D R A F T

October 7, 2009

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

DECISION XXX

In the Matter of Applications 31165 and 31370
San Bernardino Valley Municipal Water District and
Western Municipal Water District,
Applicants

City of Redlands
East Valley Water District
Santa Ana River Mainstem Local Sponsors
California Department of Fish and Game
San Bernardino Valley Water Conservation District
Bear Valley Mutual Water Company, Lugonia Water Company, North Fork Water Company and Redlands Water Company
California Sportfishing Protection Alliance
United States Forest Service
Protestants

City of Chino
Southern California Edison
Center for Biological Diversity
Interested Parties

SOURCES: Santa Ana River, Bear Creek, Breakneck Creek, Keller Creek and Alder Creek

COUNTY: San Bernardino

DECISION PARTIALLY APPROVING APPLICATIONS 31165 AND 31370

BY THE BOARD:

INTRODUCTION

This decision of the State Water Resources Control Board (State Water Board or Board) partially approves water right Applications 31165 and 31370 of San Bernardino Valley Municipal Water District (Muni) and Western Municipal Water District (Western) (collectively referred to as Muni/Western or Applicants) to appropriate water by direct diversion and storage to

groundwater basins for beneficial use within the boundaries of the areas administered by Muni/Western, in San Bernardino and Riverside Counties.

1.0 BACKGROUND

In Order WR 2000-12, the State Water Board acted on two petitions to revise the Declaration of Fully Appropriated Streams (Declaration) to appropriate water from the Santa Ana River (or River). Order WR 98-08 was revised to allow for processing two water right applications, including Application 31165 submitted by Muni/Western.

Subsequently, the State Water Board received four additional petitions requesting revision of the Declaration to allow for processing four additional applications. At that time, Muni/Western submitted Application 31370. Based on evidence in the record, the State Water Board found that the Declaration as adopted in Order WR 98-08 should be revised to allow processing of these water right applications.

2.0 PROJECT DESCRIPTION

Muni/Western filed Application 31165 on March 21, 2001 and Application 31370 on November 4, 2002. The applications were publicly noticed on January 11, 2002 and January 31, 2003, respectively. Under Applications 31165 and 31370, Muni/Western applied to divert water from the Santa Ana River and from Bear Creek, Breakneck Creek, Keller Creek and Alder Creek, which are tributary to the Santa Ana River. Applicants propose to operate the project as a combination of storage and direct diversion not to exceed 100,000 acre-feet per annum (afa) under each application, with a combined total diversion of 200,000 afa under the two applications.

Under Application 31165, Muni/Western proposes to divert up to 50,000 afa to storage at Seven Oaks Dam (Dam) and up to 100,000 afa to 12 spreading facilities (Muni/Western 5-1, par. 84; Muni/Western 5-35)[1] for underground storage and subsequent extraction and use. Applicants also propose to directly divert up to 800 cubic feet per second (cfs) under Application 31165, not to exceed a total of 100,000 afa. (SWRCB-1.)

[1] Exhibits introduced at hearing will be referred to in this decision by party name and exhibit number (e.g., SWRCB-1 refers to State Water Board Exhibit 1).

Under Application 31370, Muni/Western seeks a right to appropriate 50,000 afa to surface storage at the Dam, 100,000 afa to off-stream storage,[2] and up to 100,000 afa to existing spreading facilities for underground storage for subsequent extraction and use. The applicants also propose to directly divert up to 1,100 cfs under Application 31370, not to exceed 100,000 afa. The 17 points of diversion and rediversion requested in the two applications are within the County of San Bernardino. The place of use for each application is within the Counties of San Bernardino and Riverside. (SWRCB-1.) The locations of the points of diversion and/or rediversion for each application are described in Tables A and B of this decision (see pages 64 66). As some of the points of diversion and rediversion in the original applications described the same point, the points have been renumbered. Table B also includes points of rediversion for Lake Mathews, Diamond Valley Lake, and Lake Skinner. There are now a total of 15 points of diversion and/or rediversion between the two applications.

Muni/Western proposes to divert water year-round for the purpose of municipal, industrial, irrigation, heat control, frost protection and recreational uses. Muni/Western proposes to use existing and new facilities in Seven Oaks Dam and reservoir construction area. Muni/Western also proposes construction of facilities (1) immediately downstream of Seven Oaks Dam; (2) adjacent to the Devil Canyon Power Plant and afterbays of the State Water Project, (3) in the area of lower Lytle Creek just north of the City of Rialto, and (4) an area immediately south thereof. (SWRCB-1.)

3.0 PROTESTS TO APPLICATIONS 31165 AND 31370

Eight protests were filed against Applications 31165 and 31370. Protests by Bear Valley Mutual Water Company, Lugonia Water Company, North Fork Water Company, City of Redlands, East Valley Water District, and Redlands Water Company were resolved as part of the 2004 *Settlement Agreement Relating to the Diversion of Water From the Santa Ana River System* (Seven Oaks Accord). (SWRCB-1: April 5, 2007 settlement agreement.)

Protests by California Department of Fish and Game (CDFG), San Bernardino Valley Water Conservation District (Conservation District), and United States Forest Service were resolved through a separate settlement or memorandum of agreement. (SWRCB-1: letters dated April

[2] The Notice of Application to Appropriate Water by Permit dated January 31, 2003 did not state Muni/Western applied for 100,000 afa to offstream storage.

12, 2007 and March 19, 2007 and April 24, 2007 settlement agreement.) California Sportfishing Protection Alliance (CSPA) did not appear at the pre-hearing conference or at the hearing. The State Water Board subsequently dismissed CSPA's protest for failure to respond. On May 8, 2007, Santa Ana River Mainstem Local Sponsors[3] (Local Sponsors) and Muni/Western submitted a stipulation to the State Water Board regarding the protests by the Local Sponsors to Applications 31165 and 31370. (Local Sponsors 1-18.) In that stipulation, Muni/Western and Local Sponsors agreed to continue negotiating in good faith toward an access agreement.

In addition, Local Sponsors, and United States Forest Service each asked to have a term added to any water right granted pursuant to Applications 31165 and 31370. Those terms are included in the order portion of this Decision.

4.0 HEARING ISSUES

On February 1, 2007, the State Water Board issued a Notice of Public Hearing and Pre-Hearing Conference (Notice).[4] The Notice was revised on March 1, 2007, with modifications to the date of the pre-hearing conference, the name of the Hearing Officer, and the correction of some typographical errors in the original hearing notice. The notice specified six key issues:

1. Is there water available for appropriation by each of the applicants? If so, when is water available and under what circumstances?

2. Will approval of any of the applications or the petition result in any significant adverse impacts to water quality, the environment or public trust resources? If so, what adverse impact or impacts would result from the project or projects? Can these impacts be avoided or mitigated to a level of non-significance? If so, how? What conditions, if any, should the State Water Board adopt to avoid or mitigate any potential adverse impacts on fish, wildlife, or other public trust resources that would otherwise occur as a result of approval of the applications and petition?

[3] "Local Sponsors" is comprised of Orange County Flood Control District, Riverside County Flood Control and Water Conservation District and San Bernardino County Flood Control District.

[4] The hearing concerned four water right applications and a wastewater change petition. The fifth water right application (Application 31371) was withdrawn by the applicant, San Bernardino Valley Water Conservation District, prior to the hearing. This decision addresses only Applications 31165 and 31370 by Muni/Western.

3. Is each of the proposed projects in the public interest? If so, what conditions, if any, should the State Water Board adopt in any permits that may be issued on the pending applications, or in any order that may be issued on the wastewater change petition, to best serve the public interest?

4. Will any of the proposed appropriations by the applicants and/or the proposed change in treated wastewater discharge by the petitioner cause injury to the prior rights of other legal users of water?

5. What should be the relative priority of right assigned to any permits that may be issued on the pending applications?

6. What effect, if any, will the projects have on groundwater and/or movement of any contaminated groundwater plumes? Can the effects be mitigated? If so, how?

5.0 PARTIES TO THE PROCEEDINGS

In a water right proceeding, the parties include the applicants, persons who filed unresolved protests, and any other persons who are designated as parties in accordance with the procedures set forth in the notice of hearing. (Cal. Code Regs., tit. 23, § 648.1, subd. (b).) Persons presenting non-evidentiary policy statements are not parties. (*Id*., § 648.1, subd. (d).) Accordingly, the parties in this matter include the Santa Ana River applicants, the Center for Biological Diversity, and the Santa Ana River Mainstem Local Sponsors.

The State Water Board's hearing procedures do not require the filing of a protest as a prerequisite to participating in a hearing. Nonetheless, during the pre-hearing conference on April 6, 2007, the participants requested an opportunity to brief the Board on the extent to which the Center for Biological Diversity (Center) should be allowed to participate as a party. According to the Center's Notice of Intent to Appear, the Center intended to present a case-in-chief on the impacts of the applications on public trust resources. Certain applicants objected to the Center's presentation of evidence on the grounds that the Center had not protested their applications. In its brief, Muni/Western contended the allowance of a late appearance at a hearing by a person who did not file a protest results in unfair surprise to the hearing participants. Orange County Water District joined with Muni/Western's request to limit the

Center's participation to its protest against the wastewater change petition submitted by the City of Riverside.

In his April 20, 2007 ruling the Hearing Officer stated that it is within the State Water Board's discretion to allow an interested party who has not submitted a protest to participate in an adjudicative proceeding as a party, citing the Administrative Procedure Act, the State Water Board's regulations, and its hearing procedures. He further noted that the Center has an extensive history of advocacy and legal involvement in the Santa Ana River watershed and its public trust and environmental interests in this proceeding are unique and are not represented by other parties. The Hearing Officer concluded that the Center, having complied with the procedural requirements for participating in the hearing, would be allowed to participate fully.

STATE WATER BOARD FINDINGS

When approving an application to appropriate water, the State Water Board must make findings regarding water availability, beneficial use, public trust, and public interest. Each one of these findings is discussed below in the context of the noticed hearing issues.

6.0 WATER AVAILABILITY

When considering whether to approve an application to appropriate water, the State Water Board must determine whether unappropriated water is available to supply the project described in an application. (Wat. Code, §1375, subd. (d).) Unappropriated water includes water that has not been either previously appropriated or diverted for riparian use. (Wat. Code, §§ 1201, 1202.) According to the State Water Board's regulations, a permit can be issued only for unappropriated water. Unappropriated water does not include water being used pursuant to an existing right, whether the right is owned by the applicant, or by another person. (Cal. Code Regs., tit. 23, § 695.)

In determining the amount of water available for appropriation, the State Water Board shall take into account, whenever it is in the public interest, the amounts of water needed to remain in the source for protection of beneficial uses. Beneficial uses include, but are not limited to, instream uses, recreation and the preservation of fish and wildlife habitat. (Wat. Code, § 1243.)

Muni/Western contends that unappropriated water is available to supply the project described in Applications 31165 and 31370. Muni/Western proposes to operate the project so that the total combined annual amount of water appropriated as a combination of storage and direct diversion under the two applications does not exceed 200,000 acre-feet (af) in any one year. (SWRCB-1.) At the hearing, Muni/Western reduced the combined direct diversion rate for the two applications from 1,500 cfs to 1,250 cfs (May 8, 2007 R.T. p. 13), but did not reduce the total diversion amount of 200,000 afa under the two applications. The combined total amount of water stored behind Seven Oaks Dam under the two applications will not exceed 50,000 afa. (Muni/Western 4-3, p. 2-3.)

Muni/Western proposes to put the water diverted under Applications 31165 and 31370 to beneficial use through a combination of direct delivery to water treatment facilities, spreading to recharge groundwater basins, and storage in surface storage reservoirs for future direct delivery or groundwater recharge, all of which serve the Muni/Western service area.

6.1 Surface Storage Facilities

Muni/Western proposes to store water at Seven Oaks Dam, which is a 550-feet high earth/rock-fill dam with a gross storage capacity of 147,970 af at spillway crest. (Muni/Western 4-3, p. 3.1-6.) Seven Oaks Dam is owned and operated by the Santa Ana River Mainstem Local Sponsors. The watershed above Seven Oaks Dam drains approximately 177 square miles. (Muni/Western 4-3, p. 3.1-22.) Big Bear Dam, which forms Big Bear Lake upstream of Seven Oaks Dam, is the only major dam that affects runoff into Seven Oaks Dam. (Muni/Western Exhibit 5-1, par. 24a.) In its Environmental Impact Report (EIR), Muni/Western states that up to 50,000 af of water could be impounded behind Seven Oaks Dam for seasonal storage for the project after the designated flood control season (October through February). (Muni/Western 4-3, pp. 2-2 & 2-3.) Muni/Western also states that under current operations, from June through October of each year, all of the water collected behind Seven Oaks Dam is released downstream. From the beginning of November to the end of May, all flows except 3 cfs are stored behind the dam until a target debris pool storage height of 2,200 feet National Geodetic Vertical Datum (NGVD) (approximately 3,000 af of storage) is met. Once the storage amount reaches 2,200 feet NGVD, the reservoir is operated so that outflow equals inflow. In the event of a flood, Seven Oaks Dam is operated in conjunction with Prado Dam. In that case, Seven Oaks Dam releases do not exceed 500 cfs until the peak water surface elevation has

passed at Prado Dam. Following a flood, water is released from Seven Oaks Dam at up to 7,000 cfs until target storage is again reached. Releases as great as 8,000 cfs, however, are possible through the outlet works under emergency operating conditions. Releases greater than 8,000 cfs can only be made utilizing the dam spillway. From June through September, the debris pool is emptied. (Muni/Western 4-3, p. 3.1-6.)

In addition to Seven Oaks Dam, Muni/Western proposes surface storage in Diamond Valley Lake, Lake Mathews, and Lake Skinner. (Muni/Western 7-1, p. 5.) Diamond Valley Lake, Lake Mathews, and Lake Skinner are existing reservoirs owned by Metropolitan Water District and have storage capacities of 800,000 af, 182,800 af, and 44,400 af, respectively. (Muni/Western 7-1, p. 5.)

6.2 Analysis of Water Available for Appropriation

Although Muni/Western seeks to divert 200,000 af of water each year under Applications 31165 and 31370, Messrs. Robert Reiter, Robert Beeby, and Dennis Williams, witnesses on behalf of Muni/Western, provided testimony that the amount of water Muni/Western seeks to appropriate in their applications will not always be available. (Muni/Western Exhibit 3-1, pp. 12-13; Muni/Western 5-1, pp. 19, 21; Muni/Western 6-1, pp. 16-18; May 2, 2007 R.T., p. 219.) The goal of Muni/Western's project is to capture large flood flows, which seldom occur. Stream gage records show the highly variable nature of Santa Ana River flows, with large floods and long periods of extremely low flow. The actual amount of water available for diversion and recharge, therefore, will vary greatly from year to year. (Muni/Western 4-3, p. 3.1-2.)

Muni/Western provided conflicting testimony regarding how much water is available for appropriation. Muni/Western looked at flow immediately downstream of the Francis Cuttle Weir[5] as the point of interest. For the purposes of their analyses, Muni/Western used gage data[6] and synthesized flow coming out of Big Bear Lake to estimate how much water was available for appropriation. The synthesized hydrology used in the estimate assumes current

[5] The Francis Cuttle Weir was built in 1932 and is located approximately one mile downstream from Seven Oaks Dam. Water diverted from the Santa Ana River is conveyed from the weir to the Santa Ana River Spreading Grounds through the Conservation District Canal. (Muni/Western 5-1, p. 6.)

[6] According to Mr. Beeby's testimony and Muni/Western's EIR, the accuracy of USGS gaging stations in the portion of the Santa Ana River affected by the project are rated "Fair" largely due to the fact that the channel is somewhat unstable and irregular. Because these stations are rated as "Fair", the accuracy is defined by the USGS as plus or minus 15 percent. (Muni/Western 5-1, pp. 9-10; Muni/Western 4-4, p. 2-35.)

operations of Big Bear Lake[7] and current operations of Seven Oaks Dam.[8] United States Geological Survey (USGS) gage data included the "Combined Flow" Mentone Gage (USGS record 11051501), which is a combination of three gages and represents the sum of streamflow recorded in the River at the Mentone Gage, in addition to flow that would have been in the river at this location had it not been diverted upstream for use in the Southern California Edison hydroelectric system. (Muni/Western 5-1, pp. 9, 16-17.)

In his testimony, Mr. Beeby presented a graph that purported to show the amount of unappropriated water subject to appropriation by Muni/Western with implementation of the project. (Muni/Western 5-90, Slide 18; Muni/Western Exhibit 5-12.) The exhibit is a graphical representation of historical flow below Seven Oaks Dam and includes historical diversions by the Senior Water Rights Claimants[9] and the San Bernardino Valley Water Conservation District (Conservation District). The graph illustrates that from Water Year (WY) 1961-62 through WY 1999-2000, the maximum amount of water available to Muni/Western, assuming no habitat flows, was roughly 175,000 af and the total flow was roughly 212,000 af. This occurred in WY 1968-69. (Muni/Western 5-12; Muni/Western 5-1, pp. 16-17; 21; 33.)

Using this gage data input, including the synthesized hydrology for Bear Valley Dam, Muni/Western then analyzed how much water would be available for diversion through modeling. As Muni/Western's project is a flood project, Muni/Western did not perform an analysis meant to demonstrate that the water would be available every year, or even every average water year. In their analyses, Muni/Western looked at how much flow would have been available for capture for their project if there were a repetition of a 39-year hydrologic period (WY 1961-62 through WY 1999-2000), with some adjustments. The 39-year base period was

[7] During the course of the base period that was established for the hydrologic and the engineering analyses, the operations of Big Bear reservoir changed. So in order to be consistent throughout the analysis period, Muni/Western created synthesized flows at Big Bear to reflect the changes in reservoir operations. (May 2, 2008 R.T. p. 192.)

[8] Construction of Seven Oaks Dam was completed in 1999. (Muni/Western 4-3, p. 1-3.)

[9] The "Senior Water Rights Claimants" are a group of purveyors, as defined in Muni/Western's EIR, who claim pre-1914 water rights on the Santa Ana River. They are: Bear Valley Mutual Water Company (and shareholders, including City of Redlands), Lugonia Water Company, North Fork Water Company (and shareholders, including East Valley Water District), and Redlands Water Company. The Senior Water Rights Claimants receive all of their Santa Ana River water via diversions made from the Santa Ana River at the Redlands Tunnel, the New Southern California Edison Conduit, Old Southern California Edison Conduit, and the smaller Auxiliary River Pickup. (Muni/Western 5-1, p. 11; Muni/Western 4-3, p. 2-2.) The Conservation District also claims pre-1914 water rights on the Santa Ana River. The Conservation District exercises its claimed pre-1914 rights primarily at the Cuttle Wier. (Muni/Western 4-3, p.3.1-19.) The State Water Board does not express any opinion in this decision on the validity or invalidity of any of these water rights.

chosen to best represent average hydrologic conditions in the project area.[10] (Muni/Western Exhibit 5-1, p. 16.) According to Muni/Western's witness, Mr. Beeby, these analyses were conducted using a suite of computer models developed by Science Applications International Corporation (SAIC) and Geoscience Support Services, Inc., who worked cooperatively in model development and in evaluating the results. The computer models were used to simulate hydrologic conditions based on a repetition of historical hydrology. Muni/Western used these models to estimate the amount of potential capture of unappropriated water from the Upper Santa Ana River that can be put to beneficial use for a range of scenarios, as well as to evaluate the effects of such capture on the downstream channel hydrology and hydraulics. The models were also used to analyze the effects of various proposed settlement alternatives. Sixteen project scenarios were developed based on a number of variables, and five scenarios were analyzed in detail because they represented the high and low range of capture amounts for diversion rates of 500 cubic feet per second (cfs) and 1,500 cfs under specific conditions. According to Mr. Beeby's testimony, SAIC engineers and technical staff also worked closely with the modeling staff at Geoscience Support Services, Inc., to ensure consistency between the surface water modeling efforts and groundwater modeling efforts. (Muni/Western 5-1, pp. 2, 5.)

Muni/Western used modeling to forecast future surface water conditions. The Operations Model (OPMODEL) was used to estimate the amount of water potentially available to Muni/Western for diversion after accounting for diversions by prior right holders and other uses. The initial input Muni/Western used for the OPMODEL was an estimate of inflow to Seven Oaks Reservoir, which, as described above, was based primarily on USGS historical data, modified to reflect current operation of Bear Valley Dam. Muni/Western then estimated annual reservoir evaporation and subtracted that amount to account for the current operations of Seven Oaks Dam. (Muni/Western 5-1, pp. 32-33.)

According to Muni/Western's EIR and testimony from their witness, 198,317 af of water would have been available for diversion in the wettest year (WY 1968-69) during the hydrologic period of WY 1961-62 through WY 1999-2000. (Muni/Western 4-3, Appendix A, Table 4.2-8; May 2 2007 R.T., p. 216.) According to their own calculations, Muni/Western would have only been

[10] Mr. Beeby presented testimony that surface runoff analyses by Science Applications International Corporation, and precipitation analysis by Geoscience Support Services, Inc., led to the selection of the 39-year base period (WY 1961-62 through 1999-2000) to best represent average hydrologic conditions. (Muni/Western 5-1, p. 16, par. 47.)

able to capture 99,678 af or more in 4 of the thirty-nine years of the hydrologic base period. (Muni/Western 5-83.) Consequently, Robert Reiter for Muni/Western suggested a 50-year period of development in any permits issued for the project, in order to build the necessary facilities and allow a reasonable period of time for there to be an extremely wet year, given the erratic hydrology of the Santa Ana River. Mr. Reiter also stated that the "flashy" Santa Ana River hydrology should be reflected in any permits granted to Muni/Western. The analysis contained in the Draft and Final EIRs shows that very wet years, like WY 1969 or WY 1980, are infrequent. (Muni/Western 3-1, pp. 12-13.)

In Muni/Western's modeling simulations, the maximum diversion scenario is the maximum potential appropriation by Muni/Western at a diversion rate of 1,500 cfs and is the result of assuming: (1) historical diversions by senior water rights claimants; (2) licensed diversions by the Conservation District; (3) environmental restoration without releases from Seven Oaks Dam; and (4) seasonal water conservation storage at Seven Oaks Dam. (Muni/Western 4-3, p. 3.0-4.) Under the maximum diversion scenario for the wettest year during the 39-year base period, the results of the model showed a capture of 198,317 acre-feet, which Muni/Western rounded up to 200,000 acre-feet. The results of the model showed an average capture of 27,000 acre-feet for the maximum diversion scenario. (May 2, 2008 R.T. p. 216.) Mr. Beeby states in his testimony that capture of 198,317 af can be accomplished without affecting downstream obligations under the various judgments and with recognition of the rights of local senior water right holders to divert water from the Santa Ana River. (Muni/Western 5-1, p. 3.)

Mr. Beeby testified that the greatest effects on the Santa Ana River channel, in terms of flow rate, depth and area inundated will be in the segments from Seven Oaks Dam to the confluence with Mill Creek. Downstream from the confluence with Mill Creek, the effects of Muni/Western diversions become less when compared to the No Project condition because of the influence of tributary inflow and discharges from the existing wastewater treatment plants. Downstream from Riverside Narrows, the effects of Muni/Western diversions are so small they cannot be accurately measured. (Muni/Western 5-1, pp. 2-3.)

Mr. Beeby testified that in wet years, even with Muni/Western's diversions as well as the downstream diversions, water will still flow to the ocean because of tributary inflow between Seven Oaks Dam and the downstream outfall to the ocean. The absorption capacity of the river

channel, the diversions, and all other uses are not adequate to capture very high intensity high flow flood events. (May 2, 2007 R.T. p. 195.)

6.3 Water Available at Individual Points of Diversion Upstream of Seven Oaks Dam

According to Muni/Western's EIR, "…water diverted at a number of points of diversion (PODs) upstream of Seven Oaks Dam is currently conveyed (after being used for power generation) through the existing Southern California Edison (SCE) Canal for delivery to senior water right claimants. Water that is diverted upstream of Seven Oaks Dam is conveyed downstream in the SCE Canal to the Head Breaking Structure that is located west of, and at a lower elevation than, the spillway of Seven Oaks Dam. At the Head Breaking Structure (designed to reduce pressure in the pipeline) the SCE Canal bifurcates, delivering water to (a) the SCE Santa Ana River Powerhouse No. 2/3 via the New SCE Conduit; and (b) the Greenspot Forebay via the Old SCE Conduit. As part of the 1976 Santa Ana River-Mill Creek Cooperative Water Project Agreement, water diverted upstream of Seven Oaks Dam is physically taken by Muni downstream of the dam at the existing Greenspot Forebay and conveyed through the Greenspot Pipeline for delivery by gravity to locations which would otherwise require the use of the Greenspot Pump Station. Under the Project, Muni/Western would divert water at the foregoing PODs above Seven Oaks Dam in addition to water already taken in accordance with the Santa Ana River Mill Creek Cooperative Water Project, and would initiate new PODs downstream of Seven Oaks Dam." (Muni/Western 4-3, p. 2-2.)

Muni/Western did not provide any evidence regarding the water availability at individual points of diversion upstream of Seven Oaks Dam. (R.T. pp. 274-275.) Southern California Edison operates its diversion works for power generation under Federal Energy Regulatory Commission (FERC) license Project No. 1933. The State Water Board also issued a Clean Water Act Section 401 Water Quality Certification (401 Certification) for SCE's project on March 13, 2003.[11] Because Muni/Western will be diverting from SCE facilities which are currently subject to United States Army Corps of Engineer's (ACOE) permitting authority and to water quality certification by the State Water Board, the Board finds that Muni/Western shall only divert water at PODs 5 through 10 (see Tables A and B of this decision) in compliance with the terms and conditions of FERC license Project No. 1933 and 401 Certification. The FERC

[11] We take official notice of FERC license Project No. 1933 and March 13, 2003 401 Certification pursuant to California Code of Regulations, title 23, section 648.2, and Evidence Code section 452, subdivisions (c) and (h).

license and 401 Certification contain bypass flow requirements. However, this water would then flow to Seven Oaks Dam if not diverted by SCE's facilities. Therefore, this should not affect Muni/Western's overall water availability for the project.

6.4 Muni/Western will not Exchange Water

In their EIR, Muni/Western proposes to deliver water in excess of the immediate needs of the Muni/Western service areas during wet years outside the place of use to Metropolitan Water District of Southern California (Metropolitan) for exchange at a later date. In testimony at the hearing, however, Muni/Western stated that they did not propose to transfer water outside the place of use at this time. (May 2, 2008 R.T. p. 247; Muni/Western 5-1, p. 32, par. 99; Muni/Western 7-1, p. 1.) Rather than delivering outside the place of use proposed in Applications 31165 and 31370, Muni/Western reevaluated the project in order to put all water to beneficial use within the Muni/Western service area. (May 2, 2008 R.T. pp. 211-212, 242-248; Muni/Western 7-1.)

Mr. Jack Safely, Water Resources Manager, Western Municipal Water District, presented testimony on behalf of Muni/Western that an exchange with Metropolitan is not necessary in order for Muni/Western to put up to 198,319 af of the 200,000 af requested in the applications to reasonable and beneficial use in their service areas in a single year. (May 2, 2008 R.T. pp. 243-248; Muni/Western 7-1.) As stated above, according to Muni/ Western's analysis, the greatest quantity of water that could be expected to be diverted from the Santa Ana River, assuming a repeat of the historically wet hydrologic conditions that occurred during WY 1968-69, is 198,317 af. Mr. Safely testified that all of the water diverted from the Santa Ana River can be beneficially used in the Muni/Western service area within a 12-month period using existing and planned facilities. (Muni/Western 7-1, p 1.)

6.5 Conclusion as to Water Availability

Having considered the foregoing, the State Water Board concludes that during high flow periods, up to 198,317 af of water is available for appropriation to direct diversion, surface storage, and groundwater recharge for beneficial use under Applications 31165 and 31370. The permits issued pursuant to this decision will be subject to all prior rights to the use of water. Before issuing a license that confirms the right to appropriate 198,317 af, the State Water Board

will determine whether such an amount has been applied to beneficial use by Muni/Western. (Wat. Code, §1610.) If those flood flows never materialize, or Muni/Western does not capture and put the full 198,317 af to beneficial use, the State Water Board may, when the project is licensed, reduce the right to appropriation to the maximum amount of water put to beneficial use in any one year over the life of the permit. (Wat. Code, §1610.5.)

7.0 WATER QUALITY AT SEVEN OAKS DAM

Under both Applications 31165 and 31370, Muni/Western has applied to store 50,000 afa at Seven Oaks Dam (100,000 afa total). According to Muni/Western's EIR, water storage may present problems: certain water quality characteristics can change during impoundment in natural and artificial ponds, lakes, and reservoirs. Solar heating increases water temperature and reduces the natural ability of water to maintain dissolved oxygen concentrations. Further, natural degradation of biological materials reduces dissolved oxygen concentrations. The water column may become stratified, and mixing may be reduced or eliminated, thus fostering the development of anaerobic conditions. Anaerobic conditions can also cause exceedance of several other water quality parameters. For example, hydrogen sulfide can be generated in harmful quantities when materials containing sulfur, such as biological detritus and mineral sulfides, are available. In addition, ammonia can be generated from nitrogen-containing material; un-ionized ammonia, in particular, can be toxic to many aquatic organisms. Anaerobic conditions can also lower the pH (which results in the release of trace metals found in bottom sediments), and local nuisance conditions such as algal blooms and mosquito breeding are also more likely to occur. The *Final Supplemental Environmental Impact Statement, Santa Ana River Mainstem Including Santiago Creek, Phase II General Design Memorandum. Counties of Orange, Riverside, and San Bernardino* (ACOE, August 1988) (1988 FSEIS) published by the ACOE maintained that, should a portion of the water become anaerobic, acidic conditions would tend to be counteracted by the buffering capability (high pH) of the inflowing water. (Muni/Western 4-4, p. 2-12.) However, anaerobic conditions and resultant changes in other water quality parameters were observed in the summer of 2004 following the formation of the first debris pool behind Seven Oaks Dam.

The final EIR describes the Operations and Maintenance Manual for Seven Oaks Dam (August 2002), which establishes a water quality monitoring program to be performed at Seven Oaks Dam by the Local Sponsors. The Local Sponsors shall monitor water quality after initial

filling of the reservoir and during operation. Sampling shall be conducted in the reservoir pool and downstream of the Dam for chemical, limnological, and bacteriological parameters. Sampling shall occur within the pool and outlet during the months of January, April, May, June, and October when water is present in the reservoir pool. If warranted, a number of control measures are available and shall be used to control water quality in the reservoir. (Muni/Western 4-4, p. 2-14.)

Muni/Western has also proposed a project-specific mitigation measure, MM SW-1 to reduce the risk of anaerobic conditions in Seven Oaks Reservoir. MM-SW-1 requires participation in a program to avoid and reverse anaerobic conditions in the reservoir.

Water Code section 1258 requires the State Water Board to consider any water quality control plans that have been established under the Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.) and authorizes the State Water Board to condition appropriations as necessary to carry out those water quality control plans. Accordingly, this order includes a condition that discharges from Seven Oaks Dam shall not cause an exceedance of any water quality objective in any applicable water quality control plan.

In addition, adverse changes in water quality are subject to the federal antidegradation policy, 40 C.F.R. § 131.10, and State Water Board Resolution 68-16. As explained in State Water Board Decision 1631 (1994) at pp. 150-151, these policies establish general narrative water quality objectives that apply over and above any specific water quality objectives in the applicable water quality control plans.

The federal antidegradation policy requires, in pertinent part, that:

> (1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
>
> (2) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected, unless the State finds that allowing lower water quality is necessary to accommodate important economic or social development in the area in

> which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully.
> (40 C.F.R. § 131.12(a).)

State policy for water quality control requires that where water quality is better than required by the applicable Basin Plan objectives, that water quality will be maintained unless it has been demonstrated that a change: 1) is consistent with the maximum benefit to the people of the State, 2) does not unreasonably affect present and anticipated beneficial uses of the waters, and 3) does not result in water quality less than that prescribed in applicable water quality control plans. (State Water Board Resolution 68-16; see also State Water Board Order WQ 86-17 [State Water Board Resolution 68-16 incorporates the federal antidegradation policy as applied to situations where the federal antidegradation policy is applicable]; State Water Board Decision 1631 (1994) at p. 152 [same].)

This order includes a condition requiring compliance with applicable water quality objectives, as required by State Water Board Resolution 68-16. The State Water Board also finds that with the conditions established in this order, present and potential beneficial uses, including instream beneficial uses, will be protected.

The State Water Board also finds that so long as water quality objectives are attained and the other water quality requirements of this order are satisfied, any reduction in water quality resulting from the project are necessary to accommodate important social and economic development, within the meaning of the federal antidegradation policy, and consistent with the maximum benefit of the people of this state. Water development and water conservation projects may be considered to be important social and economic development. In addition, environmental protection may constitute important social development within the meaning of the federal antidegradation policy. (State Water Board Order WQ 2009-0007 at pp. 14-15.) As explained in greater detail below (section 9.0), the project will provide water for projected growth, promote water recycling, reduce liquefaction and accelerate groundwater cleanup.

In summary, while there may be some adverse impacts on water quality from operations from storage at Seven Oaks Dam, the project as conditioned by this order will be consistent with applicable water quality objectives, State Water Board Order 68-16, and the federal antidegradation policy.

8.0 PUBLIC TRUST

In this decision, the State Water Board has considered the Project's potential impacts to public trust resources. Evidence and testimony presented at the hearing demonstrated the Project will not have significant impacts upstream of Seven Oaks Dam due to flood control operations. Downstream of the Dam, viable aquatic and riparian habitats and aquatic species are currently restricted to three reaches of the River where perennial streamflows occur between Seven Oaks Dam and the Prado Basin. The sources of water for these reaches are tributary creeks, groundwater, and runoff from a golf course rather than outflow from Seven Oaks Dam. The EIR presented mitigation measures Muni/Western will implement to lessen the Project's construction impacts to less than significant for the Santa Ana River woolly-star (*Eriastrum densifolium* spp. *sanctorum*) and San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*). However, the EIR found the project will significantly decrease river flow in Segment F on non-storm days (Impact SW-7). Segment F provides habitat for the endangered Santa Ana sucker. Therefore this order will include a mitigation term for that impact.

For study purposes, Muni/Western divided the Santa Ana River into the following segments:

Segment A – Seven Oaks Dam plunge pool upstream to the confluence of the Santa Ana River with Bear Creek (River Mile (RM) 70.93 to Bear Creek (about RM 78.0), or 7.07 miles)

Segment B – Seven Oaks Dam plunge pool downstream to the Cuttle Weir (RM 70.93 to RM 70.46, or 0.47 mile);

Segment C – Cuttle Weir downstream to just upstream of the confluence with Mill Creek (RM 70.46 to RM 68.59, or 1.87 miles);

Segment D – Mill Creek confluence downstream to just upstream of "E" Street (RM 68.59 to RM 57.69, or 10.9 miles);

Segment E – "E" Street downstream to just upstream of the Rapid Infiltration/Extraction Wastewater Treatment Plant and Rialto Wastewater Treatment Plant Outfall (RIX and Rialto Outfall) (RM 57.69 to RM 53.49, or 4.2 miles);

Segment F – RIX and Rialto Outfall downstream to just upstream of the Riverside Narrows (RM 53.49 to RM 45.2, or 8.29 miles); and

Segment G – Riverside Narrows downstream to the Prado Flood Control Basin (RM 45.2 to RM 35.5, or 9.7 miles).

(Muni/Western 9-0, p. 5.)

Upstream of Seven Oaks Dam (Segment A)

No adverse impacts to biological resources are anticipated due to the fact that all construction activities on the upstream side of Seven Oaks Dam will take place in areas that are already heavily disturbed. Furthermore, under flood control operations, it is anticipated that biological resources will be disturbed regularly by inundation during the winter storm season. (Muni/Western 4-4, p. 2-16.)

Conservation storage of up to 50,000 afa would impound water up to 2,418 feet NGVD. Biological impacts addressed in the 1988 Final Environmental Impact Statement include effects on vegetation in the upper Santa Ana Canyon up to the 50-year flood line. The 50-year flood line is at a surface elevation of approximately 2,425 feet NGVD. Modeling by Muni/Western demonstrated that no increases in the duration of flood flows extending beyond the 50-year flood line were expected to occur under the project alternatives. (Muni/Western 4-4, p. 2-20.) Therefore, all vegetation impacts at 2,418-feet water levels were previously addressed and mitigated as part of the *Phase H General Design Memorandum on the Santa Ana River Mainstem Including Santiago Creek, California Supplemental Environmental Impact Statement* (ACOE 1988). (*Ibid*, p. 2-19.)

The project would subject approximately 1.33 miles of the Santa Ana River immediately upstream of the Seven Oaks Dam to periodic inundation. Reservoir operations for flood control or conservation storage will cause the riparian habitat to be temporarily inundated or desiccated. However, the habitat on the perimeter of the desiccation area will continue to provide habitat for the endangered southwestern willow flycatcher (*Empidonax traillii extimus*). (Muni/Western 4-4, p. 2-20.)

The only fish species found upstream of Seven Oaks Dam are introduced brown trout (*Salmo trutta*) and introduced rainbow trout (*Onchorhynchus mykiss*). These two fish species are found in segments associated with the inflows of Alder Creek and Warm Springs Creek where groundwater is forced to the surface by shallow bedrock. No extant populations of native fish have been found in this segment. (Muni/Western 4-4, p. 2-19.)

Downstream of Seven Oaks Dam (River Segments B through G)

Mr. Robert Thompson, Technical Director and Senior Project Manager with Entrix Environmental Consultants, testified regarding the potential adverse impacts to biological

resources in the Project area below Seven Oaks Dam. Mr. Thompson also testified that while impacts to terrestrial species would occur as a result of construction of new project facilities, overall the impacts to terrestrial species from operations of the Project would be less than significant. (Muni/Western 8-1, p. 20 -21.)

This witness described the project's potential impacts to River Segments B, C and D in the following way: few terrestrial biological resources occupy or utilize Segment B of the River, thus the reduction in flow would not significantly impact terrestrial biological resources. (*Ibid*, p. 18.) In Segment C, Project operations would reduce non-storm day flows within the River affecting approximately 10 acres of alluvial flood plain, producing a significant but mitigable impact to the Santa Ana River Wooly-star. (*Ibid.*) Any impacts to biological resources due to Project construction or operation will be minimized by mitigation measures MM BIO 1- 10 in Table 1 of this decision (see pages 48-57).

Muni/Western provided testimony that there are no construction related impacts in Segments E, F, and G, as the project does not include construction of facilities in this region. (Muni/Western. 8-1, p. 4, p.14.)

Mr. Roy Leidy, senior aquatic ecologist at EIP Associates, testified that viable, persistent, aquatic and riparian habitats and aquatic species are currently restricted to three reaches of the River where perennial streamflows occur between Seven Oaks Dam and the Prado Basin (i.e., the reach of the River potentially affected by operation of the project). The three reaches are:

1) 0.16 mile of aquatic and riparian habitat 0.3 miles downstream of the Seven Oaks Dam plunge pool (Segment B);
2) two miles of aquatic and riparian habitats downstream of the South Tippecanoe Avenue Bridge (Segment D); and
3) 18 miles of aquatic and riparian habitats downstream from the RIX and Rialto Outfall to the head of the Prado Flood Control Basin (Segments F and G).

The three reaches are separated from one another by miles of river channel where water flows intermittently. Mr. Leidy testified that these river reaches do not currently support viable obligate[12] aquatic resources that can persist over time. (R.T. May 3, 2007, p. 32.)

Mr. Leidy also testified that in the River below Seven Oaks Dam, special status native fishes are restricted to downstream of the Regional Rapid Infiltration and Extraction Facility/Rialto Outfall (RIX/Rialto Outfall). These native fish are unable to migrate upstream to the other two reaches containing perennial water due to intervening river reaches that are frequently dry and to physical barriers to upstream fish passage. (Muni/Western 9-0, pp. 1-2.) Also, according to Mr. Leidy, the special status species listed in Muni/Western 9-32 are only associated with those perennial stream reaches and not those reaches where streamflow is intermittent. (*Ibid*, p. 14.)

8.1 Reducing Muni/Western's Project Impacts to the Biology of the Santa Ana River

At the hearing, Ileene Anderson, Biologist for the Center for Biological Diversity, testified that her study of various resources such as the CDFG's California Natural Diversity Database, museum and university records, as well as consultation with other local sources and experts, led to her conclusion that the cumulative increases in diversions of water from the Santa Ana River will be detrimental to at least seven federally and state listed endangered species by degrading and compromising their habitats. Ms. Anderson testified her assumption is that the Santa Ana River is hydrologically connected; therefore taking water out of the river would affect the amount of water downstream. (R.T. May 3, 2007, p.241; R.T. May 4, 2007, p. 113.)

In his rebuttal testimony, Mr. Leidy presented compelling testimony that focused on riparian resources located in the area between the South Tippecanoe Avenue Bridge and "E" Street. This witness testified that this is an area where there is extensive development of riparian vegetation due to both subsurface and surface flow. However, the sources of this water are Mission Zanja Creek, San Timoteo Creek, seasonal inflow from the joint Warm Springs Creek and East Wind Creek, a golf course adjacent to the section immediately to the north of the river and perhaps, in some years, some groundwater. (R.T. May 4, 2007, pp.90-91.) Mr. Leidy went on to state that none of these sources of water are linked directly to any activity at Seven Oaks

[12] Plants and animals restricted to a set of parameters or conditions, having no alternative system or pathway.

Dam with or without the project. They are independent sources of water that come from different directions. (*Ibid*.)

8.1.1 Reintroduction of riparian resources

In a March 14, 2005 letter from Victoria Whitney, Chief, State Water Board Division of Water Rights, to representatives of Muni/Western, the State Water Board requested a water availability analysis that would address to what extent bypass flows could be used to lessen the project's impacts to the biological resources of the River. (SWRCB-1.) Mr. Leidy testified that consultants for Muni/Western spent almost two years working with CDFG by walking the River doing transects, measuring flows, taking photographs, and monitoring temperatures. Mr. Leidy also testified that the final EIR includes a water availability assessment that addresses those results. (Muni Ex. 4-4, Appendix B.) Of 35 miles of river between Seven Oaks Dam and the Prado flood control basin, 15 miles, or 43 percent, are currently intermittent stream. (R.T. May 3, 2009, p. 32.) Mr. Leidy reinterated that Mr. Robert Beeby testified that 85 percent of the available flood flows occurred in only nine of the years out of the 39-year period evaluated by the consultants. (R.T. May 2, 2007, p. 219.). Muni/Western's consultant and CDFG determined that there is not sufficient water available on a sustained basis to create obligate riparian resources in the Santa Ana River. (R.T. May 3, 2007 pp 33–34.) Therefore, the goal of metering out the water stored behind Seven Oaks Dam to recreate a perennial river to reestablish resources that might have been there historically cannot be achieved, which led to Muni/Western reaching an agreement with the CDFG. (*Ibid*.)[13]

8.1.2 Potential benefits of bypass flows from Seven Oaks Dam

The analysis in the EIR (Muni/Western 4-4, Appendix B) demonstrates that locations along the River that are hydrologically losing reaches (such as all of the area below the Seven Oaks Dam to Mill Creek) are characterized by wide alluvial cross-sections over deep alluvium. Without access to groundwater in these losing reaches during the hot months of the growing season, riparian vegetation is dependent upon the narrow saturation zone immediately adjacent to the active channel. Muni/Western's analysis demonstrates greater flow releases from Seven Oaks

[13] On March 19, 2007, Curt Taucher, Regional Manager, Inland Desert Region, CDFG, sent a letter to Tam Doduc, Chair, State Water Board, to withdraw CDFG's protest against Applications 31165 and 31370. (SWRCB-1.) Mr. Taucher stated in the letter that CDFG and Muni/Western had approved a settlement agreement resolving all the matters that were the subject of CDFG's protest. The settlement included a provision that Muni/Western will deposit $50,000/year for nine years, to be used by CDFG for the recovery of non-anadromous native fish species, such as the Santa Ana sucker, speckled dace and arroyo chub, known to occur within the Santa Ana River watershed.

Dam would not significantly increase either the size of the saturated zone adjacent to the channel or the extent of riparian vegetation. Thus, any benefit to riparian vegetation and migratory bird habitat from additional but intermittent flows will be uncertain. Also, winter flooding may limit the extent and duration of any benefit from bypass. (Muni/Western Ex. 4-4, Appendix B, p. 36.)

The River reach between Mill Creek and "E" Street supports some riparian vegetation due to rising groundwater and surface water inflows and subsurface flows from San Timoteo Creek. Therefore, suitable habitat is present to support Southwestern willow flycatchers (*Epidonax trailli extimus*), Least Bell's Vireo (*Vireo bellii pusillus*), and arroyo toads (*Bufo californicus*). The confluence of San Timoteo Creek and the Santa Ana River does support the Santa Ana speckled dace. Due to the dry River reaches and the water velocity dissipation barriers found downstream of "E" Street, the Santa Ana sucker cannot reach this location from the RIX/Rialto Outfall. A flow release from Seven Oaks Dam of 50 cfs would be needed to create flow in this reach and to have the potential to provide suitable physical habitat for the Santa Ana sucker and other native fishes. Again, the "flashiness" of the Santa Ana River makes it unlikely that habitat could be sustained.

Muni/Western's water availability analysis demonstrated that releases of 65 cfs are required to provide perennial flows from E Street to the RIX/Rialto Outfall. Flows of this nature have the potential to provide physical habitat for the Santa Ana sucker and other native fishes. However, sustainable populations could not be supported because 65 cfs is not perennially available. Muni/Western demonstrated additional but intermittent flows in the river segment between "E" Street and the RIX/Rialto Outfall would provide no benefit to aquatic species. Due to the porous substrate in the channel that allows water to rapidly infiltrate, no pools of standing water to potentially provide refugia exist in this river segment during the dry season. (Muni/Western Ex. 4-4, p. 40.) Further, there is no connectivity with upstream river reaches with the potential to support the Santa Ana sucker. Finally, while high flow events could wash the fish downstream; they could not migrate upstream due to the drop structures between "E" Street and the RIX/Rialto Outfall. (*Ibid.*)

8.2 Multi-Species Habitat Conservation Plan

One of the requirements for conservation storage at Seven Oaks Dam is the development of a Multi-Species Habitat Conservation Plan (MSHCP) to fulfill part of the endangered species mitigation requirements for flood control operation of Seven Oaks Dam. Ruth Villalobos, Chief of the Planning Division, Los Angeles District, ACOE, testified that ACOE, Local Sponsors and other interested stakeholders are continuing to develop the MSHCP. However, the MSHCP is not yet completed because of the complexity of the habitat and the numerous agencies and other stakeholders involved in developing the plan. (LS- 1-17, p. 2.)

Ms. Villalobos further testified that the MSHCP will be a detailed plan that will allow for the analysis of impacts of potential water conservation operations on any endangered species. The acceptability of any specific proposed water conservation operation will be evaluated for consistency with the MSHCP. It will be the responsibility of any agency proposing water conservation operations to ensure that all appropriate resource agencies have been consulted to the extent required by law, and that all mitigation requirements necessitated by water conservation operations will be undertaken without interference with mitigation for flood control. (*Ibid.*)

8.3 Conclusion regarding Project's Impacts to Public Trust Resources

Therefore, based on evidence in the hearing record and testimony given at the hearing, the State Water Board finds partial approval of Applications 31165 and 31370 subject to the conditions specified in this order will not have a negative impact on public trust resources.

9.0 PUBLIC INTEREST

The State Water Board is required to allow the appropriation for beneficial purposes of unappropriated water under such terms and conditions as in its judgment will best develop, conserve, and utilize in the public interest the water sought to be appropriated (Wat. Code, § 1253). The benefits of this project include; (1) the capture of high quality water to facilitate water recycling, (2) reduction of liquefaction potential and (3) acceleration of cleanup of contaminated groundwater plumes. Given the combination of the above-noted benefits with

Muni/Western's involvement in a number of water conservation programs, the State Water Board finds the partial approval of Applications 31165 and 31370 is in the public interest.

Muni/Western can put 198,317 afa to reasonable and beneficial use. (Muni/Western 7-1 p.1.) Given that population in the Muni/Western service areas is estimated to increase 64.5 percent by 2025 (Muni/Western 4-3, Table 4.1-5.), Muni/Western's total demand for imported water will also grow. The testimony of Jack Safely demonstrates that the project will not reduce the ultimate total demand for water within the Muni/Western service area, but it will slow the rate by which the demand increases by reducing the demands for water exported from the Delta and from the Colorado River. (Muni/Western 7-1, pp. 2-3.)

Testimony by Bill Dendy, engineer and president, Bill Dendy and Associates, and Steve Macaulay, engineer and vice president, West Yost Associates, also revealed benefits of the project that serve the public interest. First, the project is one of the farthest upstream on the River system to divert water. (May 4, 2007 R. T., p. 9.) Appropriation of this high quality water, as opposed to use of lower quality water, will facilitate water recycling, which is integral to the downstream users in the Santa Ana watershed. (May 2, 2007 R.T., p. 94.)

Second, Dr. Dennis Williams, president and principal geohydrologist, Geoscience Support Services, presented testimony that under the minimum capture the potential area for liquefaction would be reduced by half. (R.T. May 2, 2007, p. 236.) Also, in his written testimony, Dr. Williams stated the project will assist in improving the water quality of the San Bernardino Basin Area (SBBA) by accelerating cleanup of the contaminant plumes. (Muni/Western 6-1, p. 1.)

Mr. Steve Macaulay further testified that Muni and Western are involved directly and indirectly in a number of water conservation efforts and programs. Western is a signatory to the Urban Water Conservation Memorandum of Understanding and is a member of the California Urban Water Conservation Council. In addition, Western is a member agency of Metropolitan Water District, which has extensive, long-term water conservation programs serving all of its 26-member agencies throughout southern California. Western's water conservation program performance is reflected in their most recent Urban Water Management Plan, submitted to the California Department of Water Resources in December 2005. Pages 19 through 23 of that report (Muni/Western 10-7) describe a number of successful water conservation elements and

programs. Western benefits from Metropolitan's conservation incentive programs for commercial, industrial and institutional water customers. Both Western and Muni have aggressive and successful public information programs to increase the public's awareness of the importance of conservation and what users can do to save water. (Muni/Western 10-1, p. 6.)

Mr. John Rossi, Western's General Manager, testified that Western has implemented the full range of water management practices recommended by the California Urban Water Council and that Western budgets over $100,000 annually for water use efficiency programs to coordinate rebates and incentives through Metropolitan Water District. (Muni/Western 2-1, p.4.)

Mr. Robert Reiter, the court-appointed Watermaster for Muni, testified regarding the potential for a reduction in wastewater flows in Segment F below the RIX/Rialto Outfall (RIX/Rialto), with a potential impact on riparian habitat. To ensure meeting its minimum base flow obligations to Riverside Narrows under the April 17, 1969, judgment in *Orange County Water District v. City of Chino et al.* (Super. Ct. Orange County, 1969, No. 117628) (*Orange County Judgment*), Muni entered into contracts with the Cities of San Bernardino and Colton for minimum annual deliveries of treated wastewater from their respective treatment plants. The total deliveries from the two wastewater treatment plants, 18,450 afa, represent the minimum flows delivered to the Santa Ana River channel at RIX/Rialto that will be maintained through contracts with wastewater agencies. (Muni/Western 11-4, p. 1.)

9.1 Coordination of Permits to Appropriate Water with Existing Judgments and Agreements for the Use of Santa Ana River Water

The State Water Board is aware of the numerous judgments, settlement agreements and memoranda for the Santa Ana River aimed at managing the diversion and use of water among competing claims to the River. These prior legal actions on the River may or may not justify modifying the usual priority of the competing water right applications in this proceeding. The issue of resolving the priorities of the current water right applications relative to other legal users of water and among the pending applications was resolved by a stipulation signed by the applicants and presented to the hearing officer on April 10, 2007.

On May 2, 2007, the State Water Board commenced a hearing to consider four applications to appropriate water from the Santa Ana River. The applicants are:

- Chino Basin Watermaster (Application 31369)
- San Bernardino Valley Municipal Water District and Western Municipal Water District of Riverside County (Applications 31165 and 31370)
- Orange County Water District (Application 31174)
- City of Riverside (Application 31372)

Rights to the use of the water in the Santa Ana River are the subject of several judgments, settlement agreements, and memoranda that affect the potential rights requested in this proceeding. Among these is the *Orange County Judgment* which divides the River into various stream reaches and provides that upper watershed parties are obligated to ensure that certain average minimum flows reach the lower watershed. (Applicants' Joint 1-1.) In addition, the judgment provides that so long as certain average minimum flows reach the lower basin, the upper basin water users have the right to divert, pump, extract, conserve and use all surface and ground water originating in the upper basin without interference from lower basin claimants. (Applicants' Joint 2-2.)

Likewise pertinent is *Western Municipal Water District of Riverside County et al. v. East San Bernardino County Water District* (Super. Ct. Riverside County, 1969, No. 78426). This judgment was also entered on April 17, 1969. This judgment allocates the water in the upper stream reach for the San Bernardino Basin, Colton Basin, and Riverside Basin areas, excepting the Chino Basin, consistent with the *Orange County Judgment*. The relative priority of the Watermaster to divert water from the Chino Basin is derived from the rights recognized to the Inland Empire Utilities Agency under the *Orange County Judgment* and the November 16, 1999, *Memorandum of Understanding to Affirm and Preserve Existing Rights in the Santa Ana River Watershed.* (Stipulation of Applicants, dated April 5, 2007, ¶ 13 and ¶ 3(a).)

Normally, under California appropriative water law, the application filed first in time has a higher priority than an application filed at a later date. (Wat. Code, §§ 1450, 1455, 1610; *Pasadena v. Alhambra* (1949) 33 Cal. 2d 908, 929.) However, taken together, these judgments, settlement agreements, and memoranda may or may not alter the relative priority of the permits that may be issued for the applications pending on the Santa Ana River.

Additionally, exceptions to the rule of "first in time, first in right" can be based on Article X, section 2 of the California Constitution, area of origin protections, and other public policies. (See, e.g., Wat. Code, §§10500 et seq., 11460; see also Archibald, Governor's Commission to Review California Water Rights, *Allocating Use of Surface Water: The Priority System and its Alternatives* (Appropriative Rights Staff Memorandum No. 2, July 1977) pp. 5-6.) The State Water Board is also required to subject permit approvals to such terms and conditions as in its judgment will best develop, conserve, and utilize in the public interest the water sought to be appropriated. (Wat. Code, § 1253.) The numerous judgments, settlement agreements and memoranda for the Santa Ana River aimed at managing the diversion and use of water among many competing claims present a situation that may or may not justify modifying the usual priority of competing applications for the appropriation of water.

On April 5, 2007 the applicants presented a signed stipulation to the hearing officer to resolve key hearing issues 4 and 5. On April 10, 2007, no party having objected to the stipulation, the hearing officer accepted it as the basis for resolving these key hearing issues concerning the priorities of the application relative to other legal users of water and among the pending applications. (RT, May 2, 2007, 2:21-24; see also 4.0 Hearing Issues, p. 5, *ante*.)[14, 15]

10.0 CONTAMINATED GROUNDWATER PLUMES

This section contains a discussion of the effects the project will have on groundwater and/or movement of any contaminated groundwater plumes. This section also presents mitigation measures that Muni/Western shall implement in order to minimize or eliminate impacts from the groundwater contaminant plumes.

[14] The significance of the City of Redlands, et al., reported right to divert up to 88 cubic feet per second (cfs) in the stipulation is unclear unless the stipulation was to resolve issues other than those presented to the State Water Board in this proceeding. (Stipulation of Applicants dated April 5, 2007, ¶ 15.) The State Water Board does not express any opinion in this decision on the validity or invalidity of any of these water rights.

[15] At the pre-hearing conference, Southern California Edison (SCE) expressed concerns that Applications 31165 and 31370 could interfere with the operation of SCE's hydroelectric projects and the water rights associated with those hydro projects. On April 11, 2007, Muni/Western and SCE executed a stipulation agreement to resolve SCE's concerns. At SCE's request, a term from that agreement is included in the ordering section of this decision.

Under Applications 31165 and 31370, Muni/Western proposes to operate the underground storage portion of the project by conveying up to 200,000 af of water (100,000 af for each application) to 12 spreading basins and allowing the water to percolate into the underlying aquifers. (Muni/Western 5-1, pp. 24, 26-28; R.T. May 2, 2007, p. 225.) A map accompanying Application 31165 shows 12 spreading facilities as points of diversion and rediversion that have a combined total storage capacity of 419,000 af. (SWRCB-1, Muni/Western 6-118.)

10.1 Description of Groundwater Basins

Muni/Western's service areas include all or portions of the following groundwater basins: Bunker Hill, Lytle Creek, Rialto-Colton, Yucaipa, and San Timoteo. (Muni/Western 6-1, p. 20; Muni/Western 6-118.) With the exception of the Cactus recharge facilities, which are in the Rialto-Colton Basin, Muni/Western's recharge facilities are located in the Bunker Hill and Lytle Creek Basins, which are collectively referred to as the San Bernardino Basin Area (SBBA). The groundwater modeling used to determine impacts from the recharge basins was limited to the SBBA. (Muni/Western 6-1, p. 20, Muni Western 6-118.)

San Bernardino Basin Area

The SBBA has a surface area of approximately 141 square miles and lies between the San Andreas and San Jacinto Faults. The basin is bordered on the northwest by the San Gabriel Mountains; on the northeast by the San Bernardino Mountains; on the east by the Banning Fault and Crafton Hills; and on the south by the San Jacinto Fault and San Timoteo Badlands. (Muni/Western 6-1, p. 20; Muni/Western 6-117.) The SBBA has an estimated total storage capacity of approximately 5,976,000 acre-feet. (Muni/Western 6-1, p. 25.)

The primary water-bearing formations of the SBBA are the unconsolidated sediments of older and younger alluvium and river channel material deposited by the Santa Ana River and its tributaries. The SBBA is divided into upper, middle, and lower water-bearing members, with confining zones between each member. The aquifer system of the SBBA is generally unconfined, with water moving vertically between the multiple layers. The confining members are more accurately described as leaky aquitards of finer grained sediments. The upper and middle water-bearing members provide most of the water to municipal and agricultural wells. The lower water-bearing member is typically not used for water production due to the greater depths and generally lower permeability. (Muni/Western 6-1, p. 21.)

Groundwater flow within the SBBA is generally from the mountains toward the south and west. Recharge to the SBBA occurs close to the mountain front due to the highly permeable river-channel deposits and the artificial recharge operations. (Muni/Western 6-1, p. 22; R.T. May 2, 2007, p. 228.)

Rialto-Colton Basin

The Rialto-Colton Basin has a surface area of approximately 47 square miles and is bounded by the San Gabriel Mountains on the north; the San Jacinto Fault on the east; the Box Springs Mountains on the south; and the Rialto-Colton Fault on the west. The total storage capacity of this basin is estimated at 213,000 acre-feet. The basin consists of four water-bearing units: the river channel; upper; middle; and lower. Groundwater generally moves from east to west in the river channel and upper units, and from northwest to southeast in the middle and lower units. The Rialto-Colton Fault acts as a barrier to groundwater flow along much of its length, especially in its northern reaches where groundwater elevations can reach nearly 400 feet higher within the Rialto-Colton Basin than in the Chino Basin to the west. The San Jacinto Fault displaces water levels about 50 feet in older deposits, but is not a barrier in younger materials, particularly beneath the Santa Ana River. (SWRCB-12, Supplemental information; Muni/Western 6-1, pp. 28 & 29; Muni/Western 6-117 and 6-118.)

Yucaipa Basin

The 39 square mile Yucaipa Basin lies to the east-southeast of the SBBA and is bounded on the north by the San Andreas Fault; on the west by the Crafton Hills; on the south by the Banning Fault; and on the east by the Yucaipa Hills. The total storage capacity of the basin has been estimated to be between 783,000 and 1,230,000 acre-feet. Groundwater flow in the basin is generally from the mountainous areas north and east toward the southwest and west. There are a number of faults in the area that influence the flow direction on the local level. These faults cause offsets in groundwater levels as much as 160 feet. (SWRCB -12, Supplemental Information; Muni/Western 6-1, p. 31; Muni/Western 6-117.)

San Timoteo Basin

The San Timoteo Basin covers an area of approximately 114 square miles and is located southeast of the SBBA and south of the Yucaipa Basin. The Banning Fault marks the northern boundary and the San Jacinto Fault marks the southern boundary of the basin. Groundwater flow, which is generally from east to west toward the SBBA, is affected by local faulting.

Groundwater levels across the Banning Fault drop 100 to 200 feet. In the western part of the basin groundwater levels drop about 75 feet across the Loma Linda Fault. The total storage capacity of the alluvial deposits in the basin is estimated to be about 2,010,000 acre-feet. (SWRCB-12, Supplemental Information; Muni/Western 6-1, pp. 33 & 34; Muni/Western 6-117.)

10.2 Groundwater Contaminant Plumes and Groundwater Modeling

Muni/Western's project area is affected by six major groundwater contaminant plumes: the Redlands-Crafton, Norton Air Force Base, Muscoy-Newmark, Santa Fe, and Rialto-Colton plumes. The major constituents of the plumes are perchlorate and various volatile organic compounds (VOC's), including trichloroethylene (TCE) and tetrachloroethylene (PCE). (Muni/Western 6-1, pp. 28 & 30; Muni/Western 6-127.) Muni/Western used two different groundwater flow models and an analytical method in order to evaluate the effects that increased recharge would have on known contaminant plumes. (Muni/Western 6-1, pp. 40, 63, 64.)

Redlands-Crafton Plume

The Redlands-Crafton plume lies within the SBBA and is located approximately 1.5 miles hydraulically down gradient of the proposed Santa Ana River construction area and the Mill Creek spreading grounds. Project-related groundwater recharge in this spreading basin could affect this plume. (Muni/Western 4-3, p. 3.12-4.) The Redlands-Crafton plume generally contains perchlorate with associated, smaller quantities of TCE, PCE, and dibromochloropropane (DBCP). (Muni/Western 4-4, p. 2-43.)

Norton Air Force Base (Norton) Plume

The Norton plume lies within the SBBA and is located approximately 3 miles down gradient of the City Creek, Patton, and East Twin Creek spreading grounds. Project-related groundwater recharge in these spreading basins could affect this plume. Contaminants of concern include TCE, PCE, 1,2-dichloroethylene (DCE), polychlorinated biphenyls (PCB's), various radionuclides, and metals. (Muni/Western 4-3, p. 3.12-5.)

Muscoy-Newmark Plume

The Muscoy-Newmark plume lies within the SBBA, and project-related groundwater recharge in a number of spreading basins could affect the plume. They include Devil Canyon/Sweetwater

Basins, Badger Basins, Waterman Basins, and east Twin Creeks Spreading Grounds. In addition, deep excavations into shallow contaminated groundwater could potentially impair construction activities. The Muscoy-Newmark plume consists primarily of TCE and PCE and is located north of the City of San Bernardino. The contaminant plume is split by a major outcrop of relatively impermeable bedrock which divides the contaminated groundwater into an eastern branch (the Newark Plume) and a western branch (the Muscoy Plume). (Muni/Western 4-3, p. 3.12-4, and Fig. 3.12-1.)

Santa Fe Plume

The Santa Fe plume lies within the SBBA and contains primarily 1,2-DCE, TCE, and PCE, extending to a depth of 200 feet. The plume is located approximately 1.5 miles south of the Muscoy-Newmark plume and approximately 2 miles east of the Rialto-Colton plume. (Muni/Western 4.3, p. 3.12-7 and Fig. 3.12-1.)

Rialto-Colton Plume

The Rialto-Colton plume lies within the Rialto-Colton Basin and lies beneath a portion of the Lytle Creek construction area and Cactus Spreading and Flood Control Basins, and is located approximately 1.5 miles southwest of the Lytle Basins. The contaminant plume consists primarily of perchlorate and moves with the groundwater in a southeasterly direction. (Muni/Western 4-3, p. 3.12-6; Muni/Western 4-4, p. 2-56.)

10.3 Description of Groundwater Models and Analytical Method

To evaluate potential effects of the project, the largest groundwater contaminant plumes in the SBBA (Redlands-Crafton, Norton, and Muscoy-Newmark) were modeled using the groundwater model MODFLOW (described below) as part of the analysis. (Muni/Western 4-3, p. 3.12-7.) Spreading grounds outside the SBBA were not modeled with MODFLOW. Muni/Western used a USGS groundwater flow model and the analytical Hantush Equation to evaluate the effects of increased recharge in the Rialto-Colton Basin. (Muni/Western 6-1, p. 64.) For the spreading grounds located within the Yucaipa and San Timoteo Basins, the increase in groundwater elevation due to project operations was calculated by using the analytical Hantush Equation. (Muni/Western 4-3, Appendix B, p. B-6-1; Muni/Western 4-4, p. 2-56.)

MODFLOW Groundwater Flow Model

The MODFLOW groundwater flow model developed for the SBBA by the United States Geologic Survey (USGS) was adapted and used to evaluate water level changes for the Project. MODFLOW is a groundwater flow model that accounts for the interaction between surface streams and groundwater. (Muni/Western 4-3, Appendix B, p. B-6-1; Muni/Western 6-1, p. 40.)

The groundwater model consists of two model layers. Layer 1 contains the upper confining layer and upper water-bearing zone, while Layer 2 consists of the middle and lower confining layers and middle and lower water bearing zones. The streams crossing the model are in hydraulic continuity with the aquifers and therefore can be either losing (losing water to the aquifer) or gaining (gaining water from the aquifer). The stream inflow components are generated from surface runoff originating from rain events as well as water gained from aquifers. The stream outflow components include deep percolation to underlying aquifers and flow out of the basin. (Muni/Western 6-1, p. 41; Muni/Western 4-3, Appendix B, p. B-6-2.) The two-layered model covers approximately 524 square miles, which is divided into a total of 43,424 cells. The boundary conditions of the model include the San Gabriel Mountains to the northwest, the San Bernardino Mountains to the northeast, the Crafton Fault to the southeast, and the San Jacinto Fault to the southwest. (Muni/Western 6-1, pp. 41 & 42; Muni/Western 4-3, Appendix B, p. B-6-3.) Aquifer parameters that were input into the model include: transmissivity, storativity, vertical leakance, conductance for groundwater barriers, recharge, and discharge. (Muni/Western 6-1, pp. 42 & 44; Muni/Western 4-2, Appendix B, pp. B-6-3 & B-6-4.)

After all the inputs were entered into the model, the model was calibrated with the standard "history matching" method using both steady state and transient calibration. In this method, a steady-state calibration of the year 1945 was chosen, along with a transient calibration period of years 1945 to 1998. Model-generated groundwater levels were compared with measured levels for wells in the SBBA. Adjustments in hydrogeologic parameters were then made within the acceptable limits until a satisfactory match was obtained. Model-calculated recharge and discharge terms were also compared to estimated and measured recharge and discharge terms. (Muni/Western 6-1, p. 49; Muni/Western 4-2, Appendix B, pp. B-6-8 & B-6-9.) After calibration, the model was run using six scenarios that included a no project condition and various project conditions. (Muni/Western 6-1, pp. 51, 68, 69.) Scenario A represents the maximum potential appropriation by Muni/Western. (Muni/Western 6-1, p. 68.)

Rialto-Colton Model

The Rialto-Colton Basin lies outside the SBBA model area. (Muni/Western 6-118.) In order to evaluate potential water quality impacts of the project within the Rialto-Colton Basin, Muni/Western obtained a copy of a groundwater model of the Rialto-Colton Basin prepared by USGS. (Muni/Western 6-1, p. 64.)

The USGS groundwater flow model was used to simulate groundwater flows in the Rialto-Colton Basin, with particular attention paid to the effects of artificial recharge at the Cactus Spreading and Flood Control Basins and Linden Ponds. (Muni/Western 6-1, p. 29.)

Analytical Method

To evaluate impacts of artificial recharge in areas outside the model area, an analytical method was used to predict groundwater mounding from the recharge areas. (Muni/Western 6-1, p. 63.) The analytical method used was the Hantush equation and was applied to the following artificial recharge areas lying outside the SBBA: the Cactus Spreading Ground in the Rialto-Colton Basin, the Wilson Spreading Ground in the Yucaipa Basin and the Garden Air Creek Spreading Ground in the San Timoteo Basin. (Muni/Western 6-1, p. 63.)

10.4 Modeling Results

Following is a brief discussion of the results of the different groundwater flow models and analytical method. Results from Scenario A (maximum appropriation) were compared to the No Project Scenario. (Muni Western 6-1, pp. 65 & 79; R.T. May 2, 2007, p. 238.)

Redlands-Crafton Plume

Modeling results for Scenario A show that the Redlands-Crafton TCE plume would clean up five years faster than under the No Project condition. (Muni/Western 6-1, p. 1; Muni/Western 6-249 and 6-250; R.T. May 2, 2007, pp. 226, 227, 229, 239.)

Norton Air Force Base Plume

Modeling results for Scenario A show that the TCE plume boundary would dissipate more quickly (by five years) as a result of increased artificial recharge at spreading basins upgradient of the Norton plume. (Muni/Western 6-1, pp. 80 & 81; Muni/Western 6-249 and 6-250; R.T. May 2, 2007, pp. 226, 227, 229, 239.)

Muscoy-Newmark Plume

Modeling results for Scenario A show that the Newmark and Muscoy plume boundaries would dissipate more quickly (by three years) compared to that of the No Project condition. (Muni/Western 6-1, p. 80; Muni/Western 6-236 and 6-237; R.T. May 2, 2007, pp. 226, 227, 229, 238.)

Santa Fe Plume

Although Muni/Western did not specifically model the Santa Fe plume, they did provide evidence that PCE and TCE plumes (which are contaminants in the Santa Fe plume) in the SBBA would dissipate more rapidly under Scenario A compared to the No Project Scenario. Also, the size of the plumes is smaller under Scenario A than under No Project Conditions. (Muni/Western 6-248 and 6-252.)

Rialto-Colton Plume

Results from the analytical Hantush Equation show that the maximum groundwater mound height due to recharge from the project was estimated to be 48 feet near the center of the Cactus Spreading Grounds. Areas where a rise in groundwater level is greater than 10 feet cover an extent of approximately 3,400 acres under Scenario A. Changes in groundwater levels attributable to implementation of the project would likely not create significant impacts since they fall within annual and historical ranges. (Muni/Western 4-4, p. 3-63.)

Results from the USGS Rialto-Colton groundwater flow model and particle tracking showed that movement of recharged water was in a southeasterly direction at an average velocity of 240 feet per year. (Muni/Western 4-3, pp. B-2-14 to B-2-15.) The impact of the project appears to increase the velocity of groundwater flows rather than to change the direction of such flows. (Muni/Western 6-1, p. 90.)

Inferences can be made regarding the possible interactions between project recharge activities and contaminant plumes and contaminant concentration levels in the Rialto-Colton groundwater basin. However, quantifying the magnitude of contaminant plume spreading requires the use of a spatially-distributed physically-based numerical groundwater flow model. (Muni/Western 4-4, p. 2-57.) Therefore, potential impacts from project recharge water on the Rialto-Colton groundwater contaminant plume have not been adequately evaluated. Accordingly, this order does not permit Muni/Western to operate the Cactus Spreading and Flood Control Basins.

Yucaipa and San Timoteo Basin Analytical Method Results

Since there are no known contaminant plumes in the Yucaipa Basin or the San Timoteo Basin, there will be no undesirable contamination impacts from artificial recharge in these areas. (Muni/Western 6-127; R.T. May 2, 2007, p. 240.)

10.5 Mitigation Measures

Groundwater contaminant plumes in Muni/Western's project area are regulated by the U.S. Environmental Protection Agency, the California Department of Toxic Substances Control, the Santa Ana Regional Water Quality Control Board, and the Hazardous Materials Divisions of the San Bernardino County and Riverside County Fire Departments. In addition, the California Department of Health Services monitors drinking water. (Muni/Western 4-3, p. 3.12-1.)

Mitigation measures presented in the EIR will help prevent impacts to groundwater resulting from increased recharge from expansion of existing projects and future projects.

As a condition of permitting, the State Water Board shall require Muni/Western to follow guidance from existing state and federally mandated projects regarding groundwater contaminant plumes within and outside the SBBA. This includes coordination with appropriate oversight agencies and compliance with policies regarding the remediation of the groundwater contaminant plumes.

Muni/Western shall implement the following mitigation measures, as presented in the EIR, in an effort to minimize or eliminate impacts from the groundwater contaminant plumes in the SBBA: (Muni/Western 4-4, p. 3.12-5.)

MM HAZ-4: Using available data, in conjunction with the integrated surface and groundwater models, Muni/Western will identify groundwater trends, including plume movement, and isolate changes attributable to implementation of the project under this permit. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will limit adverse plume movement from water spreading authorized under this permit.

MM HAZ-5: Muni/Western will make an alternative water supply available to parties affected by contaminated wells, to the extent and for the duration that the contamination is caused by project operations, or provide treatment for the affected wells, at Muni/Western's discretion. The alternative supply or treatment for affected wells will be available for all times when pertinent water quality standards are exceeded as a result of the project.

11.0 COMPLIANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

On January 22, 2007, Muni and Western, as CEQA co-lead agencies, released the *Final Environmental Impact Report, Santa Ana River Water Rights Applications for Supplemental Water Supply* (FEIR). (Muni/Western 4-4.) On March 21, 2007, the respective Boards of Directors of Muni and Western certified the FEIR and approved and adopted the Findings, Statement of Overriding Considerations and Mitigation Monitoring and Reporting Plan. (Muni/Western 4-5.) A Notice of Determination was filed on the same date. (Muni/Western 4-6.)

The California Code of Regulations, title 14 (CEQA Guidelines), section 15231 requires the State Water Board as a responsible agency to conclusively presume that an EIR is adequate unless (1) the EIR is finally adjudicated in a legal proceeding to be inadequate, or (2) a subsequent EIR is necessary pursuant to section 15162. The statute of limitations has now run, and no actions were filed to challenge the environmental analysis performed by Muni/Western. No circumstances exist to require a subsequent EIR. Therefore, the State Water Board is required to presume that the EIR is adequate.

When approving a project, a responsible agency must either: (1) adopt conditions to avoid or mitigate significant adverse environmental effects within the scope of its responsibility; (2) find that another agency has the responsibility and jurisdiction and that such agency can or should avoid or mitigate the adverse effect; or (3) find that specific economic, legal, social, technological or other considerations make infeasible the mitigation measures or project alternatives identified in the EIR, and adopt a statement of overriding considerations. (Pub. Res. Code, §§ 21002.1, 21081; CEQA Guidelines, §§ 15091, 15093.)

The State Water Board is responsible for mitigating or avoiding only the significant environmental effects of those parts of the project that it decides to approve. (CEQA Guidelines, § 15096, subd. (g).) This includes the responsibility to address any significant adverse direct or indirect effects on water resources.

11.1 CEQA Findings

Before approving a project, a responsible agency must make findings under CEQA Guidelines § 15091, and § 15093, if applicable. (CEQA Guidelines, § 15096, subd. (h).) Under § 15091, for every significant effect of the project, a responsible agency must make one of the following findings: (1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR; (2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency; or (3) Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR. (CEQA Guidelines § 15091, subd. (a).) If approval of the project will cause an unmitigable significant impact, CEQA Guidelines § 15093 requires the approving agency to make a statement of overriding considerations before approving the project. A responsible agency's role in considering alternatives and mitigation measures is limited to only the direct or indirect environmental effects of those parts of the project it decides to carry out, finance or approve. (CEQA Guidelines § 15096, subd. (g)(1).)

11.1.1 Significant mitigable impacts

Table 1 of this decision includes mitigation measures that reduce to less than significant some of the impacts within the State Water Board's purview. These impacts are primarily related to disturbance of riparian habitat and unanticipated cultural resources during construction. Construction and operations will also increase the potential for erosion and sedimentation. The details of the mitigation measures are many and varied, as outlined in Table 1. In general they include surveys to locate sensitive resources, marking and fencing of sensitive areas, employee training, monitoring programs, and salvage and replanting of disturbed plant species.

11.1.2 Significant and Unavoidable Impacts and Cumulative Impacts of the Project[16]

Significant and Unavoidable Impacts of the Project

The Project's significant and unavoidable impacts within the State Water Board's purview are:

(1) Surface water hydrology and water quality will be impacted when the Project significantly decreases river flow on non-storm days in Segments B through F.

(2) Groundwater hydrology and water quality will be significantly impacted at some wells such that post-Project nitrate and total dissolved solids (TDS) concentrations would exceed water quality objectives (WQO).

(3) Geology, soils and mineral resources will be significantly impacted by the Project, resulting in strong seismic ground shaking, induced liquefaction, high groundwater conditions, or subsidence.

(4) Cultural and paleontological resources will be significantly impacted due to Project-induced substantial change in the Francis Cuttle Weir.

(5) Hazardous materials and groundwater contamination will be impacted when the Project results in contamination of wells by perchlorate, TCE, PCE.

To the extent these potentially significant impacts are within the State Water Board's purview, the Board has responsibility for avoiding or mitigating those impacts. Accordingly, the State Water Board will adopt and include in the permit mitigation measures MM CR-1 through MM CR-4, MM HAZ-1 through MM HAZ-5, MM GEO-1 through MM GEO-8, MM GW-1, MM SW-2 and MM PS-12 (see Table 1), and standard permit terms 100, 203 and 208 to mitigate these impacts. However, these additional mitigations are likely insufficient to ameliorate all the significant and unavoidable impacts of the project.

Significant and Unavoidable Cumulative Impacts of the Project

Muni/Western's EIR identified the following potentially significant and unavoidable cumulative impacts that result from a combination of Muni/Western's project together with other projects also causing related impacts:

[16] The State Water Board is adopting all mitigation measures identified in the EIR that would avoid or substantially reduce the significant adverse impacts of the project. Accordingly, the findings required under CEQA guidelines § 15091(a)(3), which apply to alternatives or mitigation measures that are not adopted, apply in this case only to alternatives, not mitigation measures.

(1) The Muni/Western project and related projects will affect sensitive species and natural communities in the area.
(2) The Muni/Western project and related projects will cause a significant adverse change in an historical or archaeological resource, destroy a unique paleontological resource, or disturb human remains.
(3) In combination with other projects in the area, the Muni/Western project will expose structures to seismic ground shaking and liquefaction.
(4) In combination with other projects, the Muni/Western project will affect groundwater hydrology and water quality by increasing nitrate and total dissolved solids concentrations above water quality objectives.
(5) Cumulatively, the Muni/Western project and related projects will impact groundwater contamination both through the transportation of hazardous materials during project construction and possible acceleration of the movement of contaminant groundwater plumes.
(6) Surface water hydrology and water quality will be cumulatively affected by erosion or degradation of water quality.
(7) Public utilities, service and transportation will be cumulatively affected by the impairment of groundwater production.

To the extent these potentially significant and unavoidable cumulative impacts are within the State Water Board's purview, the Board has responsibility for avoiding or mitigating these impacts. Accordingly, the State Water Board will adopt and include in the permits the mitigation measures listed in Table 2 of this decision (see pages 58-63).

11.2 Findings regarding Alternatives

In accordance with CEQA guidelines §15091 (a)(3), the State Water Board has reviewed the Project alternatives described in the EIR and makes the following findings:

Alternative 1 – New Local Water Supplies

Finding - This alternative would only attain some of the Project objectives and has many of the same environmental impacts as those of the Project.

Alternative 2 – Enhanced Conservation

Finding - This alternative would not attain most of the Project objectives because it would not meet the objective of delivering additional high quality water instead of imported water supplies, and would not improve operational flexibility because it does not expand the number of water supply sources or expand the ability to move water to different locations within the Muni/Western service area.

Alternative 3 – New Imported Water Supply

Finding - If this alternative were implemented through the acquisition of State Water Project (SWP) supplies, the alternative would not reduce Muni/Western's dependence on imported water and would not deliver local, high quality water. If this alternative were implemented through the construction of a seawater desalination plant, Muni/Western would have to negotiate contracts with other agencies whereby imported SWP water would be exchanged in lieu of water derived directly from desalination.

No Project Alternative

Finding - Under this alternative, and without other new sources of water, Muni/Western will fully utilize existing SWP supplies at an earlier date than under the Project. The rate of population growth could diminish due to constrained water supplies.

The State Water Board finds these alternatives would have the same impact as the Project, or would not attain some of the Project objectives. Therefore, the Project is the environmentally superior alternative.

11.3 Statement of Overriding Considerations

As described above (section 9.0), partial approval of Muni/Western's Applications 31165 and 31370 will make possible the capture of high quality water to facilitate Santa Ana River water recycling, and reduce liquefaction potential and accelerate clean up of contaminated groundwater plumes in the San Bernardino Basin Area. The State Water Board finds these benefits provide the justification to override the potentially significant unmitigable project impacts.

12.0 CONCLUSION

There are no outstanding protests on Applications 31165 and 31370. Water is available for appropriation, and such appropriation is in the public interest and does not interfere with the public trust. In compliance with CEQA, the State Water Board has considered the EIR prepared by the lead agency and has adopted findings and a mitigation or reporting program.

ORDER

IT IS HEREBY ORDERED THAT Application 31165 and 31370 be partially approved and permits issued subject to prior rights and subject to standard permit terms 6, 10, 11, 12, 13, 14, 15, 22, 29A, 30, 63, 100, 117, 203, 208, and the following additional terms and conditions:

1. Permittees are authorized to divert and use water from the Santa Ana River, Bear Creek, Breakneck Creek, Keller Creek, and Alder Creek within the County of San Bernardino.

2. Permittees are authorized to divert water from the points of diversion and rediversion identified in Tables A and B of Decision (*insert number*).

3. Under Application 31165, Permittees are authorized to use the water for municipal, industrial, irrigation, heat control, frost protection and recreational uses within the place of use as shown on the map dated May 31, 1995, and on file with the State Water Board.

4. Under Application 31370, Permittees are authorized to use the water for municipal, industrial, irrigation, heat control, frost protection and recreational uses within the place of use as shown on the map dated May 15, 2001, and on file with the State Water Board.

5. Under Application 31165, the water appropriated shall be limited to the quantity that can be beneficially used and shall not exceed 400 cubic feet per second by direct diversion and 100,000 acre-feet per annum by underground and/or surface storage from January 1 to December 31 of each year. The amount of surface storage at Seven Oaks

Dam shall not exceed 50,000 acre-feet per annum. The maximum rate of diversion to underground storage shall not exceed 400 cubic feet per second. The total amount of water to be taken from the source at the 9 points of diversion listed in Table A of Decision (*insert number*) shall not exceed 100,000 acre-feet per water year of October 1 to September 30. The total rate for water to be taken from the sources for either direct use and/or underground storage shall not exceed 800 cubic feet per second.

6. Under Application 31370, the water appropriated shall be limited to the quantity that can be beneficially used and shall not exceed 1,100 cubic feet per second by direct diversion and 100,000 acre-feet per annum by underground and/or surface storage from January 1 to December 31 of each year. The amount of surface storage at Seven Oaks Dam shall not exceed 50,000 acre-feet per annum. The maximum rate of diversion to offstream storage shall not exceed 1,250 cubic feet per second. The maximum rate of diversion to underground storage shall not exceed 400 cubic feet per second. The total amount of water to be taken from the source at the 11 points of diversion listed in Table B of Decision (*insert number*) shall not exceed 100,000 acre-feet per water year of October 1 to September 30. The total rate for water to be taken from the sources for either direct use, underground storage, and/or offstream surface storage shall not exceed 1,250 cubic feet per second.

7. The total quantity of water taken under both Application 31165 and Application 31370 shall not exceed 198,317 acre-feet per water year of October 1 to September 30. The total amount of water diverted to storage at Seven Oaks Dam under Applications 31165 and 31370 shall not exceed 50,000 acre-feet per water year of October 1 to September 30. The total combined rate for water to be taken from the sources under Applications 31165 and 31370 for either direct use, underground storage, and/or offstream surface storage shall not exceed an instantaneous rate of 1,250 cubic feet per second.

8. Construction work and the application of water to beneficial use shall be prosecuted with reasonable diligence. Actual construction shall begin no later than June 30, 2010 and be completed by October 1, 2020. Water shall be put to beneficial use by December 31, 2059.

9. The State Water Board adopts and incorporates by reference into this permit the mitigation measures and monitoring and reporting requirements applicable to the impacts of the Project on biological and cultural resources, geology, hazardous material and groundwater contamination, groundwater and surface water hydrology, water quality and public services, utilities and transportation identified in the Final EIR, specifically mitigation measures MM BIO-1, MM BIO-2 and MM BIO-6 through MM BIO-10, MM CR 1 through MM CR 4, MM HAZ 1 through MM HAZ 5, MM GEO-1 through MM GEO-8, MM GW-1, MM SW-2 and MM PS-12. Muni/Western must implement the measures to mitigate significant impacts and conduct the required reporting and monitoring of those measures as provided in the Mitigation Monitoring and Reporting Plan adopted on March 21, 2007 by the respective Boards of Directors of Muni and Western. In addition, Muni/Western shall submit an annual report to the State Water Board Deputy Director for Water Rights that includes the results of the Mitigation Monitoring and Reporting Program. The State Water Board reserves jurisdiction to require any reasonable amendments to these measures and requirements to ensure that they will accomplish the stated goal.

10. The State Water Board adopts and incorporates by reference into this permit the mitigation measures and monitoring and reporting requirements applicable to the cumulative impacts of the Project on biological and cultural resources, geology, hazardous material and groundwater contamination, groundwater and surface water hydrology and water quality, and public services, utilities and transportation identified in the EIR, specifically mitigation measures MM Cumulative BIO-1, MM Cumulative CR-1, MM Cumulative CR-2, MM Cumulative HAZ-1, MM Cumulative SW-1 and MM Cumulative GW-1. Muni/Western must implement the measures to mitigate cumulative impacts and conduct the required reporting and monitoring of those measures as provided in the Mitigation Monitoring and Reporting Plan adopted by the respective Boards of Directors of Muni and Western on March 21, 2007. In addition, Muni/Western shall submit to the State Water Board Deputy Director for Water Rights an annual report that includes the results of the Mitigation Monitoring and Reporting Program. The State Water Board reserves jurisdiction to require any reasonable amendments to these measures and requirements to ensure that they will accomplish the stated goal.

11. This permit shall not be construed as conferring upon Permittees right of access to facilities of the U.S. Army Corps of Engineers and the Santa Ana River Mainstem Local Sponsors.

12. This permit is specifically subject to the prior rights of Bear Valley Mutual Water Company, City of Redlands, East Valley Water District, Lugonia Water Company, North Fork Water Company and Redlands Water Company to divert the first 88 cubic feet per second of the natural flow of the Santa Ana River pursuant to pre-1914 appropriative rights, to the extent that such rights may exist.

13. This permit is specifically subject to the prior rights of San Bernardino Valley Water Conservation District under Licenses 2831 and 2832 issued pursuant to Applications 2217 and 4807, and any valid pre-1914 appropriative right confirmed by the Court.

14. Nothing in this permit shall be construed as authorizing any diversions contrary to the provisions of the December 19, 2002 Biological Opinion issued by United States Fish and Wildlife Service for operation of Seven Oaks Dam, as may be revised in the future, including flow releases for downstream over-bank inundation to preserve State and federally listed threatened and endangered species and their habitat.

15. Muni/Western shall only divert water at PODs 5 though 10 in compliance with the terms and conditions of Federal Energy Regulatory Commission (FERC) license Project No. 1933 and 401 water quality certification as well as any future FERC licenses and 401 water quality certifications.

16. Permittees shall not, without the prior written consent of Southern California Edison (SCE), construct, operate or maintain diversion works at points of diversion located upstream of the flood inundation pool of Seven Oaks Dam in a manner that interferes with the operation and maintenance of the hydroelectric works licensed to SCE by the Federal Energy Regulatory Commission (FERC) license for Project No. 1933. Permittees' diversion of water at such points of diversion shall not interfere with SCE's diversion of water for hydroelectric purposes, again as described in the FERC license for Project No. 1933. Nothing in this permit shall be construed to limit Permittees' diversion of water from such points of diversion at times when the quantity of water available for

diversion at such points of diversion exceeds the demand of SCE's facilities to divert water from the Santa Ana River system.

17. This permit shall not be construed as conferring upon Permittees the right of access to Seven Oaks Dam, the points of diversion, the lands necessary for related facilities, or the lands necessary for inundation for water storage. Access to, construction upon, or inundation of National Forest Service lands shall not commence prior to authorization by the Forest Service, in accordance with applicable laws and regulations. Such authorization will require compliance with all applicable federal laws and regulations. Muni/Western specifically recognizes that completion of the applicable legal process does not guarantee such authorization will be granted, the issuance of this water right permit notwithstanding.

18. This permit shall not be construed as conferring upon Permittees the right of access to Seven Oaks Dam, the points of diversion, and lands necessary for related facilities, or the lands necessary for inundation for water storage. Permittees shall not commence construction and operation of water diversion facilities at Seven Oaks Dam without a written access agreement from the Santa Ana River Mainstem Project Local Sponsors.

19. Flow in the Santa Ana River is highly variable from year to year. Because the face value of this permit is based on a rare storm event, this permit shall not be construed as giving any assurance that such an event will occur. The actual amount of water available for appropriation may be much less.

20. Permittees are required to follow guidance from existing state and federally mandated projects regarding groundwater contaminant plumes within and outside the San Bernardino Basin Area. This includes coordination with appropriate oversight agencies and compliance with policies regarding the remediation of the groundwater contaminant plumes.

21. Permittees shall not use the Cactus Spreading and Flood Control Basins under permits issued pursuant to Decision (*insert number*).

22. Prior to issuance of a permit, Muni/Western shall submit a final project map that meets the requirements of California Code of Regulations, Title 23, Chapter 2, Article 7.

23.

a. In order to prevent degradation of the quality of water released to the Santa Ana River from storage at Seven Oaks Dam, the State Water Board may modify the permits issued pursuant to this order to set conditions that apply water quality objectives to any release from storage.

b. No water shall be released from storage of Seven Oaks Dam for purposes of rediversion by Permittees until Permittees have consulted with the Chief Deputy Director for Water Quality or his or her delegee and the Chief Deputy Director has determined that the releases will be consistent with applicable water quality objectives. The releases shall be consistent with any conditions the Chief Deputy Director determines are necessary to ensure compliance with applicable water quality objectives.

24. In order to prevent degradation of water quality during and after construction of the project, prior to commencement of any construction undertaken after issuance of the permit, Permittees shall file a report pursuant to Water Code Section 13260 and shall comply will all waste discharge requirements imposed by the California Regional Water Water Quality Control Board, Santa Ana Region, or by the State Water Resources Control Board.

25. Permittees shall install and maintain measuring devices, satisfactory to the State Water Board, which are capable of measuring (1) the instantaneous rate of diversion and the cumulative quantity of water diverted to groundwater storage, and (2) the cumulative quantity of water extracted from groundwater storage. The diversion data shall be posted on Permittees' websites on a weekly basis.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a decision duly and regularly adopted at a meeting of the State Water Resources Control Board held on October 20, 2009.

AYE:

NO:

ABSENT:

ABSTAIN:

Table 1: Mitigation Measures

MM BIO-1	Muni/Western will minimize disturbance to native habitats and listed and non-listed sensitive species by the implementation of the following measures at construction sites prior to and during construction. Where ground disturbance is required, the Muni/Western program will include the following: (1) Clearly marking and delineating the limits of the staging areas as well as the construction corridors/zones in the field and graphically on all final construction drawings and blueprints. Personnel and equipment will be prohibited in native habitats outside the construction limits. (2) Biologically sensitive areas, including individuals or colonies of listed and non-listed sensitive plant species and wildlife species, will be identified and delineated in the field prior to ground disturbance (see MM BIO-3) and will be clearly marked graphically on all final construction plans or blueprints so they will be avoided to maximum extent feasible. (3) Use methods to minimize the construction corridor width to the maximum extent feasible in sensitive habitats, such as transporting and stockpiling excavated materials in disturbed area of the right-of-way (ROW), or into other parts of the ROW by truck or conveyor belt. **Employee Training** Implementation of an employee training program. Muni/Western's program will include an initial meeting with all personnel presented by a qualified biologist familiar will all affected species, habitats, and permit conditions. The employee training program will include a discussion of each species, all applicable laws, the permit conditions, and the potential penalties for violating permit conditions. The employee training program will be conducted before construction activities begin. Regular updates will occur during weekly tailgate meetings with construction personnel, and newly hired personnel will be informed of the permit conditions as well as the habitat and species issues before working on the Project site. **On-Site Monitoring** Biological monitoring of habitat clearing activities and removal of sedentary animals, both common and sensitive, within the ROW prior to clearing. This will require a qualified biologist to be at the location of habitat removal before clearing to attempt to remove animals where visible and, during removal activities, to ensure that no inadvertent impacts to adjacent habitats occur. Weekly inspections of the ROW perimeter near work areas will also reduce the potential for inadvertent impacts to adjacent habitat. **Best Management Practices (BMPs)** Dust control. All areas of mechanical ground disturbance, including dirt access roadways, will be consistently moistened to reduce the creation of dust clouds. The frequency of watering will be consistent with the desired goal and in accordance with regional standards and BMPs. Erosion control. Devices such as straw bales and "v" ditches will be installed in areas where construction activities may directly or indirectly cause erosion or sediment deposition on adjacent habitats. Routine removal of trash from construction areas. All refuse, including non-construction materials such as paper and miscellaneous food packaging materials, will be removed from the ROW to prevent littering of the adjacent

MM BIO-1 (continued)	habitat areas outside of the ROW. At a minimum, site clean-ups should occur weekly. **Listed Species Protection Measures** In areas where the San Bernardino Kangaroo Rat (SBKR) is present, either within or adjacent to the ROW, Muni/Western will install exclusionary fencing where appropriate to reduce the potential for SBKR entering the ROW. Specification for the fencing will be particular to the goal of the SBKR exclusion and will be approved by the United States Fish and Wildlife Service (USFWS). Muni/Western may not install fencing in certain areas such as boulder-strewn washes where fence construction may cause substantial habitat disturbance. Following the installation of fencing, the animals within the ROW will be trapped and released within adjacent suitable habitat outside the ROW. These methods will be approved by the USFWS. In areas where the SBKR is present, either within or adjacent to the ROW, Muni/Western will limit construction activities to daylight hours (Approximately 7:00 A.M. to 6:00 P.M.). During night hours, no activities that would unnaturally increase the light or noise within adjacent occupied habitat will occur. In areas where the SBKR, coastal California gnatcatcher CAGN, least Bell's vireo, or southwestern willow flycatcher are present either within or adjacent to the ROW, Muni/Western will avoid or reduce construction activities in the vicinity of occupied habitat during the breeding season. Avoidance will take place from March 1 through June 30. In certain areas, avoidance of southwestern willow flycatcher will continue through July 31. Where complete avoidance is not possible, construction activities will be conducted in a manner that attempts to minimize disturbance during early morning hours and avoids the most sensitive breeding months of April and May. In areas where preconstruction sensitive species surveys and other seasonally limited activities such as seed collection and plant propagation are needed, Muni/Western will prepare a calendar of when such activities need to be accomplished and incorporate this into design and construction schedules to ensure that the surveys can be conducted in the appropriate season without causing delays. (Draft EIR page 3.3-37 through 3.3-39; Final EIR Section 2.4)
MM BIO-2	Muni/Western will develop a Habitat Revegetation, Restoration, and Monitoring Program (Program), obtaining input from CDFG, and USFWS, for implementation I all habitat areas directly affected by construction activities. The Program will include the following measures: **Invasive Species Control** Where appropriate and feasible, the area to be treated will be treated to kill invasive exotics species and limit their seed production before initiating any earthmoving activity with the objectives of (1) preventing invasive species from spreading from the disturbance area, and (2) removing weed sources from the salvaged topsoil. Herbicides will be used only by a licensed herbicide applicator and may require notification to property owners or resource agencies. The treatment will be completed before earthmoving in order for this mitigation to have its intended effect (e.g., the treatment would need to occur before target species set seed). **Topsoil Salvage and Replacement** In areas where vegetation and soil are to be removed, the topsoil will be

MM BIO-2 (continued)	salvaged and replaced, where practicable. This may be accomplished using two lifts, the first to salvage the seed bank, and the second to salvage soil along with soil biota in the root zone. Soil will be stockpiled in two areas near the Project site, with the seed bank labeled to identify it. Topsoil will be replaced in the proper layers after final reconfiguration of disturbed areas. Where presence of extensive deposits of boulders and cobbles limit the opportunity to salvage topsoil and make the above-mentioned procedure infeasible, Muni/Western will salvage available surface material and stockpile it for replacement on the surface of the restored area. Stockpiles will be covered if the soil is to be left for an extended period to prevent losses due to erosion and invasion of weeds. **Habitat Rehabilitation and Revegetation** Muni/Western will develop and implement plans and specifications for replanting areas disturbed by the Project. Replanting will be with native species propagated from locally collected seed or cuttings, and, if applicable, will include seed or sensitive species that would be impacted during construction activities. Monitoring procedures and performance criteria will be developed by Muni/Western to address revegetation and erosion control. The performance criteria will consider the level of disturbance and the condition of adjacent habitats. Monitoring will continue for 3-5 years, or until performance criteria have been met. Appropriate remedial measures, such as replanting, erosion control or weed control, will be identified and implemented if it is determined that performance criteria are not being met. (Draft EIR page 3.3-39 through 3.3-40; Final EIR Section 2.4)
MM BIO-3	Colonies of state-or federally-listed plants will be clearly marked, mapped, and recorded along with the numbers of individuals in each colony and their respective condition. Locations of listed animal species will also be marked, mapped, and recorded. To the maximum extent feasible, construction areas and access roads will be adjusted to avoid loss of individual listed plants and animals and damage to habitats supporting these species. Individuals of listed wildlife species in the ROW, other than birds and other mobile species, will be captured if possible by biologists with the appropriate permits and relocated to suitable habitats outside the ROW. (Draft EIR page 3.3-40)
MM BIO-4	Where impacts to listed plant species are unavoidable, Muni/Western will develop and implement, together with the listing agency, a salvage, propagation, replanting, and monitoring program that would utilize both seed and salvaged plants constituting a representative sample of each colony of that species that would be affected. The program will include measures to perpetuate the genetic lines represented to the maximum extent feasible. The program will be approved by the appropriate resource agencies prior to its implementation. Activities involving handling of state-or federally listed plant species may require permits as well as a memorandum of understanding from the USFWS or CDFG. The Muni/Western salvage, propagation, replanting, and monitoring program will incorporate provisions for recreating suitable habitat and measures for re-establishing self-sustaining colonies of listed plant species, should they be affected on the various project sites. The program will include provisions for monitoring and performance criteria, including an annual assessment of progress, and provisions for remedial action if performance criteria are not

	being met. (Draft EIR page 3.3-40)
MM BIO-5	Prior to ground disturbance or other activities, qualified wildlife biologists will survey all proposed construction, staging, stockpile, and access areas for presence of non-listed sensitive wildlife species. Preconstruction surveys will take place during the appropriate season and in accordance with established protocols (if required). These surveys will be conducted in all construction areas that occur in native habitats. In the event that non-listed sensitive wildlife species are observed in the impact area during these pre-project surveys, Muni/Western will implement the following measures: Locations of non-listed sensitive animals found during the surveys all also be marked, mapped, and recorded. Locations of burrowing animals will be avoided where feasible. Individuals of non-listed sensitive wildlife species in the ROW, other than birds, will be captured and relocated to suitable habitat outside the ROW. Where nesting of non-listed sensitive bird species is found to occur within the ROW, vegetation clearing will be conducted outside of the nesting season. (Draft EIR page 3.3-41)
MM BIO-6	Prior to ground disturbance or other activities, qualified botanists will survey all proposed construction, staging, stockpile, and access areas for presence of non-listed sensitive plant species. Preconstruction surveys will occur during appropriate season and in accordance with established protocols (if required). These surveys will be conducted in all construction areas that occur in native habitats. In the event that non-listed sensitive plant species are observed in the impact area during pre-Project surveys, Muni/Western will implement the following measures: (a)Colonies will be clearly marked, mapped, and recorded along with the numbers of individuals in each colony and their respective condition. To the extent feasible, construction areas and access roads will be configured to avoid or minimize loss of individual plants and damage to occupied habitats. (b)Where impacts to non-listed sensitive plant species are unavoidable, Muni/Western will develop and implement a salvage, propagation, replanting, and monitoring program that will use both seed and salvaged plants constituting an ample and representative sample of each colony (Draft EIR page 3.3-42.)
MM BIO-7	To reduce impacts on biological resources, Muni/Western will realign pipelines to avoid sensitive resources and habitat to the maximum extent feasible. Specifically, Muni/Western will realign Phase II of the Plunge Pool Pipeline northward and place it adjacent to Greenspot Road. (See Draft EIR Figure 3.3-7). This will put the project-related disturbance at the edge of the habitat and avoid bisecting the intermediate to mature RAFSS habitat along the western portion of the alignment. If it is infeasible to implement MM BIO-7, then the residual impact could be compensated by implementation of MM BIO-8, which is intended to compensate for permanent or long-term losses of sensitive RAFSS habitat as a result of installation of permanent facilities or long-term construction impacts that cannot be fully mitigated by MM BIO-1, MM BIO-2, and MM BIO-7 (Draft EIR page 3.3-44)

MM BIO-8	To compensate for permanent long-term and temporal losses of RAFSS habitat value, Muni/Western will acquire, for every 1 acre impacted, a minimum or 1 acre of good quality habitat of similar or greater habitat value than the RAFSS area impacted by the Plunge Pool pipeline and dedicate it in perpetuity as a habitat conservation easement area, or other appropriate designation, and provide funding for its future management as native habitat in perpetuity. The acquired RAFSS habitat area would ideally be contiguous with existing habitat already set aside in the WSPA or other dedicated RAFSS habitat. If good quality habitat in such a locality is not available for purchase, availability of other RAFSS habitat will be investigated, with the objective of obtaining good quality habitat near the Project area. Implementation of this mitigation measure will be subject to the requirement that such long-term mitigation and reporting plans for such acquisitions are to be approved by the Chief of the Division of Water Rights of the State Water Resources Control Board prior to construction of the Plunge Pool Pipeline. (Draft EIR page 3.3-44; Final EIR Section 2.4)
MM BIO-9	Muni/Western will monitor and remove invasive non-native species establishing in the channel and adjacent RAFSS habitats between Seven Oaks Dam and Mill Creek. Target species include species of tamarisk or salt cedar (*Tamarix* spp.), fountain grass (*Pennisetum setaceum*), and giant reed (*Arundo donax*). These species establish in habitats suitable to SBKR and Santa Ana River woolly-star and have the potential to spread further into adjacent suitable habitat areas. Initial control will be established using a combination of physical removal and herbicidal treatment using appropriate environmental safeguards. Herbicides will be uses pursuant to manufacturer's instructions and standard measures will be taken to avoid impacts to water quality. Two to several follow-up treatments would be anticipated during the first year with follow-up monitoring and treatments at least once annually in the ensuing years. (Draft EIR page 3.3-61; Final EIR Section 2.4)
MM BIO-10	Muni/Western will develop a program, in coordination with MSHCP agency participants, to selectively restore SBKR and Santa Ana River woolly-star habitat by using habitat manipulation, either by mechanical means or high pressure water, to remove vegetation and leave freshly deposited sand and silt, simulating the habitat-renewing aftermath of natural flooding. This will be done using an adaptive management approach with input from Multispecies Habitat Conservation Plan (MSHCP) stakeholders. If the high pressure water method is used, water will be piped. A high-pressure nozzle will be directed at localized areas of habitat determined to be suitable for SBKR and Santa Ana River woolly-star after renewal. The nozzle will be hand operated or operated from a light vehicle. Treatments will be accomplished in a randomized block design to allow experimental testing of variables such as duration and intensity of spray, addition of clean stand, season of disturbance, application of seed vs. allowing natural dispersal, etc. A rigorous monitoring program funded by Muni/Western will be established to enable the differences among experimental treatments to be determined. The primary indicator of success will be related to development of habitat characteristics identified with pioneer to intermediate RAFSS habitat within the SBKR and Santa Ana River woolly-star populations have been

MM BIO-10 (continued)	documented. These characteristics are documented in the literature and will be specified as part of the Muni/Western Program. The program will be adjusted appropriately as results from earlier efforts become available. The design and implementation of the ongoing effort will be funded by Muni/Western and conducted by representatives of Muni/Western with input from the USFWS and CDFG. A complete description of this method is also included in Appendix E7 of the Draft EIR, Section 2.0. Muni/Western commit to achieving a mitigation performance of restoring 10 acres of intermediate-to late-stage RAFSS habitat to the early or intermediate stage RAFSS habitat during the first twenty years of Project implementation (Draft EIR pages 3.3-61 and 3.3-62; Final EIR Section 2.4)
MM CR-1	In the event of an unanticipated archaeological or paleontological resource discovery during construction, all ground disturbances within 150 feet of the discovery will be halted or redirected to other areas until the discovery has been documented by a qualified archaeologist or paleontologist,, and its potential significance evaluated consistent with CEQA. Resources considered significant will be avoided by Project design. If avoidance is not feasible, the resource will be subject to a data recovery mitigation program, as appropriate. If human remains are discovered the County Coroner will be contacted, and all procedures required by the California Health and Safety Code Section 7050.5, State CEQA Guidelines Section 15064.5(e) and PRC Section 5097.98 will be followed. (Draft EIR page 3.9-19)
MM-CR-2	Proposed construction of the Plunge Pool Pipeline will avoid physical impacts to the Francis Cuttle Weir Dam to the extent feasible. In the event that any portion of the Francis Cuttle Weir Dam would be modified or demolished, a qualified architectural historian will prepare a historic recordation of the Francis Cuttle Weir Dam, in the context of the Conservation District's groundwater spreading system. The recordation will conform to the standards of either the Historic American Buildings Survey (HABS) or the Historic American Engineering Record (HAER). (Draft EIR page 3.9-20)
MM CR-3	Prior to construction activities along the segment of the Plunge Pool Pipeline, Phase I, align north of Greenspot Road, the location of the North Fork Canal will be precisely mapped on engineering design plans to identify where the canal falls within the construction corridor. Temporary fencing will be placed 5 feet south of the canal along the portion of the canal that falls within the construction corridor to provide a small buffer area, and no heavy construction equipment or vehicles will be allowed north of the fencing. (Draft EIR page 3.9-21)
MM CR-4	If it is necessary to install the Morton Canyon Connector II Pipeline through the "Hole in the Wall" within the retaining wall of Greenspot Bridge, construction activities will be confined to previously disturbed sections only and the wall will be restored to pre-Project conditions. Prior to construction, a qualified architectural historian will review the final construction designs of

	the Morton Canyon Connector II Pipeline to verify avoidance of significant impacts to any Greenspot Bridge feature. (Draft EIR page 3.9-24)
MM HAZ-1	Muni/Western will direct the contractor to wash out concrete trucks in a designated area where the material cannot run off into a stream or percolate into the groundwater. This area will be specified on all applicable construction plans and be in place before any concrete is poured. Muni/Western will direct the contractor to construction vehicles in a manner that contains fluids, such as lubricants, within an impervious area to avoid spill-related water quality impacts. (Draft EIR page 3.12-12)
MM HAZ-2	Muni/Western will direct the contractor to inspect and, as necessary, service all equipment before it enters the construction site and regularly thereafter, and before working immediately adjacent to the Santa Ana River or any other drainage or creek to avoid equipment leak-related water quality impacts. Muni/Western will direct the contractor to repair any leaks or hoses/fittings in poor condition before the equipment begins work. (Draft EIR page 3.12-12)
MM HAZ-3	Muni/Western will direct the contractor to prepare a spill prevention and contamination plan prior to equipment use on the site. Muni/Western will direct the contractor to follow the spill prevention plan during Project construction to prevent spill-related water quality impacts. This plan will include, but not necessarily be limited to: a. Specific bermed equipment maintenance and refueling areas. b. Bermed and lined hazardous material storage areas on site that are covered during the rainy season. c. Hazardous material spill cleanup equipment on site (e.g.,absorbent pads, shovels, and bags to contain contaminated soil). d. Workers trained in the location and use of cleanup equipment. (Draft EIR page 3.12-12). e.
MM HAZ-4	Using available data, in conjunction with the integrated surface and groundwater models, Muni/Western will identify groundwater trends, including plume movement and isolate changes attributable to implementation of the Project. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to limit adverse plume movements. (Draft EIR page 3.12-14)
MM-HAZ-5	Muni/Western will make an alternative water supply available to parties affected by contaminated wells, or provide treatment for affected wells, at Muni/Western's discretion. The alternative supply or treatment for affected wells will be made available for all times when pertinent water quality standards are exceeded as a result of the Project. (Final EIR section 2.3.2).

MM GEO-1	Before beginning construction, a sedimentation and erosion control plan will be prepared by Muni/Western and submitted to the Santa Ana Regional Water Quality Control Board (SARWQCB) for approval. In addition, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared by Muni/Western and submitted to the SARWQCB for approval prior to construction. Where possible, erosion control measures will be implemented by Muni/Western before beginning work in the rainy season. To minimize short-term impacts associated with erosion and off-site siltation of the SAR, standard erosion and sediment control features will be used during and immediately after grading and excavations.
MM GEO-2	Muni/Western will direct the contractor to install, prior to de-watering activities, energy dissipation devices at discharge points to prevent erosion. Sedimentation basins (such as straw bales lined with filter fabric) will be used at dewatering discharge points to prevent excess downstream sedimentation. These basins will be constructed during dewatering and regularly maintained during construction, including after storm events, to keep them in good working order.
MM GEO-3	Muni/Western will implement recommendations established in a site-specific geotechnical report, prepared by a qualified engineer or engineering geologist. The report recommendations will be based on comprehensive evaluation of slope stability, seismic, and soil conditions that may affect construction of the pipelines and related facilities. Recommendations will be consistent with provisions of California Code of Regulations, Title 8, Construction and Safety Orders. Project grading and excavations will be observed by a geotechnical engineer, engineering geologist, or other qualified representative, to verify compliance with recommendations of the geotechnical report. The geotechnical investigation will be completed in accordance with: (1) CDMG Special Publication 117, *Guidelines for Evaluating and Mitigating Seismic Hazards in California* (CDMG 1997). (2) Southern California Earthquake Center, Recommended Procedures for Implementation of DMG Special Publication 117 Guidelines for Analyzing and Mitigating Liquifaction in California (SCEC1999). (3)
MM GEO-4	Muni/Western will implement seismic-related recommendations contained in a site-specific geotechnical report, as discussed in MM GEO-3, to minimize seismically induced damage to the pipeline.
MM GEO-5	A water flow shut-off mechanism will be installed by Muni/Western at the Plunge Pool Pipeline Intake Structure to terminate flow immediately following a large earthquake in the vicinity of the site.
MM GEO-6	Muni/Western will complete emergency repairs to the pipeline and/or related facilities, in the event of seismically induced damage. MM GEO-1 and MMGEO-2 will be applied to reduce erosion related impacts associated with soil disturbance during emergency repairs.
MM GEO-7	Muni/Western will implement a groundwater level monitoring program using data from Index Wells (see Figure 3.4-5). This information will be used in

	conjunction with forecasts of groundwater levels derived from Muni/Western integrated surface and groundwater models to identify trends in groundwater levels and identify changes attributable to the Project. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to limit high groundwater conditions in the vicinity of Devil Canyon, Lytle Creek, Mill Creek, and areas in the forebay and intermediate area of the SBBA.
MM GEO-8	Muni/Western will implement a groundwater level monitoring program using data from Index Wells. This information will be used in conjunction with forecasts of groundwater levels derived from Muni/Western integrated surface and groundwater models to identify trends in groundwater levels and isolate changes attributable to the Project. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to limit potential for subsidence in the Pressure Zone area of the SBBA.
MM GW-1	Using available reliable data, Muni/Western will, on an annual basis, evaluate impacts of the Project on TDS and nitrate concentrations in the SBBA. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to reduce significant TDS and nitrate impacts.
MM GW-2	Using available data, Muni/Western will, on an annual basis, evaluate impacts of the Project on nitrate concentrations in the SBBA. To the extent feasible given existing infrastructure, and consistent with meeting other basin management objectives, Muni/Western will direct Project water spreading to reduce significant nitrate impacts.
MM SW-1	Because anaerobic conditions are a problem associated with current operations at Seven Oaks Dam, it is anticipated that the operations of the dam (San Bernardino, Riverside, and Orange County Flood Control Districts, known as the 'Local Sponsors') will implement a program (such as water quality monitoring and aeration) to avoid and reverse anaerobic conditions so that water quality objectives are not exceeded. In those years when the Project results in seasonal water conservation storage behind Seven Oaks Dam, Muni/Western will participate in such a preventative program and provide funding, proportional to the volume of seasonal storage behind Seven Oaks Dam.
MM SW-2	An energy dissipation structure, a device to slow fast moving flows so as to prevent erosion, will be placed at the terminus of the pipeline delivering water to Lytle Basins channel to ensure that water from the Project does not scour or erode the channel.
MM PS-12	Per the requirements of the Seven Oaks Accord, to avoid a significant effect on groundwater levels at one or more index wells located outside the Pressure Zone, Muni/Western will spread sufficient water to maintain static groundwater levels at the affected index wells.

MM PS-12 (continued)	To implement this mitigation measure, Muni/Western will use a groundwater monitoring program based on information derived from the index wells. This information will be used in conjunction with forecasts of groundwater levels derived from Muni/Western integrated surface and groundwater models to identify trends in groundwater levels and isolate the share of change attributable to the Project. Remedial action will be implemented prior to an actual 10-foot reduction being reached, to avoid the significant impact.

Table 2: Project's Cumulative Impacts and Mitigation Measures

Cumulative Impact	Mitigation Measure to be Incorporated into Permit
Biological Resources	
Cumulative Impact BIO-3 The Project and related projects would affect sensitive species.	The EIR identified project-specific MM-BIO-1 through MM-BIO-8 as mitigating cumulative impacts to sensitive species. However, the residual cumulative impacts to sensitive species are significant and unavoidable**.**
Cumulative Impact BIO-4 The Project and related projects would have significant cumulative effects on riversidean alluvial fan sage scrub (RAFSS), a sensitive natural community.	The EIR identified project-specific MM-BIO-1, MM-BIO-2, MM-BIO-7 and MM-BIO-8 as being applicable to reducing cumulative impacts to sensitive natural communities. These measures include the same actions as described under Cumulative Impact BIO-3, as well as relocating the Plunge Pool Pipeline to minimize effects to RAFSS and its associated wildlife species or purchasing and preserving RAFSS habitat. The residual cumulative impacts to RAFSS are significant and unavoidable.
Cumulative Impact BIO-6 The Project and related projects would have significant cumulative effects on sensitive natural communities and habitat of sensitive species downstream of Seven Oaks Dam.	The EIR identified Project specific MM-BIO-9 and MM-BIO-10 as reducing impacts to sensitive natural communities and habitat of sensitive species downstream of Seven Oaks Dam. The residual cumulative impacts to sensitive natural communities and sensitive species habitat would be significant and unavoidable.
Cumulative Impact BIO-7 Project and related projects would have significant indirect effects on biological resources related to growth and development in service areas.	MM Cumulative BIO-1: The San Bernardino General Plan continues a number of policies in the Natural Resources Element designed to require review of biological impacts for each development project in coordination with the development and enforcement of Habitat Conservation Plans, and development of monitoring programs. The Riverside County General Plan Draft Program EIR identifies policies form the Multipurpose Open Space Element of the County of Riverside General Plan as well as additional measures to reduce impacts to biological resources associated with growth. Policies are designed to require review of biological impacts for each development project, avoidance of habitat fragmentation, and use of constructed wetlands to treat water before it enters the natural stream system. Residual impacts: despite General Plan policies,

	significant unavoidable cumulative biological impacts would still occur in San Bernardino and Riverside Counties.
Cultural Resources	
Cumulative Impact CR-1 The Project and related projects could cause a significant adverse change in the significance of a historical or archaeological resource, destroy a unique paleontological resource, or disturb human remains.	MM Cumulative CR-1: Individual review of each of the related projects under CEQA would likely result in the identification of any significant cultural resource impacts and provide mitigation to reduce or avoid impacts. It is not certain that all significant cumulative impacts could be successfully mitigated, given the potentially large amount of ground disturbance involved with the Project and related projects. Residual impacts: potential cumulative impacts on cultural resources would remain significant**.**
Cumulative Impact CR-2 The Project and related projects would have indirect significant impacts related to growth and development in the service areas.	MM-Cumulative CR-2: The Natural Resources Element of the San Bernardino County General Plan contains a number of policies to mitigate impacts to cultural resources. Generally, these policies require cultural resource field surveys with all project submittals; the preparation of cultural resource overlays for all existing Planning Areas not covered by an overlay map; preliminary cultural resource reviews by the Archaeological Information Center; the cataloging of artifacts discovered as a result of a cultural resource investigation; and notification of the Native American Heritage Commission if projects require the excavation of Native American archaeological sites. The Multipurpose Open Space Element of the Riverside County General Plan also contains relevant policies that would mitigate impacts to cultural resources. The Riverside County General Plan Draft Program EIR identifies additional mitigation measures including compliance with State Health and Safety Code Section 7050.5 that requires disturbance of an area to cease where human remains have been encountered until the Riverside County Coroner has made a determination of the origin and disposition; avoidance of cultural resources where possible, where avoidance of cultural resources is not possible, the planting of deterrent plant species such as prickly pear cactus shall be completed to minimize public availability to the site; and additional measures if avoidance and/or preservation of cultural resources is not possible, such as having a participant-observer present from the appropriate Indian Band or Tribe during

	archaeological testing or excavation of a project site. Residual impacts: significant cumulative impacts to cultural resources could still occur given the potentially large amount of ground disturbance related to growth and development.
Hazardous Materials and Groundwater Contamination	
Cumulative Impact HAZ-1 The Project in combination with related projects could create a significant hazard to the environment through the routine transport, use, and disposal of hazardous material and waste used during grading and construction. Such hazards could occur through upset and accident conditions involving the cumulative release of construction equipment-related hazardous materials into the environment, resulting in significant impacts.	Project-specific MM HAZ-1, MM HAZ-2 and MMHAZ-3 would reduce Project impacts due to hazardous spills. Because other projects would be subject to environmental compliance regulations, it is anticipated that related projects would implement mitigation measures similar to the Project making the residual impacts less than significant.
Cumulative Impact HAZ-2 Implementation of the Project and related projects may cause perchlorate, TCE, and PCE plumes to affect wells that would not be affected under No Project conditions. Additionally, operations of the Project and related projects may expand the footprint of the perchlorate plume. This is a significant impact.	Mitigation measure: MM-HAZ-4: Residual cumulative impacts would be significant and unavoidable.
Cumulative Impact HAZ-3 The Project and related projects would have significant indirect effects related to growth and development in the service areas.	Mitigation measure MM Cumulative HAZ-1. The San Bernardino County General Plan includes policies to reduce impacts related to hazardous materials. Specifically, the Hazardous Waste/Materials section of the Man-made Hazards Element includes policies HW-1 through HW-26. In general, these measures establish an effective and expeditious permitting process for siting hazardous waste facilities that includes extensive public participation; ensures the protection of public health and safety when siting needed hazardous waste facilities; develops uniform set of criteria for the siting of hazardous waste facilities in the County, including a requirement that facilitates the siting only in areas with a zoning overlay of Specified Hazardous Waste Facility; and ensures

	coordination among agencies and County departments in the review of all hazardous waste applications within the County.
Surface Water Hydrology and Water Quality	
Cumulative Impact SW-1 Construction of the Project**,** in combination with other identified activities, could result in substantial additional sources of erosion, sedimentation, and turbidity for runoff entering the Santa Ana River, a significant impact.	Implementation of MM-GEO-1 would reduce construction related impacts to erosion and water quality in the Santa Ana Construction Area. MM-GEO-1 requires a sedimentation and erosion control plan and a Storm Water Pollution Prevention Plan is prepared before construction. Implementation of the mitigation measures will minimize impacts to the Santa Ana River Construction Area to a less than significant level.
Cumulative Impact SW-4 Use of Seven Oaks Reservoir for seasonal water conservation storage under the Project and temporary water storage per the Biological Opinion could substantially degrade water quality as a result of impoundment of flows. This would be a significant impact.	Project-specific mitigation measure, MM SW-1 would reduce the risk of anaerobic conditions of anaerobic conditions in Seven Oaks Reservoir. MM-SW-1 requires participation in a program to avoid and reverse anaerobic conditions in the reservoir.
Cumulative Impact SW-8 Combined diversions per the project and the San Bernardino Valley Water Conservation District (Conservation District) Application would significantly decrease non-storm flow from Cuttle Weir to the Mill Creek confluence.	This cumulative impact is not applicable because the Conservation District withdrew its Application.
Cumulative Impact SW-11 The Project and related projects would have significant indirect effects related to growth and development in the service areas.	MM Cumulative SW-1 The San Bernardino General Plan contains a number of policies in the Water section of the Natural Resources Element designed to coordinate and manage water resources throughout the County. However, with regard to water resources in San Bernardino County, significant unavoidable impacts would still occur. The Riverside County General Plan addresses localized flooding risks in the Safety Element of the proposed Riverside County General Plan. Additionally, the proposed Riverside County General Plan Draft Program EIR contains measures to further mitigate flooding impacts including use of FEMA documents to minimize flood hazards, prohibition by the County of the alteration of floodways and channelization where

	possible, and the requirement that the 10 –year flood flows be contained within the tops of curbs and the 100-year flood flows within the street rights-of-way. These policies would mitigate impacts related to surface water in Riverside County. Residual impacts: Significant cumulative impacts to surface water resources related to water demand and generation of urban contaminants could still occur in San Bernardino County.
Groundwater Hydrology and Water Quality	
Cumulative Impact GW-3 At some wells, implementation of the Project, in combination with related projects, would increase nitrate combinations to the point where they would exceed Water Quality Objectives (WQOs).	Mitigation measure: MM GW-1 Residual cumulative nitrate impacts are significant and unavoidable.
Cumulative Impact GW-4 At some wells, implementation of the Project, in combination with related projects, would increase Total Dissolved Solids (TDS) concentrations to the point where they would exceed WQOs.	Mitigation measure: MM GW-1 Residual cumulative TDS impacts would be significant and unavoidable.
Cumulative Impact GW-5 The Project and related projects would have significant indirect effects related to growth and development in the service areas.	MM Cumulative GW-1 The San Bernardino County General Plan contains a number of policies in the Water section of the Natural Resources Element designed to coordinate and manage water resources throughout the County. The Riverside County General Plan contains a number of policies in the multipurpose Open Space Element and Land Use Element designed to avoid overdraft and groundwater contamination. Residual impacts are significant unavoidable cumulative groundwater impacts would still occur in San Bernardino County,
Geology, Soils, and Mineral Resources	
Cumulative Impact GEO-1 In the Santa Ana River Construction Area, the Project, in combination with related projects, would expose structures to seismic ground shaking, ground failure and liquefaction, a significant impact. In the Devil Canyon Area, a significant impact related to placing structures in	Santa Ana River Construction Area Mitigation measures: MM GEO-4, GEO-5, and GEO-6. Residual impacts are significant and unavoidable**.** Devil Canyon Construction Area: Mitigation measures: MM GEO-4, GEO-5, and GEO-6

areas prone to unstable soil or slope conditions and seismically induced ground failure, also applies to the Devil Canyon Construction Area. Besides the Project, in this area the Inland Feeder will be constructed. Because of the large size of the pipelines, rupture as a result of seismic activity could result in the release of large quantities of water, indirectly causing damage to nearby structures and creating erosional gullies and substantial erosion. San Bernardino Basin Area Geology, soils, and mineral resources in the Muni/Western service area could be affected by the Project, Wash Plan, Master Plan, Restoration Project, Conservation District Application, Pilot Dewatering Program, Riverside-Corona Feeder, and the North Lake Area and South Lake Area Project.	Residual impacts are significant and unavoidable.
Cumulative Impact GEO-2 Project-related groundwater recharge, in combination with recharge from related projects, could result in shallow groundwater conditions and increase the area susceptible to liquefaction during certain seismic events.	Mitigation measure: MM GEO-7 This mitigation measure may not reduce to a level of less than significant, the elevated groundwater and liquefaction potential of all projects. Residual cumulative impacts would be significant and unavoidable.
Cumulative Impact PS-3 Change in the pattern of groundwater recharge from operations of the Project and related projects could lower average groundwater levels at wells outside the Pressure Zone, thus impairing groundwater production.	Mitigation measures MM PS-12 Evaluation of groundwater levels and selective groundwater spreading would reduce groundwater level changes of the Project. It is uncertain whether related projects would implement measures to avoid groundwater level impacts on production wells. Residual cumulative impacts would be significant and unavoidable.

TABLE A

Application 31165: Locations of Points of Diversion (POD) and Points of Rediversion (POR)

By California Coordinate System of 1983, Zone 5	Source	40-acre subdivision of public land survey or projection thereof	Section	Township	Range	Base and Meridian
POD & POR #1: Seven Oaks Dam North 1,866,500 ft. and East 6,835,000 ft.	**Santa Ana River**	**NE¼ of NW¼**	**4**	**01S**	**02W**	**SB**
POD #2: North 1,882,500 ft. and East 6,859,600 ft.	**Bear Creek**	**SE¼ of NE¼**	**19**	**01N**	**01W**	**SB**
POD #3: North 1,882,400 ft. and East 6,859,700 ft.	**Santa Ana River**	**SE¼ of NE¼**	**19**	**01N**	**01W**	**SB**
POD #4: North 1,880,900 ft. and East 6,858,100 ft.	**Breakneck Creek**	**NW¼ of SE¼**	**19**	**01N**	**01W**	**SB**
POD #5: North 1,877,700 ft. and East 6,846,200 ft.	**Keller Creek**	**NW¼ of NE¼**	**26**	**01N**	**02W**	**SB**
POD #6: North 1,876,700 ft. and East 6,846,700 ft.	**Santa Ana River**	**SW¼ of NE¼**	**26**	**01N**	**02W**	**SB**
POD #7: North 1,877,100 ft. and East 6,843,600 ft.	**Alder Creek**	**NW¼ of NW¼**	**26**	**01N**	**02W**	**SB**
POR #8: North 1,865,800 ft. and East 6,837,100 ft.		**SE¼ of NE¼**	**4**	**01S**	**02W**	**SB**
POD & POR #9: North 1,864,900 ft. and East 6,835,000 ft.	**Santa Ana River**	**SE¼ of NW¼**	**4**	**01S**	**02W**	**SB**
POD & POR #10: North 1,862,800 ft. and East 6,834,000 ft.	**Santa Ana River**	**SW¼ of SW¼**	**4**	**01S**	**02W**	**SB**

TABLE B

Application 31370: Locations of Points of Diversion (POD) and Points of Rediversion (POR)

By California Coordinate System of 1983, Zone 5	Source	40-acre subdivision of public land survey or projection thereof	Section	Township	Range	Base and Meridian
POD & POR #1: Seven Oaks Dam North 1,866,500 ft. and East 6,835,000 ft.	**Santa Ana River**	**NE¼ of NW¼**	**4**	**01S**	**02W**	**SB**
POD #2: North 1,882,500 ft. and East 6,859,600 ft.	**Bear Creek**	**SE¼ of NE¼**	**19**	**01N**	**01W**	**SB**
POD #3: North 1,882,400 ft. and East 6,859,700 ft.	**Santa Ana River**	**SE¼ of NE¼**	**19**	**01N**	**01W**	**SB**
POD #4: North 1,880,900 ft. and East 6,858,100 ft.	**Breakneck Creek**	**NW¼ of SE¼**	**19**	**01N**	**01W**	**SB**
POD #5: North 1,877,700 ft. and East 6,846,200 ft.	**Keller Creek**	**NW¼ of NE¼**	**26**	**01N**	**02W**	**SB**
POD #6: North 1,876,700 ft. and East 6,846,700 ft.	**Santa Ana River**	**SW¼ of NE¼**	**26**	**01N**	**02W**	**SB**
POD #7: North 1,877,100 ft. and East 6,843,600 ft.	**Alder Creek**	**NW¼ of NW¼**	**26**	**01N**	**02W**	**SB**
POR #8: North 1,865,800 ft. and East 6,837,100 ft.		**SE¼ of NE¼**	**4**	**01S**	**02W**	**SB**
POD & POR #9: North 1,864,900 ft. and East 6,835,000 ft.	**Santa Ana River**	**SE¼ of NW¼**	**4**	**01S**	**02W**	**SB**
POD & POR #10: North 1,864,900 ft. and East 6,834,600 ft.	**Santa Ana River**	**SE¼ of NW¼**	**4**	**01S**	**02W**	**SB**
POD & POR #11: North 1,863,500 ft. and East 6,834,000 ft.	**Santa Ana River**	**NW¼ of SW¼**	**4**	**01S**	**02W**	**SB**
POD & POR #12: North 1,862,800 ft. and East 6,834,000 ft.	**Santa Ana River**	**SW¼ of SW¼**	**4**	**01S**	**02W**	**SB**

TABLE B (continued)

Application 31370: Locations of Points of Rediversion (POR)

By California Coordinate System of 1983, Zone 6	40-acre subdivision of public land survey or projection thereof	Section	Township	Range	Base and Meridian
POR #13: Lake Mathews Dam North 2,256,420 ft. and East 6,198,550 ft.	**SE¼ of NW¼**	**12**	**04S**	**06W**	**SB**
POR #14: Diamond Valley Lake Dam North 2,188,680 ft. and East 6,313,210 ft.	**NE¼ of NW¼**	**11**	**06S**	**02W**	**SB**
POR #15 Lake Skinner Dam North 2,157,870 ft. and East 6,311,180 ft.	**SW¼ of SE¼**	**3**	**07S**	**02W**	**SB**