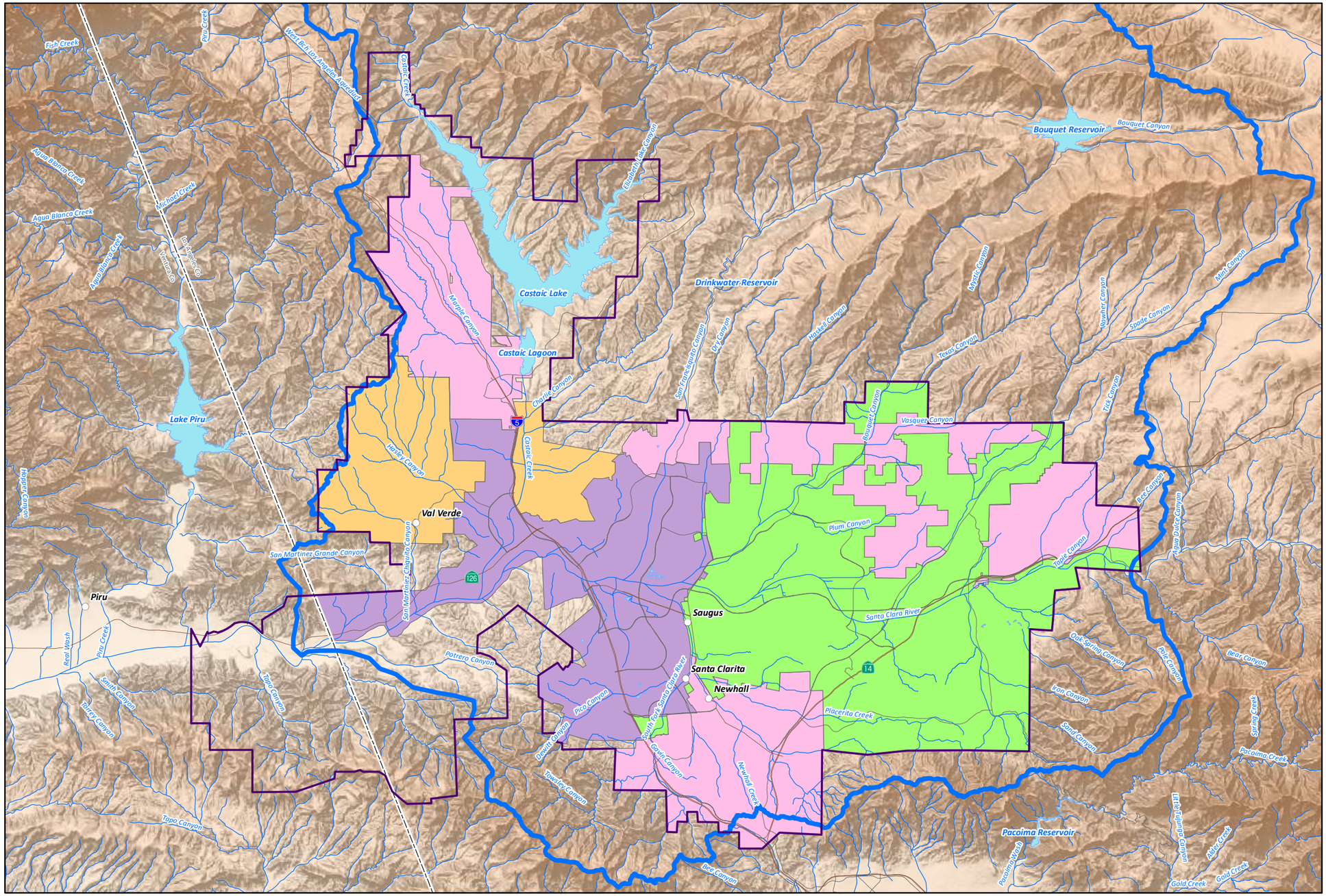
Appendix A: Figures

CASTAIC LAKE WATER AGENCY

SALT AND NUTRIENT MANAGEMENT PLAN
SANTA CLARA RIVER VALLEY EAST SUBBASIN

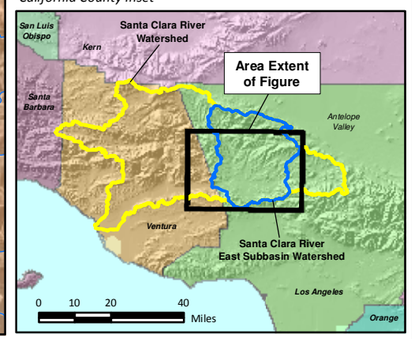
CASTAIC LAKE WATER AGENCY SERVICE AREA AND OTHER WATER PURVEYORS



EXPLANATION

- Castaic Lake Water Agency Boundary
- Santa Clara River East Subbasin Watershed
- LA County Waterworks District No. 36 - Val Verde Boundary
- Newhall County Water District Boundary
- Santa Clarita Water Division Boundary
- Valencia Water Company Boundary

California County Inset



19-Nov-15

Prepared by: DB. Map Projection: State Plane 1983, Zone V.

NORTH

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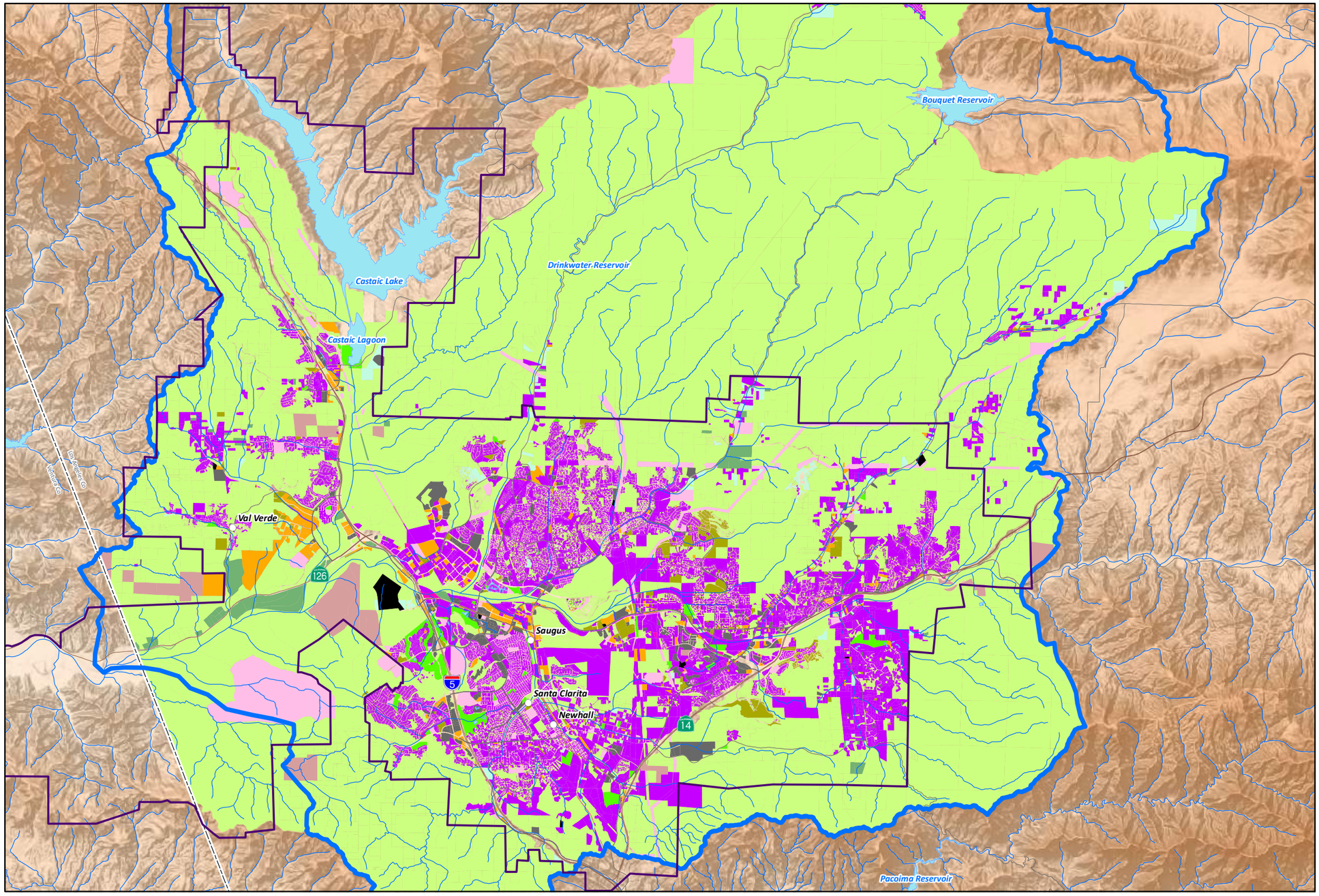
DRAFT FINAL

Figure 1

GIS_proj/castaic_lake_SNMP_6-12/19_CastaicSNMP_Fig_1_water_purveyors_11-15.mxd

CASTAIC LAKE WATER AGENCY

SALT AND NUTRIENT MANAGEMENT PLAN
SANTA CLARA RIVER VALLEY EAST SUBBASIN



2008 SCAG LAND USE

EXPLANATION

- Castaic Lake Water Agency Boundary
- Santa Clara River East Subbasin Watershed

2008 SCAG (Southern California Association of Governments) Land Use

- Agriculture
- Commercial
- Commercial Recreation
- Impervious
- Industrial
- Industrial - Open Space
- Non-Irrigated Agriculture
- Open Space
- Parks/ Golf Courses
- Public Facilities
- Residential
- Unclassified

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19-Nov-15

Prepared by: DB. Map Projection: State Plane 1983, Zone V.

NORTH

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Figure 2

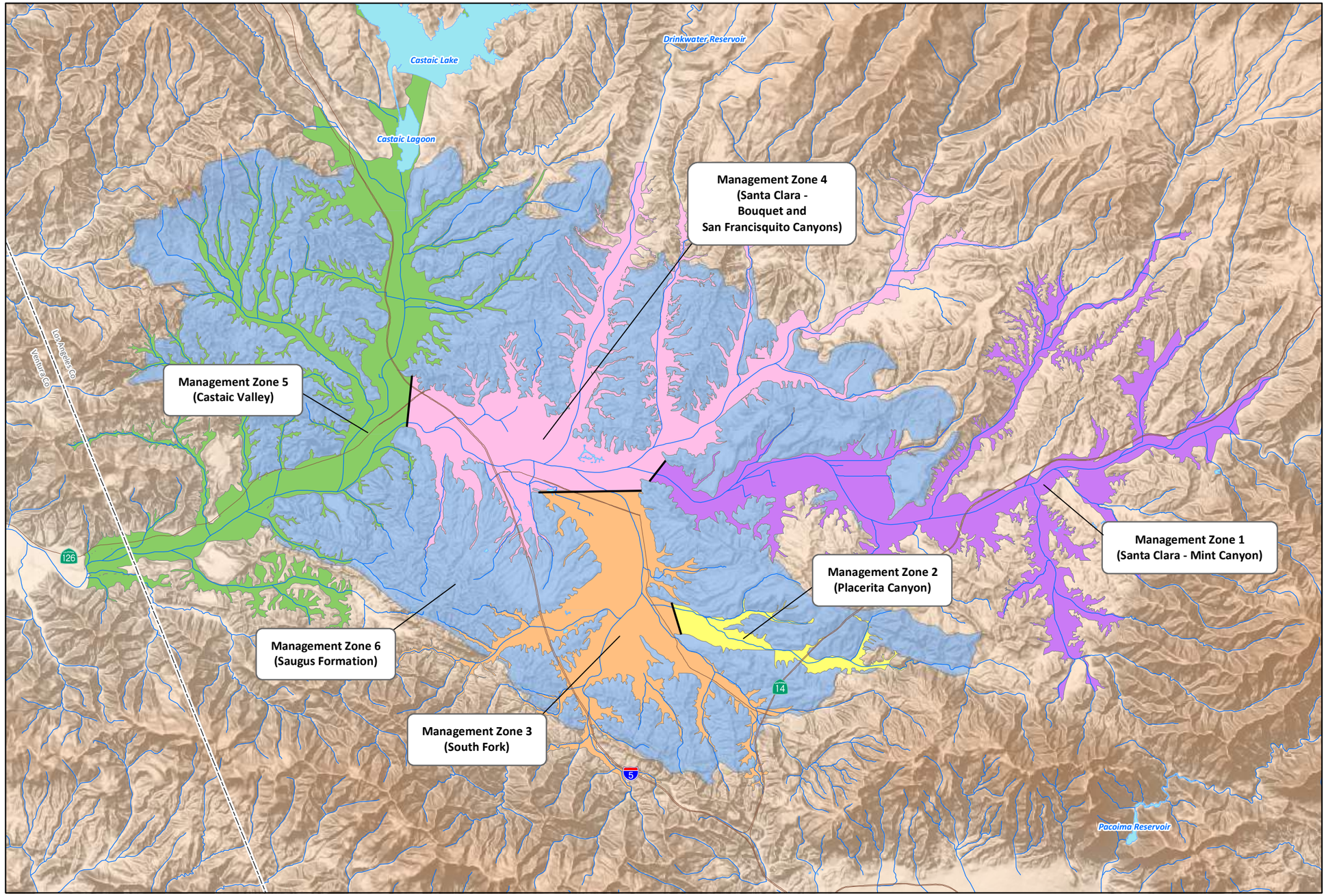
GIS_proj/castaic_lake_SNMP_6-12/19_CastaicSNMP_Fig_2_landuse_11-15.mxd

30-2750

CASTAIC LAKE WATER AGENCY

SALT AND NUTRIENT MANAGEMENT PLAN
SANTA CLARA RIVER VALLEY EAST SUBBASIN

EAST SUBBASIN GROUNDWATER MANAGEMENT ZONES ALLUVIAL AQUIFER AND SAUGUS FORMATION



EXPLANATION

LARWQCB Groundwater Subunit

- Management Zone 1 (Santa Clara - Mint Canyon)
- Management Zone 2 (Placerita Canyon)
- Management Zone 3 (South Fork)
- Management Zone 4 (Santa Clara-Bouquet and San Francisquito Canyons)
- Management Zone 5 (Castaic Valley)
- Management Zone 6 (Saugus Formation)

Boundary Between Adjacent Management Zones

DRAFT FINAL

19-Nov-15

Prepared by: DB. Map Projection: State Plane 1983, Zone V.

NORTH

0 1 2 4 Miles

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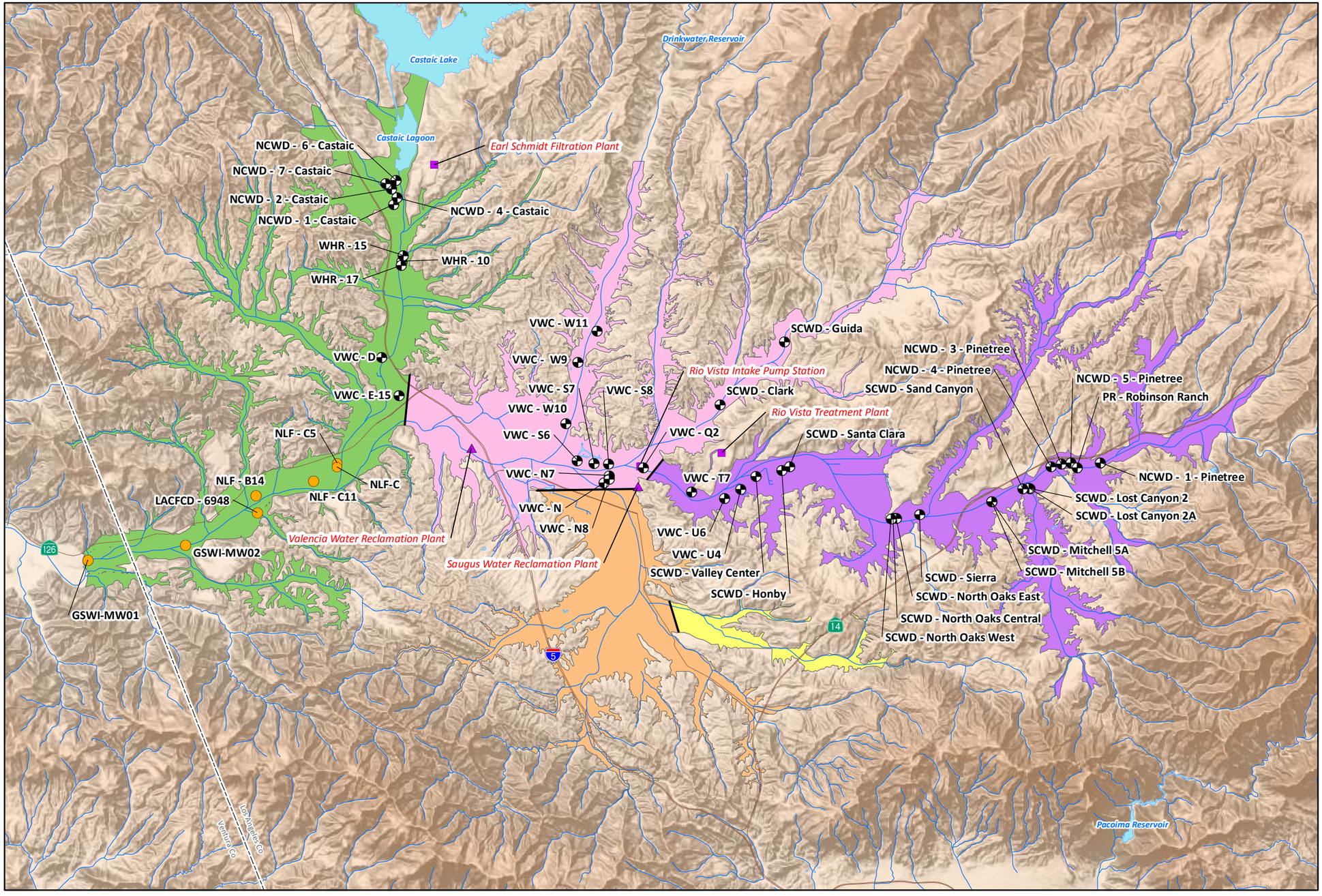
Figure 3

GIS_proj/castaic_lake_SNMP_6-12/19_CastaicSNMP_Fig_5_Subunits_11-15.mxd

CASTAIC LAKE WATER AGENCY

SALT AND NUTRIENT MANAGEMENT PLAN
SANTA CLARA RIVER VALLEY EAST SUBBASIN



ALLUVIAL AQUIFER WELLS

EXPLANATION

Alluvial Aquifer Wells by Owner

- Active Municipal Well
- Active Monitoring Well

LACFCD = LA County Flood Control District
NCWD = Newhall County Water District
NLF = Newhall Land and Farming
(GSWI = Groundwater / Surface Water Interaction)
Private
SCWD = Santa Clarita Water Division
VWC = Valencia Water Company
WHR - Wayside Honor Ranch

LARWQCB Groundwater Subunit

- Management Zone 1 (Santa Clara - Mint Canyon)
- Management Zone 2 (Placerita Canyon)
- Management Zone 3 (South Fork)
- Management Zone 4 (Santa Clara-Bouquet and San Francisquito Canyons)
- Management Zone 5 (Castaic Valley)
- Boundary Between Adjacent Management Zones
- Water Treatment Facility
- Water Reclamation Plant

DRAFT FINAL

19-Nov-15

Prepared by: DB. Map Projection: State Plane 1983, Zone V.

NORTH

0 1 2 4 Miles

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Figure 4

GIS_proj/castaic_lake_SNMP_6-12/19_CastaicSNMP_Fig_8_alluvial_aquifer_wells_11-15.mxd

30-2752

Appendix B: Comments and Responses on the proposed SED from the December 8, 2015 SED Scoping Meeting

SCOPE Letter, Lynne Plambeck, dated December 15, 2015

Comment:

Founded in 1987, Santa Clarita Organization for Planning and the Environment (SCOPE) is a non-profit organization based in Northern Los Angeles County and organized to provide community oversight on planning and environmental issues in the watershed of the Santa Clara River. As Los Angeles County's last free-flowing river, home to a number of listed endangered species and a major source of our community's water supply, we give the preservation of the Santa Clara River and its tributaries a high priority in our efforts to ensure a sustainable and high quality of life for residents of the SCV as well as the protection of the local flora and fauna.

Response:

Comment noted.

Comment:

We have reviewed the SNMP and a member of our organization attended and spoke at the public hearing. We request to receive notification and a copy of the EIR for this project when that document is released.

Response:

Comment noted. SCOPE will be notified of the completion of the environmental document which is a substitute environmental document (SED) consistent with the CEQA requirements for RWQCB projects and not an EIR.

Comment:

SCOPE strongly supports the five co-equal goals of the SNMP including to protect groundwater quality and to facilitate increased reliance on water recycling. However, we wish to make some comments on statements that seem to be inaccurate and mitigation proposals that are probably not feasible. First, the scoping document states that:

"The SNMP analysis indicates that average ground water concentrations in the USCR groundwater basin are generally below the basin Water Quality Objectives and assimilative capacity is available for all constituents.." (page 6).

We have not reviewed the modeling conducted in support of the SNMP, but believe its conclusions may not be entirely accurate. This statement in particular is accurate for some zones. For instance, the E wells currently serving some areas of Castaic and proposed to serve the first phases of Newhall Ranch are under the influence of the Valencia Sanitation facility discharge and currently high in chlorides. The following chart found in the Newhall Ranch River Permit EIR/EIS (FEIR Appendix F4_3_46) clearly indicates elevated pollutant levels.

Water Quality Constituents of Concern
Secondary Standards:
(from FEIR Appendix F4_3_46)

Parameter	MCL	DLR	Units	E-14	E-15	E-16	E-17
Chloride	250-500-600	NA	mg/L	75	88	89	74
	pH 6.5 - 8.5	NA	units	7.5	7.7	7.3	7.4
Specific Conductance (E.C.)	900-1600-2,200	NA	umho/cm	1240	1290	1390	1360
Sulfate	250-500-600	0.5	mg/L	340	330	340	340
Total Dissolved Solids (TDS)	500-1000-1500	NA	mg/L	900	890	950	960

Response:

Eight meetings of the Salt and Nutrient Management Plan Task Force were held since 2012 wherein modeling for the SNMP was discussed and vetted by the Stakeholders. They were publicly noticed and generally followed the regularly scheduled Integrated Regional Water Management Plan Stakeholder meetings when possible.

The proposed Newhall Ranch Project lies within, or is tributary to, Water Management Zone 5 (Castaic Subunit) and based on data available for the years 2001-2011, this area does not exceed the basin-specific Water Quality Objectives (please refer to the table below). The median values from the wells cited in the SNMP were averaged over the 11-year period to determine the values in the table.[1] All the data used, including data from the wells identified by the commenter, are provided in Appendix B of the SNMP. There are certain areas where the ambient concentrations exceed the Basin Objectives in Management Zone 1b (for Total Dissolved Solids (TDS) and sulfate), and in Management Zone 4 (TDS), otherwise the SNMP shows that all nutrient and salt concentrations meet the Basin Objectives in all of the Management Zones. Modeling in the SNMP, and specifically shown on Table 1-3 in the SNMP, determines that with implementation of all of the projects proposed in the SNMP, concentrations will remain below the Basin Objectives. Moreover, the data presented by the commenter from the table of the Newhall Ranch River Permit FEIR/FEIS also shows values that are less than the Basin Objectives for that reach of the Santa Clara River.

[1] Details of the calculations are provided in the SNMP in sections 6.3.1and 6.5.7.

Chemical	Management Zone 1a		Management Zone 1b		Management Zone 2		Management Zone 3		Management Zone 4		Management Zone 5		Management Zone 6	
	BO[1]	Ambient[2]	BO	Ambient	BO	Ambient	BO	Ambient	BO	Ambient	BO	Ambient	BO	Ambient
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
TDS	800	728	800	833	700	-	700	-	700	710	1,000	727	700	636
Chloride	150	89	150	72	100	-	100	-	100	77	150	77	100	28
Nitrate	45	20	45	21	45	-	45	-	45	16	45	8	45	14
Sulfate	150	138	150	269	150	-	200	-	250	189	350	246	-	235

One objective of the SNMP is to facilitate the use of recycled water. One of the proposed projects evaluated in the SNMP is the Newhall Ranch Water Reclamation Plant (NRWRP). This facility will be constructed if the Newhall Ranch project is constructed and will treat all of the wastewater to meet the Basin Objectives of reach 5 of the Santa Clara River, where water will be discharged. Discharges from the NRWRP and Valencia Water Reclamation Plant, will be treated to reduce salts and nutrients and then the reclaimed water will be either be used for landscape irrigation on site or discharged to the Santa Clara River. As modeled for in the SNMP, this will result in a ground water quality benefit as the assimilative capacity for salts and nutrients in Water Management Zone 5 will be increased with the completion of the NRWRP and with all of the other projects that the SNMP modeled for. That being said, language in the SNMP itself will be clarified.

Comment:

Further, it appears that water quality data for some wells proposed for future development is unavailable, making the modeling questionable. The Regional Board should also be aware that the Saugus aquifer, apparently proposed for storage and recharge, is currently polluted by an ammonium perchlorate plume, making that option unavailable. Clean up of this pollution is project to take 40 years.

Response:

The Salt and Nutrient Management Plans is specifically focused on the management of salts (e.g. TDS and Chloride), and nutrients (e.g. nitrates) within the basin. There is a small area of the Saugus Formation containing a plume of perchlorate that results in water quality that does not meet the drinking water standard. However, this issue is being dealt with through a separate regulatory process involving the Department of Toxic Substances Control and the 'responsible parties'. Since this perchlorate plume does not encroach on significant areas of the formation, drinking water wells continue to reliability supply water from the Saugus Formation that meet all drinking water standards. Additionally, some wells that have contamination in excess of the perchlorate standard are treated to remove perchlorate. That treated water is being put into the drinking water system and the perchlorate is removed from the groundwater as a result of this

treatment. Since the water reclamation plants that will supply recycled water have little or no perchlorate in their effluent, the use of recycled water will not alter the perchlorate plume.

One of the proposed conceptual implementation measures discussed in the SNMP is the injection of State Water Project surplus water into the Saugus formation during wet years in order to increase local storage of groundwater. However, this project is still tentative in nature, and as such was not specifically modeled for the purposes of the SNMP.. Further evaluation and review would be necessary to bring the status of this type of implementation measures from the conceptual stage to a feasible project for the basin.

The injection of perchlorate-free State Water Project water into the formation would ultimately help to reduce the size of the plume of perchlorate as it would be injected into the non-contaminated portion of the formation. The project is conceptual at this time, and a hydrologic analysis would be performed before the approval of such a project. The analysis would evaluate the water quality impacts, if any, from the injection of State Water Project water during wet, and therefore low chloride concentration, years.

Comment:

As for the suggested mitigation, the Board should be aware that a brine line to the ocean has been proposed in several other EIRs for various facilities and found not to be feasible due to the substantial costs and delays of property acquisition as well as the cost of the line itself.

Response:

The proposed brine line running in the Santa Clara River corridor from the Valencia Water Reclamation Plant to the ocean near Ventura, which is discussed in the SNMP. is not one of the projects planned for implementation, nor modeled for in the SNMP. However, it is recognized as a conceptual implementation measure for future management of salts and nutrients within the basin. Past efforts to construct a similar line have not been successful largely for the reasons the commenter states. However, the wastewater treatment plants located in the lower watershed at Ventura, Santa Paula, Fillmore and Piru also would benefit from a means of salt disposal and the City of Ventura has begun planning for its own ocean discharge of brine. A shared brine line would reduce the costs associated with it for any single agency and would make acquisition of a right-of-way through each of their service areas less onerous. Though agencies in the Upper Santa Clara River watershed are not working on a brine line at this time, the increased use of recycled water may result in a greater need to dispose of the salt resulting from treatment. Further evaluation and review would be necessary to bring the status of this type of implementation measures from the conceptual stage to a feasible project for the basin.

Comment:

Thank you for this opportunity to comment. We regret that time limitations reduced our ability to provide a more thorough review of this document. We will provide additional comments on the EIR when it is released.

Response:

Comment noted. SCOPE will be notified of the completion of the environmental document which is a substitute environmental document (SED) consistent with the CEQA requirements for RWQCB projects and not an EIR.

Whittaker-Bermite Toxics Advisory Committee Chair Letter

Comment:

I attended the December 8, 2015 Upper Santa Clara River IRWM Stakeholders Meeting and Salt and Nutrient Management Plan CEQA Scoping Meeting. I hope my comments at that meeting were recorded. I am a SCOPE board member and am on the board of the local Whittaker Bermite Citizens Advisory Group.

Response:

Comment noted. Notes were taken at the CEQA Scoping Meeting by staff. It was also stated that commenters needed to submit written comments in order to be responded to in writing.

Comment:

Whittaker Bermite is a 996 acre brown field in the center of the City of Santa Clarita. I am the toxic chair of the CAG and we deal with the air, soil and water contamination from that site. The water coming from the site has contaminated our groundwater supply with perchlorate and VOC's. Perchlorate is being treated but the VOV's are currently being blended into our water supply with surface imported water. The projected clean up time frame for cleanup of the water is thirty to fifty years. There are other sites in the Santa Clarita Valley that may be contributing to the contamination of our water supply coming from the Saugus aquifer. The plume of contamination has not been contained and ground water wells continue to be contaminated and shut down. The Saugus aquifer cannot be used as a dumping ground for "artificial recharge" unless the recharge water is treated to be suitable for human use. Also, under Groundwater Recharge, using imported water to recharge the Saugus aquifer will increase the chloride level as the imported water is high in chloride. It appears this will just create a bigger problem for the taxpayers to correct.

Response:

The Salt and Nutrient Management Plans is specifically focused on the management of salts (e.g. TDS and Chloride), and nutrients (e.g. nitrates) within the basin. There is a small area of the Saugus Formation containing a plume of perchlorate that results in water quality that does not meet the drinking water standard. However, this issue is being dealt with through a separate regulatory process involving the Department of Toxic Substances Control and the 'responsible parties'. Since this perchlorate plume does not encroach on significant areas of the formation, drinking water wells continue to reliability supply water from the Saugus Formation

that meet all drinking water standards. Additionally, some wells that have contamination in excess of the perchlorate standard are treated to remove perchlorate. That treated water is being put into the drinking water system and the perchlorate is removed from the groundwater as a result of this treatment. Since the effluent of the water reclamation plants that will supply recycled have little or no perchlorate in their effluent, the use of recycled water will not alter the perchlorate plume. Evaluation and management of VOCs is also ongoing in the basin, separate and apart from the SNMP.

The injection of perchlorate-free State Water Project water into the formation would ultimately help to reduce the size of the plume of perchlorate as it would be injected into the non-contaminated portion of the formation. The project is conceptual at this time, and a hydrologic analysis would be performed before the approval of such a project. The analysis would evaluate the water quality impacts, if any, from the injection of State Water Project water during wet, and therefore low-chloride concentration, years.

Comment:

The presentations at the meeting were vague, even completely void, of the possible safety of the process being recommended. An article in the Los Angeles Times today, Study highlights risks of recycling water states “Runoff from storms and faucets can help conserve, but researchers say health hazards need further analysis”. The authors called for ”rigorous risk-based guidelines” for gray water and stormwater. “The wide variability in existing regulations and absence of Federal guidance leaves stakeholders and local decision makers uncertain about the safety of these practices” the study said.

Response:

The intent of the SNMP is to establish a baseline of salts and nutrients in the local groundwater formations, to determine what the likely projections of future concentrations will be and then propose management measures to prevent the exceedance of Basin Plan objectives. This is all part of an effort to increase the use of recycled water in the area and to expedite the permitting of recycled water projects; while protecting beneficial uses of the basin. The SNMP makes no recommendations with regard to gray water as there are no gray water projects or management measures proposed for the region at this time. The SNMP does discuss increased storm water capture consistent with compliance with municipal storm water permitting requirements as a conceptual mitigation measure. As such, storm water would be infiltrated and some of it may be recovered by municipal drinking water wells as it is now, but all of the water would be required to meet Federal Drinking Water Standards as it does currently. The use of the water would also require further modeling and vetting with the Regional Board.

Comment:

The Vista Canyon WRP and Newhall Ranch WRP are private and planned for their own projects. Will their discharge effluent have a chloride concentration of no greater than 100 mg/L? Why is only SCVSD WRP listed as having that requirement? Again the presenters

appeared unprepared and the solutions based more too providing benefit to developers than health and safety of the public.

Response:

The Vista Canyon WRP is located within Management Zone 1a of the Santa Clara – Mint Canyon Subunit. The facility will be discharging to groundwater, which has a Water Quality Objective for chloride of 150mg/L. The Newhall Ranch WRP is located in Management Zone 5 of the Castaic Valley Subunit. The facility will be discharging to both groundwater and to surface water within Reach 5 of the Santa Clara River. Applicable Water Quality Objectives for groundwater and surface water in this area are 150 mg/L and 100mg/L, respectively. Any discharger, including these wastewater reclamation plants in these areas of the basin will be required to discharge at concentrations no greater than the water quality objective that applies in this case 150mg/L for Vista Canyon WRP, and 100mg/L for Newhall Ranch WRP. They will be required to demonstrate, as part of the Nation Pollutant Discharge Elimination System permitting process, that their effluent will not interfere with the attainment of the stated objectives of the Basin Plan. Both the Vista Canyon WRP and the Newhall Ranch WRP will be required to comply with those permitting provisions.

Comment:

The City of Oxnard has a chloride limit of 150 mg/L. Use of this recycled water may be used for: Food crops, including all edible root crops, where the recycled water comes into contact with the edible portion of the crop, Parks and playgrounds, School yards and other uses. Approximately 243 square miles within Ventura County are now part of this Salt and Nutrient Management Plan. Will this area be limited to the 100 mg/L for chloride? There never has been a clear definition of why there is a 100 mg/L limit in the Upper Santa Clara River Groundwater Basins.

Response:

The area identified by the commenter is located in the Lower Santa Clara River Basin which has its own separate Salt and Nutrient Management Plan that addresses management of these constituents consistent with basin-specific water quality objectives. The SNMP does not propose any changes to the Basin Objectives or the Total Daily Maximum Load (TMDL) for chloride in the Upper Santa Clara River watershed. Therefore, there is no potential for a significant environmental impact resulting from such a change to chloride standards. Also, the SNMP for the Upper Santa Clara River Basin will not modify the City of Oxnard's chloride limit, nor the how the recycled water is used.

Comment:

Thank you for this opportunity to comment. We request to receive notification and a copy of the EIR for this project when that document is released.

Response:

Comment noted. You will be notified of the completion of the environmental document which is a substitute environmental document consistent with the CEQA requirements for RWQCB projects and not an EIR.

Lauma W. Jurkevics, Department of Water Resources

Comment:

GHGs are not limited to construction activities, but also include operational emissions in the transport and treatment of water, including recycled water, and are dependent on the energy source. The SED should include a discussion of this element. If would also benefit the SED to identify how climate change could impact the plan and how the plan could benefit adaptation to climate change within the USCR groundwater basin.

Response:

Comment noted. The SED will include a discussion of Greenhouse Gas emissions and energy sources dedicated to the treatment and transport of water within the basin. The SED will also clarify that the increased use of recycled water, and likewise reduction in imported water will reduce net energy demand and result in a net benefit for the region. Increased use of recycled water is a demonstrative way to adapt to climate change as available supplies of recycled water are less dependent on a given hydrologic cycle than are other sources of water.

Appendix C: State Water Resources Control Board Recycled Water Policy for Water Quality Control for Recycled Water (Recycled Water Policy)

State Water Resources Control Board

Policy for Water Quality Control for Recycled Water (Recycled Water Policy)

Revised January 22, 2013
Effective April 25, 2013

State of California
Edmund G. Brown Jr., Governor

California Environmental Protection Agency
Matthew Rodriquez, Secretary

State Water Resources Control Board
P.O. Box100
Sacramento, CA 95812-0100

Felicia Marcus, Chair
Frances Spivy-Weber, Vice Chair
Tam M. Doduc, Member
Steven Moore, Member
Dorene D'Adamo, Member

Thomas Howard, Executive Director
Jonathan Bishop, Chief Deputy Director

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 2013-0003

ADOPTION OF AN AMENDMENT TO THE POLICY FOR WATER QUALITY CONTROL FOR RECYCLED WATER CONCERNING MONITORING REQUIREMENTS FOR CONSTITUTENTS OF EMERGING CONCERN

WHEREAS:

1. Provisions of the Policy for Water Quality Control for Recycled Water (Recycled Water Policy), adopted under Resolution No. 2009-0011, directed the State Water Resources Control Board (State Water Board) to convene a "blue-ribbon" advisory panel (Panel) to provide guidance on future actions related to monitoring constituents of emerging concern (CECs) in recycled water.

2. In June 2010, the Panel submitted a report titled "Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water – Recommendations of a Science Advisory Panel" (Report), which presented recommendations for monitoring CECs in municipal recycled water used for groundwater recharge.

3. In December 2010, the State Water Board held a public hearing regarding the Panel's Report and received public comments.

4. In May 2012, staff circulated a draft amendment to the Recycled Water Policy that: (1) proposed, in accordance with the Panel's recommendations, monitoring requirements for CECs and surrogates in recycled water used for groundwater recharge; and (2) proposed a reduction of priority pollutant monitoring of recycled water used for landscape irrigation.

5. In July 2012, a scientific peer review of the draft amendment and the Panel's Report was conducted.

6. Staff reviewed comments received on the draft amendment from the public and peer reviewers and issued a revised draft amendment on September 14, 2012. Written comments were received on this draft prior to an October 9, 2012, due date.

7. The State Water Board held a public hearing on October 16, 2012, to consider adoption of the draft amendment. At the hearing, the adoption was postponed to refine the responses to comments and allow additional time for public review.

8. The Natural Resources Agency has approved the State Water Board's and the Regional Water Quality Control Boards' water quality control planning process as a "certified regulatory program" that adequately satisfies the California Environmental Quality Act requirements for preparing environmental documents. The amendment concerns monitoring requirements for priority pollutants and constituents of emerging concern. It is not a "project" as defined by title 14, California Code of Regulations chapter 3, Guidelines for Implementation of the California Environmental Quality Act. Hence, approval of an environmental document is not required to adopt the amendment.

THEREFORE BE IT RESOLVED THAT:

The State Water Board

1. Adopts the amendment to the Recycled Water Policy.

2. Directs State Water Board Staff to submit the amended Recycled Water Policy to the Office of Administrative Law (OAL) for final approval.

3. Directs the Executive Director or designee to make minor, non-substantive modifications to the language of the amendment, if OAL determines during its approval process that such changes are needed; and directs the Executive Director to inform the State Water Board of any such changes.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on January 22, 2013.

AYE:	Vice Chair Frances Spivy-Weber Board Member Tam M. Doduc Board Member Steven Moore
NAY:	None
ABSENT:	Chairman Charles R. Hoppin Board Member Felicia Marcus
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

Recycled Water Policy

Table of Contents

Recycled Water Policy

1. *Preamble*

California is facing an unprecedented water crisis.

The collapse of the Bay-Delta ecosystem, climate change, and continuing population growth have combined with a severe drought on the Colorado River and failing levees in the Delta to create a new reality that challenges California's ability to provide the clean water needed for a healthy environment, a healthy population and a healthy economy, both now and in the future.

These challenges also present an unparalleled opportunity for California to move aggressively towards a sustainable water future. The State Water Resources Control Board (State Water Board) declares that we will achieve our mission to "preserve, enhance and restore the quality of California's water resources to the benefit of present and future generations." To achieve that mission, we support and encourage every region in California to develop a salt/nutrient management plan by 2014 that is sustainable on a long-term basis and that provides California with clean, abundant water. These plans shall be consistent with the Department of Water Resources' Bulletin 160, as appropriate, and shall be locally developed, locally controlled and recognize the variability of California's water supplies and the diversity of its waterways. We strongly encourage local and regional water agencies to move toward clean, abundant, local water for California by emphasizing appropriate water recycling, water conservation, and maintenance of supply infrastructure and the use of stormwater (including dry-weather urban runoff) in these plans; these sources of supply are drought-proof, reliable, and minimize our carbon footprint and can be sustained over the long-term.

We declare our independence from relying on the vagaries of annual precipitation and move towards sustainable management of surface waters and groundwater, together with enhanced water conservation, water reuse and the use of stormwater. To this end, we adopt the following goals for California:

- Increase the use of recycled water over 2002 levels by at least one million acre-feet per year (afy) by 2020 and by at least two million afy by 2030.
- Increase the use of stormwater over use in 2007 by at least 500,000 afy by 2020 and by at least one million afy by 2030.
- Increase the amount of water conserved in urban and industrial uses by comparison to 2007 by at least 20 percent by 2020.
- Included in these goals is the substitution of as much recycled water for potable water as possible by 2030.

As modified by
State Water Board Resolution 2013-0003
(January 22, 2013)

The purpose of this Policy is to increase the use of recycled water from municipal wastewater sources that meets the definition in Water Code section 13050(n), in a manner that implements state and federal water quality laws. The State Water Board expects to develop additional policies to encourage the use of stormwater, encourage water conservation, encourage the conjunctive use of surface and groundwater, and improve the use of local water supplies.

When used in compliance with this Policy, Title 22 and all applicable state and federal water quality laws, the State Water Board finds that recycled water is safe for approved uses, and strongly supports recycled water as a safe alternative to potable water for such approved uses.

2. *Purpose of the Policy*

a. The purpose of this Policy is to provide direction to the Regional Water Quality Control Boards (Regional Water Boards), proponents of recycled water projects, and the public regarding the appropriate criteria to be used by the State Water Board and the Regional Water Boards in issuing permits for recycled water projects.

b. It is the intent of the State Water Board that all elements of this Policy are to be interpreted in a manner that fully implements state and federal water quality laws and regulations in order to enhance the environment and put the waters of the state to the fullest use of which they are capable.

c. This Policy describes permitting criteria that are intended to streamline the permitting of the vast majority of recycled water projects. The intent of this streamlined permit process is to expedite the implementation of recycled water projects in a manner that implements state and federal water quality laws while allowing the Regional Water Boards to focus their limited resources on projects that require substantial regulatory review due to unique site-specific conditions.

d. By prescribing permitting criteria that apply to the vast majority of recycled water projects, it is the State Water Board's intent to maximize consistency in the permitting of recycled water projects in California while also reserving to the Regional Water Boards sufficient authority and flexibility to address site-specific conditions.

e. The State Water Board will establish additional policies that are intended to assist the State of California in meeting the goals established in the preamble to this Policy for water conservation and the use of stormwater.

f. For purposes of this Policy, the term “permit” means an order adopted by a Regional Water Board or the State Water Board prescribing requirements for a recycled water project, including but not limited to water recycling requirements, master reclamation permits, and waste discharge requirements.

3. *Benefits of Recycled Water*

The State Water Board finds that the use of recycled water in accordance with this Policy, that is, which supports the sustainable use of groundwater and/or surface water, which is sufficiently treated so as not to adversely impact public health or the environment and which ideally substitutes for use of potable water, is presumed to have a beneficial impact. Other public agencies are encouraged to use this presumption in evaluating the impacts of recycled water projects on the environment as required by the California Environmental Quality Act (CEQA).

4. *Mandate for the Use of Recycled Water*

a. The State Water Board and Regional Water Boards will exercise the authority granted to them by the Legislature to the fullest extent possible to encourage the use of recycled water, consistent with state and federal water quality laws.

(1) The State Water Board hereby establishes a mandate to increase the use of recycled water in California by 200,000 afy by 2020 and by an additional 300,000 afy by 2030. These mandates shall be achieved through the cooperation and collaboration of the State Water Board, the Regional Water Boards, the environmental community, water purveyors and the operators of publicly owned treatment works. The State Water Board will evaluate progress toward these mandates biennially and review and revise as necessary the implementation provisions of this Policy in 2012 and 2016.

(2) Agencies producing recycled water that is available for reuse and not being put to beneficial use shall make that recycled water available to water purveyors for reuse on reasonable terms and conditions. Such terms and conditions may include payment by the water purveyor of a fair and reasonable share of the cost of the recycled water supply and facilities.

(3) The State Water Board hereby declares that, pursuant to Water Code sections 13550 *et seq*., it is a waste and unreasonable use of water for water agencies not to use recycled water when recycled water of adequate quality is available and is not being put to beneficial use, subject to the conditions established in sections 13550 *et seq*. The State Water Board shall exercise its authority pursuant to Water Code section 275 to the fullest extent possible to enforce the mandates of this subparagraph.

b. These mandates are contingent on the availability of sufficient capital funding for the construction of recycled water projects from private, local, state, and federal sources and assume that the Regional Water Boards will effectively implement regulatory streamlining in accordance with this Policy.

c. The water industry and the environmental community have agreed jointly to advocate for $1 billion in state and federal funds over the next five years to fund projects needed to meet the goals and mandates for the use of recycled water established in this Policy.

d. The State Water Board requests the California Department of Public Health (CDPH), the California Public Utilities Commission (CPUC), and the California Department of Water Resources (CDWR) to use their respective authorities to the fullest extent practicable to assist the State Water Board and the Regional Water Boards in increasing the use of recycled water in California.

5. *Roles of the State Water Board, Regional Water Boards, CDPH and CDWR*

The State Water Board recognizes that it shares jurisdiction over the use of recycled water with the Regional Water Boards and with CDPH. In addition, the State Water Board recognizes that CDWR and the CPUC have important roles to play in encouraging the use of recycled water. The State Water Board believes that it is important to clarify the respective roles of each of these agencies in connection with recycled water projects, as follows:

a. The State Water Board establishes general policies governing the permitting of recycled water projects consistent with its role of protecting water quality and sustaining water supplies. The State Water Board exercises general oversight over recycled water projects, including review of Regional Water Board permitting practices, and shall lead the effort to meet the recycled water use goals set forth in the Preamble to this Policy. The State Water Board is also charged by statute with developing a general permit for irrigation uses of recycled water.

b. The CDPH is charged with protection of public health and drinking water supplies and with the development of uniform water recycling criteria appropriate to particular uses of water. Regional Water Boards shall appropriately rely on the expertise of CDPH for the establishment of permit conditions needed to protect human health.

c. The Regional Water Boards are charged with protection of surface and groundwater resources and with the issuance of permits that implement CDPH recommendations, this Policy, and applicable law and will, pursuant to paragraph 4 of this Policy, use their authority to the fullest extent possible to encourage the use of recycled water.

d. CDWR is charged with reviewing and, every five years, updating the California Water Plan, including evaluating the quantity of recycled water presently being used and planning for the potential for future uses of recycled water. In undertaking these tasks, CDWR may appropriately rely on urban water management plans and may share the data from those plans with the State Water Board and the Regional Water Boards. CDWR also shares with the State Water Board the authority to allocate and distribute bond funding, which can provide incentives for the use of recycled water.

e. The CPUC is charged with approving rates and terms of service for the use of recycled water by investor-owned utilities.

6. *Salt/Nutrient Management Plans*

a. Introduction.

(1) Some groundwater basins in the state contain salts and nutrients that exceed or threaten to exceed water quality objectives established in the applicable Water Quality Control Plans (Basin Plans), and not all Basin Plans include adequate implementation procedures for achieving or ensuring compliance with the water quality objectives for salt or nutrients. These conditions can be caused by natural soils/conditions, discharges of waste, irrigation using surface water, groundwater or recycled water and water supply augmentation using surface or recycled water. Regulation of recycled water alone will not address these conditions.

(2) It is the intent of this Policy that salts and nutrients from all sources be managed on a basin-wide or watershed-wide basis in a manner that ensures attainment of water quality objectives and protection of beneficial uses. The State Water Board finds that the appropriate way to address salt and nutrient issues is through the development of regional or subregional salt and nutrient management plans

rather than through imposing requirements solely on individual recycled water projects.

b. Adoption of Salt/ Nutrient Management Plans.

(1) The State Water Board recognizes that, pursuant to the letter dated December 19, 2008 and attached to the Resolution adopting this Policy, the local water and wastewater entities, together with local salt/nutrient contributing stakeholders, will fund locally driven and controlled, collaborative processes open to all stakeholders that will prepare salt and nutrient management plans for each basin/sub-basin in California, including compliance with CEQA and participation by Regional Water Board staff.

(a) It is the intent of this Policy for every groundwater basin/sub-basin in California to have a consistent salt/nutrient management plan. The degree of specificity within these plans and the length of these plans will be dependent on a variety of site-specific factors, including but not limited to size and complexity of a basin, source water quality, stormwater recharge, hydrogeology, and aquifer water quality. It is also the intent of the State Water Board that because stormwater is typically lower in nutrients and salts and can augment local water supplies, inclusion of a significant stormwater use and recharge component within the salt/nutrient management plans is critical to the long-term sustainable use of water in California. Inclusion of stormwater recharge is consistent with State Water Board Resolution No. 2005-0006, which establishes sustainability as a core value for State Water Board programs and also assists in implementing Resolution No. 2008-0030, which requires sustainable water resources management and is consistent with Objective 3.2 of the State Water Board Strategic Plan Update dated September 2, 2008.

(b) Salt and nutrient plans shall be tailored to address the water quality concerns in each basin/sub-basin and may include constituents other than salt and nutrients that impact water quality in the basin/sub-basin. Such plans shall address and implement provisions, as appropriate, for all sources of salt and/or nutrients to groundwater basins, including recycled water irrigation projects and groundwater recharge reuse projects.

(c) Such plans may be developed or funded pursuant to the provisions of Water Code sections 10750 *et seq.* or other appropriate authority.

(d) Salt and nutrient plans shall be completed and proposed to the Regional Water Board within five years from the date of this Policy unless a Regional Water Board finds that the stakeholders are making substantial progress towards completion of a plan. In no case shall the period for the completion of a plan exceed seven years.

(e) The requirements of this paragraph shall not apply to areas that have already completed a Regional Water Board approved salt and nutrient plan for a basin, sub-basin, or other regional planning area that is functionally equivalent to paragraph 6(b)3.

(f) The plans may, depending upon the local situation, address constituents other than salt and nutrients that adversely affect groundwater quality.

(2) Within one year of the receipt of a proposed salt and nutrient management plan, the Regional Water Boards shall consider for adoption revised implementation plans, consistent with Water Code section 13242, for those groundwater basins within their regions where water quality objectives for salts or nutrients are being, or are threatening to be, exceeded. The implementation plans shall be based on the salt and nutrient plans required by this Policy.

(3) Each salt and nutrient management plan shall include the following components:

(a) A basin/sub-basin wide monitoring plan that includes an appropriate network of monitoring locations. The scale of the basin/sub-basin monitoring plan is dependent upon the site-specific conditions and shall be adequate to provide a reasonable, cost-effective means of determining whether the concentrations of salt, nutrients, and other constituents of concern as identified in the salt and nutrient plans are consistent with applicable water quality objectives. Salts, nutrients, and the constituents identified in paragraph 6(b)(1)(f) shall be monitored. The frequency of monitoring shall be determined in the salt/nutrient management plan and approved by the Regional Water Board pursuant to paragraph 6(b)(2).

(i) The monitoring plan must be designed to determine water quality in the basin. The plan must focus on basin water quality near water supply wells and areas proximate to large water recycling projects, particularly groundwater recharge projects. Also, monitoring locations shall, where appropriate, target groundwater and surface waters where groundwater has connectivity with adjacent surface waters.

(ii) The preferred approach to monitoring plan development is to collect samples from existing wells if feasible as long as the existing wells are located appropriately to determine water quality throughout the most critical areas of the basin.

(iii) The monitoring plan shall identify those stakeholders responsible for conducting, compiling, and reporting the monitoring data. The data shall be reported to the Regional Water Board at least every three years.

(b) A provision for annual monitoring of Constituents of Emerging Concern (e.g., endocrine disrupters, personal care products or pharmaceuticals) (CECs) consistent with recommendations by CDPH and consistent with any actions by the State Water Board taken pursuant to paragraph 10(b) of this Policy.

(c) Water recycling and stormwater recharge/use goals and objectives.

(d) Salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.

(e) Implementation measures to manage salt and nutrient loading in the basin on a sustainable basis.

(f) An antidegradation analysis demonstrating that the projects included within the plan will, collectively, satisfy the requirements of Resolution No. 68-16.

(4) Nothing in this Policy shall prevent stakeholders from developing a plan that is more protective of water quality than applicable standards in the Basin Plan. No Regional Water Board, however, shall seek to modify Basin Plan objectives without full compliance

with the process for such modification as established by existing law.

7. *Landscape Irrigation Projects*[1]

a. *Control of incidental runoff.* Incidental runoff is defined as unintended small amounts (volume) of runoff from recycled water use areas, such as unintended, minimal over-spray from sprinklers that escapes the recycled water use area. Water leaving a recycled water use area is not considered incidental if it is part of the facility design, if it is due to excessive application, if it is due to intentional overflow or application, or if it is due to negligence. Incidental runoff may be regulated by waste discharge requirements or, where necessary, waste discharge requirements that serve as a National Pollutant Discharge Elimination System (NPDES) permit, including municipal separate storm water system permits, but regardless of the regulatory instrument, the project shall include, but is not limited to, the following practices:

(1) Implementation of an operations and management plan that may apply to multiple sites and provides for detection of leaks, (for example, from broken sprinkler heads), and correction either within 72 hours of learning of the runoff, or prior to the release of 1,000 gallons, whichever occurs first,

(2) Proper design and aim of sprinkler heads,

(3) Refraining from application during precipitation events, and

(4) Management of any ponds containing recycled water such that no discharge occurs unless the discharge is a result of a 25-year, 24-hour storm event or greater, and there is notification of the appropriate Regional Water Board Executive Officer of the discharge.

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[1] Specified uses of recycled water considered "landscape irrigation" projects include any of the following:
i. Parks, greenbelts, and playgrounds;
ii. School yards;
iii. Athletic fields;
iv. Golf courses;
v. Cemeteries;
vi. Residential landscaping, common areas;
vii. Commercial landscaping, except eating areas;
viii. Industrial landscaping, except eating areas; and
ix. Freeway, highway, and street landscaping.

b. *Streamlined Permitting.*

(1) The Regional Water Boards shall, absent unusual circumstances (i.e., unique, site-specific conditions such as where recycled water is proposed to be used for irrigation over high transmissivity soils over a shallow (5' or less) high quality groundwater aquifer), permit recycled water projects that meet the criteria set forth in this Policy, consistent with the provisions of this paragraph.

(2) If the Regional Water Board determines that unusual circumstances apply, the Regional Water Board shall make a finding of unusual circumstances based on substantial evidence in the record, after public notice and hearing.

(3) Projects meeting the criteria set forth below and eligible for enrollment under requirements established in a general order shall be enrolled by the State or Regional Water Board within 60 days from the date on which an application is deemed complete by the State or Regional Water Board. For projects that are not enrolled in a general order, the Regional Water Board shall consider permit adoption within 120 days from the date on which the application is deemed complete by the Regional Water Board.

(4) Landscape irrigation projects that qualify for streamlined permitting shall not be required to include a project specific receiving water and groundwater monitoring component unless such project specific monitoring is required under the adopted salt/nutrient management plan. During the interim while the salt management plan is under development, a landscape irrigation project proponent can either perform project specific monitoring, or actively participate in the development and implementation of a salt/nutrient management plan, including basin/sub-basin monitoring. Permits or requirements for landscape irrigation projects shall include, in addition to any other appropriate recycled water monitoring requirements, monitoring for priority pollutants in the recycled water at the recycled water production facility once per year, except when the recycled water production facility has a design production flow for the entire water reuse system of one million gallons per day or less. For these smaller facilities, the recycled water shall be monitored for priority pollutants once every five years.

(5) It is the intent of the State Water Board that the general permit for landscape irrigation projects be consistent with the terms of this Policy.

c. *Criteria for streamlined permitting*. Irrigation projects using recycled water that meet the following criteria are eligible for streamlined permitting, and, if otherwise in compliance with applicable laws, shall be approved absent unusual circumstances:

(1) Compliance with the requirements for recycled water established in Title 22 of the California Code of Regulations, including the requirements for treatment and use area restrictions, together with any other recommendations by CDPH pursuant to Water Code section 13523.

(2) Application in amounts and at rates as needed for the landscape (i.e., at agronomic rates and not when the soil is saturated). Each irrigation project shall be subject to an operations and management plan, that may apply to multiple sites, provided to the Regional Water Board that specifies the agronomic rate(s) and describes a set of reasonably practicable measures to ensure compliance with this requirement, which may include the development of water budgets for use areas, site supervisor training, periodic inspections, tiered rate structures, the use of smart controllers, or other appropriate measures.

(3) Compliance with any applicable salt and nutrient management plan.

(4) Appropriate use of fertilizers that takes into account the nutrient levels in the recycled water. Recycled water producers shall monitor and communicate to the users the nutrient levels in their recycled water.

8. *Recycled Water Groundwater Recharge Projects*

a. The State Water Board acknowledges that all recycled water groundwater recharge projects must be reviewed and permitted on a site-specific basis, and so such projects will require project-by-project review.

b. Approved groundwater recharge projects will meet the following criteria:

(1) Compliance with regulations adopted by CDPH for groundwater recharge projects or, in the interim until such regulations are approved, CDPH's recommendations pursuant to Water Code section 13523 for the project (e.g., level of treatment, retention time, setback distance, source control, monitoring program, etc.).

(2) Implementation of a monitoring program for CECs that is consistent with Attachment A and any recommendations from CDPH.

Groundwater recharge projects shall include monitoring of recycled water for priority pollutants twice per year.

c. Nothing in this paragraph shall be construed to limit the authority of a Regional Water Board to protect designated beneficial uses, *provided* that any proposed limitations for the protection of public health may only be imposed following regular consultation by the Regional Water Board with CDPH, consistent with State Water Board Orders WQ 2005-0007 and 2006-0001.

d. Nothing in this Policy shall be construed to prevent a Regional Water Board from imposing additional requirements for a proposed recharge project that has a substantial adverse effect on the fate and transport of a contaminant plume or changes the geochemistry of an aquifer thereby causing the dissolution of constituents, such as arsenic, from the geologic formation into groundwater.

e. Projects that utilize surface spreading to recharge groundwater with recycled water treated by reverse osmosis shall be permitted by a Regional Water Board within one year of receipt of recommendations from CDPH. Furthermore, the Regional Water Board shall give a high priority to review and approval of such projects.

9. *Antidegradation*

a. The State Water Board adopted Resolution No. 68-16 as a policy statement to implement the Legislature's intent that waters of the state shall be regulated to achieve the highest water quality consistent with the maximum benefit to the people of the state.

b. Activities involving the disposal of waste that could impact high quality waters are required to implement best practicable treatment or control of the discharge necessary to ensure that pollution or nuisance will not occur, and the highest water quality consistent with the maximum benefit to the people of the state will be maintained.

c. Groundwater recharge with recycled water for later extraction and use in accordance with this Policy and state and federal water quality law is to the benefit of the people of the state of California. Nonetheless, the State Water Board finds that groundwater recharge projects using recycled water have the potential to lower water quality within a basin. The proponent of a groundwater recharge project must demonstrate compliance with Resolution No. 68-16. Until such time as a salt/nutrient management plan is in effect, such compliance may be demonstrated as follows:

(1) A project that utilizes less than 10 percent of the available assimilative capacity in a basin/sub-basin (or multiple projects utilizing less than 20 percent of the available assimilative capacity in a basin/sub-basin) need only conduct an antidegradation analysis verifying the use of the assimilative capacity. For those basins/sub-basins where the Regional Water Boards have not determined the baseline assimilative capacity, the baseline assimilative capacity shall be calculated by the initial project proponent, with review and approval by the Regional Water Board, until such time as the salt/nutrient plan is approved by the Regional Water Board and is in effect. For compliance with this subparagraph, the available assimilative capacity shall be calculated by comparing the mineral water quality objective with the average concentration of the basin/sub-basin, either over the most recent five years of data available or using a data set approved by the Regional Water Board Executive Officer. In determining whether the available assimilative capacity will be exceeded by the project or projects, the Regional Water Board shall calculate the impacts of the project or projects over at least a ten year time frame.

(2) In the event a project or multiple projects utilize more than the fraction of the assimilative capacity designated in subparagraph (1), then a Regional Water Board-deemed acceptable antidegradation analysis shall be performed to comply with Resolution No. 68-16. The project proponent shall provide sufficient information for the Regional Water Board to make this determination. An example of an approved method is the method used by the State Water Board in connection with Resolution No. 2004-0060 and the Regional Water Board in connection with Resolution No. R8-2004-0001. An integrated approach (using surface water, groundwater, recycled water, stormwater, pollution prevention, water conservation, etc.) to the implementation of Resolution No. 68-16 is encouraged.

d. Landscape irrigation with recycled water in accordance with this Policy is to the benefit of the people of the State of California. Nonetheless, the State Water Board finds that the use of water for irrigation may, regardless of its source, collectively affect groundwater quality over time. The State Water Board intends to address these impacts in part through the development of salt/nutrient management plans described in paragraph 6.

(1) A project that meets the criteria for a streamlined irrigation permit and is within a basin where a salt/nutrient management plan satisfying the provisions of paragraph 6(b) is in place may be

approved without further antidegradation analysis, provided that the project is consistent with that plan.

(2) A project that meets the criteria for a streamlined irrigation permit and is within a basin where a salt/nutrient management plan satisfying the provisions of paragraph 6(b) is being prepared may be approved by the Regional Water Board by demonstrating through a salt/nutrient mass balance or similar analysis that the project uses less than 10 percent of the available assimilative capacity as estimated by the project proponent in a basin/sub-basin (or multiple projects using less than 20 percent of the available assimilative capacity as estimated by the project proponent in a basin/sub-basin).

10. *Constituents of Emerging Concern*

a. General Provisions

(1) Regulatory requirements for recycled water shall be based on the best available peer-reviewed science. In addition, all uses of recycled water must meet conditions set by CDPH.

(2) Knowledge of risks will change over time and recycled water projects must meet legally applicable criteria. However, when standards change, projects should be allowed time to comply through a compliance schedule.

(3) The state of knowledge regarding CECs is incomplete. There needs to be additional research and development of analytical methods and surrogates to determine potential environmental and public health impacts. Agencies should minimize the likelihood of CECs impacting human health and the environment by means of source control and/or pollution prevention programs.

(4) Regulating most CECs will require significant work to develop test methods and more specific determinations as to how and at what level CECs impact public health or our environment.

b. Research Program

(1) The State Water Board, in consultation with CDPH, convened a “blue-ribbon” advisory panel to guide future actions relating to CECs.

(a) The panel was actively managed by the State Water Board and was composed of the following: one human health toxicologist, one environmental toxicologist, one epidemiologist, one biochemist, one civil engineer familiar with the design and construction of recycled water treatment facilities, and one chemist familiar with the design and operation of advanced laboratory methods for the detection of emerging constituents. Each of these panelists had extensive experience as a principal investigator in their respective areas of expertise.

(b) The panel reviewed the scientific literature and submitted a report to the State Water Board and CDPH that described the current state of scientific knowledge regarding the risks of CECs to public health and the environment. In December 2010, the State Water Board, in coordination with CDPH, held a public hearing to hear a presentation on the report and to receive comments from stakeholders.

(c) The State Water Board considered the panel report and the comments received and adopted an amendment to the Policy establishing monitoring requirements for CECs in recycled water. These monitoring requirements are prescribed in Attachment A.

(2) The panel or a similarly constituted panel shall update the report every five years. The next update is due in June 2015.

(a) Each updated report shall recommend actions that the State of California should take to improve our understanding of CECs and, as may be appropriate, to protect public health and the environment.

(b) The updated reports shall answer the following questions: What are the appropriate constituents to be monitored in recycled water, including analytical methods and method detection limits? What is the known toxicological information for the above constituents? Would the above lists change based on level of treatment and use? If so, how? What are possible indicators that represent a suite of CECs? What levels of CEC's should trigger enhanced monitoring of CEC's in recycled water, groundwater and/or surface waters?

(c) Within six months from receipt of an updated report, the State Water Board shall hold a hearing to consider recommendations from staff and shall endorse the

recommendations, as appropriate, after making any necessary modifications.

c. Permit Provisions

Permits for recycled water projects shall be consistent with any CDPH recommendations to protect public health and the monitoring requirements prescribed in Attachment A.

11. *Incentives for the Use of Recycled Water*

a. Funding

The State Water Board will request CDWR to provide priority funding for projects that have major recycling components; particularly those that decrease demand on potable water supplies. The State Water Board will also request priority funding for stormwater recharge projects that augment local water supplies. The State Water Board shall promote the use of the State Revolving Fund (SRF) for water purveyor, stormwater agencies, and water recyclers to use for water reuse and stormwater use and recharge projects.

b. Stormwater

The State Water Board strongly encourages all water purveyors to provide financial incentives for water recycling and stormwater recharge and reuse projects. The State Water Board also encourages the Regional Water Boards to require less stringent monitoring and regulatory requirements for stormwater treatment and use projects than for projects involving untreated stormwater discharges.

c. TMDLs

Water recycling reduces mass loadings from municipal wastewater sources to impaired waters. As such, waste load allocations shall be assigned as appropriate by the Regional Water Boards in a manner that provides an incentive for greater water recycling.

ATTACHMENT A

Requirements for Monitoring Constituents of Emerging Concern in Recycled Water

As modified by
State Water Board Resolution 2013-0003
(January 22, 2013)

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As modified by
State Water Board Resolution 2013-0003
(January 22, 2013)

ATTACHMENT A

REQUIREMENTS FOR MONITORING CONSTITUENTS OF EMERGING CONCERN FOR RECYCLED WATER

The purpose of this attachment to the Recycled Water Policy (Policy) is to provide direction to the Regional Water Quality Control Boards (Regional Water Boards) on monitoring requirements for constituents of emerging concern[2] (CECs) in recycled municipal wastewater, herein referred to as "recycled water." The monitoring requirements and criteria for evaluating monitoring results in the Policy are based on recommendations from a Science Advisory Panel[3]. The monitoring requirements pertain to the production and use of recycled water for groundwater recharge reuse[4] by surface and subsurface application methods. The monitoring requirements apply to recycled water producers, including entities that further treat or enhance the quality of recycled water supplied by municipal wastewater treatment facilities, and groundwater recharge reuse facilities.

Groundwater recharge by surface application is the controlled application of water to a spreading area for infiltration resulting in the recharge of a groundwater basin. Subsurface application is the controlled application of water to a groundwater basin or aquifer by a means other than surface application, such as direct injection through a well.

The California Department of Public Health (CDPH) shall be consulted for any additional monitoring requirements for recycled water use found necessary by CDPH to protect human health.

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[2] For this Policy, CECs are defined to be chemicals in personal care products, pharmaceuticals including antibiotics, antimicrobials; industrial, agricultural, and household chemicals; hormones; food additives; transformation products, inorganic constituents; and nanomaterials.

[3] The Science Advisory Panel was convened in accordance with provision 10.b. of the Policy. The panel's recommendations were presented in the report; *Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water – Recommendations of a Science Advisory Panel*, dated June 25, 2010.

[4] As used in this attachment, use of recycled water for groundwater recharge reuse has the same meaning as indirect potable reuse for groundwater recharge as defined in Water Code section 13561(c), where it is defined as the planned use of recycled water for replenishment of a groundwater basin or an aquifer that has been designated as a source of water supply for a public water system.

As modified by
State Water Board Resolution 2013-0003
(January 22, 2013)

1. CECS AND SURROGATES

Within this Policy, CECs of toxicological relevance to human health are referred to as "health-based CECs."[5] CECs determined not to have human health relevance, but useful for monitoring treatment process effectiveness, are referred to as "performance indicator CECs." A performance indicator CEC is an individual CEC used for evaluating a family of CECs with similar physicochemical or biodegradable characteristics. The removal of a performance indicator CEC through a treatment process provides an indication of removal of CECs with similar properties. A health-based CEC may also serve as a performance indicator CEC.

A surrogate is a measurable physical or chemical property, such as chlorine residual or electrical conductivity, that can be used to measure the effectiveness of trace organic compound removal by treatment process and/or provide an indication of a treatment process failure. A reverse osmosis (RO) treatment process, for example, is expected to substantially reduce the electrical conductivity of the recycled water being treated. This reduction in the level of the surrogate also provides an indication that inorganic and organic compounds, including CECs, are being removed.

Recycled water monitoring programs used for groundwater recharge reuse shall include monitoring for: (1) human health-based CECs; (2) performance indicator CECs; and (3) surrogates. The purpose of monitoring performance indicator CECs and surrogates is to assess the effectiveness of unit processes to remove CECs. For this policy for groundwater recharge reuse, unit processes that remove CECs include RO, advanced oxidation processes (AOPs), and soil aquifer treatment.[6] AOPs are treatment processes involving the use of oxidizing agents, such as hydrogen peroxide and ozone, combined with ultraviolet light irradiation. Soil aquifer treatment is a natural treatment process that removes CECs as water passes through soil, the vadose zone, and within an aquifer.

This Policy provides CEC monitoring requirements for recycled water which undergoes additional treatment by soil aquifer treatment or by RO followed by AOPs. CEC monitoring requirements for groundwater recharge reuse projects implementing treatment processes that provide control of CECs by processes other than soil aquifer treatment or RO/AOPs shall be established on a case-by-case basis by the State Water Board in consultation with CDPH.

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[5] Heath-based CECs were determined through a screening process that was developed and conducted by the CEC Science Advisory Panel; *Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water – Recommendations of a Science Advisory Panel*, dated June 25, 2010.

[6] For evaluating removal of CECs, the treatment zone for soil aquifer treatment is from the surface of the application area through the unsaturated zone to groundwater, including groundwater within a 30-day travel time distance through the aquifer downgradient of the surface application area.

Monitoring of health-based CECs or performance indicator CECs is not required for recycled water used for landscape irrigation due to the low risk for ingestion of the water.[7]

1.1. CECs for Monitoring Programs

This Policy provides requirements for monitoring CECs in recycled water used for groundwater recharge reuse. The Regional Water Boards shall not issue requirements for monitoring of additional CECs in recycled water beyond the requirements provided in this Policy except when recommended by CDPH or requested by the project proponent.

Table 1 provides the health-based CECs and performance indicator CECs to be monitored along with their respective reporting limits. All CECs listed for a recycled water application shall be monitored during an initial assessment monitoring phase, as described in Section 3.1. Based on monitoring results and findings, the list of performance indicator CECs required for monitoring may be refined for subsequent monitoring phases. The health-based CECs listed in Table 1 shall be monitored during the entirety of the initial assessment and baseline monitoring phases (Sections 3.1 and 3.2). Based on the results of the baseline monitoring phase and/or subsequent monitoring, the list of health-based CECs required for monitoring may be revised. The method for evaluation of monitoring results for health-based CECs is provided in Section 4.2.

Quality assurance and quality control measures shall be used for both collection of samples and laboratory analysis work. The project proponent shall develop a quality assurance project plan that includes the appropriate number of field blanks, laboratory blanks, replicate samples, and matrix spikes.

[7] "For monitoring programs to assess CEC threats for urban irrigation reuse, none of the chemicals for which measurement methods and exposure data are available exceeded the threshold for monitoring priority. This is largely attributable to higher Monitoring Trigger Levels (MTLs), because of reduced water ingestion in a landscape irrigation setting compared to drinking water." MTLs are health-based screening level values for CECs for a particular water reuse scenario. MTLs were established in, *Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water – Recommendations of a Science Advisory Panel*, dated June 25, 2010.

Table 1 – CECs to be Monitored

Constituent	Constituent Group	Relevance/Indicator Type	Reporting Limit (µg/L)
GROUNDWATER RECHARGE REUSE - SURFACE APPLICATION			
17β-estradiol	Steroid hormones	Health	0.001
Caffeine	Stimulant	Health & Performance	0.05
N-Nitrosodimethylamine (NDMA)	Disinfection byproduct	Health	0.002
Triclosan	Antimicrobial	Health	0.05
Gemfibrozil	Pharmaceutical	Performance	0.01
Iopromide	Pharmaceutical	Performance	0.05
N,N-Diethyl-meta-toluamide (DEET)	Personal care product	Performance	0.05
Sucralose	Food additive	Performance	0.1
GROUNDWATER RECHARGE REUSE - SUBSURFACE APPLICATION			
17β-estradiol	Steroid hormones	Health	0.001
Caffeine	Stimulant	Health & Performance	0.05
NDMA	Disinfection byproduct	Health & Performance	0.002
Triclosan	Antimicrobial	Health	0.05
DEET	Personal care product	Performance	0.05
Sucralose	Food additive	Performance	0.1

µg/L – Micrograms per liter

Analytical methods for laboratory analysis of CECs shall be selected to achieve the reporting limits presented in Table 1. The analytical methods shall be based on methods published by the United States Environmental Protection Agency, methods certified by CDPH, or peer reviewed and published methods that have been reviewed by CDPH, including those published by voluntary consensus standards bodies such as the Standards Methods Committee and the American Society for Testing and Materials International. Any modifications to the published or certified methods shall be reviewed by CDPH and subsequently submitted to the Regional Water Board in an updated quality assurance project plan.

As modified by
State Water Board Resolution 2013-0003
(January 22, 2013)

1.2. Surrogates for Monitoring Programs

Table 2 presents a list of surrogates that shall be considered for monitoring treatment of recycled water used for groundwater recharge reuse. Other surrogates not listed in Table 2 may also be considered.

Table 2: Surrogates

GROUNDWATER RECHARGE REUSE - SURFACE APPLICATION
Ammonia
Total Organic Carbon (TOC)
Nitrate
Ultraviolet (UV) Light Absorption
GROUNDWATER RECHARGE REUSE - SUBSURFACE APPLICATION
Electrical Conductivity
TOC

The project proponent shall propose surrogates to monitor on a case-by-case basis appropriate for the treatment process or processes. The Regional Water Board shall review and approve the selected surrogates in consultation with CDPH.

Where applicable, surrogates may be measured using on-line or hand-held instruments provided that instrument calibration procedures are implemented in accordance with the manufacturer's specifications and that calibration is documented.

2. MONITORING LOCATIONS

Monitoring locations for CECs and surrogates are described in this section.

2.1. Health-Based CEC Monitoring Locations

2.1.1. Groundwater Recharge Reuse - Surface Application

For groundwater recharge reuse projects implementing surface application of recycled water, health-based CECs shall be monitored at these locations:

(1) Following tertiary treatment[8] prior to application to the surface spreading area; and

(2) At monitoring well locations designated in consultation with CDPH within the distance groundwater travels downgradient from the application site in 30 days.

Monitoring locations for health-based CECs for the phases of monitoring are presented in Tables 3 through 5.

2.1.2. Groundwater Recharge Reuse - Subsurface Application

For groundwater recharge reuse projects implementing subsurface application of recycled water, health-based CECs shall be monitored at a location following treatment prior to release into an aquifer.

2.2. Performance Indicator CEC and Surrogate Monitoring Locations

To allow evaluation of individual unit processes or a combination of unit processes that provide removal of CECs, performance indicator CECs and surrogates shall be monitored at the locations described below and presented in Tables 3 through 5.

2.2.1. Groundwater Recharge Reuse - Surface Application

For groundwater recharge reuse projects using surface application of recycled water, performance indicator CECs and surrogates shall be monitored at these locations:

(1) Following tertiary treatment prior to application to the surface spreading area; and

(2) At monitoring well locations designated in consultation with CDPH within the distance groundwater travels downgradient from the application site in 30 days.

Monitoring locations for performance indicator CECs and surrogates for the phases of monitoring are presented in Tables 3 through 5.

2.2.2. Groundwater Recharge Reuse - Subsurface Application

For groundwater recharge reuse projects using subsurface application of recycled water, performance indicator CECs shall be monitored in recycled water at these locations:

(1) Prior to treatment by RO; and

[8] Standards for disinfected tertiary recycled water presented in California Code of Regulations, Title 22, section 60301.230 and 60301.320.

(2) Following treatment prior to release to the aquifer.

If the project proponent can demonstrate that the RO unit will not substantially remove a CEC, the Regional Water Board may allow monitoring for that CEC prior to the AOPs, instead of prior to the RO unit.

For groundwater recharge reuse projects using subsurface application of recycled water, surrogates shall be monitored at locations proposed by the project proponent and approved by the Regional Water Board in consultation with CDPH.

3. PHASED MONITORING REQUIREMENTS

The Regional Water Board shall phase the monitoring requirements for CECs and surrogates for groundwater recharge reuse projects. The purpose of phased monitoring is to allow monitoring requirements for health-based CECs, performance indicator CECs and surrogates to be refined based on the monitoring results and findings of the previous phase. An initial assessment monitoring phase, followed by a baseline monitoring phase, shall be conducted to determine the project-specific monitoring requirements for standard operations. The initial assessment and baseline monitoring phases shall be conducted after CDPH approval for groundwater recharge reuse project operation.

3.1. Initial Assessment Monitoring Phase

The purposes of the initial assessment phase are to: (1) identify the occurrence of health-based CECs, performance indicator CECs, and surrogates in recycled water and groundwater;[9] (2) determine treatment effectiveness; (3) define the project-specific performance indicator CECs and surrogates to monitor during the baseline phase; and (4) specify the expected removal percentages for performance indicator CECs and surrogates. The monitoring requirements for the initial assessment monitoring phase shall apply to the start-up of new facilities, piloting of new unit processes at existing facilities, and existing facilities where CECs and surrogates have not been assessed equivalent to the requirements of this Policy. Data from prior assessment need not replicate the exact frequency and duration of the initial assessment phase requirements specified in Table 3, if the overall robustness and size of the data are sufficient to adequately characterize the CECs, surrogates, and treatment performance. The initial assessment monitoring phase shall be conducted for a period of one year.

During the initial assessment monitoring phase for the applicable recycled water application method, each of the health-based CECs and performance indicator CECs

[9] The identification of the occurrence of health-based CECs, performance indicator CECs, and surrogates in groundwater only applies to groundwater recharge reuse by surface application.

listed in Table 1 and appropriate surrogates (see Section 1.2) shall be monitored. Surrogates shall be selected to monitor individual unit processes or combinations of unit processes that remove CECs. Performance indicator CEC and surrogate monitoring results that demonstrate measurable removal for a given unit process shall be candidates for use in the monitoring programs for the baseline and standard operation phases. Monitoring requirements for the initial assessment phase are summarized in Table 3.

For existing groundwater recharge reuse projects, historic monitoring data may be used to assess the occurrence and removal of CECs and surrogates. Existing projects demonstrating prior assessment of CECs and surrogates equivalent to the initial assessment phase requirements of this Policy may skip the initial monitoring phase and initiate the baseline monitoring phase requirements in Section 3.2.
Monitoring results shall be evaluated following each sampling event to allow timely implementation of any response actions. If evaluation of monitoring results indicates a concern, such as finding a concentration of a health-based CEC above the thresholds described in Table 7, more frequent monitoring may be required to further evaluate the effectiveness of the treatment process. Additional actions may also be warranted, which may include, but not be limited to, resampling to confirm a result, additional monitoring, implementation of a source identification program, toxicological studies, engineering removal studies, and/or modification of facility operations. If additional monitoring is required, the Regional Water Board shall consult with CDPH and revise the Monitoring and Reporting Program as appropriate. Evaluation of monitoring results and determination of appropriate response actions based on the monitoring results are presented in Section 4.

Following completion of the initial assessment monitoring phase, monitoring requirements shall be re-evaluated and subsequent requirements for the baseline monitoring phase shall be determined on a project-specific basis.

3.2. Baseline Monitoring Phase

Based on the findings of the initial assessment monitoring phase, project-specific performance indicator CECs and surrogates shall be selected for monitoring during the baseline monitoring phase. The purpose of the baseline monitoring phase is to assess and refine which health-based CECs, performance indicator CECs and surrogates are appropriate to monitor the removal of CECs and treatment system performance for the standard operation of a facility. Performance indicator CECs and surrogates that exhibited reduction by unit processes and/or provided an indication of operational performance shall be selected for monitoring during the baseline monitoring phase. Surrogates not reduced through a unit process are not good indicators of the unit's intended performance. For example, soil aquifer treatment may not effectively lower electrical conductivity. Therefore, electrical conductivity may not be a good surrogate for soil aquifer treatment. The baseline monitoring phase shall be conducted for a period

of three years following the initial assessment monitoring phase. Monitoring requirements for the baseline phase are summarized in Table 4. If a performance indicator CEC listed in Table 1 is found not to be a good indicator, the project proponent shall propose an alternative performance indicator CEC representative of the constituent group to monitor. This performance indicator CEC shall be subject to approval by the Regional Water Board in consultation with CDPH.

For existing groundwater recharge reuse projects, historic monitoring data may be used to assess removal of health-based CECs, performance indicator CECs and surrogates. Existing projects that can demonstrate prior assessment of CECs and surrogates equivalent to the initial assessment phase and baseline phase requirements of this Policy may be eligible for the standard operation monitoring requirements.

Monitoring results shall be evaluated following each sampling event to allow timely implementation of any response actions. If evaluation of monitoring results indicates a concern, such as finding a concentration of a health-based CEC above the thresholds described in Table 7, more frequent monitoring may be required to further evaluate the effectiveness of the treatment process. Additional actions may also be warranted, which may include, but not be limited to, resampling to confirm a result, additional monitoring, implementation of a source identification program, toxicological studies, engineering removal studies, and/or modification of facility operation. If additional monitoring is required, the Regional Water Board shall consult with CDPH and revise the Monitoring and Reporting Program as appropriate. Evaluation of monitoring results and determination of appropriate response actions based on the monitoring results are presented in Section 4.

Following the baseline operation monitoring phase, monitoring requirements shall be re-evaluated and subsequent requirements for the standard operation of a project shall be determined on a project-specific basis.

Table 3: Initial Assessment Phase Monitoring Requirements

Recycled Water Use	Constituent	Frequency	Monitoring Point
Groundwater Recharge Reuse- Surface Application	Health-Based CECs and Performance Indicator CECs: All listed in Table 1.	Quarterly[1]	- Following tertiary treatment prior to application to surface spreading area. - At monitoring well locations designated in consultation with CDPH.[2]
	Surrogates: To be selected on a project-specific basis.[5]	1st 3 months: To be determined on a project-specific basis.[3]	- Following tertiary treatment prior to application to the surface spreading area. - At monitoring well locations designated in consultation with CDPH.[2]
		3-12 months: To be determined on a project-specific basis.[3]	- Following tertiary treatment prior to application to the surface spreading area. - At monitoring well locations designated in consultation with CDPH.[2]
Groundwater Recharge Reuse -Subsurface Application	Health-Based CECs: All listed in Table 1.	Quarterly[1]	Following treatment prior to release to the aquifer.
	Performance Indicator CECs: All listed in Table 1.	Quarterly[1]	- Prior to RO treatment.[4] - Following treatment prior to release to the aquifer.
	Surrogates: To be selected on a project-specific basis.[5]	To be determined on a project-specific basis.	- At locations approved by the Regional Water Board.[6]

1 – This is the initial monitoring frequency for the monitoring and reporting program. The Regional Water Board may require additional monitoring to respond to a concern as stated in Section 3.1.
2 – Groundwater within the distance groundwater travels downgradient from the application site in 30-days.
3 – The monitoring frequency shall be determined by the Regional Water Board in consultation with CDPH. The intent is to have an increased monitoring frequency during the first three months and a decreased monitoring frequency after three months.
4 – If the project proponent can demonstrate that the RO unit will not substantially remove a CEC, the Regional Water Board may allow monitoring for that CEC prior to the AOP, instead of prior to the RO unit.
5 – See Section 1.2 for guidance on selection of surrogates.
6 – See Section 2.2.2 for information on surrogate monitoring locations for subsurface application.

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Table 4: Baseline Phase Monitoring Requirements

Recycled Water Use	Constituent	Frequency	Monitoring Point
Groundwater Recharge Reuse – Surface Application	Health-Based CECs: All listed in Table 1. Performance Indicator CECs: Selected based on the findings of the initial assessment phase.	Semi-Annually[1]	- Following tertiary treatment prior to application to the surface spreading area. - At monitoring well locations designated in consultation with CDPH.[2]
	Surrogates: Selected based on the findings of the initial assessment phase.	Based on findings of the initial assessment phase. .	- Following tertiary treatment prior to application to the surface spreading area. - At monitoring well locations designated in consultation with CDPH.[2]
Groundwater Recharge Reuse – Subsurface Application	Health-Based CECs: All listed in Table 1.	Semi-Annually[1]	Following treatment prior to release to the aquifer.
	Performance Indicator CECs: Selected based on the findings of the initial assessment phase.	Semi-Annually[1]	- Prior to RO treatment.[3] - Following treatment prior to release to the aquifer.
	Surrogates: Selected based on the findings of the initial assessment phase.	Based on findings of the initial assessment phase.	- At locations approved by the Regional Water Board.[4]

1 – More frequent monitoring may be required to respond to a concern as stated in Section 3.2.
2 – Groundwater within the distance groundwater travels downgradient from the application site in 30-days.
3 – If the project proponent can demonstrate that the RO unit will not substantially remove a CEC, the Regional Water Board may allow monitoring for that CEC prior to the AOP, instead of prior to the RO unit.
4 – See Section 2.2.2 for information on surrogate monitoring locations for subsurface application.

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3.3. Standard Operation Monitoring

Based on the findings of the baseline monitoring phase, monitoring requirements for health-based CECs, performance indicator CECs and surrogates may be refined to establish project-specific requirements for monitoring the standard operating conditions of a groundwater recharge reuse project. Monitoring requirements for the standard operation phase are summarized in Table 5. The list of health-based CECs may be revised to remove a health-based CEC from the list if monitoring results meet the conditions of the minimum threshold level presented in Table 7. Performance indicator CECs and surrogates that exhibited reduction by a unit process and/or provided an indication of operational performance shall be selected for monitoring of standard operations. If a performance indicator CEC is found to be a poor indicator, the project proponent shall propose an alternative performance indicator CEC representative of the constituent group to monitor. This performance indicator CEC shall be subject to approval by the Regional Water Board in consultation with CDPH.

Monitoring locations for the standard operation phase shall be the same as the locations used for the baseline monitoring phase.

Monitoring for health-based CECs and performance indicator CECs shall be conducted on a semi-annual basis, unless the project demonstrates consistency in treatment effectiveness in removal of CECs, treatment operational performance, and appropriate recycled water quality. These projects may be monitored for CECs on an annual basis. Monitoring frequencies for CECs and surrogates for standard operation monitoring are presented in Table 5.

Monitoring results shall be evaluated following each sampling event to allow timely implementation of any response actions. If evaluation of monitoring results indicates a concern, such as finding a health-based CEC above the thresholds described in Table 7 or a decline in removal of a performance indicator CEC from the performance levels established during the initial and baseline monitoring phases, more frequent monitoring may be required to further evaluate the effectiveness of the treatment process. Additional actions may also be warranted, which may include, but not be limited to, resampling to confirm a result, additional monitoring, implementation of a source identification program, toxicological studies, engineering removal studies, and/or modification of facility operation. If additional monitoring is required, the Regional Water Board shall consult with CDPH and revise the Monitoring and Reporting Program as appropriate. Evaluation of monitoring results and determination of appropriate response actions based on the monitoring results are presented in Section 4.

Table 5: Standard Operation Monitoring Requirement

Recycled Water Use	Constituent	Frequency	Monitoring Point
Groundwater Recharge Reuse - Surface Application	Health-Based CECs: Selected based on the findings of the baseline phase.	Semi-Annually or Annually[1]	- Following tertiary treatment prior to application to the surface spreading area. - At monitoring well locations designated in consultation with CDPH.[2]
	Performance Indicator CECs: Selected based on the findings of the baseline phase.		
	Surrogates: Selected based on the findings of the baseline phase.	Based on findings of the baseline assessment phase.	- Following tertiary treatment prior to application to the surface spreading area. - At monitoring well locations designated in consultation with CDPH.[2]
Groundwater Recharge Reuse - Subsurface Application	Health-Based CECs: Selected based on the findings of the baseline phase	Semi-Annually or Annually[1]	-Following ~~RO/AOPs~~ treatment prior to release to the aquifer.
	Performance Indicator CECs: Selected based on the findings of the baseline phase.	Semi-Annually or Annually[1]	- Prior to RO treatment.[3] - Following treatment prior to release to the aquifer.
	Surrogates: Selected based on the findings of the baseline phase,	Based on findings of the baseline assessment phase.	At locations approved by the Regional Water Board.[4]

1 – More frequent monitoring may be required to respond to a concern as stated in Section 3.3.
2 – Groundwater within the distance groundwater travels downgradient from the application site in 30-days.
3 – If the project proponent can demonstrate that the RO unit will not substantially remove a CEC, the Regional Water Board may allow monitoring for that CEC prior to the AOP, instead of prior to the RO unit.
4 – See Section 2.2.2 for information on surrogate monitoring locations for subsurface application.

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(January 22, 2013)

4. EVALUATION OF CEC AND SURROGATE MONITORING RESULTS

This section presents the approaches for evaluating treatment process performance and health-based CEC monitoring results. Monitoring results for performance indicator CECs and surrogates shall be used to evaluate the operational performance of a treatment process and the effectiveness of a treatment process in removing CECs. For evaluation of health-based CEC monitoring results, a multi-tiered approach of thresholds and corresponding response actions is presented in Section 4.2. The evaluation of monitoring results shall be included in monitoring reports submitted to the Regional Water Board and CDPH.

4.1 Evaluation of Performance Indicator CEC and Surrogate Results

The effectiveness of a treatment process to remove CECs shall be evaluated by determining the removal percentages for performance indicator CECs and surrogates. The removal percentage is the difference in the concentration of a compound in recycled water prior to and after a treatment process (e.g., soil aquifer treatment or RO followed by AOPs), divided by the concentration prior to the treatment process and multiplied by 100.

$$\text{Removal Percentage} = ([X_{in} - X_{out}]/X_{in})\ (100)$$

X_{in} - Concentration in recycled water prior to a treatment process
X_{out} - Concentration in recycled water after a treatment process

During the initial assessment, the recycled water project proponent shall monitor performance to determine removal percentages for performance indicator CECs and surrogates. The removal percentages shall be confirmed during the baseline monitoring phase. One example of removal percentages from Drews et. al. (2008) for each application scenario and their associated processes (i.e. soil aquifer treatment or RO/AOPs) is presented in Table 6. The established removal percentages for each project shall be used to evaluate treatment effectiveness and operational performance.

4.1.1. Groundwater Recharge Reuse – Surface Application

For groundwater recharge reuse by surface application, the removal percentage shall be determined by comparing the quality of the recycled water applied to a surface spreading area to the quality of groundwater at monitoring wells. The distance between the application site and the monitoring wells shall be no more than the distance the groundwater travels in 30 days downgradient from the application site. The location of the monitoring wells shall be designated in consultation with CDPH. The removal percentage shall be adjusted to account for dilution from potable water applied to the application site, storm water applied to the application site, and native groundwater.

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The removal percentage shall also be adjusted to account for CECs in these waters. The project proponent shall submit a proposal to the Regional Water Board and CDPH as part of its operation plan on how it will perform this accounting.

4.1.2. Groundwater Recharge Reuse – Subsurface Application

For groundwater recharge reuse using subsurface application, the removal percentage shall be determined by comparing recycled water quality before treatment by RO/AOPs and after treatment prior to release to the aquifer.

Table 6: Monitoring Trigger Levels and Removal Percentages

Constituent/ Parameter	Relevance/Indicator Type/Surrogate	Monitoring Trigger Level (micrograms/liter)[1]	Removal Percentages (%)[2]
GROUNDWATER RECHARGE REUSE - SURFACE APPLICATION[3]			
17β-estradiol	Health	0.0009	--[4]
Caffeine	Health & Performance	0.35	>90
NDMA	Health	0.01	--
Triclosan	Health	0.35	--
Gemfibrozil	Performance	--	>90
Iopromide	Performance	--	>90
DEET	Performance	--	>90
Sucralose	Performance	--	<25[5]
Ammonia	Surrogate	--	>90
TOC	Surrogate	--	>30
Nitrate	Surrogate	--	>30
UV Absorption	Surrogate	--	>30
GROUNDWATER RECHARGE REUSE - SUBSURFACE APPLICATION[6]			
17β-estradiol	Health	0.0009	--
Caffeine	Health & Performance	0.35	>90
NDMA	Health & Performance	0.01	25-50, >80[7]
Triclosan	Health	0.35	--
DEET	Performance	--	>90
Sucralose	Performance	--	>90
Electrical Conductivity	Surrogate	--	>90
TOC	Surrogate	--	>90

1 – Monitoring trigger levels for groundwater recharge reuse and landscape irrigation applications were established in *Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water – Recommendations of a Science Advisory Panel*, dated June 25, 2010.
2 –The removal percentages presented in this table are from work by Drewes et.al. (2008) and provide an example of performance for that specific research. Project specific removal percentages will be developed for each groundwater recharge reuse project during the initial and baseline monitoring phases.
3 – Treatment process: Soil aquifer treatment. The stated removal percentages are examples and need to be finalized during the initial and baseline monitoring phases for a given site.
4 – Not applicable
5 – Sucralose degrades poorly during soil aquifer treatment. It is included here mainly as a tracer.
6 – Treatment process: Reverse osmosis and advanced oxidation process.
7 – For treatment using reverse osmosis, removal percentage is between 25 and 50 percent. For treatment using reverse osmosis and advanced oxidation processes, removal percentage is greater than 80 percent.

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(January 22, 2013)

4.2. Evaluation of Health-Based CEC Results

The project proponent shall evaluate health-based CEC monitoring results. To determine the appropriate response actions, the project proponent shall compare measured environmental concentrations (MECs) to their respective monitoring trigger levels[10] (MTLs) listed in Table 6 to determine MEC/MTL ratios. The project proponent shall compare the calculated MEC/MTL ratios to the thresholds presented in Table 7 and shall implement the response actions corresponding to the threshold.

For surface application, the results shall be evaluated for groundwater collected from the monitoring wells. For subsurface application projects, results shall be evaluated for the recycled water released to the aquifer.

Table 7: MEC/MTL Thresholds and Response Actions

MC/MTL Threshold	Response Action
If greater than 75 percent of the MEC/MTL ratio results for a CEC are less than or equal to 0.1 during the baseline monitoring phase and/or subsequent monitoring -	A) After completion of the baseline monitoring phase, consider requesting removal of the CEC from the monitoring program.
If MEC/MTL ratio is greater than 0.1 and less than or equal to 1 -	B) Continue to monitor.
If MEC/MTL ratio is greater than 1 and less than or equal to 10 -	C) Check the data. Continue to monitor.
If MEC/MLT ratio is greater than 10 and less than or equal to 100 -	D) Resample immediately and analyze to confirm CEC result. Continue to monitor.
If MEC/MLT ratio is greater than 100 -	E) Resample immediately and analyze to confirm result. Continue to monitor. Contact the Regional Water Board and CDPH to discuss additional actions. (Additional actions may include, but are not limited to, additional monitoring, toxicological studies, engineering removal studies, modification of facility operation, implementation of a source identification program, and monitoring at additional locations.)

[10] Monitoring Trigger Level (MTL): Health-based screening level value for a CEC for a particular water reuse scenario. MTLs were established in, *Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water – Recommendations of a Science Advisory Panel*, dated June 25, 2010.

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Appendix D: Los Angeles Regional Water Quality Control Board, June 28, 2012, Regional Water Board Assistance in Guiding Salt and Nutrient Management Plan Development in the Los Angeles Region

Regional Water Board Assistance in Guiding Salt and Nutrient Management Plan Development in the Los Angeles Region

Further clarification and information to assist development of Salt and Nutrient Management Plans set forth in the State Water Board's Recycled Water Policy

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD,
LOS ANGELES REGION

JUNE 28, 2012

30-2805

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1. INTRODUCTION

The State Water Resources Control Board (State Water Board) adopted the Recycled Water Policy (State Water Board Resolution No. 2009-0011) on February 3, 2009. The purpose of the Recycled Water Policy (hereinafter, Policy) is to protect groundwater resources and increase the beneficial use of recycled water from municipal wastewater sources in a manner consistent with state and federal water quality laws and regulations. The Policy provides direction to the Regional Water Quality Control Boards (Regional Water Boards), proponents of recycled water projects, and the public regarding the appropriate criteria to be used by the State Water Board and the Regional Water Boards in issuing permits for recycled water projects.

The Policy recognizes the potential for increased salt and nutrient loading to groundwater basins as a result of increased recycled water use, and therefore, requires the development of regional or sub-regional salt and nutrient management plans. In requiring such plans, the Policy acknowledges that recycled water may not be the sole cause of high concentrations of salts and nutrients in groundwater basins, and therefore regulation of recycled water alone will not address such conditions. The intent of this requirement is for salts and nutrients from all sources to be managed on a basin-wide or watershed-wide basis in a manner that ensures the attainment of water quality objectives and protection of beneficial use.

The Recycled Water Policy states:

a) Every basin/sub-basin shall have a consistent salt and nutrient management plan (hereinafter, SNMP);
b) SNMPs shall be tailored to address the water quality concerns in each basin;
c) Shall be developed or funded pursuant to the provisions of Water Code sections 10750 *et seq.* or other appropriate authority;
d) SNMPs shall be completed and proposed to the Regional Water Board within five years from the adoption date of the Policy;
e) SNMPs are not required in areas where a Regional Water Board has approved a functionally equivalent salt and nutrient plan; and
f) SNMPs may address constituents other than salt and nutrients that adversely affect groundwater quality.

Within one year of the receipt of a proposed SNMP, the Regional Water Board is expected to consider for adoption revised implementation plans, consistent with Water Code section 13242, for those groundwater basins within their regions where water quality objectives for salts or nutrients are being, or are threatening to be, exceeded. The implementation plans are to be based on the salt and nutrient plans required by the Policy.

The Policy spells out the required elements of an SNMP. In addition, State Water Board staff provided additional detail on the contents of a SNMP by developing “Suggested Elements” as a means of indicating the nature and extent of information to be provided in the plans. State Water Board staff also provided templates for Regional Water Board adoption of the implementation aspects of the SNMPs into each region’s Water Quality Control Plan (hereinafter, Basin Plan).

The Policy is clear that the SNMP process should be stakeholder-led and conducted in a collaborative manner among interested parties. The Regional Water Board’s role is that

of an overseer and facilitator of the SNMP development process – providing regulatory guidance as necessary and technical and regulatory oversight of the process to ensure that the final product is compliant with the specific requirements of the Policy and state and federal water quality laws. Board staff has been attending stakeholder meetings for various groundwater basin/sub-basin groups to provide support and information as necessary.

The purpose of this document is to provide information and guidance to assist on certain aspects of the SNMP development identified by stakeholder groups. Recognizing that each basin has its own unique set of conditions and constraints, this document does not seek to dictate the methods by which stakeholders should manage salt and nutrient loads to their basins. It does, however, provide clarification of the regulatory requirements of SNMPs along with other considerations. By providing such information, the Regional Water Board will promote adherence with SNMP requirements for groundwater basins in the Los Angeles Region. This document is not a policy or regulation of the Regional Water Board and has no regulatory affect; it is intended to assist in the development of SNMPs.

2. GROUNDWATER BASINS IN THE LOS ANGELES REGION

The Los Angeles subregion overlies 24 groundwater basins and encompasses most of Ventura and Los Angeles counties (Figure 2-1). Within this subregion, the Ventura River Valley, Santa Clara River Valley, and Coastal Plain of Los Angeles basins are divided into sub-basins. The basins in the Los Angeles subregion underlie 1.01 million acres (1,580 square miles) or about 40 percent of the total surface area of the subregion (DWR, 2003). Groundwater is found in unconfined alluvial aquifers in most of the inland basins of the Los Angeles subregions. In some larger basins, such as those underlying the coastal plain, groundwater occurs in multiple aquifers separated by aquitards that create confined groundwater conditions (DWR, 2003). Coastal basins in this hydrologic region are prone to intrusion of seawater. Seawater intrusion barriers are maintained along the coastal plain. In Los Angeles County, imported and recycled water is injected to maintain a seawater intrusion barrier (DWR, 2003).

FIGURE 2-1: GROUNDWATER BASINS IN THE LOS ANGELES REGION

For purposes of regulation by the Regional Water Board pursuant to its authority under the California Water Code, the groundwater basins in the Los Angeles Region are identified in the Basin Plan. Basin descriptions in the Basin Plan were updated in 2011 based on the Department of Water Resources (DWR) 2003 revision of Bulletin 118 (Figure 2-1). The basins include the Central and West Coast Basins, which underlie the Los Angeles Coastal Plain; the San Fernando and San Gabriel Basins, which lie between the Santa Monica Mountains and the San Gabriel and Santa Susanna Range; and the Santa Clara and Ventura Basins, which lie between Oak Ridge and the Transverse Ranges.
General characteristics of the major basins/sub-basins are summarized in Table 2-1.

TABLE 2-1: GENERAL CHARACTERISTICS OF THE LOS ANGELES REGION GROUNDWATER BASINS

MAJOR GROUNDWATER BASIN(S) AND SUB-BASINS	**STORAGE CAPACITY (AC-FT)**	**BASIN RECHARGE**[1]
COASTAL PLAINS OF LOS ANGELES		
Santa Monica	~1,100,000	Natural/Recycled
Hollywood	200,000	Natural
West Coast Basin	~6,500,000	Natural/Recycled/Imported
Central	13,800,000	Natural/Recycled/Imported
SAN GABRIEL	10,740,000	Natural
RAYMOND	450,000	Natural
SAN FERNANDO	3,670,000	Natural/ Recycled
SANTA CLARA RIVER VALLEY		
Oxnard	7,140,000	Natural/ Recycled/ Septics
Mound	n.a	
Santa Paula	800,000	Recycled/Septics
Fillmore	1,100,000	Recycled/Septics
Piru	1,979,000	Recycled/Septics
Santa Clara River Valley East	n.a.	Natural/Recycled/Septics
PLEASANT VALLEY	1,886,000	Natural/Recycled/Septics
LAS POSAS VALLEY	345,000	Natural/Irrigation
ARROYO SANTA ROSA	103,600	Natural/Irrigation/Septics
UPPER/LOWER OJAI	~84,000	Natural/Septics
VENTURA RIVER VALLEY	10,000	
SIMI VALLEY	180,000	Natural/IRecycled/Septics
TIERRA REJADA	80,000	
THOUSAND OAKS	130,000	
CONEJO VALLEY	7,106	
RUSSELL VALLEY	10,570	
HIDDEN VALLEY	n.a.	
MALIBU VALLEY	n.a.	Natural/Irrigation/Septics

n.a: not available

The Central and West Coast Basins, San Gabriel and Raymond Basins, and the Piru, Fillmore, Mound and Oxnard Forebay sub-basins beneath the Santa Clara River Valley have large storage capacities with significant existing or proposed municipal groundwater use in both urbanized and agricultural areas. The water levels are stable or declining and imported and/or recycled water is used to replenish and help manage

[1] Managed and natural stormwater recharge takes place in most of these basins.

groundwater supplies. The hydrogeology and groundwater of the basins have been extensively studied and documented, and groundwater quality and transport have been studied using computer models. Potential groundwater management alternatives for these basins have also been extensively studied. The San Gabriel Basin has no confining layers, but the Regional Water Board and USEPA's management of twelve plumes of Volatile Organic Compounds (VOCs) and five plumes of nitrates, where groundwater exceeds the Maximum Contaminant Level (MCL), has limited the impact to adjudicated drinking water resources. Basin water quality has also benefited from management practices and implementation of groundwater remediation conducted by the Watermaster in conjunction with local water purveyors.
The San Fernando Basin and Santa Clara River also have large storage capacities, but have declining water levels, significantly less municipal groundwater use, and no existing conjunctive use. The groundwater quality is variable, but remains locally usable as a source of irrigation or municipal supply. Wastewater and recycling agencies within these basins experience periodic noncompliance with groundwater quality objectives. In general, the basins have been studied less extensively than the Central and West Coast, San Gabriel and Raymond and Lower Santa Clara River Valley basins, although the potential yields from these basins are equally large. In the San Fernando Basin, impacts from a VOC plume and four nitrate plumes along with the irregular presence of confining layers have impacted the use of the basin for drinking water uses. In the upgradient portion of Santa Clara River Valley, contamination of the groundwater and its exfiltrates by salts, nutrients and bacteria as a result of increasing urbanization has impacted the use of groundwater as a source of domestic supply.

Nine groundwater basins in rural areas[2] are the sole source of local drinking water supply. They have smaller storage capacities (less than 10,000 acre-feet) in unconsolidated sediment. Wastewater, recycling agencies and facilities with onsite wastewater treatment systems (hereinafter, OWTS) may experience periodic noncompliance with Basin Plan groundwater quality objectives in these basins. Fewer studies and resources exist to characterize basin hydrogeology, groundwater quality, and groundwater transport. The California Department of Public Health, the State Water Board's Division of Water Rights, and USEPA's drinking water protection programs identify problems with water quality upon delivery, and efforts to isolate pollutants from the underlying potable supply are implemented through waste discharge requirements from the Regional Water Board.

The Oxnard Plain, Ventura River, Sylmar, Pomona, and Thousand Oaks/Pleasant Valley/Fox Canyon basins are moderately sized agricultural and urbanized groundwater basins with higher salinity levels. Wastewater and recycled water can usually comply with Basin Plan groundwater quality objectives, but the quality is improved by potable water conjunctive use. The coastal areas of the Region are underlain by porous sediments or fractured bedrock, both of which may have been intruded by saltwater during historic municipal, agricultural and industrial use of the aquifers. Fresh or recycled water injection is used to limit seawater intrusion in the Central, West Coast and Oxnard Plain basins. The tidally influenced and impacted areas may be heavily studied or un-evaluated, but wastewater and recycled water permits generally require compliance with Basin Plan objectives for salt. Public water supplies are not currently developed within these areas.

[2] Ojai Valley, Acton, Sierra Pelona Valley, Lake Elizabeth, Santa Rosa Valley, Hidden Valley, Santa Susana Knolls, Lockwood Valley, and Hungry Valley.

Beneficial uses of the groundwater basins in the region include Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Services Supply (IND), Industrial Process Supply (PROC), and Aquaculture (AQUA). The designated beneficial uses for these basins are shown in Table 2-2.

TABLE 2-2: BENEFICIAL USES OF GROUND WATERS IN THE LOS ANGELES REGION.[1]

DWR[2] Basin No.	BASIN	MUN	IND	PROC	AGR	AQUA
	PITAS POINT AREA[3]	E	E	P	E	
4-1	**UPPER OJAI VALLEY**	E	E	E	E	
4-2	**OJAI VALLEY**	E	E	E	E	
4-3	**VENTURA RIVER VALLEY**					
4-3.01	Upper Ventura	E	E	E	E	
4-3.02	Lower Ventura	P	E	P	E	
4-4	**SANTA CLARA RIVER VALLEY[4]**					
4-4.02	Oxnard					
4-4.02	Oxnard Forebay	E	E	E	E	
4-4.02	Confined aquifers	E	E	E	E	
4-4.02	Unconfined and perched aquifers	E	P		E	
4-4.03	Mound					
4-4.03	Confined aquifers	E	E	E	E	
4-4.03	Unconfined and perched aquifers	E	P		E	
4-4.04	Santa Paula					
4-4.04	East of Peck Road	E	E	E	E	
4-4.04	West of Peck Road	E	E	E	E	
4-4.05	Fillmore					
4-4.05	Pole Creek Fan area	E	E	E	E	
4-4.05	South side of Santa Clara River	E	E	E	E	
4-4.05	Remaining Fillmore area	E	E	E	E	E
4-4.05	Topa Tapa (upper Sespe) area	P	E	P	E	
4-4.06	Piru					
4-4.06	Upper area (upper Lake Piru)	P	E	E	E	
4-4.06	Lower area east of Piru Creek	E	E	E	E	
4-4.06	Lower area west of Piru Creek	E	E	E	E	
4-4.07	Santa Clara River Valley East					
4-4.07	Mint Canyon	E	E	E	E	
4-4.07	South Fork	E	E	E	E	
4-4.07	Placerita Canyon	E	E	E	E	
4-4.07	Bouquet and San Francisquito Canyons	E	E	E	E	
4-4.07	Castaic Valley	E	E	E	E	
4-4.07	Saugus Aquifer	E				
4-5	**ACTON VALLEY[4]**					
4-5	Acton Valley	E	E	E	E	
4-5	Sierra Pelona Valley (Agua Dulce)	E	E		E	
4-5	Upper Mint Canyon	E	E	E	E	
4-5	Upper Bouquet Canyon	E	P	P	E	

DWR[2] Basin No.	BASIN	MUN	IND	PROC	AGR	AQUA
4-5	Green Valley	E	P	P	E	
4-5	Lake Elizabeth- Lake Hughes area	E	P	P	E	
4-6	**PLEASANT VALLEY[5]**					
4-6	Confined Aquifers	E	E	E	E	
4-6	Unconfined and perched aquifers	P	E	E	E	
4-7	**ARROYO SANTA ROSA VALLEY[5]**	E	E	E	E	
4-8	**LAS POSAS VALLEY[5]**	E	E	E	E	
4-9	**SIMI VALLEY**					
	Simi Valley Basin					
	Confined aquifers	E	E	E	E	
	Unconfined aquifers	E	E	E	E	
	Gillibrand Basin	E	E	P	E	
4-10	**CONEJO**	E	E	E	E	
4-11	**COASTAL PLAIN OF LOS ANGELES**					
4-11.01	Santa Monica	E	E	E	E	
4-11.02	Hollywood	E	E	E	E	
4-11.03	West Coast					
	Underlying Ports of Los Angeles & Long Beach		E	E	E	
4-11.03	Underlying El Segundo, Seaward of Barrier		E	E	E	
4-11.03	Remainder of Basin	E	E	E	E	
4-11.04	Central	E	E	E	E	
4-12	**SAN FERNANDO VALLEY**	E[6]	E	E	E	
4-13	**SAN GABRIEL VALLEY[7]**	E	E	E	E	
4-15	**TIERRA REJADA**	E	P	P	E	
4-16	**HIDDEN VALLEY**	E	P		E	
4-17	**LOCKWOOD VALLEY**	E	E		E	
4-18	**HUNGRY VALLEY**	E	P	E	E	
4-19	**THOUSAND OAKS AREA[8]**	E	E	E	E	
4-19	Triunfo Canyon area	P	P		E	
4-19	Lindero Canyon area	P	P		E	
4-19	Las Virgenes Canyon area	P	P		E	
4-20	**RUSSELL VALLEY**	E	P		E	
4-21	**CONEJO-TIERRA REJADA VOLCANIC[9]**	E			E	
4-22	**MALIBU VALLEY[10]**					
4-22	Camarillo area	E	P		E	
4-22	Point Dume area	E	P		E	
4-22	Malibu Valley	P	P		E	
4-22	Topanga Canyon area	P	P		E	
4-23	**RAYMOND**	E	E	E	E	
	SAN PEDRO CHANNEL ISLANDS[11]					
	Anacapa Island	P	P			
	San Nicolas Island	E	P			

DWR[2] Basin No.	BASIN	MUN	IND	PROC	AGR	AQUA
	Santa Catalina Island	E	P		E	
	San Clemente Island	P	P			
	Santa Barbara Island	P	P			

E: Existing beneficial use
P: Potential beneficial use
1: Beneficial uses for ground waters outside of the major basins listed on this table have not been specifically listed. However, ground waters outside of the major basins are, in many cases, significant sources of water. Furthermore, ground waters outside of the major basins are either potential or existing source of water for downgradient basins, and as such, beneficial uses in the downgradient basins shall apply to these areas.
2: Basins are numbered according to DWR Bulletin No. 118-Update 2003 (DWR, 2003).
3: Ground waters in the Pitas Point area (between the lower Ventura River and Rincon Point) are not considered to comprise a major basin and, accordingly, have not been designated a basin number by the DWR or outlined on Fig. 2-1.
4: Santa Clara River Valley Basin was formerly Ventura Central Basin and Acton Valley Basin was formerly Upper Santa Clara Basin (DWR, 1980).
5: Pleasant Valley, Arroyo Santa Rosa Valley, and Las Posas Valley Basins were formerly sub-basins of Ventura Central (DWR, 1980).
6: Nitrite pollution in the groundwater of the Sunland-Tujunga area currently precludes direct MUN use. Since the groundwater in this area can be treated or blended (or both), it retains the MUN designation.
7: Raymond Basin was formerly a sub-basin of San Gabriel Valley and Monk Hill sub-basin is now part of San Fernando Valley Basin (DWR, 2003). The Main San Gabriel Basin was formerly separated into Eastern and Western areas. Since these areas had the same beneficial uses as Puente Basin all three areas have been combined into San Gabriel Valley. Any groundwater upgradient of these areas is subject to downgradient beneficial uses and objectives, as explained in Footnote 1.
8: These areas were formerly part of the Russell Valley Basin (DWR, 1980).
9: Groundwater in the Conejo-Tierra Rejada Volcanic Area occurs primarily in fractured volcanic rocks in the western Santa Monica Mountains and Conejo Mountain areas. These areas have not been delineated on Fig. 2-1.
10: With the exception of groundwater in Malibu Valley (DWR Basin No. 4-22) ground waters along the southern slopes of the Santa Monica Mountains are not considered to comprise a major basin and accordingly have not been designated a basin number by DWR.
11: DWR has not designated basins for ground waters on the San Pedro Channel Islands.

3. REGIONAL GROUNDWATER QUALITY OBJECTIVES

As set forth in the Policy, *SNMPs shall be tailored to address water quality concerns in each basin and may include constituents other than salt and nutrients that adversely impact basin/sub-basin water quality.*

GROUND WATER QUALITY OBJECTIVES

Water quality objectives for ground waters in the Los Angeles Region are contained in the Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (Basin Plan). The same water quality objectives for Nitrogen, Chemical Constituents and Radioactivity, Bacteria, and Taste and Odor, apply to all ground waters in the region (Table 3-1).

TABLE 3-1: WATER QUALITY OBJECTIVES FOR GROUNDWATER BASINS IN THE LOS ANGELES REGION

PARAMETER	WATER QUALITY OBJECTIVE
Nitrogen NO3-N + NO2-N NO3 NO3-N NO2-N	 10 mg/L 45 mg/L 10 mg/L 1 mg/L
Chemical Constituents and Radioactivity	For ground waters designated for use as domestic or municipal supply, Maximum Contaminant Levels (MCLs) contained in Title 22 of the California Code of Regulations apply. In addition, ground waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use.
Bacteria	In ground waters used for domestic or municipal supply (MUN), the concentration of coliform organisms over any seven day period shall be less than 1.1/100 mL.
Taste and Odor	Ground waters shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

The Basin Plan also contains site-specific objectives for mineral water quality for individual basins/sub-basins (Table 3-2).

TABLE 3-2: WATER QUALITY OBJECTIVES FOR SELECTED CONSTITUENTS IN REGIONAL GROUND WATERS

2011 Basin Plan Name	Bulletin 118-03 update number	1994 Basin Plan Name	Bulletin 118-80 number	TDS	Sulfate	Chloride	Boron
Upper Ojai Valley	**4-1**	**Ojai Valley**	**4-1**				
Upper Ojai Valley	4-1	Upper Ojai Valley	4-1				
Upper Ojai Valley	4-1	West of Sulfur Mountain Road	4-1	1000	300	200	1.0
Upper Ojai Valley	4-1	Central Area	4-1	700	50	100	1.0
Upper Ojai Valley	4-1	Sisar Area	4-1	700	250	100	0.5
Ojai Valley	**4-2**	**Lower Ojai Valley**	**4-2**				**0.5**
Ojai Valley	4-2	West of San Antonio-Senior Canyon	4-2	1000	300	200	0.5
Ojai Valley	4-2	East of San Antonio-Senior Canyon	4-2	700	200	50	
Ventura River Valley	**4-3**	**Ventura River Valley**	**4-3**				
Upper Ventura River	4-3.01	Upper Ventura	4-3	800	300	100	0.5
Upper Ventura River	4-3.01	San Antonio Creek Area	4-3	1000	300	100	1.0
Lower Ventura River	4-3.02	Lower Ventura	4-3	1500	500	30	1.5
Santa Clara River Valley	**4-4**	**Ventura Central**	**4-4**				
Piru	4-4.06	Santa Clara-Piru Creek Area	4-4				
Piru	4-4.06	Upper Area (above Lake Piru)	4-4	1100	400	200	2.0
Piru	4-4.06	Lower Area East of Piru Creek	4-4	2500	1200	200	1.5
Piru	4-4.06	Lower Area West of Piru Creek	4-4	1200	600	100	1.5
Fillmore	4-4.05	Santa Clara-Sespe Creek Area	4-4				
Fillmore	4-4.05	Topa Topa (upper Sespe) Area	4-4	900	350	30	2.0
Fillmore	4-4.05	Fillmore Area	4-4				
Fillmore	4-4.05	Pole Creek Fan Area	4-4	2000	800	100	1.0
Fillmore	4-4.05	South Side of Santa Clara River	4-4	1500	800	100	1.1
Fillmore	4-4.05	Remaining Fillmore Area	4-4	1000	400	50	0.7
Santa Paula	4-4.04	Santa Clara-Santa Paula Area	4-4				
Santa Paula	4-4.04	East of Peck Road	4-4	1200	600	100	1.0
Santa Paula	4-4.04	West of Peck Road	4-4	2000	800	110	1.0

2011 Basin Plan Name	Bulletin 118-03 update number	1994 Basin Plan Name	Bulletin 118-80 number	TDS	Sulfate	Chloride	Boron
Oxnard	4-4.02	Oxnard Plain	4-4				
Mound	4-4.03	Oxnard Plain	4-4				
Oxnard	4-4.02	Oxnard Forebay	4-4	1200	600	150	1.0
Oxnard	4-4.02	Confined Aquifers	4-4	1200	600	150	1.0
Oxnard	4-4.02	Unconfined & Perched Aquifers	4-4	3000	1000	500	
Pleasant Valley	**4-6**	**Pleasant Valley**	**4-6**				
Pleasant Valley	4-6	Confined Aquifers	4-6	700	300	150	1.0
Pleasant Valley	4-6	Unconfined & Perched Aquifers	4-6				
Arroyo Santa Rosa Valley	**4-7**	**Arroyo Santa Rosa**	**4-7**	900	300	150	1.0
Las Posas Valley	**4-8**	**Las Posas Valley**	**4-8**				
Las Posas Valley	4-8	South Las Posas Area	4-8				
Las Posas Valley	4-8	NW of Grimes Cyn Rd. & LA Ave. & Somis Rd.	4-8	700	300	100	0.5
Las Posas Valley	4-8	E of Grimes Cyn Rd & Hitch Blvd.	4-8	2500	1200	400	3.0
Las Posas Valley	4-8	S of LA Ave Between Somis Rd & Hitch Blvd.	4-8	1500	700	250	1.0
Las Posas Valley	4-8	Grimes Canyon Rd. & Broadway Area	4-8	250	30	30	0.2
Las Posas Valley	4-8	North Las Posas Area	4-8	500	250	150	1.0
Acton Valley	**4-5**	**Upper Santa Clara**	**4-5**				
Acton Valley	4-5	Acton Valley	4-5	550	150	100	1.0
Acton Valley	4-5	Sierra Pelona Valley (Agua Dulce)	4-5	600	100	100	0.5
Acton Valley	4-5	Upper Mint Canyon	4-5	700	150	100	0.5
Acton Valley	4-5	Upper Bouquet Canyon	4-5	400	50	30	0.5
Acton Valley	4-5	Green Valley	4-5	400	50	25	
Acton Valley	4-5	Lake Elizabeth-Lake Hughes Area	4-5	500	100	50	0.5
Santa Clara River Valley East	**4-4.07**	**Eastern Santa Clara**	**4-4.07**				
Santa Clara River Valley	4-4.07	Santa Clara-Mint Canyon	4-4.07	800	150	150	1.0

2011 Basin Plan Name	Bulletin 118-03 update number	1994 Basin Plan Name	Bulletin 118-80 number	TDS	Sulfate	Chloride	Boron
East							
Santa Clara River Valley East	4-4.07	South Fork	4-4.07	700	200	100	0.5
Santa Clara River Valley East	4-4.07	Placentia Canyon	4-4.07	700	150	100	0.5
Santa Clara River Valley East	4-4.07	Santa Clara-Bouquet & San Fransisquito Canyons	4-4.07	700	250	100	1.0
Santa Clara River Valley East	4-4.07	Castaic Valley	4-4.07	1000	350	150	1.0
Santa Clara River Valley East	4-4.07	Saugus Aquifer	4-4.07				
Simi Valley	**4-9**	**Simi Valley**	**4-9**				
Simi Valley	4-9	Simi Valley Basin	4-9				
Simi Valley	4-10	Confined Aquifers	4-9	1200	600	150	1.0
Simi Valley	4-11	Unconfined & Perched Aquifers	4-9				
Simi Valley	4-12	Gillibrand Basin	4-9	900	350	50	1.0
Conejo Valley	**4-10**	**Conejo Valley**	**4-10**	**800**	**250**	**150**	**1.0**
Coastal Plain of Los Angeles	**4-11**	**Los Angeles Coastal Plain**	**4-11**				
Central	4-11.04	Central Basin	4-11	700	250	150	1.0
West Coast	4-11.03	West Coast Basin	4-11	800	250	250	1.5
Hollywood	4-11.02	Hollywood Basin	4-11	750	100	100	1.0
Santa Monica	4-11.01	Santa Monica Basin	4-11	1000	250	200	0.5
San Fernando Valley	**4-12**	**San Fernando Valley**	**4-12**				
San Fernando Valley	4-12	Sylmar Basin	4-12	600	150	100	0.5
San Fernando Valley	4-12	Verdugo Basin	4-12	600	150	100	0.5
San Fernando Valley	4-12	San Fernando Basin	4-12				
San Fernando Valley	4-12	West of Highway 405	4-12	800	300	100	1.5
San Fernando Valley	4-12	East of Highway 405 (overall)	4-12	700	300	100	1.5
San Fernando Valley	4-12	Sunland-Tujunga Area	4-12	400	50	50	0.5
San Fernando Valley	4-12	Foothill Area	4-12	400	100	50	1.0
San Fernando Valley	4-12	Area Encompassing RT-Tujunga -Erwin-N. Hollywood-Whithall-LA/Verdugo-Crystal	4-12	600	250	100	1.5

2011 Basin Plan Name	Bulletin 118-03 update number	1994 Basin Plan Name	Bulletin 118-80 number	TDS	Sulfate	Chloride	Boron
		Springs-Headworks-Glendale/Burbank Well Fields					
San Fernando Valley	4-12	Narrows Area (below confluence of Verdugo Wash with the LA River	4-12	900	300	150	1.5
San Fernando Valley	4-12	Eagle Rock Basin	4-12	800	150	100	0.5
San Gabriel Valley/Raymond/San Fernando Valley	**4-13**	**San Gabriel Valley**	**4-13**				
Raymond	4-23	Raymond Basin	4-13				
San Fernando Valley	4-12	Monk Hill Sub-Basin	4-13	450	100	100	0.5
Raymond	4-23	Santa Anita Area	4-13	450	100	100	0.5
Raymond	4-23	Pasadena Area	4-13	450	100	100	0.5
San Gabriel Valley	4-13	Main San Gabriel Basin	4-13				
San Gabriel Valley	4-13	Western Area	4-13	450	100	100	0.5
San Gabriel Valley	4-13	Eastern Area	4-13	600	100	100	0.5
San Gabriel Valley	4-13	Puente Basin	4-13	1000	300	150	1.0
Upper Santa Ana Valley/San Gabriel Valley	**8-2.01**	**Upper Santa Ana Valley**	**4-14**				
San Gabriel Valley	4-13	Live Oak Area	8-2	450	150	100	0.5
San Gabriel Valley	4-13	Claremont Heights Area	8-2	450	100	50	
San Gabriel Valley	4-13	Pomona Area	8-2	300	100	50	0.5
Upper Santa Ana Valley/ San Gabriel Valley	8-2.01/4-13	Chino Area	8-2	450	20	15	
San Gabriel Valley	4-13	Spadra Area	8-2	550	200	120	1.0
Tierra Rejada	**4-15**	**Tierra Rejada**	**4-15**	**700**	**250**	**100**	**0.5**
Hidden Valley	**4-16**	**Hidden Valley**	**4-16**	**1000**	**250**	**250**	**1.0**
Lockwood Valley	**4-17**	**Lockwood Valley**	**4-17**	**1000**	**300**	**20**	**2.0**
Hungry Valley	**4-18**	**Hungry Valley & Peace Valley**	**4-18**	**500**	**150**	**50**	**1.0**
Conejo Valley	**4-10**	**Thousand Oaks Area**	**4-19**	**1400**	**700**	**150**	**1.0**
Russell Valley	**4-20**	**Russell Valley**	**4-20**				
Russell Valley	4-20	Russell Valley	4-20	1500	500	250	1.0
Thousand Oaks Area	4-19	Triunfo Canyon Area	4-20	2000	500	500	2.0

2011 Basin Plan Name	Bulletin 118-03 update number	1994 Basin Plan Name	Bulletin 118-80 number	TDS	Sulfate	Chloride	Boron
Thousand Oaks Area	4-20	Lindero Canyon Area	4-20	2000	500	500	2.0
Thousand Oaks Area	4-21	Las Virgenes Canyon Area	4-20	2000	500	500	2.0
Deleted	**Deleted**	**Conejo-Tierra Rejada Volcanic Area**	**4-21**				
Malibu Valley	**4-22**	**Santa Monica Mountains-Southern Slopes**	**4-22**				
Malibu Valley	4-22	Camarillo Area	4-22	1000	250	250	1.0
Malibu Valley	4-22	Point Dume Area	4-22	1000	250	250	1.0
Malibu Valley	4-22	Malibu Valley	4-22	2000	500	500	2.0
Malibu Valley	4-22	Topanga Canyon Area	4-22	2000	500	500	2.0
San Pedro Channel Islands		**San Pedro Channel Islands**					
Anacapa Island	No DWR#	Anacapa Island	No DWR#				
San Nicholas Island	No DWR#	San Nicholas Island	No DWR#	1100	150	350	
Santa Catalina Island	No DWR#	Santa Catalina Island	No DWR#	1000	100	250	1.0
San Clemente Island	No DWR#	San Clemente Island	No DWR#				
Santa Barbara	No DWR#	Santa Barbara Island	No DWR#				

GROUNDWATER BASIN WATER QUALITY

The following section presents information on general water quality conditions as provided by the Department of Water Resources in their Bulletin 118- 2003 update. This information is meant to provide a general overview of the conditions within the basins. It is anticipated that more current information will be provided in the Salt and Nutrient Management Plans developed for each basin.

According to DWR's Bulletin 118-2003, nitrate content is elevated in some parts of the subregion. Volatile organic compounds (VOCs) have caused groundwater impairments in some of the industrialized portions of the region. The San Gabriel Valley and San Fernando Valley groundwater basins both have multiple sites of contamination from VOCs. The main constituents in the contamination plumes are trichloroethylene (TCE) and tetrachloroethylene (PCE). Some of the locations have been declared federal Superfund sites. Contamination plumes containing high concentrations of TCE and PCE also occur in the Bunker Hill Sub-basin of the Upper Santa Ana Valley Groundwater Basin. Some of these plumes are also designated as Superfund sites. Also, perchlorate has been identified as a significant pollutant in some areas of the Los Angeles Region.

Basin-specific information on water quality in the region's major basins/sub-basins is provided in Table 3-3. This information is summarized from DWR's Bulletin 118-2003 and includes monitoring results from public supply wells sampled under the DHS Title 22 program from 1994 through 2000. Per this bulletin, the information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

TABLE 3-3: WATER QUALITY IN MAJOR BASINS/SUB-BASINS IN THE LOS ANGELES REGION

Basin/sub-basin	Status	TDS	Constituent Group[3]	Number of wells sampled[4]	Number of wells with a concentration above an MCL[5]
Central Basin		Range: 200-2500 mg/l Average: 453 mg/l (293 public wells)	Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	316 315 315 322 344 316	15 1 2 0 43 113
West Coast Basin	Injection wells create a groundwater ridge, which inhibits the inland flow of saltwater into the sub-basin to protect and maintain groundwater elevations.		Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	45 45 46 46 44 45	0 1 0 0 0 30
San Fernando Valley Basin	Groundwater contamination from VOCs and hexavalent chromium (CrVI) continues to be a serious problem for water supply in the eastern portion of the San Fernando Valley		Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	129 122 129 134 134 129	6 13 44 3 90 17
San Gabriel[6]	Four areas of the San Gabriel Valley Basin are Superfund sites. Trichloroethylene, Perchloroethylene, and Carbon Tetrachloride contaminate the Whittier Narrows, Puente basin, Baldwin Park and El Monte areas.		Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	287 278 300 292 301 287	3 4 73 1 85 20

[3] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater–Bulletin 118* by DWR (2003).

[4] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.

[5] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

[6] There are six operable units (O.U.) within the Main San Gabriel Basin: the Baldwin Park O.U., the Puente Valley O.U., the Whittier Narrows O.U., the South El Monte O.U., and the Area 3 (Alhambra) O.U.

Basin/sub-basin	Status	TDS	Constituent Group[3]	Number of wells sampled[4]	Number of wells with a concentration above an MCL[5]
Raymond	Fluoride content occasionally exceeds recommended levels of 1.6 mg/L, near the San Gabriel Mountain front. Volatile organic compounds are detected in wells near Arroyo Seco and radiation is occasionally detected near the San Gabriel Mountains.	Range: 38-780 mg/l Average: 346 mg/l (70 public wells)	Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	66 55 78 57 60 66	9 8 23 0 19 9
Santa Monica		Range: 729-1,156 mg/L Average: 916 mg/L (7 public wells)	Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	13 12 13 12 12 13	0 1 0 0 9 8
Hollywood	Public water supply from imported surface water, groundwater quality information scarce.	Single sample 526 mg/L (Truran, 2001).			
Oxnard	Nitrate concentrations can exceed the state Maximum Contaminant Level (MCL) of 45 mg/L. Intrusion of seawater has occurred near Pt. Mugu and Port Hueneme. Elevated levels of DDT and PCB are found near Pt. Mugu.	Range: 160-1,800 mg/L Average: 1,102 mg/L (69 public supply wells)	Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	73 69 80 63 68 73	6 8 14 1 2 49
Piru	Agricultural return flows may lead to high nitrate concentrations particularly during dry periods. Urban stormwater runoff within the Santa Clara River Watershed tends to concentrate salts and other contaminants. The most prominent natural contaminants in the sub-basin are boron and sulfate.		Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	3 3 3 3 3 3	0 0 0 0 0 1

Basin/sub-basin	Status	TDS	Constituent Group[3]	Number of wells sampled[4]	Number of wells with a concentration above an MCL[5]
Fillmore	Agricultural return flows may lead to high nitrate concentrations particularly during dry periods. Urban stormwater runoff within the Santa Clara River Watershed tends to concentrate salts and other contaminants. Other contaminants in the sub-basin are boron, sulfate, and nitrates.		Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	13 10 14 10 10 13	0 1 1 0 1 3
Santa Paula	Nitrate concentrations can fluctuate significantly.	Range: 470-1,800 mg/L Average: 1,198 mg/L (13 public wells)	Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	16 12 16 9 9 16	3 1 2 0 0 15
Mound		Range: 1,498-1,908 mg/L Average: 1,644 mg/L (4 public wells)	Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	2 2 2 2 2 2	1 0 0 0 0 2
Las Posas		Range: 338-1,700 mg/L Average: 742 mg/L (23 public wells)	Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	22 22 24 22 22 22	1 2 0 1 0 16
Santa Rosa			Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	1 1 1 1 1 1	0 0 0 0 0 1

Basin/sub-basin	Status	TDS	Constituent Group[3]	Number of wells sampled[4]	Number of wells with a concentration above an MCL[5]
Pleasant Valley		Range: 597-1,420 mg/L Average: 922 mg/L (10 public wells)	Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	10 10 10 10 10 10	0 1 0 0 0 10
Lower Santa Clara	Drinking water standards are met at public supply wells without the use of treatment methods. Areas with somewhat elevated mineral levels have been observed in the northern basin. Some wells with elevated nitrate concentration have been identified in the southern portion of the basin.		Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	257 234 268 253 252 257	9 1 10 3 4 29
Upper Santa Clara	Nitrate content has exceeded 45 mg/L in some parts of the sub-basin with a well in the central part of the sub-basin reaching 68 mg/L. Trichloroethylene and ammonium perchlorate have been detected in four wells in the eastern part of the sub-basin.	Range: 300-1,662 mg/L Average: 695 mg/L (59 public wells)	Inorganic – Primary Radiological Nitrates Pesticides VOCs and SVOCs Inorganics- Secondary	67 56 74 66 66 67	4 2 2 4 0 7

4. CLARIFICATION OF SNMP REQUIREMENTS

The Policy states that SNMPs are to be developed for every groundwater basin in California. This will allow water purveyors and basin management agencies to take advantage of a streamlined permit process for recycled water projects that is intended to expedite the implementation of recycled water projects. The required elements of a SNMP, as specified by the Policy include:

a) Development of a basin-wide monitoring plan;
b) Annual monitoring of Constituents of Emerging Concern;
c) Consideration of Water Recycling/Stormwater Recharge/Use;
d) Source identification/Source loading and assimilative capacity estimates;
e) Implementation measures; and
f) Anti-degradation analyses.

Development of SNMPs will lead to a more comprehensive approach to basin water quality management. SNMP proponents will have the opportunity to collectively determine the implementation strategies necessary to comply with water quality objectives established to restore and maintain the beneficial use of the ground waters.

SNMPs are required for each groundwater basin in the state. However, there is flexibility in the level of detail required in each plan depending on the size, complexity and level of activity within the basin. That notwithstanding, an initial assessment of water quality (past and present) and use (including future use) is necessary in order to determine the level of specificity warranted in each basin. The following sections discuss the required SNMP elements in greater detail, providing clarification where communications with stakeholders have indicated it to be necessary.

STAKEHOLDER COLLABORATION

As stated in the Policy*:*
"…local water and wastewater entities, together with local salt/nutrient contributing stakeholders, will fund locally driven and controlled, collaborative processes open to all stakeholders that will prepare salt and nutrient management plans for each basin/sub-basin in California, including compliance with CEQA and participation by Regional Water Board staff."

Stakeholder collaboration may be within or between basins. While the Policy requires that every basin/sub-basin in the state have a SNMP, this does not preclude stakeholders working across basin boundaries to accommodate existing and future stakeholder structures and basin management efforts. Also, some differences exist between DWR Bulletin-118 basin/sub-basin definitions and court-adjudicated basins, which may influence formation of stakeholder groups.

Key stakeholders include local agencies involved in groundwater management, owners and operators of recharge facilities, water purveyors, water districts, water masters, and salt and nutrient contributing dischargers. These agencies have access to basin-specific data and information that is essential to the development of successful SNMPs. Private well owners may also have essential water quality information. Nongovernmental entities may have information about ecosystems associated with groundwater exfiltration. Other

parties from regulatory agencies, environmental groups, industry, and interested persons may also provide important support. No single entity is wholly responsible for SNMP development. While a lead agency is necessary to coordinate the development effort, the point of a collaborative process is to take advantage of the collective expertise, resources and information of the participating entities. Therefore, participation to varying degrees by all stakeholders is encouraged. Table 4-1 lists the agencies already engaged in, and others that should consider being involved in salt and nutrient management for each groundwater basin or sub-basin group. This is not an exhaustive list.

TABLE 4-1: PARTICIPATING AND POTENTIAL STAKEHOLDERS FOR EACH BASIN/SUB-BASIN GROUP AS OF FEBRUARY 2012

Basin/sub-basin	**Participating and Potential Stakeholders**
Central and West Coast Basins	Water Replenishment District (WRD) of Southern California City of Los Angeles Department of Water & Power County Sanitation Districts of Los Angeles County Metropolitan Water District of Southern California West Basin Municipal Water District Central Basin Municipal Water District Los Angeles County Department of Public Works California Department of Public Health
San Fernando Basin	Upper Los Angeles River Area Water Master Los Angeles Department of Water and Power City of Glendale City of Burbank City of San Fernando City of La Crescenta Metropolitan Water District US Environmental Protection Agency California Department of Public Health
San Gabriel/	San Gabriel Basin Water Master City of Alhambra* City of Arcadia* City of Pasadena* Crescenta Valley Water District* Metropolitan Water District County Sanitation Districts of Los Angeles County
Raymond Basin	Raymond Basin Management Board City of Alhambra* City of Pasadena* Metropolitan Water District County Sanitation Districts of Los Angeles County
Three Valleys (Six Basins)	Three Valleys Municipal Water District*
Lower Santa Clara Pleasant Valley, Las Posas, Oxnard	Fox Canyon United Water Conservation District Metropolitan Water District City of Oxnard
Lower Santa Clara	Ventura County Watershed Protection District City of Fillmore County of Ventura City of Santa Paula United Water Conservation District
Eastern Santa Clara	Castaic Lake Water Agency

Basin/sub-basin	Participating and Potential Stakeholders
Saugus Aquifer, Santa Clara Castaic Valley, South Fork, Placerita Canyon, Santa Clara-Bouquet and San Francisquito Canyons, Santa Clara-Mint Canyon, Acton/Sierra Pelona/Upper Mint Canyon Basins	Los Angeles County Sanitation Districts City of Santa Clara
Tierra Rejada/Gillibrand/Simi/Thousand Oaks/Conejo/Hidden Valley/Russell Valley Basins	Calleguas Municipal Water District Calleguas Creek Watershed Management Plan
Hollywood and Santa Monica Basins	*City of Beverly Hills* City of Santa Monica**
Pleasant Valley, Las Posas, Oxnard and Tierra Rejada/Gillibrand/Simi/Thousand Oaks/Conejo/Hidden Valley/Russell Valley Basins	Calleguas Creek Watershed Management Plan, Fox Canyon, City of Oxnard, United Water Conservation District.
Ventura/Ojai	County of Ventura
Malibu Valley	City of Malibu* La Paz Treatment Facility

**Potentia Stakeholders*

Ideally, participation in the SNMP development process should not be limited to those agencies directly involved with basin management or salt and nutrient contributors. Other parties from regulatory agencies, environmental groups, industry, and interested persons may be included and/or kept informed; and their input solicited for each major task. Groundwater basin adjudication may impact the roles of stakeholders not identified as parties in the applicable judgments.

The Regional Water Board's role in preparing SNMPs is to:

a) Facilitate interaction and information sharing within and among groundwater basin stakeholder groups,
b) Provide regulatory guidance on the SNMP requirements of the Policy,
c) Provide technical and regulatory oversight of the SNMP process to maintain consistency in scope and content of these plans and ensure compliance with the Policy's requirements, and
d) Adopt, as appropriate, the implementation measures included in SNMPs into the Water Quality Control Plan for the Los Angeles Region.

The Regional Water Board conducted its first stakeholder workshop in November 2010 to introduce the SNMP requirement to stakeholders and initiate the development process. Since then stakeholder groups have been formed for the major groundwater basins and Regional Water Board staff have been made available to each group to provide basin-specific technical guidance and oversight of individual plans. A second stakeholder workshop was held in November 2011 to provide further clarification on certain regulatory aspects of the SNMP development process that were identified as issues of concern by stakeholders.

SPECIFIC SNMP REQUIREMENTS

It is the intent of the Policy "… *that salts and nutrients from all sources be managed on a basin-wide or watershed-wide basis in a manner that ensures attainment of water quality objectives and protection of beneficial uses*."

The Policy also specifies that each salt and nutrient management plan shall include:

a) *A basin/sub-basin wide monitoring plan that includes an appropriate network of monitoring locations to determine whether concentrations of salt, nutrients, and other constituents of concern are consistent with applicable water quality objectives.*
b) *A provision for annual monitoring of Emerging Constituents/Constituents of Emerging Concern*
c) *Water recycling and stormwater recharge/use goals and objectives.*
d) *Salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.*
e) *Implementation measures to manage salt and nutrient loading in the basin on a sustainable basis.*
f) *An antidegradation analysis demonstrating that the projects included within the plan will, collectively, satisfy the requirements of the Antidegradation Policy (Resolution No. 68-16).*

SNMP "SUGGESTED ELEMENTS"

In 2010, at the direction of the Executive Director, State Water Board staff provided a draft list of suggested elements for SNMPs that would assure that the requirements of the Policy were met (Appendix I). These elements are not considered additions to the requirements; rather they are meant to provide specifics as to how the requirements can be met, and indicate the appropriate level of detail necessary in a SNMP. They are purely recommendations and stakeholders have the option of arriving at the Policy's SNMP requirements via alternative means. This is illustrated in Table 4-2 where the suggested elements provided by State Water Board staff are lined up with the SNMP requirements as enumerated in the Policy.

TABLE 4-2: SNMP SUGGESTED ELEMENTS AND CORRESPONDING REQUIREMENTS FROM THE RECYCLED WATER POLICY

RECYCLED WATER POLICY SECTION	RECYCLED WATER POLICY REQUIREMENT	SNMP SUGGESTED ELEMENTS
6b(1)	…local water and wastewater entities, together with local salt/nutrient contributing stakeholders, will fund locally driven and controlled, collaborative processes open to all stakeholders that will prepare salt and nutrient management plans for each basin/sub-basin in California, including compliance with CEQA …	**CEQA ANALYSIS**
6b(1)(a)	It is the intent of this Policy for every groundwater basin/sub-	**GROUNDWATER BASIN CHARACTERISTICS** GROUNDWATER BASIN OVERVIEW

RECYCLED WATER POLICY SECTION	RECYCLED WATER POLICY REQUIREMENT	SNMP SUGGESTED ELEMENTS
	basin in California to have a consistent salt/nutrient management plan. The degree of specificity within these plans and the length of these plans will be dependent on a variety of site-specific factors, including but not limited to size and complexity of a basin, source water quality, stormwater recharge, hydrogeology, and aquifer water quality.	▪ Physiographic Description ▪ Groundwater Basin and/or Sub-Basin Boundaries ▪ Watershed Boundaries ▪ Geology ▪ Hydrogeology/Hydrology ▪ Aquifers ▪ Recharge Areas ▪ Hydrologic Areas Tributary to the Groundwater Basin ▪ Climate ▪ Land Cover and Land Use ▪ Water Sources GROUNDWATER INVENTORY ▪ Groundwater Levels ▪ Historical, Existing, Regional Changes ▪ Groundwater Storage ▪ Historical, Existing, Changes ▪ Groundwater Production ▪ Historical, Existing, Spatial and Temporal Changes, Safe Yield ▪ Groundwater Mixing and Movement ▪ Subsurface Inflow/Outflow ▪ Horizontal and Vertical Movement and Mixing **BASIN EVALUATION** WATER BALANCE ▪ Conceptual Model ▪ Basin Inflow/Outflow ▪ Groundwater, Surface Water, Imported Water, Water Transfers, Recycled Water Irrigation, Waste Water Discharges, Agricultural Runoff, Stormwater Runoff (Urban, Agriculture, Open Space), Precipitation ▪ Infiltration, Evaporation, Evapotranspiration, Recharge, Surface Water and Groundwater Connectivity PROJECTED WATER QUALITY BASIN WATER QUALITY ▪ Groundwater Quality ▪ Background, Historical, Existing ▪ Water Quality Objectives ▪ Surface Water Quality ▪ Delivered Water Quality ▪ Imported Water Quality ▪ Recycled Water Quality
6b(3)(a)	A basin/sub-basin wide monitoring plan that includes an appropriate network of monitoring locations.	**BASIN MANAGEMENT PLAN ELEMENTS** BASIN MONITORING PROGRAMS ▪ Identify Responsible Stakeholder(s) Implementing the Monitoring ▪ Monitoring Program Goals

RECYCLED WATER POLICY SECTION	RECYCLED WATER POLICY REQUIREMENT	SNMP SUGGESTED ELEMENTS

6b(3)(a)(i)	The plan must focus on basin water quality near water supply wells and areas proximate to large water recycling projects, particularly groundwater recharge projects. Also, monitoring locations shall, where appropriate, target groundwater and surface waters where groundwater has connectivity with adjacent surface waters.	▪ Sampling Locations
		▪ Water Quality Parameters
		▪ Sampling Frequency
		▪ Quality Assurance/Quality Control
		▪ Database Management
		▪ Data Analysis and Reporting
		▪ Groundwater Level Monitoring
		▪ Basin Water Quality Monitoring
		▪ Groundwater Quality Monitoring
		  ▪ Areas of Surface Water and Groundwater Connectivity
		  ▪ Areas of Large Recycled Water Projects
		  ▪ Recycled Water Recharge Areas

6b(3)(a)(iii)	The monitoring plan shall identify those stakeholders responsible for conducting, compiling, and reporting the monitoring data.	▪ Surface Water Quality Monitoring
		▪ Stormwater Monitoring
		▪ Wastewater Discharge Monitoring
		▪ Recycled Water Quality Monitoring
		▪ Salt and Nutrient Source Loading Monitoring
		▪ Other Constituents of Concern
		▪ Water Balance Monitoring
		  ▪ Climatological Monitoring
		  ▪ Surface Water Flow Monitoring
		  ▪ Groundwater Production Monitoring

6b(3)(b)	A provision for annual monitoring of Emerging Constituents/ Constituents of Emerging Concern (e.g., endocrine disrupters, personal care products or pharmaceuticals) (CECs) consistent with recommendations by CDPH and consistent with any actions by the State Water Board taken pursuant to paragraph 10(b) of this Policy.	**BASIN EVALUATION** CONSTITUENTS OF EMERGING CONCERNS (CECs) ▪ Constituents ▪ CEC Source Identification
6b(3)(c)	Water recycling and stormwater recharge/use goals and objectives.	**BASIN MANAGEMENT PLAN ELEMENTS** GROUNDWATER MANAGEMENT GOALS ▪ Recycled Water and Stormwater Use/Recharge Goals and Objectives
6b(3)(d)	Salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.	**BASIN EVALUATION** SALT AND NUTRIENT BALANCE ▪ Conceptual Model ▪ Salt and Nutrient Source Identification ▪ Salt and Nutrient Loading Estimates ▪ Historical, Existing, Projected ▪ Import/Export ▪ Basin/Sub-Basin Assimilative Capacity for Salt and Nutrients ▪ Fate and Transport of Salt and Nutrients
6b(3)(e)	Implementation measures to	**BASIN MANAGEMENT PLAN ELEMENTS**

RECYCLED WATER POLICY SECTION	RECYCLED WATER POLICY REQUIREMENT	SNMP SUGGESTED ELEMENTS
	manage salt and nutrient loading in the basin on a sustainable basis.	GROUNDWATER MANAGEMENT GOALS ▪ Groundwater Management Goals SALT AND NUTRIENT LOAD ALLOCATIONS **SALT AND NUTRIENT MANAGEMENT STRATEGIES** ▪ Load Reduction Goals ▪ Future Land Development and Use ▪ Salt/Nutrient Management Options ▪ Salt/Nutrient Management Strategies and Modeling ▪ Management Strategy Model Results ▪ Feasibility ▪ Cost **PLAN IMPLEMENTATION** SALT AND NUTRIENT MANAGEMENT PROGRAM ▪ Organizational Structure ▪ Stakeholder Responsibilities ▪ Implementation Measures to Manage Salt and Nutrient Loading ▪ Salt/Nutrient Management ▪ Water Supply Quality ▪ Regulations of Salt/Nutrients ▪ Load Allocations ▪ Salt and Nutrient Source Control ▪ CEC Source Control ▪ Site Specific Requirements ▪ Groundwater Resource Protection ▪ Additional Studies PERIODIC REVIEW OF SALT/NUTRIENT MANAGEMENT PLAN ▪ Adaptive Management Plan ▪ Performance Measures ▪ Performance Evaluation COST ANALYSIS ▪ CWC § 13141, "…prior to implementation of any agricultural water quality control program, an estimate of the total cost of such a program, together with an identification of potential sources of funding, shall be indicated in any regional water quality control plan." IMPLEMENTATION SCHEDULE
6b(3)(f)	An antidegradation analysis demonstrating that the projects included within the plan will, collectively, satisfy the requirements of Resolution No. 68-16.	**ANTIDEGRADATION ANALYSIS**
No specific reference	While the background information listed in State	**BACKGROUND** ▪ Purpose

RECYCLED WATER POLICY SECTION	RECYCLED WATER POLICY REQUIREMENT	SNMP SUGGESTED ELEMENTS
	Water Board's "Suggested Elements" is not specifically identified by the Recycled Water Policy, it would provide the necessary information in support of the conceptual basis for the plan.	▪ Protection of Beneficial Use ▪ Sustainability of Water Resources ▪ Problem Statement ▪ Salt/Nutrient Management Objectives ▪ Regulatory Framework ▪ Groundwater Beneficial Uses ▪ Stakeholder Roles and Responsibilities ▪ Process to Develop Salt/Nutrient Management Plan

The Policy recognizes that:
The degree of specificity within these plans and the length of these plans will be dependent on a variety of site-specific factors, including but not limited to size and complexity of a basin, source water quality, stormwater recharge, hydrogeology, and aquifer water quality.

In response to this, State Water Board staff has suggested three classes of basins in the context of SNMP development to assist in determining the extent of information required for each class: Major, Saline/Coastal, and No Threat basins. They are defined as follows:

a) Major: Large in size, complex land use, heavily used, water quality threatened;
b) Saline/Coastal: Basins with naturally saline groundwater not currently used as a source of water; and
c) Low threat: Basins with minimal or no known or current threat to water quality.

The State Water Board staff have also provided draft Basin Plan Amendment templates to indicate the amount of information necessary for each classification. The templates for each basin class are provided in Appendix I. Groundwater basins in the Los Angeles Region do not necessarily fit neatly into these classes; the scope of information for a SNMP will also be influenced by basin-specific attributes, conditions and water quality concerns. However, stakeholders are encouraged to use the templates as a guide.

Regardless of how a basin may be categorized, the Policy states that the SNMP must include "implementation measures to manage salt and nutrient loading in the basin on a sustainable basis."
Where applicable, implementation strategies may be developed to address issues such as pollution prevention, water quality restoration, basin recharge with storm water and recycled water and groundwater-surface water interaction.

A. BASIN/SUB-BASIN WIDE MONITORING PLAN

As set forth in the Policy Part 6(b)(3)(a), each SNMP shall include *"a basin/sub-basin wide monitoring plan that includes an appropriate network of monitoring locations. The scale of the basin/sub-basin monitoring plan is dependent upon the site-specific conditions and shall be adequate to provide a reasonable, cost-effective means of determining whether the concentrations of salt, nutrients, and other constituents of concern as identified in the salt and nutrient plans are consistent with applicable water*

quality objectives. Salts, nutrients, and the constituents identified in paragraph 6(b)(1)(f) shall be monitored. The frequency of monitoring shall be determined in the salt/nutrient management plan and approved by the Regional Water Board pursuant to paragraph 6(b)(2).

(i) The monitoring plan must be designed to determine water quality in the basin. The plan must focus on basin water quality near water supply wells and areas proximate to large water recycling projects, particularly groundwater recharge projects. Also, monitoring locations shall, where appropriate, target groundwater and surface waters where groundwater has connectivity with adjacent surface waters.

(ii) The preferred approach to monitoring plan development is to collect samples from existing wells if feasible as long as the existing wells are located appropriately to determine water quality throughout the most critical areas of the basin.

(iii) The monitoring plan shall identify those stakeholders responsible for conducting, compiling, and reporting the monitoring data. The data shall be reported to the Regional Water Board at least every three years.

The objective of this requirement is to develop a basin wide monitoring plan that would allow for a comprehensive assessment of basin water quality in relation to beneficial uses supported by the basin and applicable water quality objectives. Several localized and project-specific monitoring programs exist throughout the basins in the region. These include monitoring of ground and surface waters by various agencies to comply with regulatory requirements, as well as voluntary monitoring efforts by these agencies and environmental groups. In keeping with the Policy's preferred approach, it is recommended that all parties engaged in water quality monitoring and data collection within each groundwater basin be identified as a starting point in developing a basin-wide monitoring plan. Compilation and review of existing programs and groundwater quality reports will reduce the potential for redundancy, and also assist in identifying data gaps that need to be addressed.

Regulatory agencies are involved in statewide monitoring of groundwater quality for the purpose of assessing and protecting groundwater basins. These agencies include the State Water Board, the California Department of Public Health, Department of Water Resources, Department of Toxic Substances Control, Department of Pesticide Regulation, and the U.S. Geological Survey. State Water Board's online groundwater information system, GeoTracker GAMA provides access to groundwater quality monitoring data from these agencies as well as other Regional Boards and the Lawrence Livermore National Laboratory. This information is available on the Groundwater Ambient Monitoring and Assessment (GAMA) program website at: http://www.waterboards.ca.gov/water_issues/programs/gama/geotracker_gama.shtml. Results from these monitoring efforts may be used in conjunction with those generated by water purveyors, managers and private entities in determining the scope of the monitoring plan.

The monitoring plan should clearly define the areal extent of the basin or sub-basin to be monitored. The region's major basin boundaries were most recently updated by the Department of Water Resources in its 2003 update of Bulletin 118 (DWR, 2003). While this update omitted some of the sub-basins that were identified in the previous version,

the Regional Water Board's Basin Plan still retains these basins/sub-basin as ground waters to be protected under the California Water Code.

In developing sampling locations within a given basin, stakeholders are encouraged to consider:

a) Location of existing monitoring locations;
b) Location of existing and potential contributing sources, including areas with significant groundwater-surface water interaction; and
c) Existing and proposed recycled water projects/facilities and groundwater recharge areas.

Stakeholders are also encouraged to use the 2003 U.S. Geological Survey report titled "Framework for a Ground Water Quality and Assessment Program for California" as a resource when developing the monitoring plan. This document is available at: http://www.waterboards.ca.gov/water_issues/programs/gama/docs/usgs_rpt_72903_wri034166.pdf

The parameters to be monitored should be reflective of the water quality conditions and applicable water quality objectives within a given basin or sub-basin. Per the Policy, salts, nutrients, and CECs will be monitored in all basins. It is recommended that a draft monitoring plan be submitted to the Regional Water Board for review prior to finalizing the SNMP of which it would be a component. As with other groundwater monitoring programs in the region, data generated from SNMP monitoring programs should be submitted to the State Water Board's online groundwater information system – GeoTracker.

The Policy also states that Salt and Nutrient Management Plans may include constituents other than salt and nutrients which may impact water quality in the basin/sub-basin. However, inclusion of additional parameters is at the discretion of stakeholders involved in the SNMP development process. Stakeholders are encouraged to consider existing groundwater quality information and their knowledge of localized conditions, in determining which other parameters of concern should be monitored. Table 4-3 lists some of the known parameters of concern in the major basins and sub-basins in the Los Angeles Region.

TABLE 4-3: PARAMETERS OF CONCERN IN THE LOS ANGELES REGION'S MAJOR BASINS

Groundwater Basin		**Primary Parameters of Concern***
West Coast Central		Seawater Intrusion
San Gabriel Raymond		VOCs, SVOCs
San Fernando		VOCs, Cr^{VI}
Santa Clara Watershed	Oxnard Mound Santa Paula Fillmore Piru East Santa Clara	Nitrate, Salts, TDS, DDT, PCBs
Pleasant Valley		Nitrates, TDS, Salts

Groundwater Basin		Primary Parameters of Concern*
Ojai Ventura River		Nitrates
Calleguas Watershed	Conejo Valley Russell Valley Hidden Valley Simi Valley Tierra Rejada Thousand Oaks	Nitrates, TDS, Salts
Malibu Valley		Seawater Intrusion

*This is not a complete list of parameters of concern.

B. MONITORING OF CONSTITUENTS OF EMERGING CONCERN

Constituents of emerging concerns (CECs) include several types of chemicals that may be classified as (i) persistent organic pollutants (ii) pharmaceuticals and personal care products, (iii) veterinary medicines, (iv) endocrine disruptors, and others. Such constituents present water quality concerns due to their large number and variety, their prevalence in the environment, and their potential for harmful effects on aquatic life. Much less is known about their potential effects on humans. Increasing recycled water use has the potential to increase the occurrence of CECs in ground water basins through indirect potable reuse or groundwater recharge reuse (i.e., augmentation of drinking water aquifers using recycled water), as well as urban landscape irrigation. Staff are coordinating with EPA, the Southern California Coastal Water Research Project, and others in studying this issue.

Recycled Water Policy CEC Monitoring Requirements:

As stated in the Policy, *"[e]ach Salt and Nutrient Management Plan shall include a provision for annual monitoring of Emerging Constituents/Constituents of Emerging Concern (CECs) consistent with recommendations by CDPH and consistent with any actions by the State Water Board taken pursuant to paragraph 10(b) of this Policy."*

Paragraph 10(b) of the Policy directs the State Water Board, in consultation with the California Department of Public Health (CDPH), to convene a "blue-ribbon" advisory panel to guide future actions relating to constituents of emerging concern.

The advisory panel (Panel) completed its report (Panel Report) on CECs in June 2010. State Water Board staff developed a staff report (SWRCB, 2010) based on recommendations from the Panel and those provided by the CDPH. In December 2010, the State Water Board held a public hearing regarding proposed CEC monitoring requirements presented in the staff report.

The Panel Report employed a risk-based screening process to identify CECs of toxicological relevance to monitor for potable and non-potable recycled water use scenarios (i.e., groundwater recharge reuse and landscape irrigation). The screening approach focused the universe of CECs based on their potential for health effects and their occurrence in recycled water in California. The Panel Report recommends monitoring of selected performance indicator CECs to evaluate the performance of treatment processes to remove CECs; and recommends monitoring of surrogate parameters, such as turbidity, dissolved organic carbon, and conductivity, to verify that treatment units are working as designed.

Health-based CECs selected for monitoring include caffeine, 17-beta-estradiol (17β-estradiol), n-nitrosodimethylamine (NDMA), and triclosan.

The Panel also selected a set of performance-based indicator CECs. Each selected performance-based indicator CEC represents a group or a family of CECs. The removal of the performance-based indicator CEC through a treatment process provides an indication of the removal of the other CECs in the group, provide they have similar properties. The six compounds selected to serve as performance-based indicator CECs are caffeine, gemfibrozil, n,n-diethyl-meta-toluamide (DEET), iopromide, NDMA, and sucralose. Caffeine and NDMA serve as both health and performance-based indicator CECs.

Upon reviewing the oral and written comments received on the publicly noticed staff report, the State Water Board drafted an amendment to the Policy prescribing monitoring requirements for CECs in recycled water used for groundwater recharge reuse and landscape irrigation. The draft Policy amendment ("Requirements for Monitoring Emerging Constituents/Constituents of Emerging Concern for Recycled Water") was released for public comment on May 9, 2012. The proposed amendment and accompanying attachment can be found on the State Water Board's website at: http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/draft_amendment_to_policy.shtml

Other Considerations

The California Department of Public Health has released a draft of their Groundwater Replenishment Reuse Regulations, which are used to regulate recycled water for replenishment projects. Upon adoption of the final regulation, where the CEC monitoring requirements differ from those specified by the State Water Board in the amendment to the Policy, monitoring for the additional constituents specified by California Department of Public Health regulations should be included where groundwater recharge using recycled water is a consideration.

Section 60320.120(c) of the draft regulations requires annual monitoring of indicator CECs specified by CDPH and the Regional Water Board by proponents of groundwater replenishment and reuse projects (GRRPs). Stakeholders may take this into consideration in developing CEC monitoring programs for each basin/sub-basin where such projects exist or are planned. .

Regional Board Considerations

The Los Angeles Regional Board has taken early actions to begin to address CECs. The Board currently includes CEC Special Study Requirements in NPDES permits for Publicly Owned Treatment Works (POTWs), during permit renewal.
In addition, the development of a CEC monitoring strategy for the region was identified as a priority project during the project-selection phase of the 2011-13 triennial review. The Regional Board has also directed resources toward establishing some baseline information on CEC occurrence, and fate and transport in inland surface waters throughout the region. The information gathered from on-going monitoring and other applicable studies will inform future monitoring strategies.

Where site specific CEC monitoring is required for existing or proposed projects within a groundwater basin or sub-basin, SNMP proponents are encouraged to consider including them as part of the CEC monitoring strategies developed for the basin or sub-basin

C. SALT AND NUTRIENT ANALYSIS

As stated in the Policy, *"[e]ach SNMPs shall include salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients…"* in order to *"… address and implement provisions, as appropriate, for all sources of salt and/or nutrients to groundwater basins, including recycled water irrigation projects and groundwater recharge reuse projects."*

Identification of existing and planned future sources of salts and nutrients is an essential part of a SNMP. This allows for a more accurate assessment of the pollutant loads to the basin and analysis of the final impact on basin water quality as determined through fate and transport analysis. A comprehensive consideration of sources will lead to a robust assessment and a more effective implementation strategy for basin management. Table 4-5 provides examples of source considerations in conducting this analysis.

TABLE 4-6: LIKELY SOURCES OF SALTS, NUTRIENTS, AND OTHER POLLUTANTS OF CONCERN IN GROUNDWATER BASINS

Source Considerations	**Examples**
Land uses	Agricultural and landscape irrigation
Groundwater recharge	Recycled water, Municipal water supply, Stormwater
Point source discharges to groundwater	Municipal and Industrial facilities, Other permitted facilities (e.g. landfills)
Non-point source discharges	Agricultural and nursery facilities, on-site wastewater treatment system discharges
Specific point sources	Injection wells*, percolation basins*
Surface water-groundwater interaction	Percolation from stream flow, stormwater runoff infiltration
Sub-surface inflow	Seawater intrusion, upstream inflow
Discrete discharges	Chemical spills, leaking tanks, improper disposal

*associated with oil production

In order to estimate pollutant loads to these basins, it will be necessary to quantify the mass loadings of all identifiable sources to each basin/sub-basin, and evaluate their fate and transport Stakeholders have the flexibility to apply any scientifically defensible methodology to make these determinations.

D. WATER RECYCLING AND STORMWATER RECHARGE/USE GOALS AND OBJECTIVES

Recycled Water Use

As stated in the Policy, *"[e]ach SNMP shall include water recycling and stormwater recharge goals and objectives."* With the intent of moving towards sustainable management of surface waters and groundwater, the Policy adopts the goals of increasing the use of recycled water in California over 2002 levels by at least one million acre-feet per year (afy) by 2020 and by at least two million afy by 2030.

There are a significant number of recycled water facilities in the Los Angeles Region. The State Water Board conducted a 2009 survey of recycled water use throughout the state to determine the amount of recycled water used and the beneficial uses to which

recycled water was put. Only publicly-owned wastewater and water recycling agencies were included in the survey. Due to the low response rate from agencies solicited (18%), data from a similar 2001 survey were included in the overall results. Table 4-6 shows survey results for responding agencies in the Los Angeles Region. More details on the survey are available on the State Water Board's website at http://www.waterboards.ca.gov/water_issues/programs/grants_loans/water_recycling/munirec.shtml.

TABLE 4-7: SURVEY RESULTS OF RECYCLED WATER USE BY POTWS AND WATER RECYCLING AGENCIES IN THE LOS ANGELES REGION

Agency	Total Reuse (AFY)	Beneficial Use
Burbank Water and Power	2090	Golf Course and Landscape Irrigation, Industrial
City of Burbank	879	Landscape Irrigation, Geothermal/Energy Production
City of Los Angeles Bureau of Sanitation	40,787	Recreational Impoundment, Natural systems restoration, Wetlands, Wildlife Habitat
City of Los Angeles Department of Water and Power	32,113	Golf Course & Landscape Irrigation, Industrial, Seawater Intrusion Barrier, Recreational Impoundment, Natural systems restoration, Wetlands, Wildlife Habitat
City of Los Angeles Department of Public Works	3,683	Landscape Irrigation, Geothermal/Energy Production
Camarillo Sanitation District/City of Camarillo	1,293	Agriculture Irrigation
Camrosa Water District	779	Agriculture Irrigation
City of Fillmore	110	Landscape Irrigation
County Sanitation Districts of Los Angeles County	80,000	Unspecified (likely groundwater recharge)
Las Virgenes Municipal Water District	5,174	Landscape Irrigation
Los Angeles County Department of Public Works	148	Landscape Irrigation
Long Beach Water Department	6,380	Golf Course & Landscape Irrigation, Commercial, Seawater Barrier
Ventura County Waterworks District 1	428	Golf Course Irrigation
Ventura County Waterworks District 1	63	Commercial
West Basin Municipal Water District	26,032	Landscape Irrigation, Industrial, Seawater Intrusion Barrier

While the majority of facilities surveyed used their recycled water for irrigation, a significant portion of the recycled water is used for groundwater recharge. In the Central and West Coast Groundwater Basins, recycled water is used extensively by the Water Replenishment District of Southern California for groundwater recharge and to maintain seawater intrusion barriers. An innovative form of recycling is practiced by the City of Santa Monica using its Santa Monica Urban Runoff Recycling Facility, which collects and treats 90% of the City's urban runoff in the dry season for use in landscape irrigation.

Substituting potable water with recycled water is another means of increasing recycled water use and reducing dependence on imported water supplies. This may be achieved by developing an indirect potable use program similar to the one initiated by the Orange County Water District.

SNMPs should include goals and objectives for water recycling. As part of developing these goals, it may be helpful to examine master plans for water recycling that have been developed by recycled water producers, distributors, and municipalities, as well as Urban Water Management Plans.

Stormwater Use

Another goal of the Policy, with the intent of increasing sustainable local water supplies, is to increase the use of stormwater over the levels in 2007 by at least 500,000 afy by 2020 and by at least one million afy by 2030.The Policy recognizes that stormwater is typically lower in nutrients and salts and can augment local water supplies, and therefore deems the inclusion of a significant stormwater use and recharge component within the salt/nutrient management plans to be critical to the long-term sustainable use of water in California. In support of this, the State Water Board expects to develop additional policies to encourage the use of stormwater, encourage water conservation, encourage the conjunctive use of surface and groundwater, and improve the use of local water supplies.

The Regional Water Board also recognizes stormwater as a valuable resource and contains a requirement in its Municipal Separate Stormwater Systems (MS4) permits that new developments and significant redevelopments retain stormwater onsite using low impact development (LID) best management practices (BMPs), with an allowance for regional and other alternative compliance approaches. MS4 permits require that land development projects be designed to infiltrate, harvest and use, evapotranspire, or bio-treat a specified volume of stormwater onsite using LID BMPs, if technically feasible. The intent of this requirement is twofold – first, to achieve improvements in water quality by preventing pollutants conveyed by stormwater from being discharged to receiving waters and, second, to increase the use of stormwater for groundwater recharge.

Since new developments and redevelopments will not necessarily occur in areas where infiltration or recharge is feasible, it is important that stormwater use be considered on a regional scale to maximize the potential for stormwater infiltration and use. Basin stakeholders are encouraged to consider such an approach in developing their implementation strategies for increasing stormwater use.

E. IMPLEMENTATION MEASURES

As stated in the Policy, *"[e]ach SNMP shall include implementation measures to manage salt and nutrient loading in the basin on a sustainable basis."*

Implementation strategies should integrate water quantity and quality, groundwater and surface water, and recharge area protection in order to maintain a sustainable long-term supply for multiple beneficial uses. These strategies will be dictated to a large degree by basin-specific characteristics and conditions. Depending on conditions within each basin/sub-basin, strategies may generally be geared towards:

a) Pollution prevention to maintain and protect ground water quality at levels consistent with Basin Plan objectives and the State's anti-degradation policy;
b) Source load reductions to groundwater basins;
c) Treatment and management of areas of impaired water quality;
d) Increasing groundwater recharge by storm water; and
e) Increasing recycled water use.

Based on water quality conditions within a basin and the results of the source loading and fate and transport analysis, salts and nutrients from identifiable non-point and point sources should be managed in a manner that will support attainment of applicable water quality objectives. Measurable parameters should be identified for evaluation of the effectiveness of the strategies, and an implementation schedule and monitoring program should be developed to track progress toward basin management goals. Implementation measures may also include, as appropriate, strategies for local water supply development including increasing the use of recycled water, and plans for stormwater retention for use or recharge.

The consideration of implementation alternatives should take into account the interest of all parties currently involved in basin use and management in order to resolve any potential competing or conflicting interests prior to finalizing the basin management approach. To the greatest extent feasible, input from all stakeholders and interested parties should be solicited as part of the development process.

The Regional Water Board recognizes that a number of agencies have developed basin management plans for specific basins; while others have developed specific management measures for salt and/or nutrient impairments. Existing basin or sub-basin management plans and salt and nutrient management strategies should be assessed to determine their applicability towards the SNMP requirements of the Policy. For the purpose of SNMP development, these efforts may be supplemented as necessary to provide missing elements or address inconsistencies and demonstrate compliance with SNMP requirements. In instances where water quality from a sub-basin or basin may impact or be impacted by that of adjacent basins, all stakeholders concerned are encouraged to collaborate in developing salt and nutrient management strategies.

F. ANTI-DEGRADATION REQUIREMENTS

As stated in the Policy, *"[e]ach Salt and Nutrient Management Plan shall include an antidegradation analysis demonstrating that the projects included within the plan will, collectively, satisfy the requirements of Resolution No. 68-16."*

Resolution No. 68-16 is the State Water Board's "Statement of Policy with respect to Maintaining High Quality of Waters in California" also known as the State Anti-degradation Policy. It requires that:

> *Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.*

Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

The intent of Resolution 68-16 is to preserve the State's high quality waters. Any activity that results in the discharge of waste must be subject to treatment or controls that assure that the discharge will not cause the receiving water to exceed water quality objectives set forth in the applicable Basin Plan or cause pollution or nuisance. In addition, the discharge should be controlled to achieve the highest water quality feasible. In other words, water quality should be the best it can be, but at least not exceed water quality objectives or impact beneficial uses. The water quality objectives are set forth in the Regional Water Board Basin Plans, the State Water Board's Sources of Drinking Water Policy, and the California Ocean Plan. The baseline water quality to maintain refers to the highest existing quality since Resolution No. 68-16 was adopted in 1968, although if a lowering of water quality was formally approved in the past, this could adjust the baseline.

In some instances, degradation of existing water quality may be allowed so long as such degradation is consistent with the maximum benefit to the people of the state. Modification of existing water quality through the development of site specific objectives should only be considered when all other salt and nutrient management alternatives have been exhausted; and even so should be part of a larger salt and nutrient load reduction strategy. Such changes to water quality objectives may only occur where the existing water quality is better than that required to support the most sensitive beneficial use(s) of the basin (i.e. where there is assimilative capacity). Basin-wide management strategies should always be developed in a manner that would be protective of the most sensitive beneficial uses within a basin.
Where project(s) within SNMPs have the potential to degrade the water quality within a basin, stakeholders are required to conduct an anti-degradation analysis. The rigor of the analysis required depends on the nature and extent of the potential degradation. The guidelines and requirements for such analysis are provided below and parallel, to a large extent, those provided in the Policy for basins where plans are yet to be completed. This analysis will be part of the supporting documentation for the Basin Plan amendment incorporating the implementation plan(s) consistent with implementation measures identified in the SNMP. Implementation projects must be demonstrated to be consistent with Resolution 68-16 as supported by the anti-degradation analysis conducted as part of SNMP development.

The Policy recognizes that groundwater recharge and landscape irrigation projects are to the benefit of the people of the state, despite having the potential to lower water quality within the basin. As such, the Policy provides a threshold below which less rigorous analysis will be conducted for the anti-degradation analysis – during the period before SNMPs have been developed.
The Regional Water Board will apply the same considerations, on a basin-wide scale, once SNMPs are in place.

(1) Generally, a basin-wide implementation strategy that utilizes less than 20 percent of the available assimilative capacity in a basin/sub-basin need only conduct an anti-degradation analysis verifying the use of the assimilative capacity. For those basins /sub-basins where the Regional Water Boards have not determined the baseline assimilative capacity, the baseline assimilative capacity shall be calculated by the initial project proponent, with review and approval by the Regional Water Board. The available assimilative capacity shall be calculated by comparing the water quality objectives with the average concentration of the basin/sub-basin[7], either over the most recent five years of data available or using a data set approved by the Regional Water Board Executive Officer. Though the Policy expresses assimilative capacity in units of concentration, the Regional Water Board recognizes that, depending on the complexity of the basin, it may be more appropriate to calculate and express assimilative capacity as a load. Historical groundwater quality data will be reviewed in order to inform decisions about assimilative capacity and conclusions drawn about anti-degradation requirements. In determining whether the available assimilative capacity will be exceeded by the basin-wide implementation strategy, the Regional Water Board will consider the impacts of the strategy over at least a ten-year time frame, based on an analysis of these impacts provided by the project proponent(s), and other relevant data and information.

(2) In the event a basin wide implementation strategy utilizes more than 20 percent of the available assimilative capacity in a basin/sub-basin), a more rigorous anti-degradation analysis shall be performed to comply with Resolution No. 68-16. Proponents of the strategy shall provide sufficient information for the Regional Water Board to make this determination.

In addition to verification of the assimilative capacity to be used, the analysis should show:

a) That the strategy is necessary to accommodate important economic or social development;
b) Any reduction in water quality will be consistent with maximum benefit to people of the State;
c) Reduction in water quality will not unreasonably affect actual or potential beneficial uses; and
d) Water quality will not fall below water quality objectives set to protect beneficial uses as prescribed in the Basin Plan.

The severity and extent of water quality reduction will be considered when evaluating the benefits required to compensate for the degradation. The magnitude of the proposed strategy and potential reduction in water quality will also determine the scope of impact assessment. The Regional Water Board will ensure that a systematic impact assessment is conducted.

Factors that should be considered when determining whether a strategy is necessary to accommodate social or economic development and is consistent with maximum benefit to the people of the State, include:

1. Past, present, and probable beneficial uses of the water.

[7] More than one average concentration may be necessary for a given basin/sub-basin to fully evaluate variability between sub-areas or sub-basins.

2. Economic and social costs, tangible and intangible, of the proposed strategy compared to benefits. The economic impacts to be considered may include the cost of alternative actions in lieu of the proposed strategy, as well as the cost of any mitigation necessary to address degradation resulting from the proposed strategy. The long-term and short-term socioeconomic impacts of maintaining existing water quality must be considered. Examples of social and economic parameters that could be affected are employment, housing, community services, income, tax revenues, and land value. To accurately assess the impact of the proposed strategy, the projected baseline socioeconomic profile of the affected community without the strategy should be compared to the projected profile with the strategy.
3. The environmental aspects of the proposed discharge must be evaluated. The proposed discharge, while actually causing a reduction in water quality in a given water body, may be simultaneously causing an increase in water quality in a more environmentally sensitive body of water from which the discharge in question is being diverted.
4. The implementation of feasible alternative control measures, which might reduce, eliminate, or compensate for negative impacts of the proposed action.

Participation from the public and appropriate government agencies should be solicited in the "maximum benefit" determination to ensure that the environmental, social, and economic impacts of the strategy are accurately assessed.

The Regional Water Board will ultimately make the decision as to whether or not it is to the maximum benefit of the people of the State to use more than 20% of the assimilative capacity of a basin or sub-basin as part of a SNMP's implementation strategy. Consideration will be given to providing buffers for varying environmental conditions such as droughts, as well as the needs of future generations.

Where no assimilative capacity exists for salts and/or nutrients within a basin/sub-basin, stakeholders may explore and implement strategies for creating such assimilative capacity. As previously mentioned, modifying water quality objectives should only be considered where all other alternatives have been exhausted and then only as part of a larger comprehensive salt and nutrient reduction strategy. Any modifications to water quality objectives shall be done in a manner that protects the most sensitive beneficial uses in a basin/ sub-basin.

The Policy includes an example of an approved method for conducting an anti-degradation analysis based on a numeric groundwater model. It was used by the State Water Board in connection with Resolution No. 2004-0060 and the Regional Water Board in connection with Resolution No. R8-2004-0001. However, stakeholders have the flexibility to use other methods that have been deemed acceptable by the Regional Board. SNMP proponents should vet any such other methods with Regional Board staff prior to embarking on an analysis using the method. The Policy also encourages an integrated approach (using surface water, groundwater, recycled water, stormwater, pollution prevention, water conservation, etc.) to the implementation of Resolution No. 68-16.

An anti-degradation analysis will not be required where it has been demonstrated that implementation strategies are not expected to result in water quality degradation in a groundwater basin.

E. DISCHARGES COVERED BY THE RECYCLED WATER POLICY

The Policy is specifically geared towards increasing the use of recycled water from municipal wastewater sources permitted through Wastewater Recycling Requirements (WRRs). Land discharges of wastewater are addressed through separate Waste Discharge Requirements (WDRs), however, this does not preclude them from the SNMP development process. Such discharges (existing and proposed) should be accounted for in determining source loading estimates, determination of assimilative capacity, and in basin management planning. In the same vein, recycled water projects already in progress should be considered during the same phases of SNMP development.

5. CEQA REQUIREMENTS

The Policy requires that salt and nutrient management plans developed for basin/sub-basins comply with the applicable California Environmental Quality Act (CEQA) requirements. The following outlines the CEQA requirements for the Regional Board adoption of SNMP implementation strategies into the Water Quality Control Plan for the Los Angeles Region (Basin Plan). SNMP proponents may be required to comply with other CEQA requirements related to specific implementation strategies for salt and nutrient management contained in their plans. SNMP proponents are to conduct the environmental analysis required for Regional Board adoption.

The CEQA requires state and local agencies determine the potential significant environmental impacts of proposed projects and identify measures to avoid or mitigate these impacts where feasible. The CEQA Guidelines, which provide the protocol by which state and local agencies comply with CEQA requirements, are detailed in California Code of Regulations, Title 14 § 15000 et seq.

The basic purposes of CEQA are to: 1) inform decision makers and public about the potential significant environmental effects of a proposed project, 2) identify ways that environmental damage may be mitigated, 3) prevent significant, avoidable damage to the environment by requiring changes in projects, through the selection of alternative projects or the use of mitigation measures when feasible, and 4) disclose to the public why an agency approved a project if significant effects are involved (Cal. Code Regs., tit. 14, § 15002(a)).

LEAD AND RESPONSIBLE AGENCIES UNDER CEQA

As set forth in the Policy, stakeholders will fund SNMP development including any necessary analysis and documentation to comply with CEQA. Stakeholders will develop implementation strategies, which may include projects requiring environmental analysis. Public agencies that carry out or implement projects associated with the SNMPs are considered the lead agencies under CEQA for these individual projects. However, in addition, the implementation measures identified in a SNMP may be adopted as amendments to the Basin Plan by the Regional Water Board, and CEQA analysis is a required part of the adoption process in accordance with the State Water Board's certified regulatory program. As such, for the purpose of Water Board adoption of a Basin Plan amendment, the Regional Water Board will be the lead agency for purposes of CEQA. Therefore, it will be necessary for stakeholders and Regional Water Board staff to work in collaboration.

REQUIRED ENVIRONMENTAL ANALYSIS

The California Secretary for Natural Resources has certified the State and Regional Water Boards' basin planning process as exempt from certain requirements of CEQA, including preparation of an initial study, negative declaration, and environmental impact report (California Code of Regulations, Title 14, Section 15251(g)).

The basin planning process is certified by the Secretary for Natural Resources as a regulatory program exempt from the requirements to prepare an Environmental Impact Report, Negative Declaration, and Initial Study (Title 14, California Code of Regulations (CCR), Section 15241(g)). However, a certified program is subject to other provisions in CEQA (Pub. Resources Code, Section 21000 et seq.), such as the requirement to avoid significant adverse effects to the environment where feasible. The Regional Board is required to comply with State Water Board regulations set forth in California Code of Regulations, Title 23, sections 3775 et. seq, and Public Resources Code section 21159.

Requirements of California Code of Regulations, Title 23, Section 3777(a)

The "certified regulatory program" of the Regional Water Board is also subject to the substantive requirements of California Code of Regulations, Title 23, Section 3777(a), which requires a written report that includes a description of the proposed activity, an analysis of reasonable alternatives, and an identification of mitigation measures to minimize any significant adverse environmental impacts. Section 3777(a) also requires the Regional Water Board to complete an environmental checklist as part of its substitute environmental documents.

Any water quality control plan, state policy for water quality control, and any other components of California's water quality management plan as defined in Code of Federal Regulations, title 40, sections 130.2(k) and 130.6, proposed for board approval or adoption must include or be accompanied by Substitute Environmental Documentation (SED) and supported by substantial evidence in the administrative record. The Draft SED may be comprised of a single document or a compilation of documents. The Draft SED must be circulated prior to board action approving or adopting a project, as specified in sections 3778 and 3779. The Draft SED shall consist of:

a) A written report prepared for the board, containing an environmental analysis of the project;
b) A completed Environmental Checklist (a sample of which is contained in Appendix II). The sample Environmental Checklist may be modified as appropriate to meet the particular circumstances of a project. The issues identified in the Environmental Checklist must be evaluated in the checklist or elsewhere in the SED; and
c) Other documentation as the board may include.

The Draft SED shall include, at a minimum, the following information:

a) A brief description of the proposed project;
b) An identification of any significant or potentially significant adverse environmental impacts of the proposed project;
c) An analysis of reasonable alternatives to the project and mitigation measures to avoid or reduce any significant or potentially significant adverse environmental impacts; and
d) An environmental analysis of the reasonably foreseeable methods of compliance. The environmental analysis shall include, at a minimum, all of the following:
    i. An identification of the reasonably foreseeable methods of compliance with the project;

ii. An analysis of any reasonably foreseeable significant adverse environmental impacts associated with those methods of compliance;
iii. An analysis of reasonably foreseeable alternative methods of compliance that would have less significant adverse environmental impacts; and
iv. An analysis of reasonably foreseeable mitigation measures that would minimize any unavoidable significant adverse environmental impacts of the reasonably foreseeable methods of compliance.

In the preparation of the environmental analysis described in d) above, the board may utilize numerical ranges or averages where specific data are not available; however, the board shall not be required to engage in speculation or conjecture. The environmental analysis shall take into account a reasonable range of environmental, economic, and technical factors, population and geographic areas, and specific sites, but the board shall not be required to conduct a site-specific project level analysis of the methods of compliance, which CEQA may otherwise require of those agencies who are responsible for complying with the plan or policy when they determine the manner in which they will comply.

As to each environmental impact, the SED shall contain findings as described in State CEQA Guidelines section 15091, and if applicable, a statement described in section 15093.

If the board determines that no fair argument exists that the project could result in any reasonably foreseeable significant adverse environmental impacts, the SED shall include a finding to that effect in lieu of the analysis of project alternatives and mitigation measures.

If the board determines that no fair argument exists that the reasonably foreseeable methods of compliance with the project could result in any reasonably foreseeable significant adverse environmental impacts, the SED shall include a finding to that effect in lieu of the analysis of alternative methods of compliance and associated mitigation measures.

Requirements of Public Resources Code section 21159

Public Resources Code section 21159 has the same minimum requirements for the environmental analysis which the Regional Water Board is also required to fulfill along with the same considerations. Section 21159(c) requires that the environmental analysis take into account a reasonable range of:

a) Environmental, economic, and technical factors,
b) Population and geographic areas, and
c) Specific sites.

A “reasonable range” does not require an examination of every site, but a reasonably representative sample of them. The statute specifically states that the section shall not require the agency to conduct a “project-level analysis” (Public Resources Code § 21159(d)). Rather, a project-level analysis must be performed by the local agencies that will implement the strategies and projects identified in the SNMP (Public Resources Code §21159.2). Notably, the Regional Water Board is prohibited from specifying the manner of compliance with its regulations (Cal. Water Code §13360), and accordingly,

the actual environmental impacts will necessarily depend upon the compliance strategy selected by the local agencies and other permittees.

State Water Board Finding

As set forth in the Policy, the State Water Board finds that the use of recycled water which supports the sustainable use of groundwater and/or surface water that is sufficiently treated so as not to adversely impact public health or the environment and which ideally substitutes for use of potable water is presumed to have a beneficial impact. Other public agencies are encouraged to use this presumption in evaluating the impacts of recycled water projects on the environment as required by the CEQA.

Public Participation Requirements for the CEQA Process

Pursuant to California Public Resources Code section 21083.9, a CEQA Scoping Meeting will be held to receive comments on the appropriate scope and content of substitute environmental documents supporting amendments to the Basin Plan to incorporate salt and nutrient management plans for groundwater basins in the Los Angeles Region. The purpose of this meeting is to scope the proposed projects and/or strategies for groundwater basin management and to determine, with input from interested agencies and persons, if those means would result in significant adverse impacts to the environment. Information garnered from this process will be considered during development of the draft SED and, where applicable, may be incorporated into the final document.

ROLES OF STAKEHOLDER GROUPS AND REGIONAL WATER BOARD STAFF IN THE CEQA PROCESS

Both Regional Water Board staff and stakeholder groups will be significantly involved in the environmental analysis for the SNMPs. Table 5-1 lists the different aspects of the CEQA process and identifies the roles of each party.

TABLE 5-1: ROLES OF STAKEHOLDERS AND REGIONAL WATER BOARD STAFF IN THE CEQA PROCESS FOR BASIN PLAN AMENDMENTS

TASK	REGIONAL WATER BOARD	STAKEHOLDERS
LEAD AGENCY	Lead	
CEQA SCOPING MEETING	Co-Lead	Co-Lead
ENVIRONMENTAL ANALYSIS	Oversight	Lead
SED DEVELOPMENT	Oversight	Lead
DOCUMENT REVIEW	Lead	
RESPONSE TO COMMENTS	Lead - Regulatory	Lead - Technical
REVISIONS	Oversight/Review	Lead
PUBLIC HEARING	Lead	
PROJECT LEVEL EIR		Lead

The CEQA scoping meeting will be held jointly by Regional Water Board staff and stakeholder groups, while the environmental analysis will be conducted primarily by the groundwater basin stakeholder groups with oversight and review by Regional Water Board staff. Following the release of the draft environmental document for public review, it is anticipated that there will be comments on its technical and regulatory aspects. The Regional Water Board will take the lead in responding to the regulatory comments, while stakeholders will be the lead for responding to technical comments. Any revisions

necessary in response to public comments will be the purview of the stakeholder groups with oversight by Regional Water Board staff. Preparation of the environmental documentation for consideration and adoption by the Regional Water Board will be the responsibility of Regional Water Board and staff. Finally, once the SNMPs have been adopted and specific projects are to be implemented, basin stakeholders will be responsible for the development of project-specific environmental analysis and other related CEQA requirements.

TIMELINE FOR THE CEQA PROCESS IN RELATION TO SNMP DEVELOPMENT

The SED will be considered by the Regional Water Board as part of the adoption of the implementation provisions contained in the SNMPs. Approval of the SED is separate from approval of a specific project alternative or a component of an alternative. Approval of the SED refers to the process of: (1) addressing comments, (2) confirming that the Regional Water Board considered the information in the SED, and (3) affirming that the SED reflects independent judgment and analysis by the Regional Water Board - CEQA Guidelines Section 10590 and 15090 (Title 14 of CCR).

Stakeholders are encouraged to begin the CEQA process once potential basin management strategies have been identified during SNMP development. The CEQA scoping meeting should be held early enough in the process for consideration of public comments during the development of the substitute environmental document. Ideally the SED should be completed at the same time as the SNMP for timely consideration and adoption by the Regional Water Board.

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6. BOARD ADOPTION OF SNMPS

As stated in the Policy: *Salt and nutrient plans shall be completed and proposed to the Regional Water Board within five years from the date of this Policy unless a Regional Water Board finds that the stakeholders are making substantial progress towards completion of a plan. In no case shall the period for the completion of a plan exceed seven years.*

Stakeholders are encouraged to complete and submit SNMPs for each basin by May 2014 as specified in the Policy. However, the Policy allows for an extension where significant progress has been made but this deadline cannot be met. For this purpose, the Regional Water Board will consider "significant progress" as follows: (i) upon completion of a collaborative stakeholder developed basin wide monitoring plan that meets the requirements set forth in the Policy, (ii) completion of the salt/nutrient source identification, loading and linkage analysis, and (iii) commencement of the development of implementation strategies for basin management. Stakeholders will also be required to make a showing that completion by the May 2014 deadline is infeasible. SNMPs that have not achieved significant progress may warrant greater Regional Board involvement or Regional Board developed plans, and will be addressed on a case-by-case basis.

Within one year of the receipt of a proposed salt and nutrient management plan, the Regional Water Boards shall consider for adoption revised implementation plans, consistent with Water Code section 13242, for those groundwater basins within their regions where water quality objectives for salts or nutrients are being, or are threatening to be, exceeded. The implementation plans shall be based on the salt and nutrient plans required by this Policy.

The Regional Water Board expects to adopt the implementation provisions of each SNMP within one year of submission by basin/sub-basin stakeholders. State Water Board staff have provided templates for these Basin Plan amendments (see Appendix I) as a guide to the scope of information to be provided in the amendment language. Table 6-1 provides a tentative schedule of stakeholder tasks and submissions.

TABLE 6-1: TENTATIVE SCHEDULE OF STAKEHOLDER SUBMISSIONS

Tasks	**Date**
CEQA Scoping Meeting	June 2013
Initial Draft SNMP & CEQA submittal	November 2013
Final Draft SNMP & CEQA submittal	May 2014
Regional Water Board Consideration and Adoption	May 2015 and beyond

Regional and State Water Board Resources

Regional Water Board staff expects to continue working collaboratively with groundwater basin stakeholders during the SNMP development process, as well as through the Board adoption process. In addition to staff assigned for this purpose, the following resources are available to stakeholders to facilitate the process.

Regional Water Board SNMP website:

www.waterboards.ca.gov/losangeles/water_issues/programs/salt_and_nutrient_management/index.shtml

SNMP E-mail list subscription:
http://www.waterboards.ca.gov/resources/email_subscriptions/reg4_subscribe.shtml

Groundwater Ambient Monitoring and Assessment (GAMA) website:
www.waterboards.ca.gov/losangeles/water_issues/programs/sgama/geotracker_gama.html

State Water Board website:
http://www.swrcb.ca.gov/water_issues/programs/water_recycling_policy/index.shtml

7. REFERENCES

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http://www.waterboards.ca.gov/water_issues/programs/gama/geotracker_gama.shtml

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Appendix E: SED Addendum

ADDENDUM TO THE
SUBSTITUTE ENVIRONMENTAL DOCUMENT FOR THE
UPPER SANTA CLARA RIVER VALLEY EAST SUBBASIN
SALT AND NUTRIENT MANAGEMENT PLAN

INTRODUCTION/PROJECT MODIFICATION DESCRIPTION

In accordance with the State Water Resources Control Board's (SWRCB's) Recycled Water Policy (Policy), the Upper Santa Clara River Integrated Regional Water Management Planning Group of stakeholders, including the Castaic Lake Water Agency (CLWA), City of Santa Clarita, CLWA Santa Clarita Water Division (SCWD), Santa Clarita Valley Sanitation District (SCVSD), Newhall County Water District (NCWD), Valencia Water Company (VWC), and other interested community members worked collaboratively to prepare a Salt and Nutrient Management Plan (SNMP) for the Santa Clara River Valley East Groundwater East Subbasin (East Subbasin). The Basin can also be referred to as the Upper Santa Clara River (USCR) Basin.

The purpose of the SNMP is to determine the current (ambient) water quality conditions in the East Subbasin and ensure that all water management practices, including the use of recycled water, are consistent with water quality objectives. The SNMP is intended to provide the framework for water management practices to ensure protection of beneficial uses, and allow for the sustainability of groundwater resources consistent with the Basin Plan.

The California Regional Water Quality Control Board, Los Angeles Region (Regional Board) is the lead agency for evaluating the environmental impacts of the SNMP. Any water quality control plan, state policy for water quality control, and any other components of California's water quality management plan as defined in Code of Federal Regulations, title 40, sections 130.2(k) and 130.6, proposed for board approval or adoption must include or be accompanied by Substitute Environmental Documentation (SED) and supported by substantial evidence in the administrative record. The SED prepared for the SNMP analyzed environmental impacts that may occur from implementing groundwater quality management measures identified in the SNMP, and is a variation of the California Environmental Quality Act (CEQA) evaluation.

The SED is based on the proposed SNMP for the East Subbasin that will be considered by the Regional Board and, if approved by the Regional Board, will be incorporated into the California Water Quality Control Plan, Los Angeles Region (Basin Plan) consistent with Water Code Section 13242. The SED is scheduled to be considered by the Regional Board when the Regional Board considers adoption of the groundwater quality management measures in the SNMP as a Basin Plan Amendment on November 10, 2016. Approval of the SED is separate from approval of a specific project alternative or a component of an alternative. The approval process for the SED includes (1) addressing public comments received during the 45-day comment period that ends on October 13, 2016, (2) confirming that the Regional Board considered the information in the SED, and (3) affirming that the SED reflects independent judgment and analysis by the Regional Board (CEQA Guidelines Section 15090 (Title 14 of CCR), Division 6, Chapter 3).

The use of recycled water is a key component in the long-term water supply management in the Santa Clarita Valley. For the SNMP, the impact of recycled water on the water quality of the groundwater basin was investigated for treated effluent

discharged to the Santa Clara River and recycled water applied to the land surface for landscape irrigation. In particular, the SED analyzed the concentration of chloride in recycled water supplied by the two water reclamation plants in the Valley (the Valencia Water Reclamation Plant and the Saugus Water Reclamation Plant) at 125 milligrams per liter (mg/l). A sensitivity analysis was subsequently prepared for the SNMP which modeled chloride levels at a higher level meant to represent increases in chloride in the water supply due to historic drought conditions of water treatment plant discharges at 156 mg/l. The sensitivity analysis evaluated changes in groundwater chloride concentrations in Santa Clara River Management Zones 3 and 4 adjacent to the reclamation plants, to assess the potential impacts on assimilative capacity. This additional higher chloride scenario, is being added to the SED per this addendum to provide more information about the project.

This addendum demonstrates that the environmental analysis, impacts, and mitigation measures identified in the CEQA SED remain substantively unchanged as a result of the additional modeling scenario considered and described in this document. Thus, the proposed modified project (modifications to the project identified in the SED with the addition of the new scenario) does not result in any new significant impacts or a substantial increase in the severity of any impacts previously identified in the CEQA SED. The reader is referred to Sections 5 and 6 of the SED for the evaluation of environmental impacts, cumulative impacts, unavoidable significant environmental effects, and significant irreversible environmental changes.

REGULATORY BACKGROUND

The Recycled Water Policy requires that SNMPs comply with CEQA. CEQA requires state and local agencies to determine the potential significant environmental impacts of proposed projects and identify measures to avoid or mitigate those impacts where feasible. The basic purposes of CEQA are to 1) inform decision makers and the public about the potential significant environmental effects of a proposed project, 2) identify ways that environmental damage may be avoided or mitigated, 3) prevent significant, avoidable damage to the environment by requiring changes in projects through the selection of feasible project alternatives or mitigation measures, and 4) disclose to the public why an agency approved a project if significant effects are involved (California Code of Regulations (CCR), title 14, § 15002(a)).

Under CEQA, an addendum to a CEQA document, including an SED, is appropriate if minor technical changes or modifications to the project occur (CEQA Guidelines Section 15164), where the changes or modifications to not result in any new significant impacts or a substantial increase in the severity of previously identified significant impacts. The addendum need not be recirculated for public review (CEQA Guidelines Section 15164[c] and 15088.5) where ‘new information’ added to the document is not “significant” and that the new information added merely clarifies or amplifies or makes insignificant modifications to the document. However, the Regional Board must consider the addendum with the Final CEQA document prior to making a decision on the project modifications (CEQA Guidelines Section 15164[d]).

EVALUATION OF MODIFICATION

The initial predictive model runs in the SNMP assume that recycled water discharged to the Santa Clara River will be treated by reverse osmosis and will have a maximum

average chloride concentration of 100 mg/L, while recycled water used for landscape irrigation may have a higher chloride concentration of approximately 125 mg/l (the sum of the State Water Project median chloride concentration [70 mg/l] and the average chloride increment since 2010 [55 mg/l]). Thus the SNMP modeled and SED analyzed the concentration of chloride in recycled water supplied by the two water reclamation plants in the Valley (the Valencia Water Reclamation Plant and the Saugus Water Reclamation Plant) at 125 mg/l.

Subsequent to this initial modeling, the SCVSD recommended additional predictive modeling be performed to evaluate the impact of higher chloride concentrations seen in imported water since 2011 as a result of historical dry conditions. As such, a sensitivity analysis was subsequently prepared for the SNMP which modeled chloride levels in recycled water used for landscape irrigation at 156 mg/l (the average chloride concentration in Valencia plant effluent for the period 2001-2011) and assessed the resulting impact on the basin's assimilative capacity. This was done to reflect the level of chloride that might occur in recycled water supplied by the two WRPs under severe drought conditions.

Table 1 below compares the changes in assimilative capacity between the initial model and the sensitivity run as a result of recycled water use proposed in the CLWA Recycled Water Master Plan. The concentrations shown in columns [1] and [2] are the resulting average concentrations for the initial model and sensitivity run respectively for Management Zone 3 (South Fork subunit) and Management Zone 4 (Santa Clara – Bouquet and San Fancisquito Canyon subunit); the zones adjacent to the reclamation plants. The assimilative capacity for the initial run and sensitivity run are reported in columns [3] and [4] respectively. Column [5] reports the change in assimilative capacity between the initial run and the sensitivity run for Management Zone 3 and Management Zone 4. As shown, a higher chloride concentration will result in a decline of assimilative capacity from 17.2 mg/l to 15.9 mg/l in Management Zone 3, while in Management Zone 4 results in a decline from 5.2 mg/l to 4.7 mg/l. In other words, the results of the sensitivity analysis indicate only nominal losses in chloride assimilative capacity of 0.5 and 1.3 mg/l in the affected water management zones. This is measured against a chloride Basin Objective of 100 mg/l in both cases and does not change the required compliance with the chloride TMDL for the Santa Clara River. Therefore, the sensitivity analysis indicates that the decline in assimilative capacity is less-than-significant at the higher chloride concentration used in the sensitivity analysis.

Appendix J in the SNMP provides a summary of the anticipated water quality changes for the sensitivity analysis and how anticipated water quality changes were implemented in the spreadsheet model.

Table 1. Summary of Sensitivity Analysis

Management Zone	Average Chloride Concentrations, mg/L		Assimilative Capacity, mg/L		Decrease in Assimilative Capacity, mg/L
	[1]	[2]	[3]	[4]	[5]
	Current Model	Sensitivity Run	Current Model	Sensitivity Run	
Management Zone 3	82.8	84.1	17.2	15.9	1.3
Management Zone 4	94.8	95.3	5.2	4.7	0.5

CONCLUSION

The addition of this scenario results in no change in the purpose, need, or objectives of the project.

The implementation of the proposed Basin Plan Amendment with this project modification will continue to result in improved groundwater quality in the Santa Clara River Valley East Subbasin and will have significant positive impacts to the environment (including the preservation of groundwater beneficial uses) and the economy over the long term. Additionally, the program level CEQA analysis still concludes that when the Program is implemented in combination with non-SNMP projects in the region, there would be less than significant cumulative impacts on the environment. The reader is referred Section 7 of the SED for the final determination and findings; which remain unchanged as a result of this project modification.

This addendum demonstrates that the environmental analysis, impacts, and mitigation measures identified in the CEQA SED remain substantively unchanged as a result of the project modifications considered and described in this document. Thus, the proposed modified project (modifications to the project identified in the SED) does not result in any new significant impacts or a substantial increase in the severity of any impacts previously identified in the CEQA SED. The reader is referred to Sections 5 and 6 of the SED for the evaluation of environmental impacts, cumulative impacts, unavoidable significant environmental effects, and significant irreversible environmental changes.