Eighth Annual Report of the

Coldwater Basin Operating Committee

December 2019

Prepared for:

City of Corona
&
Elsinore Valley Municipal Water District

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Table of Contents

Section 1 – Introduction **1-1**
1.1 Background and Objectives 1-1
1.2 Definitions 1-2
Section 2 – Re-Determination of Native Safe Yield **2-1**
2.1 General Observations 2-1
2.2 Method 2-2
2.3 Results 2-3
2.3.1 Change in Groundwater Storage 2-3
2.3.2 Groundwater Production 2-4
2.3.3 Return Flows of Imported Waters 2-4
2.3.4 Native Safe Yield 2-4
Section 3 – Water Rights Accounting **3-1**
3.1 Imported Water and Allowable Production 3-1
3.2 Groundwater Production and Storage Accounts 3-1
3.3 Determination of Annual Production Rights 3-2
3.4 Summary and Recommendations 3-2

Appendix A – Agreement Concerning Water Production from the Coldwater Basin
Appendix B – Accounting Spreadsheets (Excel Workbook)
Appendix C – Groundwater-levels in the Coldwater Basin; 1984-2018
Appendix D – Well Logs of Wells Used in the Storage Calculation

List of Tables

2-1	Summary of Native Safe Yield Re-Determination – *1984 to 2017*
3-1	Return Flows and Artificial Recharge of Imported Water – *Fiscal Year 2017/18*
3-2	Groundwater Production by Well – *Fiscal Year 2017/18*
3-3	Annual Accounting of Allowable Production, Storage Accounts, and Production Rights – *Fiscal Year 2018/19*
3-4	Summary of Return Flows and Artificial Recharge of Imported Water – *2008/09 to 2017/18*
3-5	Summary of Groundwater Production and Storage Accounts – *2008/09 to 2017/18*

List of Figures

1-1	Coldwater Basin - Boundaries, Well Locations, and Water Facilities
2-1	Pumping, Precipitation, and Groundwater Levels in the Coldwater Basin
2-2	Storage-Change Boundary and Locations of Wells with Lithologic Data

This is the *Eighth Annual Report of the Coldwater Basin Operating Committee*. The report is organized into the following sections:

Section 1 – Introduction. This section provides background information on the Coldwater Basin, the *Agreement Concerning Water Production from the Coldwater Basin* (Agreement) between the City of Corona (City) and the Elsinore Valley Municipal Water District (District), the responsibilities of the Operating Committee that was formed to implement the Agreement, and key definitions of the terms used in this report.

Section 2 – Re-Determination of Native Safe Yield. This section describes the methods and results of 2018 re-determination of the Native Safe Yield and each Party's share thereof.

Section 3 – Water Rights Accounting. This section describes the accounting of each Party's storage account for fiscal year (FY) 2017/18 and their production rights for FY 2018/19.

1.1 Background and Objectives

The Coldwater Basin is a relatively small groundwater basin located in the Temescal Valley within western Riverside County. Stormwater runoff from the adjacent Santa Ana Mountains is a major source of recharge to the Coldwater Basin. Groundwater quality is typically good with total dissolved solids (TDS) concentrations generally less than 500 milligrams per liter (mgl).

The City and the District are the two main groundwater producers within the Coldwater Basin. Figure 1-1 shows the extent of the Coldwater Basin, production well locations, and the water transmission facilities used by the City and the District to import and export water to and from the Coldwater Basin.

In FY 2007/2008, the City and the District performed technical studies to describe the groundwater resources of the Coldwater Basin and to estimate its annual "native safe yield." Effective December 1, 2008, the City and the District entered into the Agreement. The Agreement supersedes all prior agreements and is attached to this report as Appendix A. The primary functions of the Agreement are:

- To establish an Operating Committee to implement the terms and provisions of the Agreement.
- To provide rules for the Operating Committee to determine the amount of groundwater that each party can pump from the Coldwater Basin annually.
- To define the joint use and cost sharing associated with the Trilogy Well.
- To establish a process to develop joint projects to enhance the groundwater supply of the Coldwater Basin.

The Operating Committee is comprised of one appointee each by the City Manager and the District's General Manager. The Operating Committee's purposes are: (i) to make operational decisions to implement the terms and provisions of the Agreement, (ii) to ensure that the City and the District are allowed to pump sufficient water from the Coldwater Basin to meet their respective needs, and (iii) to maximize the sustainable use of the Coldwater Basin as a water supply.

A primary function of the Operating Committee is to specify the amount of each Party's Allowable Production, Storage Account, and Production Right on an annual basis. The Agreement also requires the Operating Committee to re-determine the Native Safe Yield of the Coldwater Basin once every five years and to adjust each Party's share of the Native Safe Yield based on the groundwater pumped by each producer in the Coldwater Basin.

The Initial Native Safe Yield of the Coldwater Basin was 3,300 acre-feet/year (afy) for the period of FY 2008/09 to 2012/13. At the end of FY 2012/13, the Native Safe Yield was re-determined to be 3,800 afy for the FY period of 2013/14 to 2017/18. The Native Safe Yield was re-determined for this annual report for the FY period of 2018/19 to 2022/23. The methods used to re-determine the Native Safe Yield in this report were the same methods used to determine the Initial Native Safe Yield for the Agreement, and to re-determine the Native Safe Yield in 2013,[1] but the period of analysis was 1984-2017.

1.2 Definitions

The following are definitions of key terms used in this report:

Accounting Year: July 1 to June 30 (The accounting commencement date is July 1, 2008.)

Allowable Production: Native Safe Yield plus Return Flows from the preceding Accounting Year.

Annual Production Right: [Party's Allowable Production] + [Storage Account]

Groundwater Production: The annual volume of groundwater pumped by each Party from wells located within the Coldwater Basin.

Initial Native Safe Yield: 3,300 afy was the initial estimate of the Native Safe Yield used for the first five years of the Agreement (FY 2008/09 to 2012/13). Thereafter, the Operating Committee will re-determine the Native Safe Yield every five years.

[1] Wildermuth Environmental, Inc. (2014). *Third Annual Report of the Coldwater Basin Operating Committee*. Prepared for the City of Corona & Elsinore Valley Municipal Water District. January 2014.

Initial Share of the Native Safe Yield: The initial shares of the Native Safe Yield were allocated to the Parties as follows:

City:	64%	(2,112 acre-feet [af])
District:	32%	(1,056 af)
Private pumpers:	4%	(132 af)

Native Safe Yield: 2,750 afy is the re-determined Native Safe Yield for the FY period 2018/19 to 2022/23.

Party: The City of Corona or the Elsinore Valley Municipal Water District (collectively, the Parties)

Party's Allowable Production:[2] [Share of Native Safe Yield (%)] * [Allowable Production]

Return Flows: The portion of water imported, by either or both Parties, used within the Coldwater Basin and returns to the aquifer system as recharge.

Share of the Native Safe Yield: The re-determined shares of the Native Safe Yield are allocated to the Parties as follows:

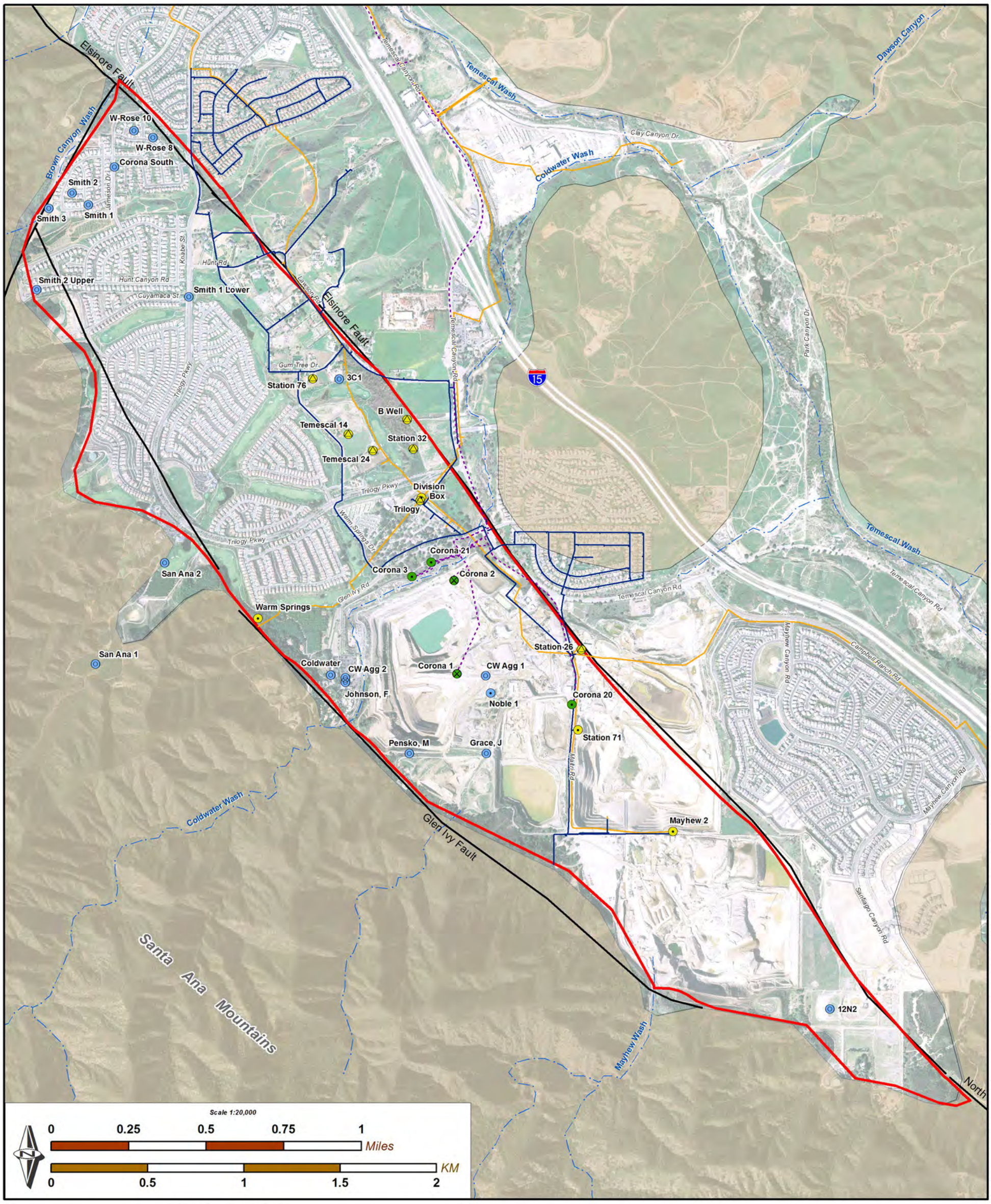
City:	64%	(1,760 af)
District:	32%	(880 af)
Private pumpers:	4%	(110 af)

Storage Account: Each Party can store its un-pumped Allowable Production in a separate Storage Account.[3] The upper limit of each Party's Storage Account is ten times its Initial Share of Native Safe Yield:

City:	21,120 af
District:	10,560 af

[2] Private pumpers do not receive a share of the Return Flows.

[3] Private pumpers do not have Storage Accounts.



Imagery Source: AirPhotoUSA, LLC and Elsinore Valley Municipal Water District (951-894-8713)

Air photo acquired in Spring 2008

Production Wells

Well Owner (Color)

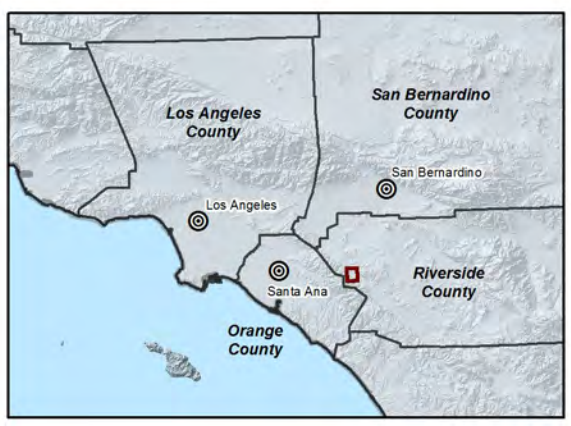
- Elsinore Valley Municipal Water District
- City of Corona
- Private Wells (locations not confirmed)

Well Status (Symbol)

- Active
- Inactive
- Abandoned
- Unknown

Other Map Features

- Coldwater Basin Boundary
- EVMWD Non-Potable Transmission Line
- EVMWD Potable Transmission Line
- City of Corona Potable Transmission Line
- Consolidated Bedrock



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CORONA "The Circle City" Incorporated July 13, 1896 — To Cherish Our Past – To Plan Our Future

Author: CS

Date: 20141014

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Coldwater Basin

Boundaries, Well Locations, and Water Facilities

Figure 1-1

Section 2 – Re-Determination of Native Safe Yield

The Agreement calls for the Operating Committee to re-determine the Native Safe Yield, and each Party's share thereof, once every five years following the commencement of accounting (July 1, 2008). The phenomena that influence the yield of a groundwater basin include precipitation, recharge of precipitation and applied waters, groundwater production, and groundwater-level changes (i.e. storage change).

The initial estimate of the Native Safe Yield for the period 2008/09 to 2012/13 was 3,300 afy which was based on data from 1984-2004. The Native Safe Yield was re-determined to be 3,800 afy for the period 2013/14 to 2017/18 which was based on data from 1984-2012. What follows is a discussion of the Coldwater Basin data collected for the period 1984-2017 and the analysis of that data to re-determine Native Safe Yield and each Party's share thereof for the period 2018/19 to 2022/23.

2.1 General Observations

Pumping of groundwater and the recharge of precipitation and applied water are the main stresses on the Coldwater Basin. Changes in groundwater levels reflect the response of the aquifer system to these stresses. The "developed yield" of a groundwater basin considers both groundwater production and changes in groundwater levels (i.e. change in storage).

Figure 2-1 depicts the time history of the main stresses to the basin and the groundwater-level responses to those stresses:

- Annual groundwater production from the Coldwater Basin for calendar-year period 1984 to 2017.
- The cumulative departure from mean precipitation (CDFM) for the precipitation station at Lake Elsinore (Station D067). At this station, mean annual precipitation was 12 inches for the fiscal-year period 1900-2018. Upward slopes of the CDFM curve represent wet years or periods. Downward slopes of the CDFM curve represent dry years or periods.
- Groundwater levels at City of Corona Well 3, which is centrally located in the Coldwater Basin and generally representative of groundwater levels across the basin (i.e. groundwater in storage).

The main observations from Figure 2-1 are:

- Groundwater levels respond rapidly to precipitation and pumping. This is because the groundwater basin is relatively small (i.e. small changes in groundwater storage result in large changes to groundwater levels).
- From 2005-2018, the CDFM curve indicates long-term drought conditions, which likely reduced the volumes of stormwater recharge to the Coldwater Basin compared to prior wetter periods.

- From 1984-2017, annual pumping from the Coldwater Basin reached a maximum of about 9,300 afy in 1998 and has declined to a low of about 1,400 afy by 2017.
- From 1984-2017, groundwater levels at Well 3 have declined by about 250 feet, which indicates a substantial reduction in groundwater storage within the Coldwater Basin during this period.
- Reduced recharge, reduced pumping, and declines in groundwater storage are all factors that contribute to reductions in basin yield. The Parties should expect a reduced Native Safe Yield for this re-determination.

2.2 Method

The method used to re-determine Native Safe Yield is the same method that was used to determine the Native Safe Yield in the past. Data from 1984-2004 was used to determine the Initial Native Safe Yield for the Agreement. Data from 1984-2012 was used to re-determine the Native Safe Yield in 2013. Data from 1984-2017 was used for this current re-determination of the Native Safe Yield.

The method estimates the average annual yield of groundwater that was developed from the Coldwater Basin for the period 1984-2017. This computation of "developed yield" is intended to reflect the groundwater recharge, the groundwater discharge, and the change in groundwater storage that occurred over the period.[4] The method solves the following modified version of the continuity equation:

$$Native\ Safe\ Yield = (\Delta S + O_p - I_{ar})/\Delta t$$

where:

Δt	is the length of the time period used to compute the Native Safe Yield and is equal to the time at t+1 minus the time at t.
S_t	is the groundwater storage at time t
ΔS	is the change in groundwater storage calculated as S_{t+1} minus S_t
O_p	is the total groundwater pumping that occurred from t to t+1
I_{ar}	is the total return flows from imported water that occurred from t to t+1

[4] The method excludes any supplemental water that was imported to the basin and resulted in recharge, because these waters are not "native." The supplemental water recharge is included in the annual calculation of Allowable Production (see Section 3 for this calculation).

2.3 Results

This section describes the computation of the Native Safe Yield for the Coldwater Basin for the 34-year period of 1984-2017 using the above equation (see Table 2-1).

2.3.1 Change in Groundwater Storage

The available groundwater-level and lithologic data were used to estimate the change in groundwater storage in the Coldwater Basin from 1984 through 2017. Specifically, the procedures for estimating storage change included the following steps:

- Compile all available groundwater-level data from wells in the Coldwater Basin and create a hydrograph for each well. The hydrographs for all wells are included in Appendix C. Appendix C shows that the magnitude and timing of changes in groundwater levels are similar at all wells across the basin. Corona Well 3 has the most complete and representative record of measured groundwater levels and is centrally located in the Coldwater Basin. Hence, Corona Well 3 is used herein as the index well for estimating change in groundwater levels and groundwater in storage.

- Select a "static" water-level elevation for fall 1984 and fall 2017 (beginning and ending years of the study period) for Corona Well 3, and estimate the change in groundwater elevation at Corona Well 3 from fall 1984 and fall 2017 – groundwater elevation declined by 242 feet (see Figure 2-1).

- Project the selected water-level elevations at Corona Well 3 to wells utilized in the storage change calculation (i.e. wells with depth-specific borehole lithology information). Figure 2-2 shows the locations of the wells with borehole-lithology information. Figure 2-3 shows a hydrogeologic cross-section of these wells and the estimated change in groundwater elevation that occurred from fall 1984 to fall 2017. The well driller's logs for each well are included herein as Appendix D.

- At each well location, calculate a thickness-weighted average specific yield of the aquifer sediments between the groundwater elevations of fall 1984 and fall 2017. The specific yield values for each sediment type are based on published USGS estimates (Johnson, 1967).

- Calculate the average of the thickness-weighted specific yield estimates for all wells. The average specific yield was 17%.

- Estimate the surface area of the Coldwater Basin that would experience the storage change for the period 1984-2017 (see Figure 2-2).

- Calculate storage change from 1984 to 2017 using the equation:

$$\Delta Storage = Specific\ yield * \Delta groundwater\ elevation * Area$$

$$\Delta Storage = 0.17 * -242\ feet * 1560\ acres$$

Total change in groundwater storage in the Coldwater Basin for the period 1984-2017 was about -64,000 af.

2.3.2 Groundwater Production

Table 2-1 shows annual groundwater production from the Coldwater Basin by Party by calendar year. The total Groundwater Production by each Party for the 34-year period of 1984-2017 was:

City:	113,664 af
District:	53,660 af
Private:	5,594 af
Total:	172,918 af

2.3.3 Return Flows of Imported Waters

Table 2-1 shows the annual delivery of imported water by Party and the estimated Return Flows of those deliveries to the Coldwater Basin.[5] The total Return Flows by each Party for the 34-year period 1984-2017 was:

City:	35 af
District:	15,459 af
Total:	15,494 af

2.3.4 Native Safe Yield

Table 2-1 shows the calculation of Native Safe Yield for the period 1984-2017 using the equation in Section 2.2:

$$Native\ Safe\ Yield = (\Delta S + O_p - I_{ar})/\Delta t$$

$$\text{Native Safe Yield} = (-64{,}026\ \text{af} + 172{,}918\ \text{af} - 15{,}494\ \text{af})/34\ \text{yr} = 2{,}747\ \text{afy}$$

For purposes of water rights accounting for FY 2018/19 through 2022/23, the re-determined Native Safe Yield for the Coldwater Basin is 2,750 afy.

The Agreement also states that the Operating Committee will review, every five years following the effective date of the Agreement, the production records of all producers in the Coldwater Basin, and adjust each Party's Share of the Native Safe Yield on a pro-rata basis. By mutual

[5] Return flows are estimated according to the water use as follows: irrigation water is assumed to have a 25 percent return, process water used in mining operations is assumed to have 60 percent return, and artificial recharge is assumed to have 97 percent return. These assumptions are summarized in Table 3-1 under the column "% Return." If water delivery data does not differentiate between indoor and outdoor water use, it is assumed that 60 percent is used outdoor and that this has a 25 percent return.

agreement, the Operating Committee will maintain the Initial Shares of the Native Safe Yield for FY 2018/19 through 2022/23:

City:	1,760 af (64%)
District:	880 af (32%)
Private:	110 af (4%)

Table 2-1
Summary of Native Safe Yield Re-Determination
1984 to 2017

Calendar Year	Groundwater Production				Imported Water			
					EVMWD		Corona	
	EVMWD	Corona	Private	Total	Delivered	Return Flow	Delivered	Return Flow
	af				*af*		*af*	
1984	3,602	4,255	335	8,192	0	0		
1985	3,071	4,111	461	7,643	0	0		
1986	2,858	4,240	507	7,605	0	0		
1987	2,412	4,292	330	7,034	0	0		
1988	1,819	3,411	339	5,569	0	0		
1989	2,022	2,700	327	5,049	0	0		
1990	1,813	2,246	323	4,382	1,872	1,123		
1991	2,360	2,788	275	5,423	1,110	666		
1992	2,552	3,780	237	6,569	991	595		
1993	2,303	5,483	196	7,982	864	518		
1994	2,092	3,676	177	5,945	1,088	653		
1995	1,846	5,567	183	7,596	993	596		
1996	2,369	4,252	216	6,837	1,053	632		
1997	2,331	4,010	220	6,561	1,527	916		
1998	2,834	6,268	226	9,328	929	558		
1999	2,139	6,640	307	9,086	1,326	796		
2000	2,023	4,000	47	6,070	1,543	926		
2001	1,656	2,533	143	4,332	1,462	877		
2002	1,214	2,595	175	3,984	2,117	1,270		
2003	1,068	2,599	210	3,877	2,036	1,222		
2004	1,477	2,798	360	4,635	2,204	1,323	5	3
2005	622	3,053	0	3,675	301	181	4	2
2006	626	3,725	0	4,351	279	167	4	2
2007	593	3,517	0	4,110	314	188	8	5
2008	563	3,316	0	3,879	959	278	11	6
2009	502	3,101	0	3,603	899	261	7	4
2010	513	3,131	0	3,644	831	266	7	4
2011	552	1,437	0	1,989	758	239	3	2
2012	548	1,277	0	1,825	628	180	2	1
2013	705	1,727	0	2,432	842	257	2	1
2014	1,135	2,245	0	3,380	802	245	2	1
2015	424	2,155	0	2,579	235	78	2	1
2016	348	1,968	0	2,316	984	355	2	1
2017	668	767	0	1,435	237	93	2	1
Total	**53,660**	**113,664**	**5,594**	**172,918**	**29,186**	**15,459**	**60**	**35**
Average	**1,578**	**3,343**	**165**	**5,086**	**858**	**455**	**4**	**2**

Native Safe Yield Computation										
(	Change in Storage	+	Total Groundwater Production	-	Total Return Flows from Imported Water	)/	Length of Computation Period	=	Native Safe Yield
	acre-ft		*acre-ft*		*acre-ft*		*years*		*acre-ft/yr*
	-64,026		**172,918**		**15,494**		**34**		**2,747**

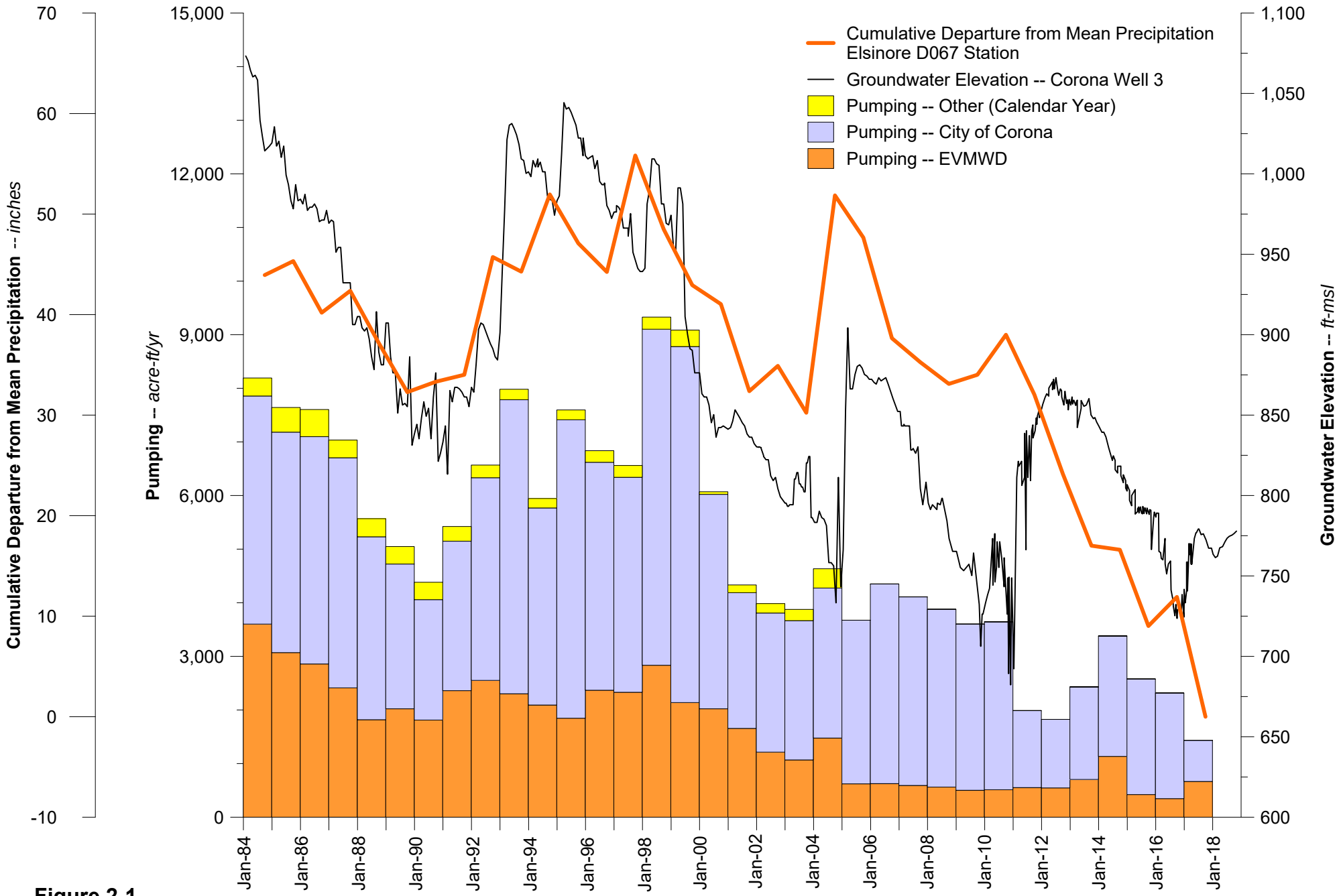

Figure 2-1

Pumping, Precipitation, and Groundwater Levels in the Coldwater Basin

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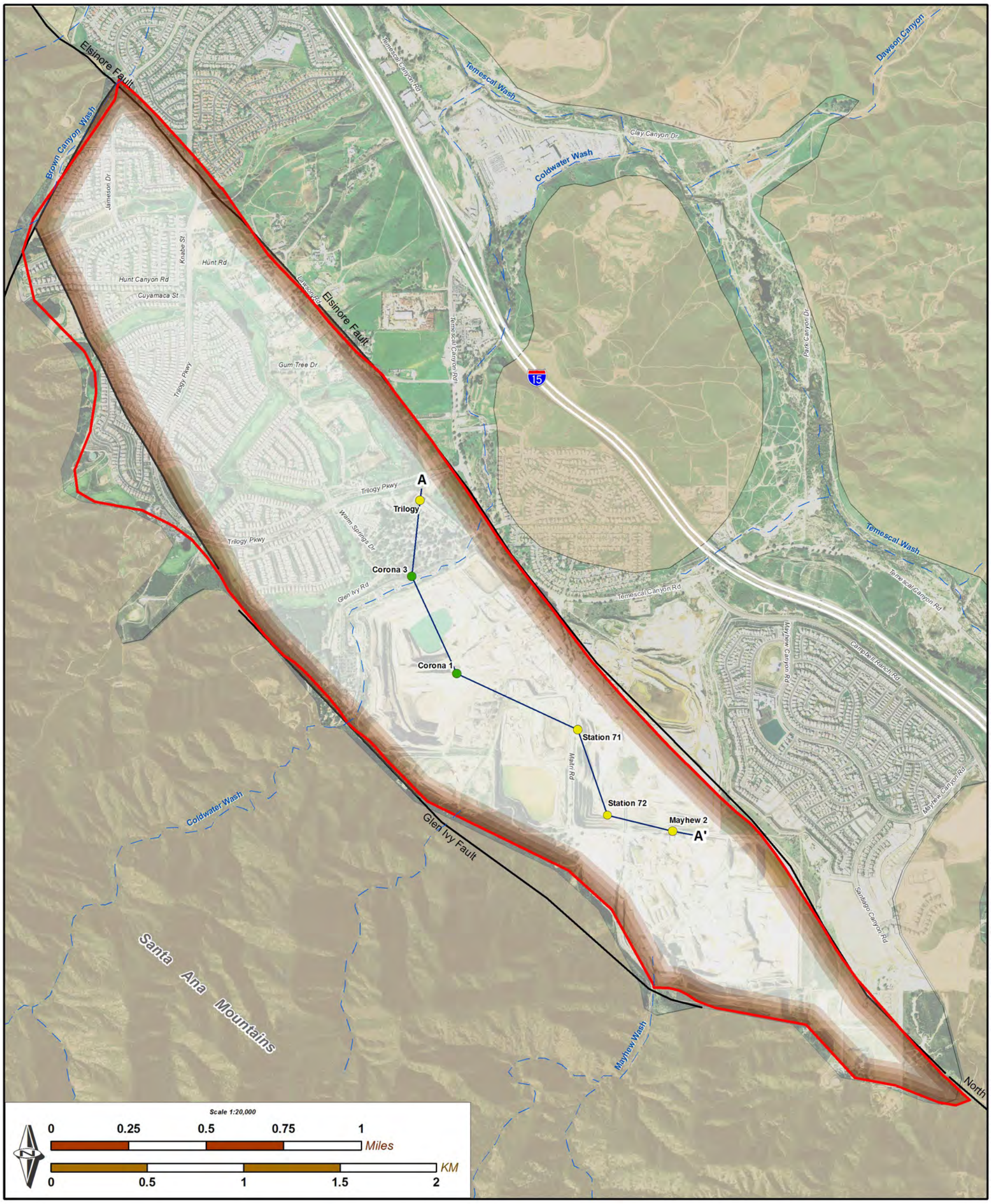
Date: 9/23/19
File: Figure 2-1.grf



Wells with Lithology Data Symbolized by Owner

- Elsinore Valley Municipal Water District
- City of Corona

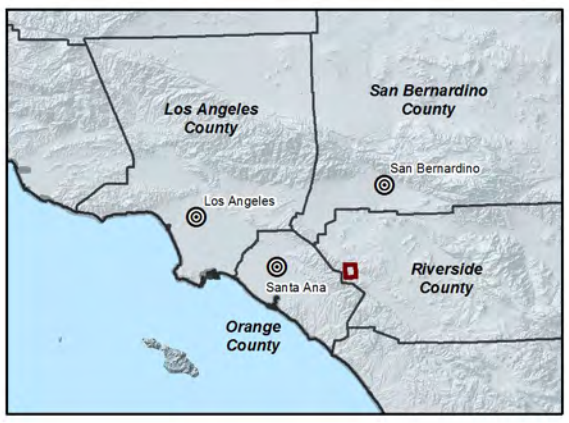
Cross Section (A-A')

Area Where Storage Change is Computed

Other Map Features

Coldwater Basin Boundary

Consolidated Bedrock



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CORONA "The Circle City" Incorporated July 13, 1896 — To Cherish Our Past – To Plan Our Future

Author: CS

Date: 20180923

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Storage-Change Boundary and Locations of Wells with Lithologic Data

Figure 2-2

A

North

A′

South

Trilogy

Corona 3

Corona #1

Station 71

Station 72

Mayhew #2

1014 ft-msl

772 ft-msl

Specific Yield = 21%

Specific Yield = 22%

Specific Yield = 19%

Specific Yield = 21%

Specific Yield = 6%

Specific Yield = 12%

Elevation (ft-msl)

1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400

0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
9,000

Distance Along Cross-Section (ft)

WEI
Wildermuth Environmental, Inc.

Vertical Scale: 1 in: 120 ft

Horizontal Scale: 1 in: 598 ft

Vertical Exaggeration: 5:1

- Fill (made ground)
- Gravel
- Clay
- Gravel with Sand
- Gravel with Clay
- Sand
- Gravel with Sand and Clay
- Cobbles and/or Boulders
- Sand with Gravel and Clay
- Conglomerate
- Sand with Gravel
- Clay with Gravel
- Clay with Gravel and Sand
- Granite
- Topsoil
- Well Screen Interval
- Fractured Bedrock
- Static Water Level (October 1984)
- Static Water Level (October 2017)

Hydrogeologic Cross-Section A-A'

Figure 2-3

This section describes the accounting of each Party's storage account for 2017/18 and their production rights for 2018/2019. The accounting spreadsheets are included as Appendix B.

3.1 Imported Water and Allowable Production

The Allowable Production for each Accounting Year is equal to the Native Safe Yield plus Return Flows from water imported to the basin by either or both parties during the preceding Accounting Year. Table 3-1 lists the water imported to the basin by each Party during 2017/18. The estimated total Return Flows to the basin in 2017/18 was 1.3 af. Each Party's share of the total Return Flows in 2017/18:

City:	0.8 af
District:	0.4 af

Each Party's share of the Return Flows is added to their share of the Native Safe Yield to compute their Allowable Production for 2018/19:

City:	1,761 af
District:	880 af

Table 3-1 also includes water imported to the basin by Temescal Valley Water District (TVWD). The TVWD began to provide water to the District's former non-potable water customers in February 2015. TVWD has not yet reported imported water deliveries for 2017/18. Return flows from water delivered by TVWD are not accounted for in the Parties' Allowable Production.

3.2 Groundwater Production and Storage Accounts

Table 3-2 shows Groundwater Production from the Coldwater Basin by well and by Party for 2017/18:

City:	937 af
District:	500 af

During 2017/18, no known private well production occurred in the Coldwater Basin.

Table 3-3 shows the under/(over) pumping of Allowable Production by Party during 2017/18 and computes each Party's year-end Storage Account.

Under/(Over) Pumping of Allowable Production:

City:	1,497 af
District:	717 af

Groundwater Storage Accounts:

	as of June 30th, 2018
City:	4,425 af
District:	6,107 af

3.3 Determination of Annual Production Rights

Table 3-3 shows the Annual Production Right for each Party for 2018/19, which is equal to their Allowable Production for 2018/19 plus the water in their Storage Account as of June 30, 2018:

City:	6,186 af
District:	6,987 af

3.4 Summary and Recommendations

Table 3-4 summarizes the historical Return Flows and artificial recharge of imported water for 2008/09 through 2017/18. Table 3-5 summarizes the Parties' Groundwater Production and Storage Accounts for 2008/09 through 2017/18. In 2017/18, the City accounted for about 65 percent total Groundwater Production; and as of July 1, 2018, had accumulated 4,425 af of water in its Storage Account. In 2017/18, the District accounted for about 35 percent of total Groundwater Production; and as of July 1, 2018, had accumulated 6,107 af of water in its Storage Account.

RECOMMENDATION: Table 3-5 shows that the Parties' storage accounts have been growing over recent years, mainly because of reduced pumping. Currently, groundwater levels are near historical low elevations; hence, pumping from storage (i.e. pumping in excess of Allowable Production) could cause or contribute to pumping sustainability challenges at wells. The Parties should be prepared to pump from their storage accounts during the next wet period as groundwater levels rise within the basin.

Table 3-1
Return Flows and Artificial Recharge of Imported Water
Fiscal Year 2017/18

Customer	Water Source	Monthly Deliveries of Imported Water *(hundreds of cubic feet)*												Total Deliveries *(af)*	Water Use	% Return	Return Flow *(af)*
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun				
Corona, City of																	
Artificial Recharge														0.0		97%	0.0
Fire Training Station	TVWD	134	149	124	85	72	53	41	42	28	42	65	84	2.1	Training	60%	1.3
City of Corona Total		***134***	***149***	***124***	***85***	***72***	***53***	***41***	***42***	***28***	***42***	***65***	***84***	***2.1***			***1.3***
Elsinore Valley MWD																	
Artificial Recharge														0.0		97%	0.0
Imported Water Deliveries		0	0	0	0	0	0	0	0	0	0	33	39	0.2	Irrigation	25%	0.0
Elsinore Valley MWD Total		***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***33***	***39***	***0.2***			***0.0***
Subtotal (used in Table 3-2)		**134**	**149**	**124**	**85**	**72**	**53**	**41**	**42**	**28**	**42**	**98**	**123**	**2.3**			**1.3**
TVWD																	
Mayhew Aggregates	Non-Potable	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	Process	60%	0.0
Cemex USA	Non-Potable	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	Process	60%	0.0
Werner Corp	Non-Potable	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	Process	60%	0.0
Krista Freitag Kingdom Capital	Non-Potable	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	Irrigation	25%	0.0
Livingstone Devel Terrance Long	Non-Potable	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	Irrigation	25%	0.0
TVWD Total		***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0.0***			***0.0***
Subtotal		**134**	**149**	**124**	**85**	**72**	**53**	**41**	**42**	**28**	**42**	**98**	**123**	**2.3**			**1.3**

NR -- Not Reported

Table 3-2
Groundwater Production by Well
Fiscal Year 2017/18
af

Well Name	Monthly Groundwater Production												Totals	Percent of Total Production from Basin
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun		
Corona, City of														
Well 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Well 20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Well 21	63.46	65.08	155.46	160.01	158.72	156.78	110.63	66.35	0.59	0.00	0.00	0.00	937.07	
Trilogy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Subtotal	*63.46*	*65.08*	*155.46*	*160.01*	*158.72*	*156.78*	*110.63*	*66.35*	*0.59*	*0.00*	*0.00*	*0.00*	**937.07**	**65.2%**
Elsinore Valley MWD														
Mayhew	49.80	53.50	52.50	56.00	50.90	42.50	50.40	46.10	28.10	46.20	3.00	0.00	479.00	
Station 71 (potable)	20.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.70	
Station 71 (non-potable)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Division Box	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Warm Springs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Trilogy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Subtotal	*70.50*	*53.50*	*52.50*	*56.00*	*50.90*	*42.50*	*50.40*	*46.10*	*28.10*	*46.20*	*3.00*	*0.00*	**499.70**	**34.8%**
Private Wells														
Subtotal	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	**0.00**	**0.0%**
Total	***134***	***119***	***208***	***216***	***210***	***199***	***161***	***112***	***29***	***46***	***3***	***0***	***1,437***	***100%***

Table 3-3
Annual Accounting of Allowable Production, Storage Accounts, and Production Rights
Fiscal Year 2018/19
af

Column	1	2	3	4	5	6	7	8	9
Formula			(1) - (2)		(3) + (4)			(6) + (7)	(5) + (8)
Party	Allowable Production[a]	Groundwater Production	Under/(Over) Pumping of Allowable Production	Groundwater Storage Account	Groundwater Storage Account	Share of Native Safe Yield[b]	Share of Return Flows and Recharge of Imported Water	Allowable Production	Production Right[c]
	2017-18	2017-18	2017-18	June 30, 2017	June 30, 2018	2018-19	2017-18	2018-19	2018-19
City	2,434	937	1,497	2,929	4,425	1,760	0.8	1,761	6,186
District	1,217	500	717	5,390	6,107	880	0.4	880	6,987
Private	152	0	152	--	--	110	0	110	110
Total	3,803	1,437	2,366	8,318	10,532	2,750	1.3	2,751	13,283

Notes:

a A Party's respective share of the Native Safe Yield plus Return Flows from water imported to the basin by either or both Parties during the preceding accounting year.

b The Native Safe Yield for 2018/19 is 2,750 afy. The City of Corona's share is 64%, Elsinore Valley MWD's share is 32%, and private parties' share is 4%.

c A Party's Allowable Production plus some or all of the water held in that Party's Storage Account.

Table 3-4
Summary of Return Flows and Artificial Recharge of Imported Water
2008/09 to 2017/18
af

Fiscal Year	Imported Water											
	City			District			Temescal Valley Water District			Total		
	Direct Use		Artificial Recharge	Direct Use		Artificial Recharge	Direct Use		Artificial Recharge	Direct Use		Artificial Recharge
	Delivered	Return Flow		Delivered[1]	Return Flow		Delivered[2]	Return Flow		Delivered	Return Flow	
2008-09	9	5	0	996	297	0				1,004	302	0
2009-10	8	5	0	867	274	0				875	279	0
2010-11	5	3	0	838	264	0				843	267	0
2011-12	2	1	0	692	208	0				695	210	0
2012-13	2	1	0	718	218	0				720	220	0
2013-14	2	1	0	835	255	0				837	256	0
2014-15	2	1	0	525	162	0				527	163	0
2015-16	2	1	0	27	7	0	519	182	0	548	190	0
2016-17	2	1	0	7	2	0	835	312	0	844	315	0
2017-18	2	1	0	0	0	0	NR	--	0	2	1	0
Total	35	21	0	5,506	1,687	0	1,354	495	0	6,895	2,202	0
Average	3	2	0	551	169	0	677	247	0	689	220	0

Notes:
1--The Temescal Valley Water District (TVWD) began to provide water to EVMWD's former non-potable water customers in February 2015.
2--The Temescal Valley Water District's water delivery data for FY 2015-16 is incomplete.
NR -- Not Reported

Table 3-5
Summary of Groundwater Production and Storage Accounts
2008/09 to 2017/18

Fiscal Year	Allowable Production	Groundwater Production	Percent of Total Production	Under/(Over) Pumping of Allowable Production	Groundwater Storage Account
	af	*af*	*%*	*af*	*af*
City of Corona					
2008-09	2,269	2,923	84%	(653)	(653)
2009-10	2,305	3,342	88%	(1,036)	(1,690)
2010-11	2,290	2,432	83%	(142)	(1,831)
2011-12	2,283	578	49%	1,705	(126)
2012-13	2,246	2,033	79%	213	87
2013-14	2,572	2,111	66%	462	549
2014-15	2,596	2,146	73%	450	998
2015-16	2,536	2,277	88%	259	1,258
2016-17	2,433	766	58%	1,671	2,929
2017-18	2,434	937	65%	1,497	4,425
Sub-total	*23,963*	*19,544*	*77%*		
Elsinore Valley Municipal Water District					
2008-09	1,135	550	16%	585	585
2009-10	1,153	457	12%	696	1,281
2010-11	1,145	515	17%	630	1,910
2011-12	1,141	611	51%	530	2,440
2012-13	1,123	529	21%	594	3,034
2013-14	1,286	1,064	34%	223	3,257
2014-15	1,298	791	27%	506	3,763
2015-16	1,268	312	12%	956	4,719
2016-17	1,216	548	42%	671	5,390
2017-18	1,217	500	35%	717	6,107
Sub-total	*11,982*	*5,877*	*23%*		
Private Well Producers					
2008-09	132	0	0%	--	--
2009-10	132	0	0%	--	--
2010-11	132	0	0%	--	--
2011-12	132	0	0%	--	--
2012-13	132	0	0%	--	--
2013-14	152	0	0%	--	--
2014-15	152	0	0%	--	--
2015-16	152	0	0%	--	--
2016-17	152	0	0%	--	--
2017-18	152	0	0%	--	--
Sub-total	*1,420*	*0*	*0%*		
Total	**37,365**	**25,421**			

Appendix A

Agreement Concerning Water Production from the Coldwater Basin (PDF file)

AGREEMENT CONCERNING WATER PRODUCTION FROM THE COLDWATER BASIN

THIS AGREEMENT, effective this 1st day of December, 2008, is made and entered into by and between the CITY OF CORONA, a municipal corporation ("City") and the ELSINORE VALLEY MUNICIPAL WATER DISTRICT, a municipal water district ("District"). The City and the District are sometimes collectively referred to herein as the "Parties."

RECITALS

A. The City and the District both own and operate water production facilities in the Coldwater Basin in Temescal Canyon of Riverside County. The agreed-upon boundaries of the Coldwater Basin are depicted on the map attached hereto as Exhibit "A" and made a part hereof.

B. Pursuant to that certain "Agreement of Sale of Certain Assets of the Corona City Water Company and the Temescal Water Company to the City of Corona" dated December 27, 1963 (hereafter referred to as the "1963 Agreement"), the Parties (or their predecessors) agreed to restrict a portion of the Coldwater Basin from which the District may produce water.

C. The District constructed a well ("the Trilogy Well") in order to replace production lost when its Well 72 went out of production due to the expansion of Cemex, Inc. Sand and Gravel Mining Activities. The location of the Trilogy Well is not in accord with the terms of the 1963 Agreement.

D. By this Agreement, the Parties (i) intend to supersede all prior agreements dealing with the subject matter hereof, including the 1963 Agreement and that certain January 6, 1999 "Agreement for the Sale or Exchange of Water Between the City of Corona and Elsinore Valley Municipal Water District" (the "1999 Agreement"), (ii) intend to provide for the joint use of the Trilogy Well, and (iii) intend to establish a process and develop projects which will enhance the available supply of groundwater in the Coldwater Basin, and to maximize the sustainable use thereof.

AGREEMENT

NOW, THEREFORE, the Parties agree as follows:

1. **Operating Committee.** Within 30 days of the effective date hereof, the City Manager of the City and the General Manager of the District shall each appoint a representative to a Committee ("the Operating Committee") which will make operational decisions in order to implement the terms and provisions of this Agreement. Any such appointee may be replaced through the same appointment process, and any vacancy in an Operating Committee position shall be filled promptly by such appointment. The primary purpose of the Operating Committee is to ensure that the City and the District be allowed to pump sufficient water from the Coldwater Basin to meet their respective requirements and to maximize the sustainable use of the Basin as a water supply. A primary function of the Operating Committee will be to annually determine the amount of groundwater that can be safely extracted from the Coldwater Basin (the "Allowable Production").

2. **Determining Allowable Production.** The Allowable Production by the Parties shall be determined by the Operating Committee as follows:

a. The accounting year shall be July 1 to June 30. The accounting commencement date shall be July 1, 2008. Thereafter, the Allowable Production shall be determined by May 1 of each year.

b. The Allowable Production will be determined in light of the best information available to the Operating Committee. It shall be the goal of the Operating Committee to estimate an amount of Production that (i) ensures the sustainability of the Basin as a water supply and (ii) allows the Parties to flexibly adjust the Allowable Production in response to extreme hydrologic conditions and/or the short term operational needs of each of the Parties.

c. The amount of the annual Allowable Production shall be allocated to each Party annually by the Operating Committee, and will be equal to their respective share in the total of: Native Safe Yield **plus** return flows and water imported to the Basin by either or both Parties during the preceding fiscal year:

i. The initial Native Safe Yield shall be 3,300 acre feet per year for each of the first five fiscal years following the effective date of this Agreement. Thereafter, the Operating Committee shall re-determine the Native Safe Yield every five years;

ii. The initial shares in the total of Native Safe Yield, return flows and water imported to the Basin shall be as follows:

To the City:	64%
To the District:	32%

The remaining 4% shall be allocated in the aggregate to the private well producers in the Coldwater Basin. The two-thirds/one-third proportion shall also be used to allocate the costs and expenses incurred in connection with the study and implementation of capital projects jointly undertaken by the Parties in each of the first five years following the effective date of this Agreement.

d. The Operating Committee shall review, every five years following the effective date of this Agreement, the annual production records of all producers in the Coldwater Basin to determine the actual amount of groundwater production by each producer. At the conclusion of such review, the respective shares of the Parties in Native Safe Yield for the following five years shall be adjusted on a pro-rata basis. For example, if the actual production of the overlying producers is 2% and not 4%, then the City shall be entitled to 63.2917% of the difference and the District shall be entitled to 34.7083%.

3. **Storage Rights.** The City and the District shall have the right to store un-produced Allowable Production up to ten times their initial share in the Native Safe Yield

multiplied by the initial Native Safe Yield of 3,300 acre feet per year, in a Storage Account; provided, however, that the maximum amount of groundwater storage shall be:

a. For the City: 21,120 acre feet;

b. For the District: 10,560 acre feet.

4. **Annual Production Right.** The "Annual Production Right" of a Party shall be equal to a Party's Annual Allowable Production **plus** some or all of the water held in that Party's Storage Account as determined by that Party.

5. **Joint Use of the Trilogy Well.** Although the City and the District individually own and operate groundwater production wells in the Coldwater Basin, they mutually acknowledge and agree that joint operation of the District's Trilogy Well is desirable because it is capable of producing large amounts of water cost-effectively. Under the supervision of the Operating Committee, which shall review the specifications and bids thereon, the District shall complete construction of the Well and the pipelines connecting the Well to the City's and the District's water distribution systems. Thereafter, the District shall operate and maintain the Well and deliver therefrom, to the District and to the City, such amounts of water as may be ordered by them through the Operating Committee.

6. **Water Rate.** The cost of water produced from the Trilogy Well shall consist of Fixed Costs and Variable Costs:

a. Fixed Costs consist of 20 annual replacement cost payments of approximately $60,000.00, which is the annual payment amortized at 5% over 20 years on a principal of $750,000.00. This will provide adequate funds to replace or refurbish the pumping equipment after a 20-year useful life. The District shall be obligated to pay one-third of the Fixed Costs, and the City shall be obligated to pay two-thirds of such Costs. Fixed Costs shall be paid by the District and the City whether or not the Parties purchase water produced by the Well. These funds, and all accumulated interest, shall be held in a separate interest-bearing fund specifically for future replacement or refurbishment of the Well.

b. Variable Costs consist of the actual costs and expenses incurred in operating and maintaining the Trilogy Well, and shall be paid in proportion to the amount of water purchased by a Party. The Operating Committee shall annually reconcile the Variable Costs with the amount of revenue received from the sale of water to ensure that the revenue is sufficient to defray such Costs. Any revenue shortfalls shall be pro-ratably shared by the Parties; excess revenue shall be carried over to the next year or refunded upon request.

7. **Supplemental Water Projects.** The District owns surface water rights licensed by the State Water Resources Control Board in Mayhew, Indian and Horsethief Creeks, which licenses authorize the diversion and storage of up to 1,887 acre feet per year. Under the supervision of the Operating Committee, the City and the District shall jointly formulate and fund plans and projects to deliver such water for storage in the Coldwater Basin, to be shared by the Parties as a component of their respective Annual Production Right.

8. **Trilogy Well Operations.** The District shall retain title in and to the Trilogy Well and the parcel of land upon which it is located, shall operate the Trilogy Well and, as may be necessary from time-to-time rehabilitate the Trilogy Well. All operations shall be conducted under the supervision of the Operating Committee, and the Committee shall provide a quarterly report of such operations to the Parties.

9. **Access and Indemnification.** The District shall provide reasonable access to the City's agents and employees to inspect operations at the Trilogy Well. The District shall indemnify the City and its elected officials, officers, agents and employees and hold each of them harmless from any damages, claims, actions, causes of action or suits, including attendant costs and attorneys' fees, which may arise out of or be in any way connected with the District's operation of the Trilogy Well except for any such damages, claims, actions, causes of action or suits alleged or found to be caused by the negligent, reckless or intentional actions of any of the City's elected officials, officers, agents or employees.

10. **Insurance.** The Operating Committee shall cause the operation of the Trilogy Well to be ensured in a manner and extent similar to the operation of other publicly-owned wells in the Coldwater Basin.

11. **Functions of the Operating Committee.** The Operating Committee shall perform the following functions concerning management of the Basin in order to sustain it as a water resource for the benefit of the Parties:

a. Annually specify the amount of the Parties' Allowable Production, Annual Production Right and water in storage in accordance with the best information available to the Committee;

b. In its discretion, retain technical consultants to assist the Committee in establishing Allowable Production and the Annual Production Right for each Party and to evaluate and resolve other groundwater management issues;

c. Review and approve new water production facilities proposed to be developed in the Coldwater Basin by either Party and any proposal to increase the capacity of any such existing facility;

d. Represent the City and the District in transactions involving other public agencies and/or private parties intended to implement projects which will increase groundwater recharge and surface retention for the Basin;

e. Provide for joint funding, in proportion to yield, for completion of the Trilogy Well and implementing groundwater recharge and surface retention of projects;

f. Develop and implement a process whereby the City will assume the responsibility for water service to the District's present Temescal non-potable water customers located within the City but outside the Coldwater Basin including the sale by District to City of certain stranded Temescal facilities; and

g. Develop and implement a process by which the Parties will employ their best efforts to negotiate the District's sale of non-potable water to the City for use in the City's Recycled Water System.

12. Integration. This Agreement shall supersede any other agreement between the Parties or any provision or provisions therein contained including, but not limited to, the 1963 Agreement, the 1999 Agreement and Amendment No. 1 thereto dated July 18, 2001, and they are hereby deemed to be null and void and rescinded in their entirety.

13. Dispute Resolution Procedures. The Parties will attempt in good faith to resolve any dispute, claim or controversy arising out of or relating to this Agreement, as follows:

Step 1: All disputes, claims or controversies shall first be considered, and resolution shall be attempted, by the Operating Committee. If the Operating Committee is deadlocked, then the matter shall be referred to an informal negotiation between the parties, Step 2.

Step 2: The Operating Committee shall initiate such negotiations by providing written notice to the Parties setting forth the subject of the dispute. The Parties, through the City Manager of the City and the General Manager of the District, shall promptly schedule a negotiation meeting to be attended by such representatives of either Party as may be reasonably necessary to address the issues presented by the Operating Committee. If the dispute is not resolved by these informal negotiations, the issue will be submitted for mediation, Step 3.

Step 3: The Parties shall submit to a mandatory mediation, which shall be conducted by a mutually agreed-upon neutral mediator. The mediator selected shall be experienced, neutral, without conflicts of interest, and qualified to mediate disputes of the nature of those that may arise under this Agreement. If the Parties are unable to agree upon a mediator, each Party shall select one mediator, with the two selected mediators selecting a third, qualified neutral mediator. The Parties covenant that they will participate in the mediation in good faith and that they will share equally in all costs of the mediation. In the event mediation fails, the Parties shall submit the issue to binding arbitration, Step 4.

Step 4: Binding arbitration shall be initiated promptly upon the failure of the mandatory mediation phase. Arbitration shall be conducted by the Judicial Arbitration and Mediation Services, Inc. ("JAMS") or its successor, or any other neutral, impartial arbitration service that the Parties mutually agree upon, in accordance with its rules in effect at the time of the commencement of the arbitration proceeding an as set forth in this Paragraph. The arbitrator chosen must decide each and every dispute in accordance with the laws of the State of California, and all other applicable laws. The arbitrator's decision is subject to judicial review by the Riverside County Superior Court for material errors of fact or law. Upon a showing of good cause the arbitrator may permit limited discovery in the arbitration proceeding.

14. Amendment. This Agreement may be amended only by agreement in writing of the Parties. No waiver of any provision of, nor any consent to any exception to the terms of this Agreement, shall be effective unless in writing and signed by the Party to be bound and then only for the specific purpose, extent and instance so provided.

15. Notices. Any notice or other communication hereunder must be given in writing and either: (a) delivered in person; (b) transmitted by telecopy, e-mail or other telecommunications mechanism; or (c) mailed, postage prepaid, as follows:

If to City:
Jonathan Daly, General Manager
City of Corona
Department of Water and Power
730 Corporation Way
Corona, California 92880
Telecopier: 951-735-5786
E-mail: jonathan.daly@ci.corona.ca.us

If to District:
Ronald Young, General Manager
Elsinore Valley Municipal Water District
31315 Chaney Street
Lake Elsinore, California 92531
Telecopier: 951-674-9872
E-mail: ryoung@evmwd.net

Or to any such other address or such other person as either Party shall have last designated to the other Party.

16. Severability. In case any one or more of the provisions of this Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision hereof, and the remainder of the provisions of this Agreement shall continue in full force and effect without impairment, provided that the essential provisions of this Agreement for both Parties remain valid, binding and enforceable.

17. Assignment. Neither Party shall transfer or assign this Agreement without the prior written consent of the other Party, which consent shall not be unreasonably withheld. This Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns.

18. Further Documents. The Parties shall execute such other and further documents and do such further acts as may be reasonably required to effectuate the intent of the Parties and carry out the terms of this Agreement.

19. No Third Party Beneficiaries. Nothing in this Agreement whether expressed or implied, is intended to confer any rights or remedies under or by reason of this Agreement on any persons other than the Parties to this Agreement and their respective successors and assigns.

20. Purchase and Sale of Assets. The District agrees to sell and the City agrees to buy the following assets (and real property interests necessary to utilize those assets), as they are depicted on Exhibit "B" attached hereto, for the sum of $2,000,000.00 or, at the City's election, the sum of $2,500,000.00 paid to the District over a period of 10 years from the Effective Date of this Agreement, in equal annual installments:

a. No. 2 Line
b. The Riverside Booster Line
c. MWD WR 19b Connection
d. Miscellaneous pipelines and service laterals.

The City acknowledges and agrees that the purchase of such assets by the City will impair the District's ability to convey water to the Santa Ana River. Therefore, as additional consideration for the purchase and sale the City hereby grants the District the irrevocable right to use the City's storm drains to convey the District's water to the Santa Ana River, provided that there is available capacity in the drains to convey stormwater.

21. First Right to Purchase Temescal Valley Line. The District hereby grants to the City a right of first refusal to purchase the District's interest in the Temescal Valley Line, in the event the District determines to sell the same and has received a bona fide offer from a third party. Prior to accepting such offer, the District shall submit the same to the City, and the City shall have up to 60 calendar days to precisely match or exceed such offer in a signed and binding writing as to all terms and conditions. In the event the City does not respond in writing to the District within the time allowed, the lack of such response shall be deemed a refusal to exercise the right granted herein. In addition, in the event the District is capable of delivering clear title to the Temescal Valley Line to a purchaser, the District shall give the City 60 days' notice thereof, in order to give the City an opportunity to purchase the Temescal Valley Line.

WHEREFORE, the Parties have executed this Agreement to be effective as of the date first set forth above.

CITY OF CORONA

By _____
Mayor

Dated: April 21, 2009

Approved as to Form:

_____

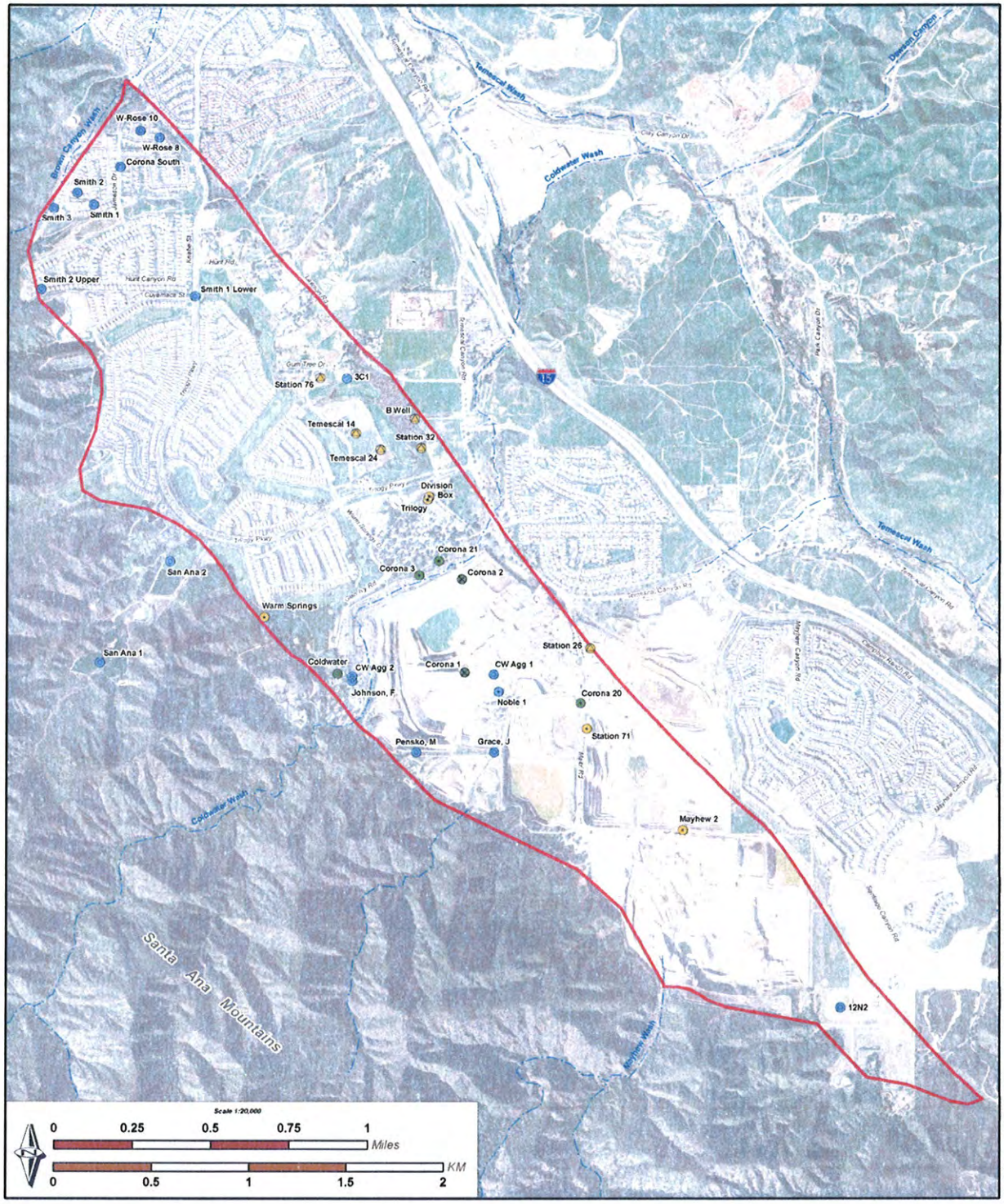
ELSINORE VALLEY MUNICIPAL WATER DISTRICT

By _____
Phil Williams, President

Dated: March 25, 2009

Approved as to Form:

_____
Aklufi & Wysocki
District Counsel



Production Wells (Symbolized by Ownership)

- Elsinore Valley Municipal Water District
- City of Corona
- Private Wells (locations not confirmed)

Production Wells (Symbolized by Status)

- Active
- Inactive
- Abandoned
- Unknown

Other Map Features

- Coldwater Basin Boundary
- Rivers & Streams

Prepared by:
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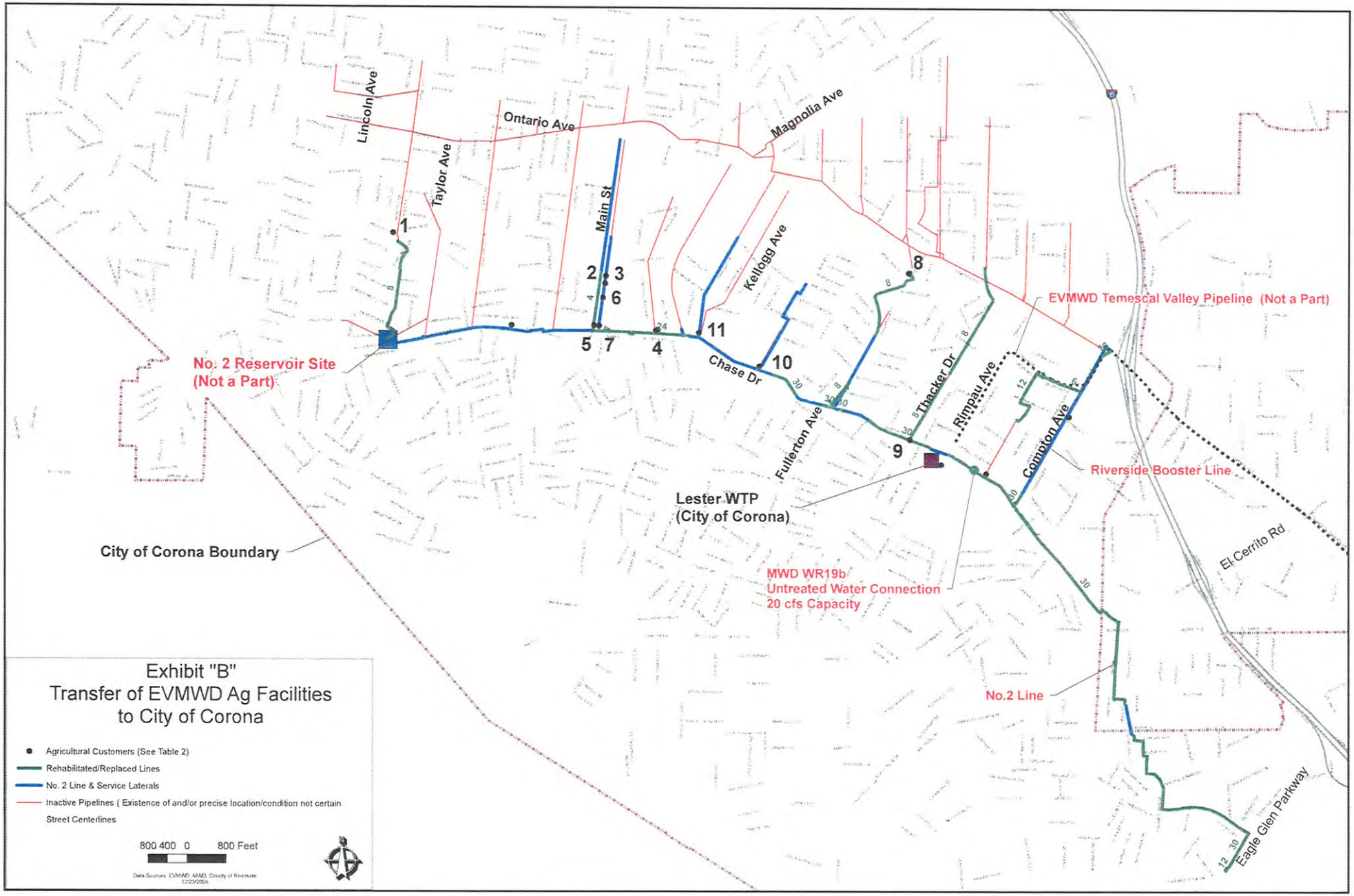
23692 Birtcher Drive
Lake Forest, CA 92630
949.420.3030
www.wildermuthenvironmental.com

Author: CML/AEM/ETL
Date: 20081119
File: Exhibit_A_Ledger.mxd

Coldwater Basin

Basin Boundary and Well Locations

Exhibit A

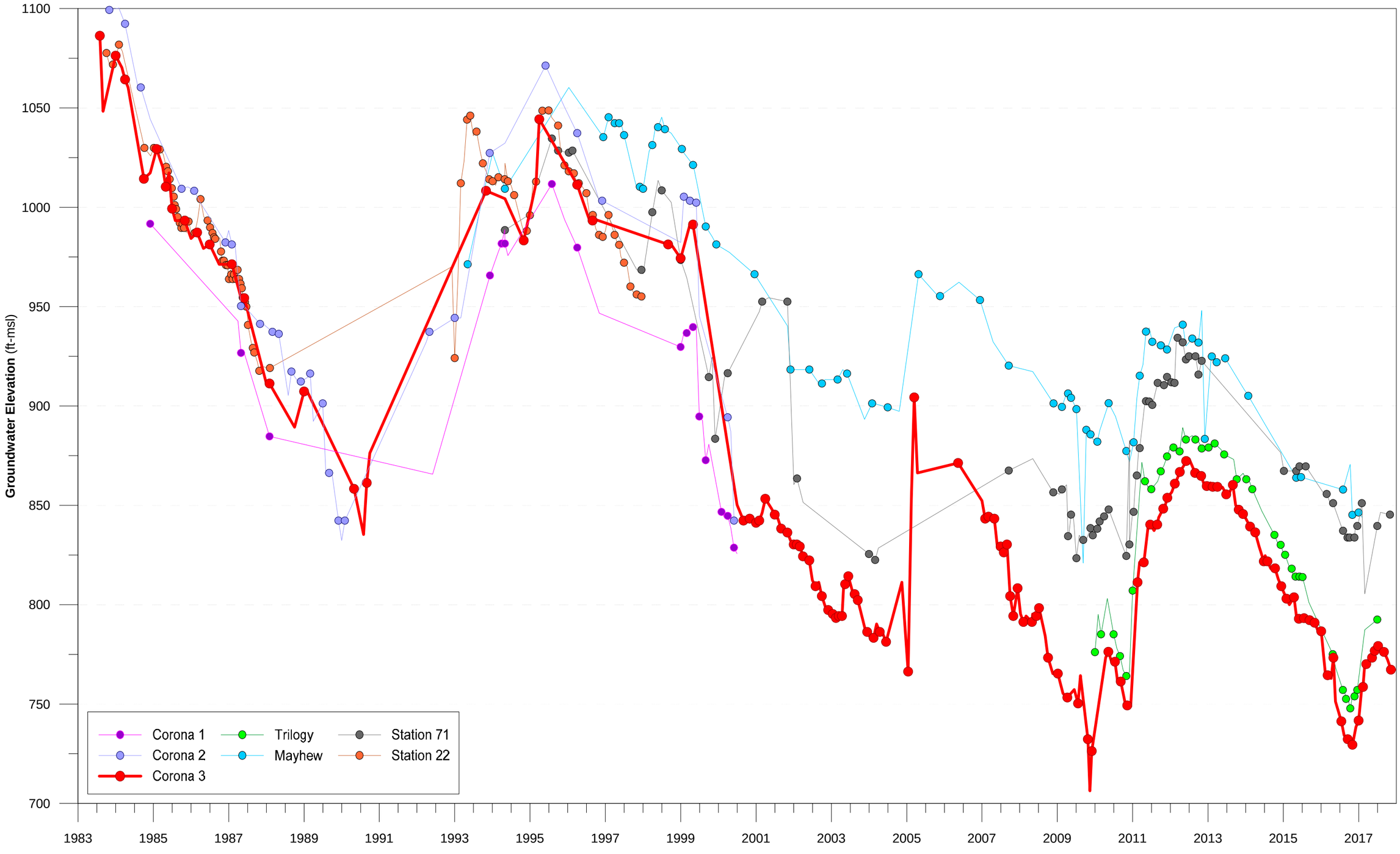

Lincoln Ave
Taylor Ave
Ontario Ave
Main St
Magnolia Ave
Kellogg Ave
Chase Dr
Fullerton Ave
Thacker Dr
Rimpau Ave
Compton Ave
El Cerrito Rd
Eagle Glen Parkway
1
2
3
4
5
6
7
8
9
10
11
No. 2 Reservoir Site
(Not a Part)
EVMWD Temescal Valley Pipeline (Not a Part)
Riverside Booster Line
Lester WTP
(City of Corona)
City of Corona Boundary
MWD WR19b
Untreated Water Connection
20 cfs Capacity
No.2 Line
Exhibit "B"
Transfer of EVMWD Ag Facilities
to City of Corona
Agricultural Customers (See Table 2)
Rehabilitated/Replaced Lines
No. 2 Line & Service Laterals
Inactive Pipelines (Existence of and/or precise location/condition not certain
Street Centerlines
800 400 0 800 Feet
Data Sources: EVMWD, MWD, County of Riverside
12/29/2006

Appendix B

Accounting Spreadsheets (Excel Workbook)

Appendix C

Groundwater-levels in the Coldwater Basin: 1983-2018



Appendix C

Groundwater Levels in the Coldwater Basin: 1983 - 2018

Author: APP
Date: 11/22/19
File:Appendix C.grf

Appendix D

Well Logs of Wells Used in the Storage Calculation

J-

ORIGINAL
File with DWR

Page 1 of 2

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

Owner's Well No. TRILOGY
No. e034682
Date Work Began 12-8-05, Ended 2-15-06
Local Permit Agency RIVERSIDE CO HEALTH AGENCY
Permit No. 31481 Permit Date 11-30-05

DWR USE ONLY — DO NOT FILL IN
05S06W03H001S
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD Rotary FLUID Mud

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	88	Brown Sand w/ occasional large gravel
88	92	Large granite boulder
92	204	Sand w/ cobbles & boulders
204	350	Sand and Clayey Sand w/ cobbles
350	500	Clayey Sand & Cobbles, Gravel
500	570	Sandy Clay
570	579	Clayey Boulders

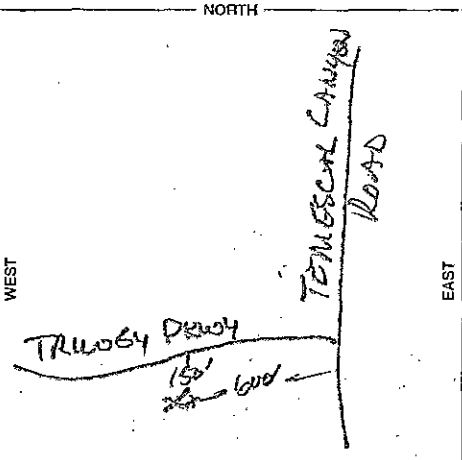
TOTAL DEPTH OF BORING 579 (Feet)
TOTAL DEPTH OF COMPLETED WELL 540 (Feet) 10010

WELL OWNER

WELL LOCATION

Address 24391 Temescal Canyon Rd
City Corona
County Riverside
APN Book ___ Page ___ Parcel ___
Township 5S Range 6W Section 3, NE 1/4
Latitude ___ DEG. ___ MIN. ___ SEC. NORTH
Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)

WATER SUPPLY ✓ Domestic ✓ Public ___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 215 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 215 (Ft.) & DATE MEASURED 2-7-06
ESTIMATED YIELD * 500 (GPM) & TEST TYPE CONSTANT
TEST LENGTH 12 (Hrs.) TOTAL DRAWDOWN 17 (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	50	42"			X		Steel	30	5/16	
+2	250	26	X				Steel	15.375	5/16	
250	360	"		X			Steel	"	5/16	.090 Louver
360	390	"	X				Steel	"	"	
390	450	"		X			Steel	"	"	.090 Louver
+50	480	"	X				Steel	"	5/16	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	50	✓			

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME BEST DRILLING AND PUMP, INC (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
2950 OLETA LANE ADDRESS HIGHLAND CITY CA STATE 92346 ZIP
Signed [signature] WELL DRILLER/AUTHORIZED REPRESENTATIVE
2-16-06 DATE SIGNED
826672 C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

Page 2 of 2

Owner's Well No. TRILOGY

Date Work Began 12-8-05, Ended 2-15-16

Local Permit Agency Riverside Co.

Permit No. 317801 Permit Date 11-30-05

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. e0346882

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO. 015|016|W|013|H|001|S
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*

TOTAL DEPTH OF BORING ___ (Feet)
TOTAL DEPTH OF COMPLETED WELL ___ (Feet)

WELL OWNER

Name
Mailing Address
CITY STATE ZIP

WELL LOCATION

Address
City
County
APN Book ___ Page ___ Parcel ___
Township ___ Range ___ Section ___
Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
480	520	26		X			Steel	15.375	5/16	.090
520	540	26	X				Steel	15.375	5/16	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	100	✓			
100	554				SR #6
554	579			✓	

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS CITY STATE ZIP
Signed (WELL DRILLER/AUTHORIZED REPRESENTATIVE) DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

WELL NO. 3

STA. #5-

05S06W03K01

ROSCOE MOSS COMPANY

4360 WORTH STREET
LOS ANGELES, CAL.

WELL CONTRACTORS — RENTAL TOOLS

Log of Well No. 3 Drilled for Temescal Water Company
of Corona, California.
Exact Location Glen Ivy, in Temescal Canyon
Started Work November 20, 1934
Completed Work January 26, 1935.
Total depth 543 Size of shoe 20 x 18 x 1½"
543 ft. of 24 inch 6 ~~xxx~~ lb. gauge casing used and left in Well
" " " " " " " " " " " " " " " "
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Type of Perforator used Mills
Perforated 100 ft. to 130 ft. 8 Holes per 15 inches
" 130 " " 530 " 10 " " 15 "
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Make diagram of perforation in square, showing dimensions.

Diameter of Perforations 5/8 and 3/4 inches
Length of Perforations 5" "
Depth at which water was first found 145 ft.
Standing level before perforating 145 "
Standing level after perforating "

Note below your observation of any change in water level while drilling

Water level when first started Test ft.
Draw down from standing level "
No. of gallons per minute pumped when Test first started
No. of gallons per minute pumped when Test completed
Draw down at completion of Test ft.
Hours Testing Well

Formation: Mention size of water gravel—

0 ft. to 149 ft. Pit
149 " " 533 " Gravel, some boulders
533 542 Hard pan clay

SAWPA DES
002000155

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If reducing strings of casing were cut off, state how cut

Depth from surface cut ft.

Size of casing cut in.

Lap in larger casing ft.

Was adapter or cement used?

If casing was swedged or repaired, state depth, describe repairs and condition in which casing was left and probable future effect:

Hole was swedged in various places, and is in good condition.

Make drawing of adapter in square, showing dimensions.

Is well straight, top to bottom? Practically

If not, what is the variation?

Will there be any detrimental effect on pump?

If so, what effect?

No. of tons of gravel installed in well

Give any additional data which may be of future value

Shoe joint on 3 ply starter was perforated with torch.

Driller must fill in report as work progresses and report must be complete for his successor.

Date of report January 30, 1935.

Driller

Rig No. used Otto Gentzer.

Well #1
5S/6W/03Q01

ROSCOE MOSS COMPANY

4360 WORTH STREET
LOS ANGELES, CAL.

38

WELL CONTRACTORS — RENTAL TOOLS

Log of Well No. #1 Drilled for Temescal Water Company
of 707 Main Street, Corona, California.
Exact Location Temescal Canyon
Started Work June 1, 1949
Completed Work September 7, 1949
Total depth 548' Size of shoe

462 ft. of 24 inch 8 ~~lbs~~ or gauge casing used and left in Well
102 " " 20 " 8 ~~lbs~~ " " " " " and " " "
" " " " " " " " " " " " " " " "
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Type of Perforator used Moss Hydraulic

20" Perforated 460 ft. to 532 ft. 10 Holes per 10 inches
24" " 176 " " 444 " 12 " " 10 "
" " " " " " " " " " " "
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Make diagram of perforation in square, showing dimensions.

Diameter of Perforations 3/8 inches
Length of Perforations 2 "
Depth at which water was first found 175 ft.
Standing level before perforating 159 "
Standing level after perforating 159 "

Note below your observation of any change in water level while drilling
Water dropped approximately 1 foot each week of drilling.

Water level when first started Test ft.
Draw down from standing level "
No. of gallons per minute pumped when Test first started
No. of gallons per minute pumped when Test completed
Draw down at completion of Test ft.
Hours Testing Well

Formation: Mention size of water gravel—

60' 0 ft. to 60 ft. Sand gravel and boulders
115' 60 " " 175 " Gravel boulders some clay
83' 175 " " 258 " Gravel and boulders coarse
22' 258 " " 280 " Gravel boulders some clay

SAWPA DES
002000110

of 707 Main Street, Corona, California.

Exact Location Temescal Canyon

Started Work June 1, 1949

Completed Work September 7, 1949

Total depth 548' Size of shoe

462 ft. of 24 inch 8 [illegible] or gauge casing used and left in Well

102 " " 20 " 8 [illegible] " " " " and " " "

" " " " " " " " " " " " " "

" " " " " " " " " " " " " "

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Type of Perforator used Moss Hydraulic

20" Perforated 460 ft. to 532 ft. 10 Holes per 10 inches

24" " 176 " " 444 " 12 " " 10 "

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Make diagram of perforation in square, showing dimensions.

Diameter of Perforations 3/8 inches

Length of Perforations 2 "

Depth at which water was first found 175 ft.

Standing level before perforating 159 "

Standing level after perforating 159 "

Note below your observation of any change in water level while drilling

Water dropped approximately 1 foot each week of drilling.

Water level when first started Test ft.

Draw down from standing level "

No. of gallons per minute pumped when Test first started

No. of gallons per minute pumped when Test completed

Draw down at completion of Test ft.

Hours Testing Well

Formation: Mention size of water gravel—

50' 0 ft. to 60 ft. Sand gravel and boulders

15' 60 " " 175 " Gravel boulders some clay

3' 175 " " 258 " Gravel and boulders coal

2 258 " " 280 " Gravel boulders some clay

30' 280 " " 510 " Gravel and boulders

8' 510 " " 548 " Clay and boulders

" " " "

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If reducing strings of casing were cut off, state how cut

Depth from surface cut ft.

Size of casing cut in.

Lap in larger casing 12 ft.

Was adapter or cement used?

If casing was swedged or repaired, state depth, describe repairs and condition in which casing was left and probable future effect:

Make drawing of adapter in square, showing dimensions.

Is well straight, top to bottom? Practically

If not, what is the variation?

Will there be any detrimental effect on pump? None.

If so, what effect?

No. of tons of gravel installed in well

Give any additional data which may be of future value

Driller must fill in report as work progresses and report must be complete for his successor.

Date of report September 8, 1949

Driller

Type and Rig No. used Cable Tool #25 A. E. Cope

SAWPA DES

001025085

05S06W11C01S

Sta. 71

DUPLICATE
Retain this copy

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do Not Fill In

No 50847

State Well No. _____

Other Well No. _____

(1) OWNER:
Name TEMESCAL WATER COMPANY
Address 310 North Joy St.
Corona, Calif 91720

(2) LOCATION OF WELL:
County Riverside Owner's number, if any Station #71
Township, Range, and Section in Temescal Canyon 82 ft. East
Distance from cities, roads, railroads, etc. of Mosquite Rd. 1/2 mile S.
of Highway 71. MAITRI

(3) TYPE OF WORK *(check)*:
New Well ☒ Deepening ☐ Reconditioning ☐ Destroying ☐
If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE *(check)*:
Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) EQUIPMENT:
Rotary Reverse ☒
Cable ☐
Other ☐

(6) CASING INSTALLED:
STEEL: OTHER:
SINGLE ☒ DOUBLE ☐

From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	From ft.	To ft.
0	50	30 "	~~x~~	40	0	50
0	600	16 "	1/4"	26"	0	610

If gravel packed

Size of shoe or well ring: 16" Size of gravel Birds eye
Describe joint

(7) PERFORATIONS OR SCREEN:
Type of perforation or name of screen Moss Louvre full flow

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.
239 ft.	588 ft.			3/32" x 2-1/4"
144 holes per ft. of casing				

(8) CONSTRUCTION:
Was a surface sanitary seal provided? Yes ☒ No ☐ To what depth 50 ft.
Were any strata sealed against pollution? Yes ☐ No ☒ If yes, note depth of strata
From ft. to ft.
From ft. to ft.
Method of sealing grout -9 sack sand and cement

(9) WATER LEVELS:
Depth at which water was first found, if known ft.
Standing level before perforating, if known ft.
Standing level after perforating and developing 145 ft.

(10) WELL TESTS:
Was pump test made? Yes ☒ No ☐ If yes, by whom BEYLIK DRILLING,
eld: 1800 gal./min. with 140 ft. drawdown after 34 hrs.
Temperature of water Was a chemical analysis made? Yes ☐ No ☐ ☒
Was electric log made of well? Yes ☐ No ☒ If yes, attach copy

(11) WELL LOG:
Total depth 610 ft. Depth of completed well 600 ft.
Formation: *Describe by color, character, size of material, and structure*

ft. to	ft.	
0	50	coarse sand, rocks 1 in. to 24 inch
50	260	gravel, coarse snad rocks
260	265	gravel, brwn sandy clay
265	280	coarse snad, gravel boulders
280	285	gravel snad brwn.sandy clay
285	290	gravel, brown clay
290	310	gravel, sand rocks 2 to 8 inch
310	350	gravel, sand streaks bwn sandy clay
350	375	gravel and boulders
375	420	boulders
420	450	gravel and boulders
450	510	sand gravel streaks bwn sandy clay
510	590	coarse sand and gravel and boulders
590	610	gravel with streaks brown x clay

SAWPA DES
002000173

Work started 6-17-71 19 , Completed 7-22- 19 71

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME BEYLIK DRILLING, INC.
(Person, firm, or corporation) *(Typed or printed)*

Address 591 S. Walnut St.
LA HABRA, CALIF. 90631

[SIGNED] John R. Beylik
(Well Driller)
JOHN R. BEYLIK

License No. 105085-C-57 Dated July 23, 1971 , 19

SKETCH LOCATION OF WELL ON REVERSE SIDE

DWR 188 (REV. 9-68)

Well "A"

25179-950 9-68 50M TRIP △D OSP

STA 72

ROY COE MOSS COMPANY

4360 WORTH STREET
LOS ANGELES, CAL.

05S06W11F02S

WELL CONTRACTORS — RENTAL TOOLS

Log of Well No. ..... Drilled for Temescal Water Co.
Of 310 N. Joy Street, Corona, California
Exact Location S.E.1/4, N.W.1/4, Sec. 11, Twp. 5-S, R. 6-W.
Started Work May 23, 1972 (Mayhew Canyon, Riverside Cty.)
Completed Work July 27, 1972
Total depth 598 Size of shoe 1 x 14 x 16
596 ft. of 16 inch 8 ~~lb~~ or gauge casing used and left in Well
50 " " 20 " 5/16" "Conductor" Shoe 3/4 X "6" " "
" " " " " " " " " " " " " " " "
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Type of Perforator used Moss Hydraulic
Perforated 270 ft. to 575 ft. 7 Holes per 4 inches
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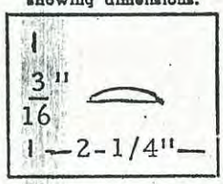
Make diagram of perforation in square, showing dimensions.



Diameter of Perforations 3/16 inches
Length of Perforations 2-1/4 "
Depth at which water was first found 270 ft.
Standing level before perforating 263 "
Standing level after perforating 270 "

Note below your observation of any change in water level while drilling
Dropped 245 to 263

Water level when first started Test 268 ft.
Draw down from standing level 42 "
No. of gallons per minute pumped when Test first started 337
No. of gallons per minute pumped when Test completed 590 (High)
Draw down at completion of Test 82 ft.
Hours Testing Well 37 hrs. 40 Minutes.

Formation: Mention size of water gravel—

0	ft. to	5	ft.	Sand, gravel, some boulders (6)
5	" "	30	"	Sand, gravel, boulders, little clay
30	" "	50	"	Conglomerate
50	" "	122	"	Sand, gravel, clay & few boulders
122	" "	170	"	Sand, gravel & some rock
170	" "	210	"	Gravel, boulders, little clay
210	" "	293	"	Sand, gravel, clay & few boulders
293	" "	298	"	Clay & little gravel
298	" "	333	"	Clay, gravel & boulders Tight (5-6)
333	" "	355	"	Hard clay & gravel, some rock
355	" "	385	"	Hard rock, clay & gravel (1)
385	" "	468	"	Clay, gravel & layers of rock or
	" "		"	boulders
468	" "	535	"	Hard clay, gravel & boulders
535	" "	547	"	Clay, sand & gravel (fairly soft)
547	" "	560	"	Hard clay & gravel
560	" "	595	"	Clay, gravel and boulders or rock

Water level when first started Test 268 ft.
Draw down from standing level 42 "
No. of gallons per minute pumped when Test first started 337
No. of gallons per minute pumped when Test completed 590 (High)
Draw down at completion of Test 82 ft.
Hours Testing Well 37 hrs. 40 Minutes.

Formation: Mention size of water gravel—

0	ft. to	5	ft.	Sand, gravel, some boulders (6)
5	" "	30	"	Sand, gravel, boulders, little clay
30	" "	50	"	Conglomerate
50	" "	122	"	Sand, gravel, clay & few boulders
122	" "	170	"	Sand, gravel & some rock
170	" "	210	"	Gravel, boulders, little clay
210	" "	293	"	Sand, gravel, clay & few boulders
293	" "	298	"	Clay & little gravel
298	" "	333	"	Clay, gravel & boulders Tight (5 -6)
333	" "	355	"	Hard clay & gravel, some rock
355	" "	385	"	Hard rock, clay & gravel (1)
385	" "	468	"	Clay, gravel & layers of rock or boulders
468	" "	535	"	Hard clay, gravel & boulders
535	" "	547	"	Clay, sand & gravel (fairly soft)
547	" "	560	"	Hard clay & gravel
560	" "	595	"	Clay, gravel and boulders or rock
595	" "	598	"	Rock and granite (hard)
	" "	5-1-78 WELL Sounded @ 570 '84 Kampling		
	" "		"	
	" "		"	

If reducing strings of casing were cut off, state how cut
Depth from surface cut ft.
Size of casing cut in.
Lap in larger casing ft.
Was adapter or cement used?
If casing was swedged or repaired, state depth, describe repairs and condition in which casing was left and probable future effect:

Make drawing of adapter in square, showing dimensions.

Is well straight, top bottom? Yes
If not, what is the v iation? None

Will there be any detrimental effect on pump?
If so, what effect?

No. of tons of gravel installed in well
Give any additional data which may be of future value
Filled up about 2 feet with rock, then four sacks of cement for plug.

Driller must fill in report as work progresses and report must be complete for his successor.
Date of report July 27, 1972
Troy Cunningham, Jim Cunningham
Type and Rig No. used Portable Cable Tool Rig #44, J. E. Cunningham
Driller
Superintendent

BM-11

TRIPLICATE
Owner's Copy

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

NCW MO/65

Do not fill in
No. 294166

Notice of Intent No. _____
Local Permit No. or Date _____
State Well No. 5S/6W-11G01
Other Well No. _____

(1) OWNER: Name C.L. Pharris Sand & Gravel
Address 24980 Maitri Rd.
City Corona, CA ZIP 91720

(2) LOCATION OF WELL (See instructions):
County Riverside Owner's Well Number Mayhew
Well address if different from above _____
Township 5S Range 6W Section 11
Distance from cities, roads, railroads, fences, etc.
2000' W. Maitri Rd.
3000' S. Temescal Canyon Rd.

WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic ☒
Irrigation ☐
Industrial ☒
Test Well ☐
Municipal ☐
Other ☐ (Describe)

(5) EQUIPMENT:
Rotary ☒ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☒ No ☐ Size 3/8 Spec.
Diameter of bore 24"
Packed from 0 to 750 ft.

(7) CASING INSTALLED:
Steel ☒ Plastic ☐ Concrete ☐

From ft.	To ft.	Dia. in.	Gage or Wall
0	740		5/16

(8) PERFORATIONS:
Type of perforation or size of screen R/M Horiz. Louver

From ft.	To ft.	Slot size
300	730	3/32x2½

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 54' ft
Were strata sealed against pollution? Yes ☐ No ☒ Interval _____ ft.
Method of sealing 34" cond. Cemented in place

(10) WATER LEVELS:
Depth of first water, if known _____ ft.
Standing level after well completion 328 ft.

(11) WELL TESTS:
Was well test made? Yes ☒ No ☐ If yes, by whom? McCalla Bros.
Type of test Pump ☒ Bailer ☐ Air lift ☐
Depth to water at start of test _____ ft. At end of test _____ ft.
Discharge 1075 gal/min after 61 hours Water temperature _____
Chemical analysis made? Yes ☐ No ☒ If yes, by whom? _____
Was electric log made Yes ☒ No ☐ If yes, attach copy to this report

(12) WELL LOG: Total depth 750 ft. Completed depth 740 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	35	Top Soil, Sand & Gravel
35	60	Rock & Gravel
60	88	Rock & Gravel
88	116	Sand, Gravel & Boulders
116	180	Sand & Gravel to 10"
180	255	Sand & Gravel, Tight
255	310	Boulder & Gravel
310	365	Large Gravel & Clay
365	378	Sand & Gravel - Hard
378	382	Fractured Rock - Very Hard
382	390	Sand & Gravel - Tight
390	435	Fractured Rock, Very Hard - Tigh
435	470	Large Gravel & Clay
470	480	Large Gravel
480	540	Hard Formation - Rock
540	561	Large Gravel & Rock
561	592	Gravel
592	624	Gravel, Sand & Clay
624	645	Hard Sand & Gravel
645	750	Hard Fractured Rock

Work started 9-7 19 89 Completed 10-27 19 89

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Signed _____ (Well Driller)
NAME McCalla Bros., Div. of Layne-Western Co., (Person, firm, or corporation) (Typed or printed)
Address 3132 W. 17th St.
City Santa Ana, CA ZIP 92703
License No. 510011 Date of this report 10-27-89

DWR 188 (REV. 12-86) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

86 96355