

West Valley Water District Local Groundwater Assistance Grant
ATTACHMENT 4. PROJECT DESCRIPTION

The U.S. Environmental Protection Agency (USEPA) and its consultant (CH2MHill) have developed a calibrated groundwater flow model (referred to as the USEPA Rialto-Colton Model, or EPA RCM) for the Rialto-Colton Groundwater Basin (Basin), which is a hybrid of the existing models, including the U.S. Geological Survey (USGS) basinwide model (Woolfenden and Koczot, 2001), the GeoLogic (2007, 2010) model, and the CH2MHill (2010) model. The EPA RCM (CH2MHill, 2012) was developed with the USGS's MODFLOW-NWT groundwater modeling program. The USEPA is currently using the EPA RCM to design and evaluate the perchlorate and volatile organic compound (VOC) interim source-area groundwater remedy associated with the B.F. Goodrich superfund site (the EPA remedy) (Figure 1).

Two other nearby remedial actions are currently in operation in the Basin. First, San Bernardino County operates a groundwater treatment system for perchlorate and VOC impacts at Rialto Well No. 3, located at the Rialto Airport. Also, the County of San Bernardino is using Fontana Union Water Company wells as part of a corrective action program (CAP) further to the west that includes groundwater extraction of VOC-contaminated groundwater for contaminants emanating from near the footprint of Unit 1 of the County Mid-Valley Sanitary Landfill. Both of these remedial actions are located to the southwest of the EPA remedy and north of Baseline Avenue. Including the EPA remedy, these three remedial actions occur/will occur in the area referred to locally as "North of Baseline" (Figure 1).

The allocation of groundwater pumped from the Basin during low-water conditions is governed by a stipulated judgment informally known as the 1961 Rialto Basin Decree, which was entered in San Bernardino County Superior Court (The Lytle Creek Water & Improvement Company vs. Fontana Ranchos Water Company, et al., Action 81264) (1961 Rialto Basin

Decree). The 1961 Rialto Basin Decree stipulates that parties to the Decree may pump unlimited volumes of groundwater from the Basin if the average of the spring-high groundwater elevation at three index wells exceeds 1,002.3 feet above mean sea level (MSL). When the average groundwater elevation at the index wells is between 969.7 and 1,002.3 feet above MSL, each party is entitled to the amount specified in the Decree. If the index-well average spring-high groundwater elevation falls below 969.7 feet above MSL, each party's entitlement is reduced by 1 percent for every foot the average is below 969.7 feet above MSL, to a limit of not more than 50 percent. The area governed by the 1961 Rialto Basin Decree is referred to as the Rialto-Colton Basin. The boundaries of this area are shown on Figure 2.

For 2012, groundwater elevations in the Basin are approximately 19 feet below the level stipulated in the 1961 Rialto Basin Decree (or 950.3 feet); forcing a 19% reduction in groundwater pumping by parties to the Decree (San Bernardino Valley Municipal Water District, 2012). The forthcoming EPA interim remedy, which is a pump-and-treat system, and future return to service of District Well No. 11 and Rialto Well No. 6 as part of a contaminant mass removal effort (south of Baseline Avenue) represent additional groundwater pumping.

In light of the challenges described above, the focus of the proposed Project is to develop an understanding of: 1) the hydrogeologic interaction of all four remedial pumping efforts; 2) the potential options for extracting any additional groundwater within the stipulated amounts; and to evaluate management options that will optimize continued stakeholder groundwater pumping, by strategically replenishing the basin through artificial recharge. The operating assumption is that strategic planning offers the potential for avoiding further litigation.

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Objectives

The primary objective of the Groundwater Model Integration and Enhancement Project is to use the calibrated EPA RCM (CH2MHill, 2012) to optimize the basin-wide groundwater management within the Basin caused by the North of Baseline remedial actions and the return to service of District Well No. 11 and Rialto Well No. 6. Together with other known and estimated groundwater pumping within the Basin, these actions are collectively described in this scope of work as Basin groundwater production.

The effects of Basin groundwater production on basin-wide groundwater management will be evaluated by predicting the simulated average spring-high groundwater elevations at the three index wells specified in the 1961 Rialto Basin Decree. Simulation scenarios of future groundwater levels will be defined that incorporate hypothetical climatic and Basin groundwater production variations and groundwater replenishment projects. In achieving the modeling objective, a comprehensive, practical understanding of Basin groundwater mechanics will be developed, in terms of groundwater flow dynamics and hydrologic response.

Collaboration

The District has been informally meeting with other relevant agencies that overlay the Rialto-Colton Basin to discuss issues related to groundwater management in the Rialto-Colton Basin and the Lytle Creek Groundwater Subbasin (which adjoins the Rialto-Colton Basin on the west). The Lytle-Rialto Basin Group consists of the District, Valley District, Cucamonga Valley Water District (CVWD), and Fontana Water Company (FWC).

As part of this proposed Project, a memoranda of agreement will be developed to formalize the actions of the Lytle-Rialto Basin Group, define the data to be provided by each member and the types of in-kind services to be provided by each agency

(e.g., provide technical staff to attend monthly meetings, review of consultant work products). The committee will be a forum whereby groundwater issues are dealt with at the technical level and a means to avoid costly litigation.

Coordination with State and Federal Agencies

As discussed previously, USEPA, CDPH and DTSC are integrated into the many activities that have been conducted since 2010 to address the presence of perchlorate found at the Superfund site located in the Basin. These same agencies are working with the District and the City of Rialto to complete a project called the “Groundwater Wellhead Treatment System Project (GWTSP)” between the District and Rialto to treat for perchlorate and nitrate coming from the two contaminated drinking water production wells located in the Basin. The proposed Groundwater Model Integration and Enhancement Project will allow the District to predict and management the effects on the Basin before and after the contaminated drinking wells are put back into service.

Stakeholders

The proposed Project will serve as a tool for Basin stakeholders to evaluate future “what-if” scenarios, which will include potential locations for groundwater replenishment programs. Such programs may be an integral part of balancing the needs of Basin stakeholders under the constraints imposed by the 1961 Rialto Basin Decree.

The formation of the Basin Technical Advisory Committee will be how federal and State agencies will be notified of public meetings for the stakeholders with relevant groundwater basin information.

The funds for using this proposed Project as a tool for the Basin stakeholders to evaluate future scenarios will need to come from the various water agencies’ general funds supplied by the sale of water to customers.

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Quality and Usefulness of Acquired Data

As discussed previously, the proposed Groundwater Model Integration and Enhancement Project will develop a comprehensive, practical understanding of Basin groundwater mechanics.

The modeling project will complement existing and proposed groundwater modeling activities performed by the USEPA, CDPH, and DTSC.

Ongoing Use of Project Information and Work Products

The result of this modeling project will provide a basis to determine the relative amount of water that goes into groundwater storage versus the quantity that is lost to remedial systems, production wells, and subsurface groundwater outflow. The project analysis will evaluate long-term aquifer sustainability in response to changes in the water demand and/or distribution of groundwater production and remediation, and the potential benefits of groundwater replenishment projects. Also, the model can be used for future basin-management scenarios.

References

1961 Rialto Basin Decree. Lytle Creek Water & Improvement Company vs. Fontana Ranchos Water Company, et al., San Bernardino County Superior Court Action 81264, entered on December 22, 1961.

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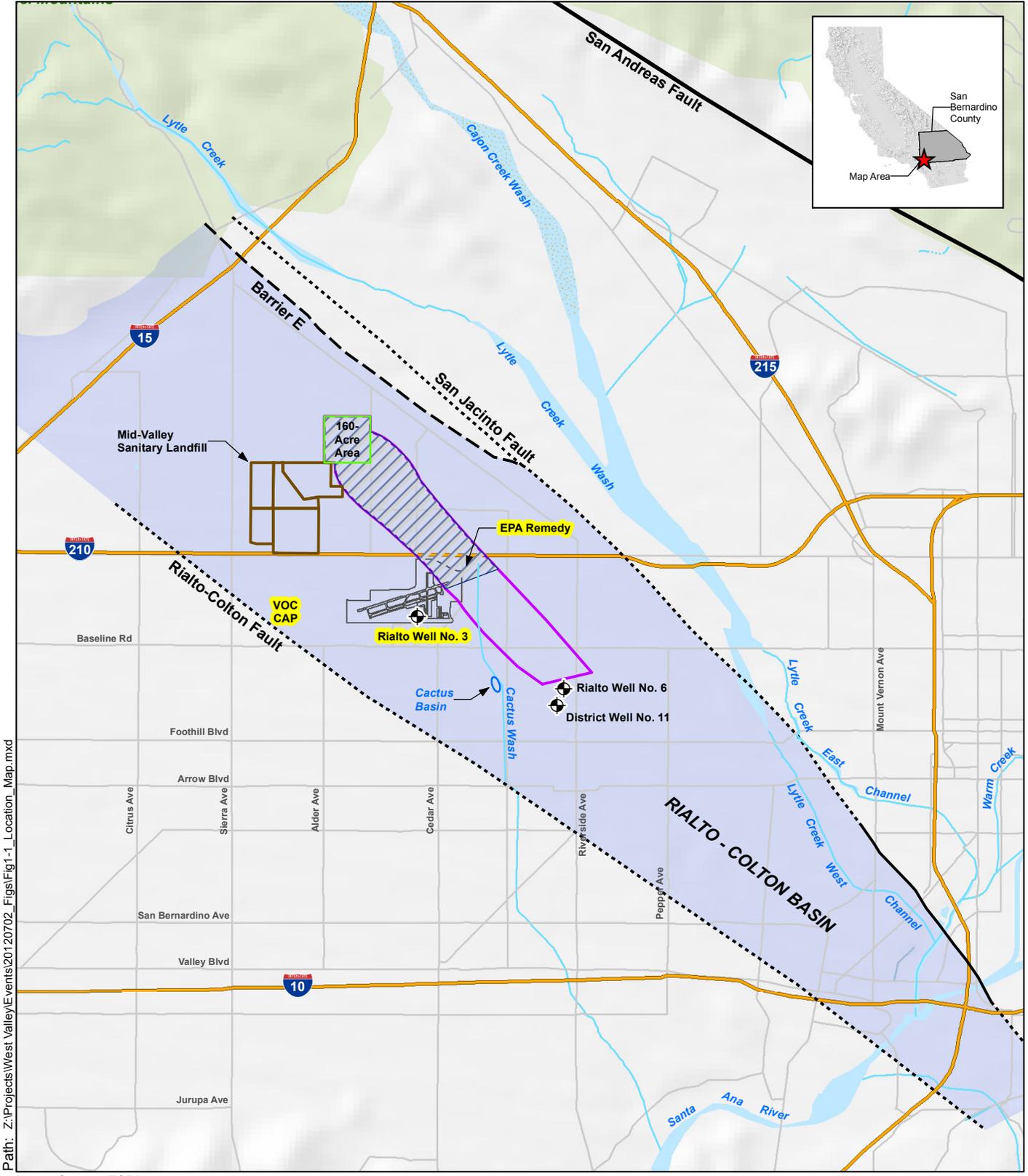
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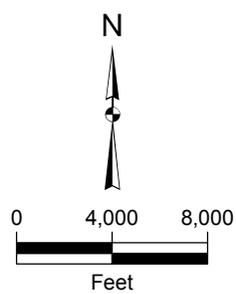


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Image Source: ESRI

Legend

	Project Wells		Interim Source Area Operable Unit
	Fault		Superfund Site
	Fault (Approximate)		
	Fault (Concealed)		



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Project Site and Superfund Site

Figure 1

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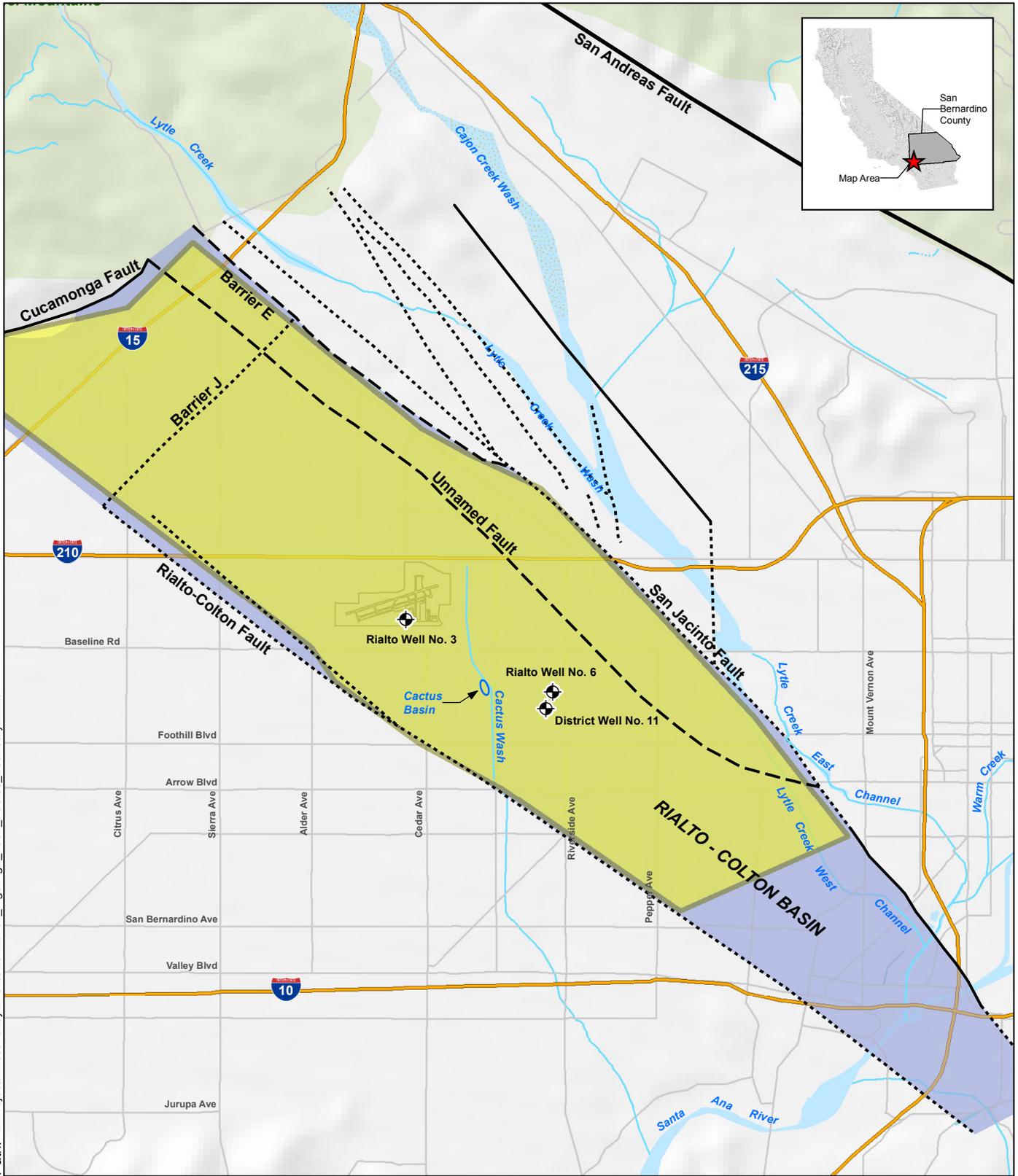
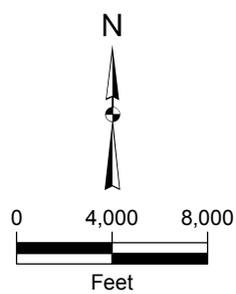


Image Source: ESRI

Legend	
	Project Wells
	Fault
	Fault (Approximate)
	Fault (Concealed)
	Rialto-Colton Basin
	Area Controlled by the Stipulated Judgement in <i>The Lytle Creek Water & Improvement Company vs. Fontana Ranchos Water Company, et al., Action 81264</i>



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1961 Decree Boundary

Figure 2