CHINO BASIN WATERMASTER

NOTICE OF MEETING

Thursday, October 24, 2024
11:00 a.m. Watermaster Board Meeting

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

CHINO BASIN WATERMASTER
WATERMASTER BOARD MEETING
11:00 a.m. – October 24, 2024
Mr. James Curatalo, Chair
Mr. Jeff Pierson, Vice-Chair
At The Offices Of
Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

AGENDA

CALL TO ORDER

FLAG SALUTE

ROLL CALL

PUBLIC COMMENTS

This is an opportunity for members of the public to address the Board on any short non-agenda items that are within the subject matter jurisdiction of the Chino Basin Watermaster. No discussion or action can be taken on matters not listed on the agenda, per the Brown Act. Each member of the public who wishes to comment shall be allotted three minutes, and no more than three individuals shall address the same subject.

AGENDA – ADDITIONS/REORDER

SAFETY MINUTE

I. CONSENT CALENDAR

All matters listed under the Consent Calendar are considered to be routine and non-controversial and will be acted upon by one motion in the form listed below. There will be no separate discussion on these items prior to voting unless any members, staff, or the public requests specific items be discussed and/or removed from the Consent Calendar for separate action.

A. MINUTES
Approve as presented:
Minutes of the Watermaster Board Meeting held on September 26, 2024 *(Page 1)*

B. FINANCIAL REPORTS
Receive and file as presented:
Financials for the period ended August 31, 2024 *(Page 6)*

II. BUSINESS ITEMS

A. ANNUAL STREAMFLOW MONITORING REPORT FOR WATER RIGHTS PERMIT 21225 (INFORMATION ONLY) *(Page 21)*

B. ANNUAL AND SEMI-ANNUAL PLUME STATUS REPORTS (INFORMATION ONLY) *(Page 60)*

C. RESOLUTION 2024-04 – TO INCREASE THE CHINO BASIN SAFE STORAGE CAPACITY
Adopt Resolution 2024-04 finding that a proposed order be filed with and adopted by the Court regarding the management and administration of volumes of stored water exceeding 700,000 acre-feet up to a maximum of 900,000 acre-feet. *(Page 133)*

III. REPORTS/UPDATES

A. WATERMASTER LEGAL COUNSEL

1. November 8, 2024, Court Hearing (Appropriative Pool Motion for Costs and Fees and Watermaster's Motion for receipt and filing of the Semi-Annual OBMP Status Report 2024-1)
2. Court of Appeal Consolidated Cases No. E080457 and E082127 (City of Ontario appeal re: Fiscal Year 2021-22 and 2022-23 Assessment Packages)
3. Court of Appeal Case No. E080533 (Cities of Chino, Ontario appeal re: Fiscal Year 2022-23 Watermaster budget expenses to support CEQA analysis)
4. San Sevaine Basins – 60-day Clean Water Act Violation Notice Letter

B. ENGINEER

1. Ground-Level Monitoring Program
2. 2025 Safe Yield Reevaluation

C. GENERAL MANAGER

1. Assessment Package Workshops
2. Other

IV. INFORMATION

A. RECHARGE INVESTIGATION AND PROJECTS COMMITTEE

1. Monthly Project Status Update Sheet (Project 23a) *(Page 139)*

V. BOARD MEMBER COMMENTS

VI. OTHER BUSINESS

VII. CONFIDENTIAL SESSION – POSSIBLE ACTION

A Confidential Session may be held during the Board Committee meeting for the purpose of discussion and possible action.

VIII. FUTURE MEETINGS AT WATERMASTER

10/24/24	Thu	9:30 a.m.	Watermaster Orientation*
10/24/24	Thu	11:00 a.m.	Watermaster Board
10/29/24	Tue	10:00 a.m.	2024/25 Assessment Package Workshop # 2
10/30/24	Wed	1:30 p.m.	Water Rights and Replenishment Forecasting Tool Workshop
11/12/24	Tue	9:00 a.m.	Groundwater Recharge Coordinating Committee (at CBWCD)
11/14/24	Thu	9:00 a.m.	Appropriative Pool Committee
11/14/24	Thu	11:00 a.m.	Non-Agricultural Pool Committee
11/14/24	Thu	1:30 p.m.	Agricultural Pool Committee
11/20/24	Wed	9:00 a.m.	Safe Yield Revaluation Workshop
11/21/24	Thu	9:00 a.m.	Advisory Committee
11/21/24	Thu	11:00 a.m.	Watermaster Board**

* The Watermaster Orientation series are held in person only with no remote access.
******The Board Meeting is being advanced by a week due to the Thanksgiving holiday.

ADJOURNMENT

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ADJOURNMENT

DRAFT MINUTES
CHINO BASIN WATERMASTER
WATERMASTER BOARD MEETING
September 26, 2024

The Watermaster Board meeting was held at the offices of the Chino Basin Watermaster located at 9641 San Bernardino Road, Rancho Cucamonga, CA, and via Zoom (conference call and web meeting) on September 26, 2024.

WATERMASTER BOARD MEMBERS PRESENT AT WATERMASTER

James Curatalo, Chair	Cucamonga Valley Water District
Jeff Pierson, Vice Chair	Agricultural Pool – Crops
Steve Elie	Inland Empire Utilities Agency
Mike Gardner	Western Municipal Water District
Brian Geye for Bob Bowcock	California Speedway Corporation
Bob Kuhn	Three Valleys Municipal Water District
Manny Martinez for Scott Burton	Monte Vista Water District
Jimmy Medrano	Agricultural Pool – State of CA
Bill Velto	City of Upland

WATERMASTER STAFF PRESENT

Todd Corbin	General Manager
Edgar Tellez Foster	Water Resources Mgmt. & Planning Director
Anna Nelson	Director of Administration
Justin Nakano	Water Resources Technical Manager
Frank Yoo	Data Services and Judgment Reporting Mgr.
Daniela Uriarte	Senior Accountant
Alonso Jurado	Water Resources Associate
Ruby Favela Quintero	Administrative Assistant
Jordan Garcia	Senior Field Operations Specialist
Erik Vides	Field Operations Specialist

WATERMASTER CONSULTANTS PRESENT AT WATERMASTER

Scott Slater	Brownstein Hyatt Farber Schreck, LLP
Andy Malone	West Yost

WATERMASTER CONSULTANTS PRESENT ON ZOOM

Brad Herrema	Brownstein Hyatt Farber Schreck, LLP
Veva Weamer	West Yost

OTHERS PRESENT AT WATERMASTER

Tariq Awan	Agricultural Pool – State of CA
Lewis Callahan	Agricultural Pool – State of CA
Diana Frederick	Agricultural Pool – State of CA
Gino Filippi	Agricultural Pool – Crops
Ben Orosco	City of Chino
Hye Jin Lee	City of Chino
Ron Craig	City of Chino Hills
Nicole deMoet	City of Upland
Jimmie Moffatt	Cucamonga Valley Water District
Jiwon Seung	Cucamonga Valley Water District
John Russ	Inland Empire Utilities Agency
Bryan Smith	Jurupa Community Services District
Christen Miller	County of San Bernardino
Laura Roughton	Western Municipal Water District

OTHERS PRESENT ON ZOOM

Natalie Avila	City of Chino
Hye Jin Lee	City of Chino
Ron Craig	City of Chino Hills
Jacob Loukeh	City of Chino Hills
Norberto Ferreira	City of Upland
Eduardo Espinoza	Cucamonga Valley Water District
Rob Hills	Cucamonga Valley Water District
Derek Hoffman	Fennemore Law
Ben Lewis	Golden State Water Company
Eddie Lin	Inland Empire Utilities Agency
David De Jesus	Three Valleys Municipal Water District
Richard Rees	WSP USA

CALL TO ORDER

Chair Curatalo called the Watermaster Board meeting to order at 11:00 a.m.

FLAG SALUTE

(00:00:11) Chair Curatalo led the Board in the flag salute.

ROLL CALL

(00:00:39) Ms. Nelson conducted the roll call and announced that a quorum was present.

PUBLIC COMMENTS

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(00:01:47) Ms. Hye Jin introduced Mr. Ben Orosco to Watermaster stakeholders. Mr. Orosco is the Deputy Water Resources Director at the City of Chino.

AGENDA – ADDITIONS/REORDER

(00:03:22) Mr. Corbin announced Watermaster Professionals Week and thanked staff, and all staff who contribute to water resources Statewide.

SAFETY MINUTE

(00:03:58) Mr. Corbin announced that Watermaster has an AED device on the premises and indicated that it is located near the front office lobby by the Board room.

I. **CONSENT CALENDAR**

All matters listed under the Consent Calendar are considered to be routine and non-controversial and will be acted upon by one motion in the form listed below. There will be no separate discussion on these items prior to voting unless any members, staff, or the public requests specific items be discussed and/or removed from the Consent Calendar for separate action.

A. **MINUTES**

Approve as presented:
Minutes of the Watermaster Board Meeting held on August 22, 2024

B. **FINANCIAL REPORTS**

Financials for the period July 1, 2024 through August 31, 2024 will be presented at the next regular meeting.

C. OBMP SEMI-ANNUAL STATUS REPORT 2024-1
Adopt the Semi-Annual OBMP Status Report 2024-1, and direct staff to file a copy with the Court, subject to any necessary non-substantive changes.

D. APPLICATION: WATER TRANSACTION – 708.3 AF WEST END CONSOLIDATED WATER COMPANY TO CITY OF UPLAND
Approve the proposed transaction.

E. APPLICATION: WATER TRANSACTION – 66.4 AF WEST END CONSOLIDATED WATER COMPANY TO GOLDEN STATE WATER COMPANY
Approve the proposed transaction.

F. APPLICATION: WATER TRANSACTION – 270 AF CITY OF UPLAND TO GOLDEN STATE WATER COMPANY
Approve the proposed transaction.

G. RESOLUTION 2024-03 OF THE CHINO BASIN WATERMASTER RECOGNIZING WATER PROFESSIONALS' APPRECIATION WEEK
Adopt Resolution 2024-03 as presented.

(00:06:19)
Motion by Vice-Chair Jeff Pierson, seconded by Mr. Mike Gardner, there being no dissent, the item passed unanimously.
Moved to approve the Consent Calendar as presented.

II. BUSINESS ITEMS

A. EMERGING CONTAMINANTS MONITORING PLAN (INFORMATION ONLY)

(00:07:02) Mr. Corbin prefaced the item and asked Ms. Weamer of West Yost to give a presentation. A discussion ensued.

III. REPORTS/UPDATES

A. WATERMASTER LEGAL COUNSEL
1. November 8, 2024, Court Hearing (Appropriative Pool Motion for Costs and Fees)
2. Court of Appeal Consolidated Cases No. E080457 and E082127 (City of Ontario appeal re: Fiscal Year 2021-22 and 2022-23 Assessment Packages)
3. Court of Appeal Case No. E080533 (Cities of Chino, Ontario appeal re: Fiscal Year 2022-23 Watermaster budget expenses to support CEQA analysis)
4. San Sevaine Basins – 60-day Clean Water Act Violation Notice Letter

(00:14:56) Mr. Slater gave a report. A discussion ensued.

B. ENGINEER
1. Ground-Level Monitoring Program
2. 2025 Safe Yield Reevaluation Workshops

(00:18:44) Mr. Malone report on Item 1 and announced the October 3, 2024 GLMC meeting regarding the Annual Report. Mr. Rapp gave a report on Item 2 and announced the Safe Yield Reevaluation Workshop scheduled for November 20, 2024 at 9:00 a.m. A discussion ensued.

C. GENERAL MANAGER
1. New Watermaster Staff Member Introduction
2. Correspondence
3. Watermaster Letterhead

(00:22:11) Mr. Corbin introduced Ms. Brittany Modesto as Watermaster's newest team member. She will be supporting the team as an administrative analyst. For Item 2, he announced that SGMA has been in place for 10 years and reflected on the successes of the Chino Basin management since its adjudication in 1978 allowing us to be ahead of the SGMA legislation. Mr. Corbin introduced a draft of the new letterhead for the Watermaster. He indicated that an update of the employee manual is underway and that the internal review is complete. The next steps will be a peer review followed by a Personnel Committee meeting in November.

Mr. Corbin announced the Safe Yield Reevaluation is due in February 2025 and stated that dialogue is underway with the parties to see what can be done to ensure the item is not delayed. Four main elements need to be vetted:

- Optimization: The water rights and replenishment forecasting tool which will aid the parties in this effort. The workshop is being held on October 30, 2024 at 1:30 p.m.
- Work with CDA regarding the capital plan and how it relates to the Peace Agreement agencies.
- Storage and Recovery (like DYY), and opportunities for extension and modifications.
- College Heights Basin Project

A discussion ensued.

(00:32:20) The Board unanimously authorized Mr. Corbin to proceed with finalizing and using the new letterhead (as shown in Attachment 1 to these minutes).

IV. <u>INFORMATION</u>

RECHARGE INVESTIGATIONS AND PROJECTS COMMITTEE

(00:34:11) Mr. Corbin gave an update indicating that the one-page informational sheet on Project 23a will be provided allowing parties to stay abreast of any updates.

V. <u>BOARD MEMBER COMMENTS</u>

(00:34:48) Mr. Gardner announced that the Governor vetoed SB366, the California Water Plan, aimed at long-term supply targets. A discussion ensued.

VI. <u>OTHER BUSINESS</u>

None

VII. <u>CONFIDENTIAL SESSION - POSSIBLE ACTION</u>

A Confidential Session may be held during the Board meeting for the purpose of discussion and possible action.

None

ADJOURNMENT

Chair Curatalo adjourned the Watermaster Board meeting at 11:36 a.m.

Secretary: ______________________________

Approved: ______________________________

Attachment 1: New Watermaster Letterhead

CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

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STAFF REPORT

DATE: October 2024

TO: Watermaster Committees & Board

SUBJECT: Monthly Financial Reports (For the Reporting Period Ended August 31, 2024) (Consent Calendar Item I.B.)

Issue: Record of Monthly Financial Reports for the reporting periods ended August 31, 2024 [Normal Course of Business]

Recommendation: Receive and file Monthly Financial Reports for the reporting periods ended August 31, 2024 as presented.

Financial Impact: None.

Actions and Future Considerations
Appropriative Pool – October 10, 2024: Received and Filed
Non-Agricultural Pool – October 10, 2024: Received and Filed
Agricultural Pool – October 10, 2024: Received and Filed
Advisory Committee – October 17, 2024: Received and Filed
Watermaster Board – October 24, 2024: Receive and File

BACKGROUND

A monthly reporting packet is provided to keep all members apprised of Watermaster revenues, expenditures, and other financial activity. Monthly reports include the following:

1. Cash Disbursements – Summarized report of all payments made during the reporting month.
2. Credit Card Expense Detail – Detail report of all credit card activity during the reporting month.
3. Combining Schedule of Revenues, Expenses & Changes in Net Assets – Detail report of all revenue and expense activity for the fiscal YTD, summarized by pool category.
4. Treasurer's Report – Summary of Watermaster investments holdings and anticipated earnings as of month end.
5. Budget to Actual Report – Detail report of actual revenue and expense activity, shown for reporting month and YTD, comparatively to the adopted budget.
6. Monthly Variance Report & Supplemental Schedules – Supporting schedule providing explanation for major budget variances. Also provides several additional tables detailing pool fund balance, salaries expense, legal expense, and engineering expense.

DISCUSSION

Detailed explanation of major variances and other additional information can be found on the "Monthly Variance Report & Supplemental Schedules."

Watermaster staff will provide additional explanation or respond to any questions on these reports.

ATTACHMENTS

1. Monthly Financial Reports (August 31, 2024)

Chino Basin Watermaster

Cash Disbursements

August 2024

Date	Number	Vendor Name	Description	Amount
08/05/2024	24959	WOLF BEDLINERS, INC.	Bedliner for new field truck	$ (575.13)
08/06/2024	24960	DORA CERVANTES	Carpet cleaning	(800.00)
08/06/2024	24961	EIDE BAILLY LLP	June accounting consulting services	(262.50)
08/06/2024	24962	GEYE, BRIAN		(125.00)
08/06/2024	24963	PIERSON, JEFFREY		(1,625.00)
08/06/2024	24964	SOUTHERN CALIFORNIA EDISON	Utilities: Electric	(173.78)
08/06/2024	24965	UNION 76	July fuel purchases	(155.26)
08/06/2024	24966	VISION SERVICE PLAN	September vision insurance coverage	(113.85)
08/07/2024	24967	ACWA JOINT POWERS INSURANCE AUTHORITY	September life insurance	(270.83)
08/07/2024	24968	APPLIED COMPUTER TECHNOLOGIES	Zoom database migration projects	(437.50)
08/07/2024	24969	BURRTEC WASTE INDUSTRIES, INC.	Utilities: Waste	(168.62)
08/07/2024	24970	CHEF DAVE'S CATERING & EVENT SERVICES	Board meeting catering services	(479.47)
08/07/2024	24971	CONCENTRA	Pre-employment screening	(181.00)
08/07/2024	24972	ELIE, STEVEN		(250.00)
08/07/2024	24973	EMPOWER LAB	August consulting services	(500.00)
08/07/2024	24974	FRONTIER COMMUNICATIONS	Landline connection for Bay Alarm system	(152.57)
08/07/2024	24975	IRELAND SOUND SYSTEMS INC	Boardroom audio/video system service agreement	(5,340.00)
08/07/2024	24976	KAVOUNAS, PETER	Health and dental premium reimbursements	(1,478.36)
08/07/2024	24977	SAN BERNARDINO COUNTY - DEPT. AIRPORTS	August rent for extensometer site	(172.00)
08/07/2024	24978	STATE COMPENSATION INSURANCE FUND	FY 24 Worker's compensation insurance	(2,264.91)
08/07/2024	24979	USAFACT, INC.	Pre-employment background check	(120.22)
08/07/2024	24980	VANGUARD CLEANING SYSTEMS	August janitorial service and June electrostatic spraying	(1,000.00)
08/09/2024	ACH 8/9/24	CALPERS	August Medical Insurance Premiums	(16,389.54)
08/13/2024	24981	RBM LOCK & KEY	Field locks	(423.60)
08/13/2024	24982	WELL TEC SERVICES	Meter calibration test and repair parts	(49,087.50)
08/14/2024	24983	CALIFORNIA BANK & TRUST	Account ending 6198 - See detail attached	(2,329.43)
08/15/2024	24984	APPLIED COMPUTER TECHNOLOGIES	July database consulting services	(4,250.00)
08/15/2024	24985	BOWCOCK, ROBERT		(250.00)
08/15/2024	24986	C.J. BROWN & COMPANY, CPAs	FY 24 Audit services	(6,799.00)
08/15/2024	24987	CORELOGIC INFORMATION SOLUTIONS	July geographic package services	(125.00)
08/15/2024	24988	CUCAMONGA VALLEY WATER DISTRICT	September lease	(11,727.00)
08/15/2024	24989	CURATALO, JAMES		(1,375.00)
08/15/2024	24990	FEDEX	Shipping of Pools meeting packages	(122.69)
08/15/2024	24991	GRAINGER	Disposable work gloves	(230.16)
08/15/2024	24992	LEGAL SHIELD	August employee paid legal insurance	(119.55)
08/15/2024	24993	READY REFRESH	Office water dispenser lease	(130.02)
08/15/2024	24994	RUBEN LLAMAS		-
08/15/2024	24995	SOUTHERN CA EDISON	Utilities: Electric	(3,623.80)
08/15/2024	24997	VERIZON WIRELESS	Internet services for Field Ops tablets	(277.17)
08/15/2024	24998	WESTERN MUNICIPAL WATER DISTRICT		(250.00)
08/21/2024	25000	BROWNSTEIN HYATT FARBER SCHRECK	July legal services	(51,489.76)
08/21/2024	25001	EGOSCUE LAW GROUP, INC.	July OAP legal services	(5,250.00)
08/21/2024	25002	GREAT AMERICA LEASING CORP.	July copy machine lease	(1,464.61)
08/21/2024	25003	KESSLER ALAIR INSURANCE SERVICES, INC.	Policy Renewal: General E&O liability	(13,651.63)
08/21/2024	25004	SANTA ANA WATERSHED PROJECT AUTHORITY	FY 25 Basin monitoring program task force contributions	(15,984.21)
08/21/2024	25005	SOCALGAS	Utilities: Gas	(50.17)
08/21/2024	25006	UNITED HEALTHCARE	September dental insurance coverage	(622.06)
08/21/2024	25007	VC3, INC.		(5,738.60)
08/21/2024	25008	VERIZON WIRELESS	Internet services and mobile broadband unlimited	(38.01)
08/21/2024	25009	VISION SERVICE PLAN	September vision insurance coverage	(48.79)
08/22/2024	25011	SANTA ANA WATERSHED PROJECT AUTHORITY	FY 25 TMDL task force	(9,454.00)
08/22/2024	25012	NAKANO, JUSTIN	Employee mileage reimbursement	(115.24)
08/22/2024	ACH8/22/24	JOHN J. SCHATZ	May-August AP legal services	(51,035.23)
08/23/2024	ACH 8/23/24	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	Annual Unfunded Accrued Liability-Plan 27239	(172.92)
08/23/2024	ACH 8/23/24	PUBLIC EMPLOYEES' RETIREMENT SYSTEM	Annual Unfunded Accrued Liability-Plan 3299	(12,164.17)
08/28/2024	25013	FAVELA QUINTERO, RUBY	Employee expense reimbursements	(565.26)
08/28/2024	25014	PETTY CASH	Petty cash replenishment	(319.82)
08/28/2024	25015	RUBEN LLAMAS		(125.00)
08/28/2024	25016	CHEF DAVE'S CATERING & EVENT SERVICES	Board meeting catering services	(447.50)
08/28/2024	25017	SOUTHERN CALIFORNIA EDISON	Utilities: Electric	(302.66)
08/28/2024	25018	STANDARD INSURANCE CO.	August life and disability coverage	(988.75)
			Total for Month	**$ (284,183.85)**

Chino Basin Watermaster
Credit Card Expense Detail
August 2024

Date	Number	Description	Expense Account	Amount
08/14/2024	24983	**CALIFORNIA BANK & TRUST**		
		Microsoft Software - Software used by J. Garcia	6054 · Computer Software	(15.00)
		REV Subscription - Speech to text transcription services	6112 · Subscriptions/Publications	(29.99)
		Mariscos Kikas Inc. - Lunch meeting E. Tellez Foster and H. Dyer	6141.1 · Meeting Supplies	(34.34)
		Panera Bread - CBWM OPS meeting	6141.1 · Meeting Supplies	(75.65)
		FedEx - Mailing	6042 · Postage - General	(37.70)
		Bamboo HR - HRIS and Timekeeping System	6061.2 · HRIS System	(230.14)
		Amazon - Toner Magenta	6031.7 · General Office Supplies	(124.57)
		Amazon - Farewell Event for A. Moore	6031.7 · General Office Supplies	(11.37)
		Amazon - Farewell Event for A. Moore	6031.7 · General Office Supplies	(13.93)
		Amazon - Farewell Event for A. Moore	6031.7 · General Office Supplies	(21.29)
		Nothing Bundt Cake - Farewell dessert for A. Moore	6141.1 · Meeting Supplies	(60.29)
		Amazon - Misc. office supplies	6031.7 · General Office Supplies	(215.87)
		Chipotle - Farewell Event for A. Moore	6141.1 · Meeting Supplies	(347.24)
		Amazon - Water bottle for E. Vides	6031.7 · General Office Supplies	(29.08)
		BlueHost - Monthly Software Renewal - Standard VPN Server with cPanel	6054 · Computer Software	(91.99)
		LinkedIn - Premium Career Monthly Subscription	6112 · Subscriptions/Publications	(39.99)
		Amazon - Wiper blades for work truck	6177 · Vehicle Repairs & Maintenanc	(44.80)
		Amazon - Misc. office supplies	6031.7 · General Office Supplies	(37.69)
		Amazon - Toner Cyan	6031.7 · General Office Supplies	(125.95)
		Amazon - Toner Black	6031.7 · General Office Supplies	(117.22)
		Amazon - Labels	6031.7 · General Office Supplies	(25.85)
		Amazon - Truck door part	6177 · Vehicle Repairs & Maintenanc	(44.75)
		Amazon - Keyboard	6031.7 · General Office Supplies	(51.73)
		Amazon - Manila folders	6031.7 · General Office Supplies	(28.97)
		The Back Abbey - Lunch meeting T. Corbin and B. Bowcock	6141.1 · Meeting Supplies	(57.18)
		Home Depot - Office plants, soil, and planters	6031.7 · General Office Supplies	(304.11)
		Mestiza Coffeehouse - Breakfast meeting T. Corbin, S. Burton, M. Martinez	6141.1 · Meeting Supplies	(29.60)
		Biaani' Café & Kitchen - Breakfast meeting T. Corbin, S. Elie	6141.1 · Meeting Supplies	(30.77)
		Lowes - Plant saucer	6031.7 · General Office Supplies	(52.37)
			Total for Month	**$ (2,329.43)**

Chino Basin Watermaster

Combining Schedule of Revenues, Expenses & Changes in Net Assets
For the Period of July 1, 2024 through August 31, 2024
(Unaudited)

	JUDGMENT ADMIN.	OPTIMUM BASIN MGMT.	TOTAL JUDGMENT ADMIN & OBMP	POOL ADMINISTRATION & SPECIAL PROJECTS AP POOL	OAP POOL	ONAP POOL	GROUND WATER REPLENISH.	GRAND TOTALS	ADOPTED BUDGET 2024-2025 WITH CARRYOVER
Administrative Revenues:									
Administrative Assessments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,833,780
Interest Revenue	-	75,613	75,613	2,958	11,978	560	1,537	92,646	478,500
Groundwater Replenishment	-	-	-	-	-	-	-	-	-
Mutual Agency Project Revenue	191,073	-	191,073	-	-	-	-	191,073	191,070
Miscellaneous Income	1,407	-	1,407	-	-	-	-	1,407	-
Total Administrative Revenues	**192,480**	**75,613**	**268,093**	**2,958**	**11,978**	**560**	**1,537**	**285,126**	**10,503,350**
Administrative & Project Expenditures:									
Watermaster Administration	534,372	-	534,372	-	-	-	-	534,372	2,528,540
Watermaster Board-Advisory Committee	47,257	-	47,257	-	-	-	-	47,257	422,420
Optimum Basin Mgmt Administration	-	146,198	146,198	-	-	-	-	146,198	1,437,940
OBMP Project Costs	-	542,433	542,433	-	-	-	-	542,433	4,971,020
Pool Legal Services	-	-	-	31,091	5,250	1,309	-	37,650	-
Pool Meeting Compensation	-	-	-	-	3,875	500	-	4,375	-
Pool Special Projects	-	-	-	-	9,454	-	-	9,454	-
Pool Administration	-	-	-	-	-	-	-	-	370,660
Debt Service	-	-	-	-	-	-	-	-	772,770
Agricultural Expense Transfer [1]	-	-	-	18,579	(18,579)	-	-	-	-
Replenishment Water Assessments	-	-	-	-	-	-	-	-	180,234
Total Administrative Expenses	**581,629**	**688,632**	**1,270,260**	**49,670**	**-**	**1,809**	**-**	**1,321,739**	**10,683,584**
Net Ordinary Income	**(389,148)**	**(613,019)**	**(1,002,167)**	**(46,712)**	**11,978**	**(1,249)**	**1,537**	**(1,036,613)**	**(180,234)**
Other Income/(Expense)									
Refund-Recharge Debt Service	-	-	-	-	-	-	-	-	-
Carryover Budget*	-	-	-	-	-	-	-	-	454,875
Net Other Income/(Expense)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**454,875**
Net Transfers To/(From) Reserves	**$ (389,148)**	**$ (613,019)**	**$ (1,002,167)**	**$ (46,712)**	**$ 11,978**	**$ (1,249)**	**$ 1,537**	**$ (1,036,613)**	**$ 274,640**
Net Assets, July 1, 2024			8,794,214	555,405	1,404,964	65,733	180,234	11,000,551	
Refund-Excess Operating Reserves			-					-	
Net Assets, End of Period			**7,792,047**	**508,693**	**1,416,942**	**64,485**	**181,771**	**9,963,937**	
Pool Assessments Outstanding				(86,315)	(586,852)	-			
Pool Fund Balance				$ 422,377	$ 830,090	$ 64,485			

[1] Fund balance transfer as agreed to in the Peace Agreement.

*Carryover budget will be updated once the FY 2023-24 has been finalized.

Chino Basin Watermaster
Treasurer's Report
August 2024

	Type	Monthly Yield	Cost	Market	% Total
Cash & Investments					
Local Agency Investment Fund (LAIF) *	Investment	4.58%	$ 643,374	$ 641,003	5.9%
CA CLASS Prime Fund **	Investment	5.41%	9,842,483	$ 9,843,517	90.6%
Bank of America	Checking		376,671	376,671	3.5%
Bank of America	Payroll		-	-	0.0%
Total Cash & Investments			**$ 10,862,528**	**$ 10,861,191**	**100.0%**

* The LAIF Market Value factor is updated quarterly in September, December, March, and June.

** The CLASS Prime Fund Net Asset Value factor is updated monthly.

Certification

I certify that (1) all investment actions executed since the last report have been made in full compliance with Chino Basin Watermaster's Investment Policy, and (2) Funds on hand are sufficient to meet all foreseen and planned administrative and project expenditures for the next six months.

Anna Nelson, Director of Administration

Prepared By:
Daniela Uriarte, Senior Accountant

Chino Basin Watermaster

Budget to Actual

For the Period July 1, 2024 to August 31, 2024

(Unaudited)

		August 2024	YTD Actual	FY 25 Adopted Budget with Carryover	$ Over / (Under) Budget	% of Budget
1	**Administration Revenue**					
2	Local Agency Subsidies	$ -	$ 191,073	$ 191,070	$ 3	100%
3	Admin Assessments-Appropriative Pool	-	-	9,521,030	(9,521,030)	0%
4	Admin Assessments-Non-Ag Pool	-	-	312,750	(312,750)	0%
5	**Total Administration Revenue**	**-**	**191,073**	**10,024,850**	**(9,833,777)**	**2%**
6	**Other Revenue**					
7	Appropriative Pool-Replenishment	-	-	-	-	N/A
8	Non-Ag Pool-Replenishment	-	-	-	-	N/A
9	Interest Income	36,565	75,613	478,500	(402,887)	16%
10	Miscellaneous Income	-	1,407	-	1,407	N/A
11	Carryover Budget	-	-	454,875	(454,875)	0%
12	**Total Other Revenue**	**36,565**	**77,020**	**933,375**	**(856,354)**	**8%**
13	**Total Revenue**	**36,565**	**268,093**	**10,958,225**	**(10,690,132)**	**2%**
14	**Judgment Administration Expense**					
15	Judgment Administration	34,900	79,632	721,010	(641,378)	11%
16	Admin. Salary/Benefit Costs	87,253	208,853	1,032,120	(823,267)	20%
17	Office Building Expense	18,236	41,181	234,470	(193,289)	18%
18	Office Supplies & Equip.	2,526	5,038	46,760	(41,722)	11%
19	Postage & Printing Costs	1,643	3,600	32,950	(29,350)	11%
20	Information Services	11,663	18,626	232,530	(213,904)	8%
21	Contract Services	903	10,992	111,460	(100,468)	10%
22	Watermaster Legal Services	51,713	73,429	414,060	(340,631)	18%
23	Insurance	13,457	38,572	50,950	(12,378)	76%
24	Dues and Subscriptions	210	280	25,900	(25,620)	1%
25	Watermaster Administrative Expenses	549	1,184	9,630	(8,446)	12%
26	Field Supplies	290	520	3,200	(2,680)	16%
27	Travel & Transportation	2,537	65,254	104,960	(39,706)	62%
28	Training, Conferences, Seminars	2,029	2,529	49,370	(46,842)	5%
29	Advisory Committee Expenses	5,740	5,740	134,130	(128,390)	4%
30	Watermaster Board Expenses	19,029	41,516	288,290	(246,774)	14%
31	ONAP - WM & Administration	4,050	4,373	120,940	(116,567)	4%
32	OAP - WM & Administration	6,227	6,550	124,220	(117,670)	5%
33	Appropriative Pool- WM & Administration	16,442	21,180	125,500	(104,320)	17%
34	Allocated G&A Expenditures	(27,131)	(47,420)	(540,830)	493,410	9%
35	**Total Judgment Administration Expense**	**252,266**	**581,629**	**3,321,620**	**(2,739,991)**	**18%**
36	**Optimum Basin Management Plan (OBMP)**					
37	Optimum Basin Management Plan	73,902	146,198	1,437,940	(1,291,742)	10%
38	Groundwater Level Monitoring	29,978	60,473	585,050	(524,577)	10%
39	Program Element (PE)2- Comp Recharge	11,344	33,722	1,774,300	(1,740,578)	2%
40	PE3&5-Water Supply/Desalte	840	(27,354)	122,010	(149,364)	-22%
41	PE4- Management Plan	75,362	162,215	412,400	(250,185)	39%
42	PE6&7-CoopEfforts/SaltMgmt	111,077	122,006	669,380	(547,374)	18%
43	PE8&9-StorageMgmt/Conj Use	81,452	143,950	867,050	(723,100)	17%
44	Recharge Improvements	-	-	772,770	(772,770)	0%
45	Administration Expenses Allocated-OBMP	10,470	17,723	232,750	(215,027)	8%
46	Administration Expenses Allocated-PE 1-9	16,662	29,697	308,080	(278,383)	10%
47	**Total OBMP Expense**	**411,086**	**688,632**	**7,181,730**	**(6,493,098)**	**10%**
48	**Other Expense**					
49	Groundwater Replenishment	-	-	180,234	(180,234)	0%
50	**Total Other Expense**	**-**	**-**	**180,234**	**(180,234)**	**0%**
51	**Total Expenses**	**663,352**	**1,270,260**	**10,683,584**	**(9,413,324)**	**12%**
52	**Increase / (Decrease) to Reserves**	**$ (626,787)**	**$ (1,002,167)**	**$ 274,640**	**$ (1,276,807)**	

Chino Basin Watermaster
Monthly Variance Report & Supplemental Schedules
For the period July 1, 2024 to August 31, 2024
(Unaudited)

Budget to Actual

The Budget to Actual report summarizes the operating and non-operating revenues and expenses of Chino Basin Watermaster for the fiscal year-to-date (YTD). Columns are included for current monthly and YTD activity shown comparatively to the FY 25 adopted budget. The final two columns indicate the amount over or under budget, and the YTD percentage of total budget used.

Revenues

Lines 1-5 Administration Revenue – Includes local agency subsidies and administrative assessment for the Appropriative, Agricultural and Non-Agricultural Pools. Below is a summary of notable account variances at month end:

- Line 2 Local Agency Subsidies includes the annual Dy Year Yield (DYY) administrative fee received. This account is at 100% of budget due to the timing of payment.

Lines 6-12 Other Revenue – Includes Pool replenishment assessments, interest income, miscellaneous income, and carryover budget from prior years.

Expenses

Lines 14-35 Judgment Administration Expense – Includes Watermaster general administrative expenses, contract services, insurance, office and other administrative expenses. Below is a summary of notable account variances at month end:

- Line 16 Admin Salary/Benefit Costs includes wages and benefits for Watermaster administrative staff. The account is slightly over budget due to vacation and severance payouts done in July.
- Line 23 Insurance includes general liability insurance, directors' and officers' liability, municipalities coverage, environmental pollution liability and other various insurance policies. The account is at 76% of budget due to the timing of policy renewals.
- Line 27 Travel & Transportation includes travel and transportation costs related to Watermaster business, not related to conferences and seminars, vehicle fuel, repairs and maintenance, and vehicle purchases. The account is at 62% of budget due to the timing of the new field vehicle purchase.

Lines 36-47 Optimum Basin Management Plan (OBMP) Expense – Includes legal, engineering, groundwater level monitoring, allocated administrative expenses, and other expenses.

Lines 48-50 Other Expense – Includes groundwater replenishment, and various refunds as appropriate.

Pool Services Fund Accounting

Each Pool has a fund account created to pay their own legal service invoices. The legal services invoices are funded and paid using the fund accounts (8467 for the Overlying Agricultural Pool (OAP), 8567 for the Overlying Non-Agricultural Pool (ONAP), and 8367 for the Appropriate Pool (AP)). Along with the legal services fund account for the OAP (8467), the OAP also has two other fund accounts for Ag Pool Meeting Attendance expenses (8470), and Special Projects expenses (8471). The ONAP also has a meeting compensation fund account (8511). Additionally, the OAP has a reserve fund that is held by Watermaster and spent at the direction of the OAP. The AP also has account 8368 relating to the Tom Harder contract. These fund accounts are replenished at the direction of each Pool, and the legal service invoices are approved by the Pool leadership and when paid by Watermaster, are deducted from the existing fund account balances. If the fund account for any pool reaches zero, no further payments can be paid from the fund and a replenishment action must be initiated by the Pool.

The following tables detail the fund balance accounts as of August 31, 2024 (continued next page):

Fund Balance For Non-Agricultural Pool Account 8567 - Legal Services		
Beginning Balance July 1, 2024:	$	63,483.09
Additions:		
Interest Earnings		560.41
Subtotal Additions:		560.41
Reductions:		
Invoices paid July 2024 - Aug. 2024		(1,309.00)
Subtotal Reductions:		(1,309.00)
Available Fund Balance as of Aug. 31, 2024	**$**	**62,734.50**

Fund Balance For Appropriative Pool Account 8367 - Legal Services		
Beginning Balance July 1, 2024:	$	(9,472.87)
Additions:		
Interest Earnings		2,957.76
Subtotal Additions:		2,957.76
Reductions:		
Invoices paid July 2024 - Aug. 2024		(31,091.23)
Subtotal Reductions:		(31,091.23)
Available Fund Balance as of Aug. 31, 2024	**$**	**(37,606.34)**

Fund Balance For Non-Agricultural Pool Account 8511 - Meeting Compensation		
Beginning Balance July 1, 2024:	$	2,250.00
Reductions:		
Compensation paid July 2024 - Aug. 2024		(500.00)
Subtotal Reductions:		(500.00)
Available Fund Balance as of Aug. 31, 2024	**$**	**1,750.00**

Fund Balance For Appropriative Pool Account 8368 - Tom Harder Contract		
Beginning Balance July 1, 2024:	$	20,577.61
Reductions:		
Invoices paid July 2024 - Aug. 2024		-
Subtotal Reductions:		-
Available Fund Balance as of Aug. 31, 2024	**$**	**20,577.61**

Pool Services Fund Accounting – Cont.

Fund Balance for Agricultural Pool
Account 8467 - Legal Services (Held by AP)

Beginning Balance July 1, 2024*:	$ 388,647.51
Reductions:	
Invoices paid July 2024 - Aug. 2024	(5,250.00)
Subtotal Reductions:	(5,250.00)
Available Fund Balance as of Aug. 31, 2024	**$ 383,397.51**

*Balance includes payments received totaling $262,832.38 for Settlement Agreement outstanding invoices issued Apr. 15, 2022 and Jun. 17, 2022.

Agricultural Pool Reserve Funds
As shown on the Combining Schedules

Beginning Balance July 1, 2024*:	$ 818,112.17
Additions:	
YTD Interest earned on Ag Pool Funds FY 25	11,978.03
Transfer of Funds from AP to Special Fund for Legal Service Invoices	5,250.00
Total Additions:	17,228.03
Reductions:	
Legal service invoices paid July 2024 - Aug. 2024	(5,250.00)
Total Reductions	(5,250.00)
Agricultural Pool Reserve Funds Balance as of Aug. 31, 2024:	**$ 830,090.20**

*Balance includes payments of $102,245.10 and $42,025.61 received in FY 24 for outstanding invoices issued Sep. 9, 2022 and Apr. 20, 2023 for Ag Pool legal services, respectively.

Fund Balance For Agricultural Pool
Account 8470 - Meeting Compensation (Held by AP)

Beginning Balance July 1, 2024:	$ 17,694.65
Reductions:	
Compensation paid July 2024 - Aug. 2024	(3,875.00)
Subtotal Reductions:	(3,875.00)
Available Fund Balance as of Aug. 31, 2024	**$ 13,819.65**

Fund Balance For Agricultural Pool
Account 8471 - Special Projects (Held by AP)

Beginning Balance July 1, 2024:	$ 51,643.00
Reductions:	
Invoices paid July 2024 - Aug. 2024	(9,454.00)
Subtotal Reductions:	(9,454.00)
Available Fund Balance as of Aug. 31, 2024	**$ 42,189.00**

Watermaster Salary Expenses

The following table details the Year-To-Date (YTD) Actual Watermaster burdened salary costs compared to the FY 25 adopted budget. The "$ Over Budget" and the "% of Budget" columns are a comparison of the YTD actual to the annual budget.

	Year to Date Actual	FY 24-25 Budget	$ Over / (Under) Budget	% of Budget
WM Salary Expense				
5901.1 · Judgment Admin - Doc. Review	6,870	93,860	(86,990)	7.3%
5901.3 · Judgment Admin - Field Work	1,716	11,860	(10,144)	14.5%
5901.5 · Judgment Admin - General	2,705	81,090	(78,385)	3.3%
5901.7 · Judgment Admin - Meeting	6,150	39,710	(33,561)	15.5%
5901.9 · Judgment Admin - Reporting	946	13,890	(12,944)	6.8%
5910 · Judgment Admin - Court Coord./Attendance	899	16,970	(16,071)	5.3%
5911 · Judgment Admin - Exhibit G	-	6,400	(6,400)	0.0%
5921 · Judgment Admin - Production Monitoring	-	5,440	(5,440)	0.0%
5931 · Judgment Admin - Recharge Applications	683	-	683	100.0%
5941 · Judgment Admin - Reporting	-	2,140	(2,140)	0.0%
5951 · Judgment Admin - Rules & Regs	-	11,260	(11,260)	0.0%
5961 · Judgment Admin - Safe Yield	8,945	9,510	(565)	94.1%
5971 · Judgment Admin - Storage Agreements	125	13,000	(12,875)	1.0%
5981 · Judgment Admin - Water Accounting/Database	18,396	108,290	(89,894)	17.0%
5991 · Judgment Admin - Water Transactions	3,357	5,330	(1,973)	63.0%
6011.11 · WM Staff - Overtime	1,631	18,000	(16,369)	9.1%
6011.10 · Admin - Accounting	37,936	278,330	(240,394)	13.6%
6011.15 · Admin - Building Admin	11,753	31,200	(19,447)	37.7%
6011.20 · Admin - Conference/Seminars	4,332	58,530	(54,198)	7.4%
6011.25 · Admin - Document Review	7,524	2,620	4,904	287.2%
6011.50 · Admin - General	56,095	362,560	(306,465)	15.5%
6011.60 · Admin - HR	20,097	50,450	(30,353)	39.8%
6011.70 · Admin - IT	9,476	34,070	(24,594)	27.8%
6011.80 · Admin - Meeting	16,963	39,760	(22,797)	42.7%
6011.90 · Admin - Team Building	1,215	41,550	(40,335)	2.9%
6011.95 · Admin - Training (Give/Receive)	880	64,160	(63,280)	1.4%
6017· Temporary Services	-	26,040	(26,040)	0.0%
6201 · Advisory Committee	3,110	82,850	(79,740)	3.8%
6301 · Watermaster Board	21,329	83,910	(62,581)	25.4%
8301 · Appropriative Pool	16,592	67,280	(50,688)	24.7%
8401 · Agricultural Pool	3,364	66,005	(62,641)	5.1%
8501 · Non-Agricultural Pool	1,559	62,725	(61,166)	2.5%
6901.1 · OBMP - Document Review	8,221	95,294	(87,073)	8.6%
6901.3 · OBMP - Field Work	356	50,870	(50,514)	0.7%
6901.5 · OBMP - General	9,479	81,120	(71,641)	11.7%
6901.7 · OBMP - Meeting	5,187	80,360	(75,173)	6.5%
6901.9 · OBMP - Reporting	1,523	11,040	(9,517)	13.8%
7104.1 · PE1 - Monitoring Program	30,329	275,499	(245,170)	11.0%
7201 · PE2 - Comprehensive Recharge	7,065	71,753	(64,688)	9.8%
7301 · PE3&5 - Water Supply/Desalter	-	9,515	(9,515)	0.0%
7301.1 · PE5 - Reg. Supply Water Prgm.	840	9,510	(8,671)	8.8%
7401 · PE4 - MZ1 Subsidence Mgmt. Plan	-	14,040	(14,040)	0.0%
7501 · PE6 - Coop. Programs/Salt Mgmt.	712	9,514	(8,802)	7.5%
7501.1 · PE 7 - Salt Nutrient Mgmt. Plan	-	9,510	(9,510)	0.0%
7601 · PE8&9 - Storage Mgmt./Recovery	2,669	22,520	(19,851)	11.9%
Subtotal WM Staff Costs	**332,297**	**2,529,335**	**(2,197,038)**	**13%**
60184.1 · Administrative Leave	-	6,550	(6,550)	0.0%
60185 · Vacation	35,781	90,280	(54,500)	39.6%
60185.1 · Comp Time	4,071	-	4,071	100.0%
60186 · Sick Leave	7,241	79,450	(72,209)	9.1%
60187 · Holidays	-	-	-	0.0%
Subtotal WM Paid Leaves	**47,092**	**176,280**	**(129,188)**	**27%**
Total WM Salary Costs	**379,389**	**2,705,615**	**(2,326,226)**	**14.0%**

Engineering

The following table details the Year-To-Date (YTD) Actual Engineering costs compared to the FY 24 adopted budget. The "$ Over Budget" and the "% of Budget" columns are a comparison of the YTD actual to the annual budget.

	Year to Date Actual	FY 24-25 Budget	$ Over / (Under) Budget	% of Budget
Engineering Services Costs				
5901.8 · Judgment Admin - Meetings-Engineering Services	$ -	$ 37,066	$ (37,066)	0.0%
5906.71 · Judgment Admin - Data Requests-CBWM Staff	11,489	101,048	(89,559)	11.4%
5906.72 · Judgment Admin - Data Requests-Non-CBWM Staff	5,175	37,008	(31,834)	14.0%
5925 · Judgment Admin - Ag Production & Estimation	6,297	31,096	(24,799)	20.3%
5935 · Judgment Admin - Mat'l Physical Injury Requests	-	39,459	(39,459)	0.0%
5945 · Judgment Admin - WM Annual Report Preparation	5,882	16,924	(11,043)	34.8%
5965 · Judgment Admin - Support Data Collection & Mgmt Process	-	39,659	(39,659)	0.0%
6206 · Advisory Committee Meetings-WY Staff	1,324	23,510	(22,186)	5.6%
6306 · Watermaster Board Meetings-WY Staff	2,965	23,510	(20,545)	12.6%
8306 · Appropriative Pool Meetings-WY Staff	3,369	23,510	(20,141)	14.3%
8406 · Agricultural Pool Meetings-WY Staff	1,967	23,510	(21,543)	8.4%
8506 · Non-Agricultural Pool Meetings-WY Staff	1,596	23,510	(21,914)	6.8%
6901.8 · OBMP - Meetings-WY Staff	7,191	37,066	(29,875)	19.4%
6901.95 · OBMP - Reporting-WY Staff	19,682	62,606	(42,925)	31.4%
6906 · OBMP Engineering Services - Other	15,559	51,440	(35,881)	30.2%
6906.1 · OBMP Watermaster Model Update	-	67,596	(67,596)	0.0%
6906.21 · State of the Basin Report	-	195,188	(195,188)	0.0%
7104.3 · Grdwtr Level-Engineering	29,720	254,627	(224,907)	11.7%
7104.8 · Grdwtr Level-Contracted Services	-	26,174	(26,174)	0.0%
7104.9 · Grdwtr Level-Capital Equipment	-	17,000	(17,000)	0.0%
7202 · PE2-Comp Recharge-Engineering Services	2,135	23,496	(21,362)	9.1%
7202.2 · PE2-Comp Recharge-Engineering Services	24,523	75,944	(51,421)	32.3%
7302 · PE3&5-PBHSP Monitoring Program	(28,193)	73,305	(101,498)	-38.5%
7303 · PE3&5-Engineering - Other	-	16,180	(16,180)	0.0%
7306 · PE3&5-Engineering - Outside Professionals	-	6,500	(6,500)	0.0%
7402 · PE4-Engineering	94,047	281,239	(187,192)	33.4%
7402.10 · PE4-Northwest MZ1 Area Project	45,480	16,656	28,824	273.1%
7403 · PE4-Eng. Services-Contracted Services-InSar	22,000	39,600	(17,600)	55.6%
7406 · PE4-Engineering Services-Outside Professionals	-	38,600	(38,600)	0.0%
7408 · PE4-Engineering Services-Network Equipment	-	17,555	(17,555)	0.0%
7502 · PE6&7-Engineering	50,119	398,309	(348,190)	12.6%
7505 · PE6&7-Laboratory Services	26,400	61,242	(34,842)	43.1%
7510 · PE6&7-IEUA Salinity Mgmt. Plan	3,526	-	3,526	100.0%
7511 · PE6&7-SAWBMP Task Force-50% IEUA	-	27,067	(27,067)	0.0%
7517 · Surface Water Monitoring Plan-Chino Creek - 50% IEUA	(8,164)	33,574	(41,738)	-24.3%
7520 · Preparation of Water Quality Mgmt. Plan	-	130,164	(130,164)	0.0%
7610 · PE8&9-Support 2020 Mgmt. Plan	-	32,585	(32,585)	0.0%
7614 · PE8&9-Support Imp. Safe Yield Court Order	141,281	768,963	(627,683)	18.4%
7615 · PE8&9-Develop 2025 Storage Plan	-	42,632	(42,632)	0.0%
Total Engineering Services Costs	**$ 485,368**	**$ 3,215,118**	**$ (2,729,750)**	**15.1%**

Legal

The following table details the YTD Brownstein Hyatt Farber Schreck (BHFS) expenses and costs compared to the FY 24 adopted budget. The "$ Over Budget" and the "% of Budget" columns are a comparison of the YTD actual to the annual budget.

	Year to Date Actual	FY 24-25 Budget	$ Over / (Under) Budget	% of Budget
6070 · Watermaster Legal Services				
6071 · BHFS Legal - Court Coordination	$ 15,432	$ 144,040	$ (128,608)	10.7%
6072 · BHFS Legal - Rules & Regulations	-	10,500	(10,500)	0.0%
6073 · BHFS Legal - Personnel Matters	39,304	28,150	11,154	139.6%
6074 · BHFS Legal - Interagency Issues	-	40,540	(40,540)	0.0%
6077 · BHFS Legal - Party Status Maintenance	-	13,590	(13,590)	0.0%
6078 · BHFS Legal - Miscellaneous (Note 1)	18,694	177,240	(158,546)	10.5%
Total 6070 · Watermaster Legal Services	**73,429**	**414,060**	**(340,631)**	**17.7%**
6275 · BHFS Legal - Advisory Committee	1,306	27,770	(26,464)	4.7%
6375 · BHFS Legal - Board Meeting	11,388	88,705	(77,317)	12.8%
6375.1 · BHFS Legal - Board Workshop(s)	-	14,000	(14,000)	0.0%
8375 · BHFS Legal - Appropriative Pool	1,218	34,710	(33,492)	3.5%
8475 · BHFS Legal - Agricultural Pool	1,218	34,705	(33,487)	3.5%
8575 · BHFS Legal - Non-Ag Pool	1,218	34,705	(33,487)	3.5%
Total BHFS Legal Services	**16,348**	**234,595**	**(218,247)**	**7.0%**
6907.3 · WM Legal Counsel				
6907.31 · Archibald South Plume	-	12,565	(12,565)	0.0%
6907.32 · Chino Airport Plume	-	12,565	(12,565)	0.0%
6907.33 · Desalter/Hydraulic Control	-	38,680	(38,680)	0.0%
6907.34 · Santa Ana River Water Rights	57	21,405	(21,348)	0.3%
6907.36 · Santa Ana River Habitat	-	31,280	(31,280)	0.0%
6907.38 · Reg. Water Quality Cntrl Board	-	63,200	(63,200)	0.0%
6907.39 · Recharge Master Plan	41,640	14,270	27,370	291.8%
6907.41 · Prado Basin Habitat Sustainability	-	10,290	(10,290)	0.0%
6907.44 · SGMA Compliance	114	10,290	(10,176)	1.1%
6907.45 · OBMP Update	-	177,240	(177,240)	0.0%
6907.47 · 2020 Safe Yield Reset	17,203	80,190	(62,987)	21.5%
6907.48 · Ely Basin Investigation	4,003	64,890	(60,887)	6.2%
6907.90 · WM Legal Counsel - Unanticipated	-	38,885	(38,885)	0.0%
Total 6907 · WM Legal Counsel	**63,017**	**575,750**	**(512,733)**	**10.9%**
Total Brownstein, Hyatt, Farber, Schreck Costs	**$ 152,794**	**$ 1,224,405**	**$ (1,071,612)**	**12.5%**

Optimum Basin Management Plan (OBMP)

The following table details the Year-To-Date (YTD) Actual OBMP costs compared to the FY 24 adopted budget. The "$ Over Budget" and the "% of Budget" columns are a comparison of the YTD actual to the annual budget.

	Year to Date Actual	FY 24-25 Budget	$ Over / (Under) Budget	% of Budget
6900 · Optimum Basin Mgmt Plan				
6901.1 · OBMP - Document Review-WM Staff	$ 8,221	$ 95,294	$ (87,073)	8.6%
6901.3 · OBMP - Field Work-WM Staff	356	50,870	(50,514)	0.7%
6901.5 · OBMP - General-WM Staff	9,479	81,120	(71,641)	11.7%
6901.7 · OBMP - Meeting-WM Staff	5,187	80,360	(75,173)	6.5%
6901.8 · OBMP - Meeting-West Yost	7,191	37,066	(29,875)	19.4%
6901.9 · OBMP - Reporting-WM Staff	1,523	11,040	(9,517)	13.8%
6901.95 · OBMP - Reporting-West Yost	19,682	62,606	(42,925)	31.4%
Total 6901 · OBMP WM and West Yost Staff	**51,638**	**418,356**	**(366,718)**	**12.3%**
6903 · OBMP - SAWPA				
6903 · OBMP - SAWPA Group	15,984	15,990	(6)	100.0%
Total 6903 · OBMP - SAWPA	**15,984**	**15,990**	**(6)**	**100.0%**
6906 · OBMP Engineering Services				
6906.1 · OBMP - Watermaster Model Update	-	67,596	(67,596)	0.0%
6906.21 · State of the Basin Report	-	195,188	(195,188)	0.0%
6906 · OBMP Engineering Services - Other	15,559	51,440	(35,881)	30.2%
Total 6906 · OBMP Engineering Services	**15,559**	**314,224**	**(298,665)**	**5.0%**
6907 · OBMP Legal Fees				
6907.31 · Archibald South Plume	-	12,565	(12,565)	0.0%
6907.32 · Chino Airport Plume	-	12,565	(12,565)	0.0%
6907.33 · Desalter/Hydraulic Control	-	38,680	(38,680)	0.0%
6907.34 · Santa Ana River Water Rights	57	21,405	(21,348)	0.3%
6907.36 · Santa Ana River Habitat	-	31,280	(31,280)	0.0%
6907.38 · Reg. Water Quality Cntrl Board	-	63,200	(63,200)	0.0%
6907.39 · Recharge Master Plan	41,640	14,270	27,370	291.8%
6907.41 · Prado Basin Habitat Sustainability	-	10,290	(10,290)	0.0%
6907.44 · SGMA Compliance	114	10,290	(10,176)	1.1%
6907.45 · OBMP Update	-	177,240	(177,240)	0.0%
6907.47 · 2020 Safe Yield Reset	17,203	80,190	(62,987)	21.5%
6907.48 · Ely Basin Investigation	4,003	64,890	(60,887)	6.2%
6907.49 · San Sevaine Basin Discharge	-	110,080	(110,080)	0.0%
6907.90 · WM Legal Counsel - Unanticipated	-	38,885	(38,885)	0.0%
Total 6907 · OBMP Legal Fees	**63,017**	**685,830**	**(622,813)**	**9.2%**
6909 · OBMP Other Expenses				
6909.6 · OBMP Expenses - Miscellaneous	-	3,540	(3,540)	0.0%
Total 6909 · OBMP Other Expenses	**-**	**3,540**	**(3,540)**	**0.0%**
Total 6900 · Optimum Basin Mgmt Plan	**$ 146,198**	**$ 1,437,940**	**$ (1,291,742)**	**10.2%**

Judgment Administration

The following table details the Year-To-Date (YTD) Actual Judgment Administration costs compared to the FY 24 adopted budget. The "$ Over Budget" and the "% of Budget" columns are a comparison of the YTD actual to the annual budget.

	Year to Date Actual	FY 24-25 Budget	$ Over / (Under) Budget	% of Budget
5901 · Admin-WM Staff				
5901.1 · Admin-Doc. Review-WM Staff	$ 6,870	$ 93,860	$ (86,990)	7.3%
5901.3 · Admin-Field Work-WM Staff	1,716	11,860	(10,144)	14.5%
5901.5 · Admin-General-WM Staff	2,705	81,090	(78,385)	3.3%
5901.7 · Admin-Meeting-WM Staff	6,150	39,710	(33,561)	15.5%
5901.8 · Admin-Meeting - West Yost	-	37,066	(37,066)	0.0%
5901.9 · Admin-Reporting-WM Staff	946	13,890	(12,944)	6.8%
Total 5901 · Admin-WM Staff	**18,386**	**277,476**	**(259,090)**	**6.6%**
5900 · Judgment Admin Other Expenses				
5906.71 · Admin-Data Req-CBWM Staff	11,489	101,048	(89,559)	11.4%
5906.72 · Admin-Data Req-Non CBWM Staff	5,175	37,008	(31,834)	14.0%
5910 · Court Coordination/Attend-WM	899	16,970	(16,071)	5.3%
5911 · Exhibit G-WM Staff	-	6,400	(6,400)	0.0%
5921 · Production Monitoring-WM Staff	-	5,440	(5,440)	0.0%
5925 · Ag Prod & Estimation-West Yost	6,297	31,096	(24,799)	20.3%
5931 · Recharge Applications-WM Staff	683	-	683	100.0%
5935 · Admin-Mat'l Phy Inj Requests	-	39,459	(39,459)	0.0%
5941 · Reporting-WM Staff	-	2,140	(2,140)	0.0%
5945 · WM Annual Report Prep-West Yost	5,882	16,924	(11,043)	34.8%
5951 · Rules & Regs-WM Staff	-	11,260	(11,260)	0.0%
5961 · Safe Yield-WM Staff	8,945	9,510	(565)	94.1%
5965 · Support Data Collect-West Yost	-	39,659	(39,659)	0.0%
5971 · Storage Agreements-WM Staff	125	13,000	(12,875)	1.0%
5981 · Water Acct/Database-WM Staff	18,396	108,290	(89,894)	17.0%
5991 · Water Transactions-WM Staff	3,357	5,330	(1,973)	63.0%
Total 5900 · Judgment Admin Other Expenses	**61,246**	**443,534**	**(382,288)**	**13.8%**
Total 5900 · Judgment Administration	**$ 79,632**	**$ 721,010**	**$ (641,378)**	**11.0%**

CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

STAFF REPORT

DATE: October 24, 2024

TO: Board Members

SUBJECT: Annual Streamflow Monitoring Report for Water Rights Permit 21225 (Business Item II.A.)

Issue: The Annual Streamflow Monitoring Report for Fiscal Year 2023/24 was submitted to the Department of Fish and Wildlife on September 20, 2024. [Information Only]

Recommendation: None.

Financial Impact: None.

Future Consideration
Watermaster Board – October 24, 2024: Information only

BACKGROUND

Watermaster and the California Department of Fish and Wildlife agreed in 2007 that Watermaster would prepare estimates of monthly changes in discharge in each tributary of the Santa Ana River from which stormwater is diverted. Watermaster prepares an annual report describing the data and methods used to prepare those estimates and submits the annual report to the Department of Fish and Wildlife by October 1st of each year. Each Annual Report covers the 12-month period of July 1st through June 30th.

DISCUSSION

The report describes the data and methodology used to assess stormwater diversion impacts and summarizes the diversion impact analysis for each tributary system for the FY 2023/24 reporting period. As in past years, the stormwater and dry-weather discharges diverted for recharge within the Chino Basin during the reporting period were small relative to total discharge: about 15 percent of the total estimated discharge was diverted for recharge. About 87 percent of the diversions occurred between November 1st and March 30th, during storm events.

Watermaster's diversions for recharge reduce stormwater and dry-weather discharge, improve water quality in the Santa Ana River and its Chino Basin tributaries, and reduce channel erosion in these drainages, thereby offsetting some of the increase in stormwater and dry-weather discharge resulting from the urbanization of the watershed.

West Yost will discuss additional details found in the report and answer questions.

A report was given to the Pool Committees on October 10, 2024, and to the Advisory Committee on October 17, 2024 as an informational item.

ATTACHMENTS

1. Annual Streamflow Monitoring Report for Water Rights Permit 21225, Fiscal Year 2023/24

ATTACHMENT 1

WEST YOST
Water. Engineered.

23692 Birtcher Drive
Lake Forest CA 92630

949.420.3030 phone
530.756.5991 fax
westyost.com

September 19, 2024

Project No.: 941-80-24-06
SENT VIA: EMAIL

Mr. Todd Corbin
Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

SUBJECT: Annual Streamflow Monitoring Report for Water Rights Permit 21225, Fiscal Year 2023/24

Dear Mr. Corbin:

West Yost hereby submits the Annual Streamflow Monitoring Report for Fiscal Year (FY) 2023/24. This is the 16th Annual Report prepared pursuant to Term 20 of the Chino Basin Watermaster's (Watermaster) Water Rights Permit 21225. Per the terms of the March 20, 2007 Stipulation, Watermaster and the California Department of Fish and Wildlife (DFW) agreed that Watermaster would prepare estimates of monthly changes in discharge in each tributary of the Santa Ana River from which stormwater is diverted, prepare annual reports describing the data and methods used to prepare those estimates, and submit the annual reports to the DFW by October 1st of each year.[1] Each annual report covers the 12-month period of July 1st through June 30th.

This letter report describes the data and methodology used to assess stormwater diversion impacts and summarizes the diversion impact analysis for each tributary system for the FY 2023/24 reporting period.

As in past years, the stormwater and dry-weather discharges diverted for recharge within the Chino Basin during the reporting period were small relative to total discharge: about 12 percent of the total estimated discharge was diverted for recharge. About 75 percent of the diversions occurred between November 1st and March 30th, during storm events.

Watermaster's diversions for recharge reduce stormwater and dry-weather discharge, improve water quality in the Santa Ana River and its Chino Basin tributaries, and reduce channel erosion in these drainages, thereby offsetting some of the increase in stormwater and dry-weather discharge resulting from the urbanization of the watershed.

[1] In September 2010, Watermaster requested and the DFW approved an extension of the report due date from September 1st to October 1st of each year.

DATA COLLECTION AND METHODOLOGY

There are four main tributary systems to the Santa Ana River from which Watermaster and the Inland Empire Utilities Agency (IEUA)[2] divert stormwater and dry-weather discharges for groundwater recharge: San Antonio/Chino Creek (hereafter referred to as Chino Creek), Cucamonga Creek, Day Creek, and Etiwanda/San Sevaine Creek (hereafter referred to as San Sevaine Creek). Figure 1 shows these creeks, their drainage areas, and other significant hydrologic features. Chino Creek and Cucamonga Creek discharge directly to the Prado Dam Reservoir, while Day Creek and San Sevaine Creek discharge to the Santa Ana River upstream of the Prado Dam Reservoir. The impact of Watermaster's stormwater and dry-weather diversions is estimated relative to the reduction in discharge on each tributary system and the reduction in discharge from each tributary system to the Prado Dam Reservoir. For Chino Creek and Cucamonga Creek, these are one and the same.

Two of the four tributary systems, Chino and Cucamonga Creeks, are equipped with U.S. Geological Survey (USGS) stream gages, and average daily discharge data are available for these stations. Daily USGS data, daily stormwater and dry-weather discharge diversion data from the IEUA, and daily discharge data collected from other known point discharges (e.g., recycled and imported water discharges) are used to estimate the discharge of Chino and Cucamonga Creeks as they enter the Prado Dam Reservoir. These data are also used to reconstruct hydrographs for the tributaries as they would have been without stormwater and dry-weather discharge diversions.

Day Creek and San Sevaine Creek are not equipped with USGS gaging stations. The hydrographs for these two systems were estimated using West Yost's Waste Load Allocation Model (WLAM). The WLAM uses recharge basin and stream channel characteristics, daily precipitation, boundary inflows, and land use characteristics to estimate stormwater runoff, and subsequently routes stormwater as well as non-tributary inflows through the Santa Ana River Watershed. The WLAM was developed for and has been used by the Santa Ana Regional Water Quality Control Board (Regional Board) to evaluate the discharge and water quality impacts of existing and planned recycled water and stormwater discharges to the surface and groundwater resources of the watershed.[3] Watermaster and the City of Riverside used the WLAM to complete the only watershed-wide (system-wide) review of all appropriative water rights applications on the Santa Ana River in the 2006 State Water Resources Control Board hearing process. Watermaster most recently updated the WLAM in 2020 as part of the *2020 Safe Yield Recalculation.*[4] The updated version of the WLAM was used for this analysis, and the land use reflects 2017 conditions.

Daily discharge tables for key hydrologic components and for the aggregate of all hydrologic components are included in the enclosed appendices.

DIVERSION IMPACT ANALYSIS

During FY 2023/24, Watermaster diverted a total of 16,056 acre-feet (af) of stormwater and dry-weather discharge to recharge basins on the Chino, Cucamonga, Day, and San Sevaine tributary systems. Table 1 summarizes, by tributary, the monthly diversions for recharge at each spreading basin, as provided by the IEUA. Impact analyses of these diversions are provided below.

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[2] The IEUA operates the diversion and recharge facilities on behalf of Watermaster, pursuant to Watermaster's permit.

[3] Wildermuth Environmental, Inc. (2009). *2008 Santa Ana River Wasteload Allocation Model Report.* Prepared for the Basin Monitoring Program Task Force. May 2009.

[4] Wildermuth Environmental, Inc. (2020). *2020 Safe Yield Recalculation*. Prepared for the Chino Basin Watermaster. April 2020.

Chino Creek

The objective of this analysis is to illustrate the impact of Watermaster's diversions on flows in Chino Creek. Figure 1 shows the locations of significant points of activity on the Chino Creek tributary system, including Watermaster's points of diversion to recharge basins, USGS gaging stations, the Orange County Water District's (OCWD) OC-59 imported water turnout,[5] and the IEUA's recycled water discharge points. The impact of Watermaster's diversions of the flow in Chino Creek on discharge to the Prado Dam Reservoir is assessed at the point where recycled water from the IEUA RP-1 (Prado) recycling plant discharges to Chino Creek (see *WLAM-Estimated Points of Discharge* feature in Figure 1).[6] Because discharge to the Chino Creek tributary system from OCWD OC-59 occurs irregularly, it is not considered a part of the natural system and is not included in the reconstructed hydrograph of Chino Creek. This methodology is consistent with the Santa Ana River Watermaster's methodology of computing the annual volume-weighted TDS concentration of the Santa Ana River at the Prado Dam Reservoir.[7] The total discharge of imported water to Chino Creek through OC-59 during FY 2023/24 was about 25,773 af.

The estimated average daily discharge entering the Prado Dam Reservoir from Chino Creek is calculated from the average daily discharge measured at USGS gage 11073360 (Appendix A1) less any imported water discharges from OC-59 that were not diverted into recharge basins (Appendix A2 minus Appendix A3) plus the average daily discharge from each of the IEUA's recycled water discharge points (Carbon Canyon, RP1-Prado, and RP5) (Appendix A4). These discharges are summarized as monthly totals in rows one through four of Table 2a and are shown in detail as daily totals in Appendices A1 through A4. The resulting daily discharge time history, summarized in row five of Table 2a and shown in detail in Appendix A5, approximates actual daily discharge in Chino Creek after Watermaster's diversions and without OC-59 discharges. Note that this estimation does not account for additional stormwater flows generated by the drainage area for the Chino Creek downstream of USGS gage 11073360. The drainage area for these unaccounted-for flows is approximately 24 square miles and represents about 26 percent of the total Chino Creek drainage area. Thus, the relative impact of Watermaster's diversions is overstated.

The time history of stormwater and dry-weather discharge diversions is summarized in row six of Table 2a and shown in detail in Appendix A6. When added together, the daily discharge time histories from Appendices A5 and A6 yield what would have been the approximate daily discharge time history in Chino Creek had Watermaster not diverted stormwater and dry-weather flows for recharge. This reconstructed discharge time history is summarized in row seven of Table 2a and shown in detail in Appendix A7. The percent reduction in discharge entering the Prado Dam Reservoir due to Watermaster diversions relative to the estimated discharge without diversions is summarized in row eight of Table 2a.

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[5] The Metropolitan Water District of Southern California can supply the OCWD with State Water Project water through the OC-59 connection, which discharges water to San Antonio Creek, and subsequently to Chino Creek, through the Prado Basin, and into Orange County via the Santa Ana River. The IEUA, through an agreement with the OCWD, can divert water discharged at the OC-59 connection to the recharge facilities along the Chino Creek tributary system.

[6] Note that the IEUA RP-1 recycling plant has two discharge locations: one to Chino Creek (RP-1 Prado) and one to Cucamonga Creek (RP-1 Cucamonga).

[7] See for example, FIFTY-THIRD ANNUAL REPORT OF THE SANTA ANA RIVER WATERMASTER FOR WATER YEAR OCTOBER 1 2022 - SEPTEMBER 30, 2023. Prepared in April 2024 by the Santa Ana River Watermaster for the ORANGE COUNTY WATER DISTRICT v. CITY OF CHINO, et al. CASE NO. 117628 - COUNTY OF ORANGE.

The total discharge that entered the Prado Dam Reservoir from Chino Creek during FY 2023/24 was estimated to be about 23,825 af. Monthly discharges ranged from a low of about 405 af (July) to a high of about 8,897 af (February). Total diversions of stormwater and dry-weather flows from Chino Creek were about 3,009 af. The estimated total discharge that would have entered the Prado Dam Reservoir without stormwater and dry-weather diversions is about 26,833 af; thus, about 11 percent of the total estimated discharge in Chino Creek was diverted for recharge in FY 2023/24. About 76 percent of the diversions on Chino Creek occurred between November and March and were coincident with the larger storm events of the year.

Figure 2a shows the estimated monthly discharge to the Prado Dam Reservoir, with and without diversions, as a stacked bar chart (af) and average daily discharge, with and without diversions, as an xy plot (cubic feet per second [cfs]). This figure illustrates that the relative magnitude of the stormwater and dry-weather diversions for recharge, shown as the light blue bar (monthly diversions), is small compared to the total estimated discharge entering the Prado Dam Reservoir. Figure 2a also shows that most recharge results from a few short-duration stormwater events (i.e., when the yellow line [average daily discharge with diversions] is significantly below the red line [average daily discharge without diversions] during the large upward peaks in the graph where stream flow is magnified by stormwater runoff).

Cucamonga Creek

Figure 1 shows the locations of significant points of activity on the Cucamonga Creek tributary system, including Watermaster's points of diversion to recharge basins, USGS gaging stations, and the IEUA's recycled water discharge points. The impact of Watermaster's diversions on discharge to the Santa Ana River at the Prado Dam Reservoir is assessed at the point where the concrete-lined channel of Cucamonga Creek ends (see *WLAM-Estimated Points of Discharge* feature in Figure 1). The estimated average daily discharge entering the Prado Dam Reservoir from Cucamonga Creek is approximated as the average daily discharge measured at USGS gage 11073495. The estimated discharge time history is summarized as a monthly total in row one of Table 2b and is shown in detail as daily values in Appendix B1. Note that this estimation does not account for additional stormwater flows generated by the drainage area for the Cucamonga Creek downstream of USGS gage 11073495. The drainage area for these unaccounted-for flows is approximately 13 square miles and represents about 15 percent of the total Cucamonga Creek drainage area. Thus, the relative impact of Watermaster's diversions is overstated.

The time history of stormwater and dry-weather discharge diversions is summarized in row two of Table 2b and shown in detail in Appendix B2. When added together, the daily discharge time histories from Appendices B1 and B2 yield what would have been the approximate daily discharge time history in Cucamonga Creek had Watermaster not diverted stormwater and dry-weather flows for recharge. This reconstructed discharge time history is summarized in row three of Table 2b and shown in detail in Appendix B3. The percent reduction in discharge entering the Prado Dam Reservoir relative to the estimated discharge without Watermaster diversions is summarized in row four of Table 2b.

The total discharge that entered the Prado Dam Reservoir from Cucamonga Creek during FY 2023/24 was estimated to be about 47,798 af. Monthly discharges ranged from a low of about 440 af (July) to a high of about 20,899 af (February). Total diversions from Cucamonga Creek were about 5,165 af. The estimated total discharge that would have entered Prado Dam Reservoir without stormwater and dry-weather diversions is about 52,964 af; thus, about 10 percent of the total discharge in Cucamonga Creek was diverted for recharge in FY 2023/24. 67 percent of the diversions on Cucamonga Creek occurred between November and March and were coincident with the larger storm events of the year.

Figure 2b shows total monthly discharge to the Prado Dam Reservoir, with and without diversions, as a stacked bar chart (af) and average daily discharge, with and without diversions, as an xy plot (cfs). This figure illustrates that the relative magnitude of the stormwater diversions for recharge is small compared to the total estimated discharge entering the Prado Dam Reservoir. Figure 2b also shows that most recharge results from a few short-duration stormwater events.

Day Creek

Figure 1 shows the locations of significant points of activity on the Day Creek tributary system, including Watermaster's points of diversion to recharge basins and the confluence of Day Creek and the Santa Ana River (see the *WLAM-Estimated Points of Discharge* feature in Figure 1). Day Creek's average daily discharge to the Santa Ana River was estimated using the WLAM. The estimated daily discharge represents discharge to the Santa Ana River without stormwater diversions for recharge. The discharge time history estimated by the WLAM is summarized as monthly totals in row one of Table 2c and is shown in detail as daily values in Appendix C1. Because the WLAM does not simulate dry-weather flows, the estimated daily discharge underestimates actual flows on Day Creek and, thus, overestimates the impact of diversions on discharge to the Santa Ana River. To correct for this underestimation, dry-weather diversions are added together with the WLAM-estimated discharge to create a reconstructed hydrograph of Day Creek.

The time history of stormwater and dry-weather discharge diversions is summarized in row two of Table 2c and shown in detail in Appendix C2. The "diversion" values reported by the IEUA represent the recharge of stormwater and dry weather flow in basins. There are instances when the reported diversions are in excess of total WLAM estimated stormwater flow; in such cases, the excess diversions are assumed to be dry-weather flows. In other instances, when the volume of stormwater diverted for recharge is large, the recharge may continue to occur after storm flows in the creek have stopped (i.e., when the WLAM estimated flow is zero). Periods of recharge that are attributed to stormwater are highlighted grey in Appendices C1, C2, and C3. During storm periods, dry-weather flows are not estimated and are assumed to be zero. All diversions that occur during non-storm periods are considered dry-weather flows. The time history of dry-weather flow diversions is summarized in row three of Table 2c and shown in detail in Appendix C3. None of the diversions that occurred in FY 2023/24 were estimated to be dry-weather flows. Note that dry-weather flows that occur downstream of the recharge basins are not estimated. Thus, the relative impact of Watermaster's diversions is overstated.

When added together, the stormwater discharge estimated by the WLAM (row one of Table 2c), and the estimated dry-weather diversions (row three of Table 2c) yield the total estimated discharge from Day Creek to the Santa Ana River. This total estimated discharge without diversions is summarized in row four of Table 2c. Subtracting the diversions (row two of Table 2c) from the total estimated discharges (row four of Table 2c) yields an estimated monthly discharge from Day Creek to the Santa Ana River after Watermaster diversions. This calculation is done monthly. Within each storm period (highlighted in grey in Appendices C1, C2, and C3), total diversions are subtracted from the total stormwater flows generated during the storm, including diversions that were recharged on dates after the actual stormwater flows were generated. The estimated monthly discharge is summarized in row five of Table 2c.

The percent reduction in discharge entering the Santa Ana River from Day Creek relative to the estimated discharge without Watermaster diversions is summarized in row six of Table 2c. Table 2c also summarizes the discharge measured at USGS gage 11066460 (row seven), the closest gage on the Santa Ana River upstream of its confluence with Day Creek (see Figure 1). The percent reduction in discharge to the Prado Dam Reservoir from Day Creek, relative to discharge in the Santa Ana River at USGS gage 11066460, is summarized in row eight of Table 2c.

Total discharge to the Santa Ana River from Day Creek during FY 2023/24 was estimated to be about 14,305 af. Monthly discharges range from a low of zero af (primarily summer months) to a high of about 9,629 af (February). Total diversions from Day Creek were about 694 af, of which none were dry-weather flows. The estimated discharge that would have entered the Santa Ana River without stormwater and dry-weather diversions is 15,000 af; thus, about 5 percent of the total discharge in Day Creek was diverted for recharge in FY 2023/24. The percent reduction in discharge entering the Prado Dam Reservoir was about 0.7 percent. 77 percent of the diversions on Day Creek occurred between November and March and were coincident with the larger storm events of the year.

Figure 2c shows total monthly discharge, with and without diversions, as a stacked bar chart (af) and average daily discharge, with and without diversions, as an xy plot (cfs). Stormwater runoff accounted for 99 percent of Watermaster's diversions, which occurred during short-duration events.

San Sevaine Creek

Figure 1 shows the locations of significant points of activity on the San Sevaine Creek tributary system, including Watermaster's points of diversion to recharge basins and the confluence of San Sevaine Creek and the Santa Ana River (see *WLAM-Estimated Points of Discharge* feature on Figure 1). San Sevaine Creek's average daily discharge to the Santa Ana River was also estimated using the WLAM. The estimated daily discharge represents discharge to the Santa Ana River without stormwater diversions for recharge. The discharge time history estimated by the WLAM is summarized as monthly totals in row 1 of Table 2d and is shown in detail as daily values in Appendix D1. Because the WLAM does not simulate dry-weather flows, the estimated daily discharge underestimates actual flows on San Sevaine Creek and, thus, overestimates the impact of diversions on discharge to the Santa Ana River. To correct for this underestimation, dry-weather diversions are added together with the WLAM estimated discharge to create a reconstructed hydrograph of San Sevaine Creek.

The time history of stormwater and dry-weather discharge diversions is summarized in row two of Table 2d and shown in detail in Appendix D2. The "diversion" values reported by the IEUA represent the recharge of stormwater and dry weather flow in basins. There are instances when the reported diversions are in excess of total WLAM estimated stormwater flow; in such cases, the excess diversions are assumed to be dry-weather flows. In other instances, when the volume of stormwater diverted for recharge is large, the recharge may continue to occur after storm flows in the creek have stopped (i.e., when the WLAM estimated flow is zero). Periods of recharge that are attributed to stormwater are highlighted grey in Appendices D1, D2, and D3. During storm periods, dry-weather flows are not estimated and are assumed to be 0. All diversions that occur during non-storm periods are considered dry-weather flows. The time history of dry-weather flow diversions is summarized in row 3 of Table 2d and shown in detail in Appendix D3. Note that dry-weather flows that occur downstream of the recharge basins are not estimated. Thus, the relative impact of Watermaster's diversions is overstated.

When added together, the stormwater discharge estimated by the WLAM (row one of Table 2d) and the estimated dry-weather diversions (row three of Table 2d) yield the total estimated discharge from San Sevaine Creek to the Santa Ana River. This total discharge is summarized in row four of Table 2d. Subtracting the diversions (row two of Table 2d) from the total estimated discharges (row four of Table 2d) yields an estimated monthly discharge from San Sevaine Creek to the Santa Ana River after Watermaster diversions. This calculation is done monthly. Within each storm period (highlighted in grey in Appendices D1, D2, and D3), total diversions are subtracted from the total stormwater flows generated during the storm, including diversions that were recharged on dates after actual stormwater flows were generated. In some cases, a diversion taken at the beginning of one month was subtracted from stormwater flows generated in a previous month. The estimated monthly discharge is summarized in row five of Table 2d.

The percent reduction in discharge entering the Santa Ana River from San Sevaine Creek relative to the estimated discharge without Watermaster diversions is summarized in row six of Table 2d. Table 2d also summarizes the discharge measured at USGS gage 11066460 (row seven), the closest gage on the Santa Ana River upstream of its confluence with San Sevaine Creek (see Figure 1). The percent reduction in discharge to the Prado Dam Reservoir from San Sevaine Creek, relative to discharge in the Santa Ana River at USGS gage 11066460, is summarized in row eight of Table 2d.

Total discharge to the Santa Ana River from San Sevaine Creek during FY 2023/24 was estimated to be about 24,144 af. Monthly discharges ranged from a low of zero af (June and July) to a high of about 18,079 af (February). Total diversions from San Sevaine Creek were about 7,188 af, of which about 609 af were dry-weather flows. The estimated discharge that would have entered the Santa Ana River without stormwater and dry-weather diversions is 31,330; thus, about 23 percent of the total discharge in San Sevaine Creek was diverted for recharge in FY 2023/24. The percent reduction in discharge entering the Prado Dam Reservoir was about 7 percent. On San Sevaine Creek, 78 percent of the diversions occurred between November and March and were coincident with the larger storm events of the year.

Figure 2d shows total monthly discharge, with and without diversions, as a stacked bar chart (af) and average daily discharge, with and without diversions, as an xy plot (cfs). Stormwater runoff accounted for about 92 percent of Watermaster's diversions, which occurred during short-duration events, while the remainder of the diversions were dry-weather flows.

Should you have any questions regarding the information contained herein, please contact Amanda Gateley (949)461-1138 or agateley@westyost.com) or Carolina Sanchez (949)600-7504 or csanchez@westyost.com).

Sincerely,
WEST YOST

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Table 1. Total Monthly Stormwater and Dry-Weather Recharge Fiscal Year 2023/24, (af)													
Tributary System	**Jul-23**	**Aug-23**	**Sep-23**	**Oct-23**	**Nov-23**	**Dec-23**	**Jan-24**	**Feb-24**	**Mar-24**	**Apr-24**	**May-24**	**Jun-24**	**Total**
Chino Creek													
College Heights	0	3	0	0	0	0	1	34	29	38	0	0	105
Upland	0	93	1	0	0	29	40	364	80	16	11	0	634
Montclair	0	280	113	7	35	68	132	733	203	43	22	0	1,636
Brooks Street	1	58	5	2	2	33	79	272	141	27	15	0	633
Tributary Total	**1**	**434**	**119**	**9**	**37**	**131**	**252**	**1,402**	**452**	**124**	**48**	**0**	**3,009**
Cucamonga Creek													
7th and 8th Street	136	283	66	37	72	114	159	226	174	74	40	2	1,383
Ely	1	437	62	2	64	112	259	527	457	78	19	3	2,021
Turner 1 and 2	8	51	34	24	41	93	83	160	228	68	3	4	797
Turner 3, 4 and 5	12	34	47	39	77	57	57	199	44	23	8	9	607
Grove	1	67	11	1	10	25	56	103	62	17	4	2	358
Tributary Total	**158**	**873**	**220**	**102**	**265**	**401**	**613**	**1,215**	**964**	**260**	**74**	**20**	**5,165**
Day Creek													
Lower Day	2	50	16	10	14	21	38	364	97	69	13	1	694
Tributary Total	**2**	**50**	**16**	**10**	**14**	**21**	**38**	**364**	**97**	**69**	**13**	**1**	**694**
San Sevaine Creek													
San Sevaine	0	233	28	21	41	152	141	787	509	98	61	9	2,080
Jurupa	13	7	1	0	6	204	120	223	330	54	2	0	958
Hickory	0	45	69	22	30	34	48	128	129	8	18	0	531
Banana	0	60	4	0	21	40	42	73	72	28	0	0	340
RP-3	0	56	0	0	0	16	130	383	226	46	47	12	917
Declez	3	126	13	13	59	136	149	178	191	54	5	2	929
Etiwanda Debris Basin	0	47	0	0	0	0	0	199	191	150	44	1	632
Victoria	1	119	11	12	18	47	92	213	224	46	17	1	801
Tributary Total	**16**	**694**	**126**	**68**	**175**	**629**	**722**	**2,183**	**1,872**	**485**	**193**	**25**	**7,188**
Tributary System Total	**177**	**2,051**	**481**	**190**	**491**	**1,182**	**1,625**	**5,164**	**3,385**	**938**	**328**	**46**	**16,056**
Note: Recharge volumes represent diversions of both stormwater and dry-weather discharge; recharge volumes are rounded to the nearest whole number.													

Table 2a. Impact of Stormwater Diversions on Total Monthly Discharge Entering the Prado Dam Reservoir from Chino Creek for FY 2023/24, (af)														
Row	Discharge Components	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Total
(1)	Discharge in Chino Creek at USGS Gage 11073360[(a)]	65	1,515	87	57	214	408	747	7,172	1,386	275	152	47	**12,125**
(2)	Discharge to San Antonio Creek from OCWD OC-59	3,585	3,661	4,649	3,415	3,072	2,471	0	0	0	186	2,317	2,417	**25,773**
(3)	Diversions of OC-59 Imported Water to Recharge Basins	3,585	3,661	4,649	3,415	3,072	2,471	0	0	0	186	2,317	2,417	**25,773**
(4)	Recycled Water Discharge from IEUA's CCWRF, RP-5, and RP-1 (Prado)	340	492	521	534	798	1,220	1,506	1,725	1,554	1,300	1,044	666	**11,700**
(5) =(1)-[(2)-(3)]+(4)	Estimated Discharge Entering the Prado Dam Reservoir	405	2,007	608	591	1,012	1,628	2,253	8,897	2,940	1,575	1,196	713	**23,825**
(6)	Stormwater and Dry-Weather Discharge Diversions	1	434	119	9	37	131	252	1,402	452	124	48	0	**3,009**
(7) =(5)+(6)	Estimated Discharge That Would Have Entered the Prado Dam Reservoir *without* Stormwater and Dry-Weather Diversions	406	2,441	727	600	1,049	1,760	2,505	10,299	3,391	1,699	1,244	713	**26,833**
(8) =(6)/(7)	Percent Reduction in Discharge Entering the Prado Dam Reservoir Relative to the Estimated Discharge *without* Diversions	0%	18%	16%	2%	4%	7%	10%	14%	13%	7%	4%	0%	**11%**

[(a)]For July 1, 2023 to December 2, 2023, data have been approved by the USGS; data after December 2, 2023 are provisional.

Table 2b. Impact of Stormwater Diversions on Total Monthly Discharge Entering the Prado Dam Reservoir from Cucamonga Creek for FY 2023/24, (af)														
Row	**Discharge Components**	**Jul-23**	**Aug-23**	**Sep-23**	**Oct-23**	**Nov-23**	**Dec-23**	**Jan-24**	**Feb-24**	**Mar-24**	**Apr-24**	**May-24**	**Jun-24**	**Total**
(1)	Discharge Entering the Prado Dam Reservoir after Stormwater and Dry-Weather Diversions (USGS Gage 11073495)[a]	440	3,458	530	798	1,469	2,990	2,705	20,899	9,605	2,047	1,501	1,356	**47,798**
(2)	Stormwater and Dry-Weather Discharge Diversions	158	873	220	102	265	401	613	1,215	964	260	74	20	**5,165**
(3) =(1)+(2)	Estimated Discharge That Would Have Entered the Prado Dam Reservoir *without* Stormwater and Dry-Weather Diversions	597	4,331	750	900	1,734	3,392	3,318	22,114	10,569	2,307	1,576	1,376	**52,964**
(4) =(2)/(3)	Percent Reduction in Discharge Entering the Prado Dam Reservoir Relative to the Estimated Discharge *without* Diversions	26.5%	20.2%	29.3%	11.3%	15.3%	11.8%	18.5%	5.5%	9.1%	11.3%	4.7%	1.5%	**10%**

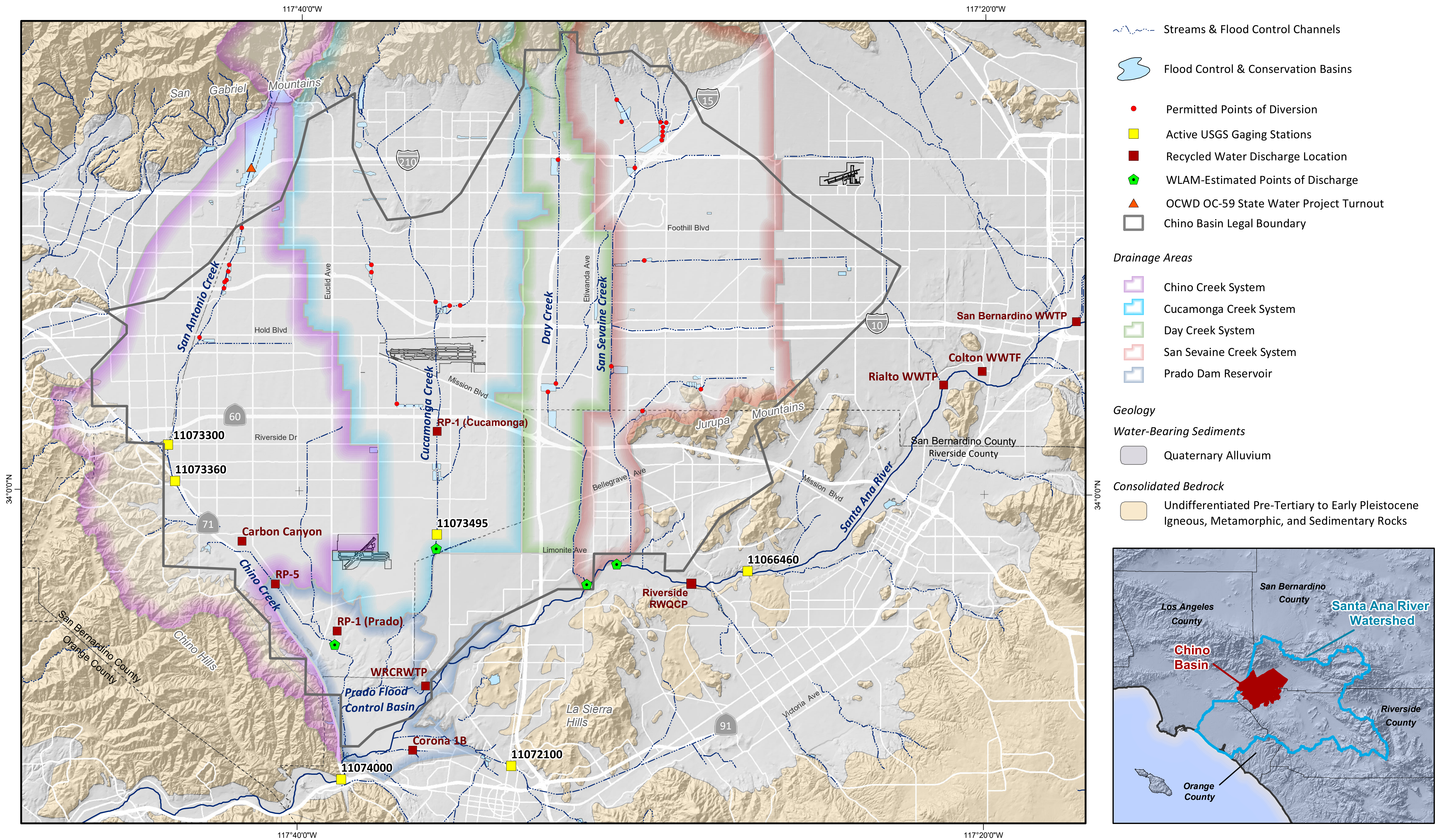
[a] For July 1, 2023 to December 1, 2023, data have been approved by the USGS; data after December 1, 2023 are provisional.

Table 2c. Impact of Stormwater Diversions on Total Monthly Discharge Entering the Santa Ana River from Day Creek for FY 2023/24, (af)														
Row	**Discharge Components**	**Jul-23**	**Aug-23**	**Sep-23**	**Oct-23**	**Nov-23**	**Dec-23**	**Jan-24**	**Feb-24**	**Mar-24**	**Apr-24**	**May-24**	**Jun-24**	**Total**
(1)	Discharge Entering the Santa Ana River *without* Stormwater and Dry-Weather Diversions *or* Dry-Weather Flows[(a)]	0	1,975	25	10	75	254	880	9,993	1,425	334	25	0	**14,996**
(2)	Stormwater and Dry-Weather Discharge Diversions[(b)]	2	50	16	10	14	21	38	364	97	69	13	1	**694**
(3)	Diversions Attributable to Dry-Weather Flows[(c)]	2	1	0	0	0	0	0	0	0	0	0	1	**4**
(4) =(1)+(3)	Total Discharge Entering the Santa Ana River *without* Stormwater and Dry-Weather Diversions[(d)]	2	1,976	25	10	75	254	880	9,993	1,425	334	25	1	**15,000**
(5) =(4)-(2)	Estimated Discharge Entering the Santa Ana River after Stormwater and Dry-Weather Diversions	0	1,926	9	0	61	233	842	9,629	1,328	265	12	0	**14,307**
(6) =(2)/(4)	Percent Reduction in Discharge Entering the Santa Ana River Relative to Discharge *without* Diversions	76%	3%	63%	104%	18%	8%	4%	4%	7%	21%	50%	84%	**5%**
(7)	Discharge in the Santa Ana River at USGS Gage 11066460	2,729	10,178	3,694	3,199	3,505	3,890	8,162	33,287	9,829	10,727	4,546	2,381	**96,127**
(8) =(2)/(7)	Percent Reduction in Discharge Entering the Santa Ana River Relative to Discharge at 11066460[(e)]	0.1%	0.5%	0.4%	0.3%	0.4%	0.5%	0.5%	1.1%	1.0%	0.6%	0.3%	0.0%	**0.7%**

(a) Estimated using the WLAM.
(b) Calculated on a monthly basis.
(c) Calculated on a monthly basis. Note that the WLAM does not simulate dry-weather flows on the Day Creek tributary system. Thus, there are dates on which the measured diversions from Day Creek are greater than the WLAM's estimated discharge to the Santa Ana River without diversions. For these dates, the difference between the measured diversions and estimated discharge can be attributed to dry-weather discharge. Dry-weather diversions that occur while stormwater is being recharged (highlighted in grey in Appendices C1-C3) or downstream of the recharge basins are not included in these calculations.
(d) Calculated on a monthly basis.
(e) For July 1, 2023 to June 20, 2024, data have been approved by the USGS; data after June 20, 2024 are provisional.

Table 2d. Impact of Stormwater Diversions on Total Monthly Discharge Entering the Santa Ana River from San Sevaine Creek for FY 2023/24, (af)														
Row	**Discharge Components**	**Jul-23**	**Aug-23**	**Sep-23**	**Oct-23**	**Nov-23**	**Dec-23**	**Jan-24**	**Feb-24**	**Mar-24**	**Apr-24**	**May-24**	**Jun-24**	**Total**
(1)	Discharge Entering the Santa Ana River *without* Stormwater and Dry-Weather Diversions *or* Dry-Weather Flows[a]	0	4,105	117	55	300	813	1,450	20,140	3,091	487	163	0	**30,721**
(2)	Stormwater and Dry-Weather Discharge Diversions[b]	16	694	126	68	175	629	722	2,183	1,872	485	193	25	**7,188**
(3)	Diversions Attributable to Dry-Weather Flows[c]	16	9	25	18	9	3	1	121	109	187	86	25	**609**
(4) =(1)+(3)	Total Discharge Entering the Santa Ana River *without* Stormwater and Dry-Weather Diversions[d]	16	4,114	142	73	309	816	1,451	20,261	3,200	674	249	25	**31,330**
(5) =(4)-(2)	Estimated Discharge Entering the Santa Ana River after Stormwater and Dry-Weather Diversions	0	3,420	16	5	134	187	729	18,078	1,328	189	56	0	**24,142**
(6) =(2)/(4)	Percent Reduction in Discharge Entering the Santa Ana River Relative to Discharge *without* Diversions	100%	17%	89%	93%	57%	77%	50%	11%	59%	72%	78%	100%	**23%**
(7)	Discharge in the Santa Ana River at USGS Gage 11066460	2,729	10,178	3,694	3,199	3,505	3,890	8,162	33,287	9,829	10,727	4,546	2,381	**96,127**
(8) =(2)/(7)	Percent Reduction in Discharge Entering the Santa Ana River Relative to Discharge at 11066460[e]	0.6%	6.8%	3.4%	2.1%	5.0%	16.2%	8.8%	6.6%	19.0%	4.5%	4.2%	1.1%	**7%**

[a] Estimated using the WLAM.
[b] Calculated on a monthly basis.
[c] Calculated on a monthly basis. Note that the WLAM does not simulate dry-weather flows on the San Sevaine Creek tributary system. Thus, there are dates on which the measured diversions from San Sevaine Creek are greater than the WLAM's estimated discharge to the Santa Ana River without diversions. For these dates, the difference between the measured diversions and estimated discharge can be attributed to dry-weather discharge. Dry-weather diversions that occur while stormwater is being recharged (highlighted in grey in Appendices D1-D3) or downstream of the recharge basins are not included in these calculations.
[d] Calculated on a monthly basis.
[e] For July 1, 2023 to June 20, 2024, data have been approved by the USGS; data after June 20, 2024 are provisional.



Prepared by:

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Author: AG

Date: 8/29/2024

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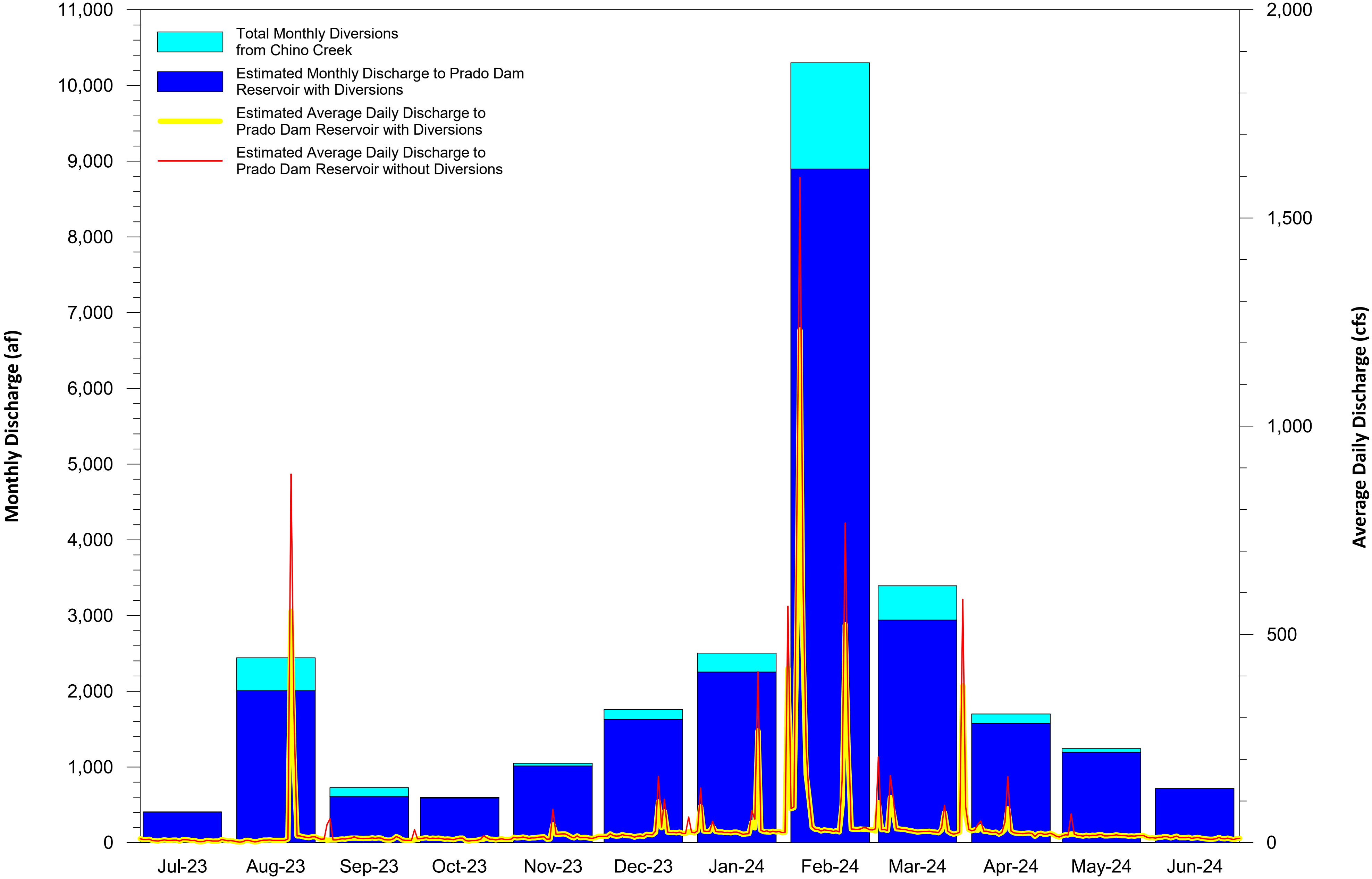
Prepared for:

Chino Basin Watermaster
Water Rights Compliance Reporting
FY 2023/24

Stormwater Recharge Points of Diversion
Water Rights Permit 21225

Figure 1

Figure 2a
Estimated Discharge from Chino Creek to Prado Dam Reservoir
With and without Stormwater and Dry-Weather Discharge Diversions



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Date: 8/29/2024

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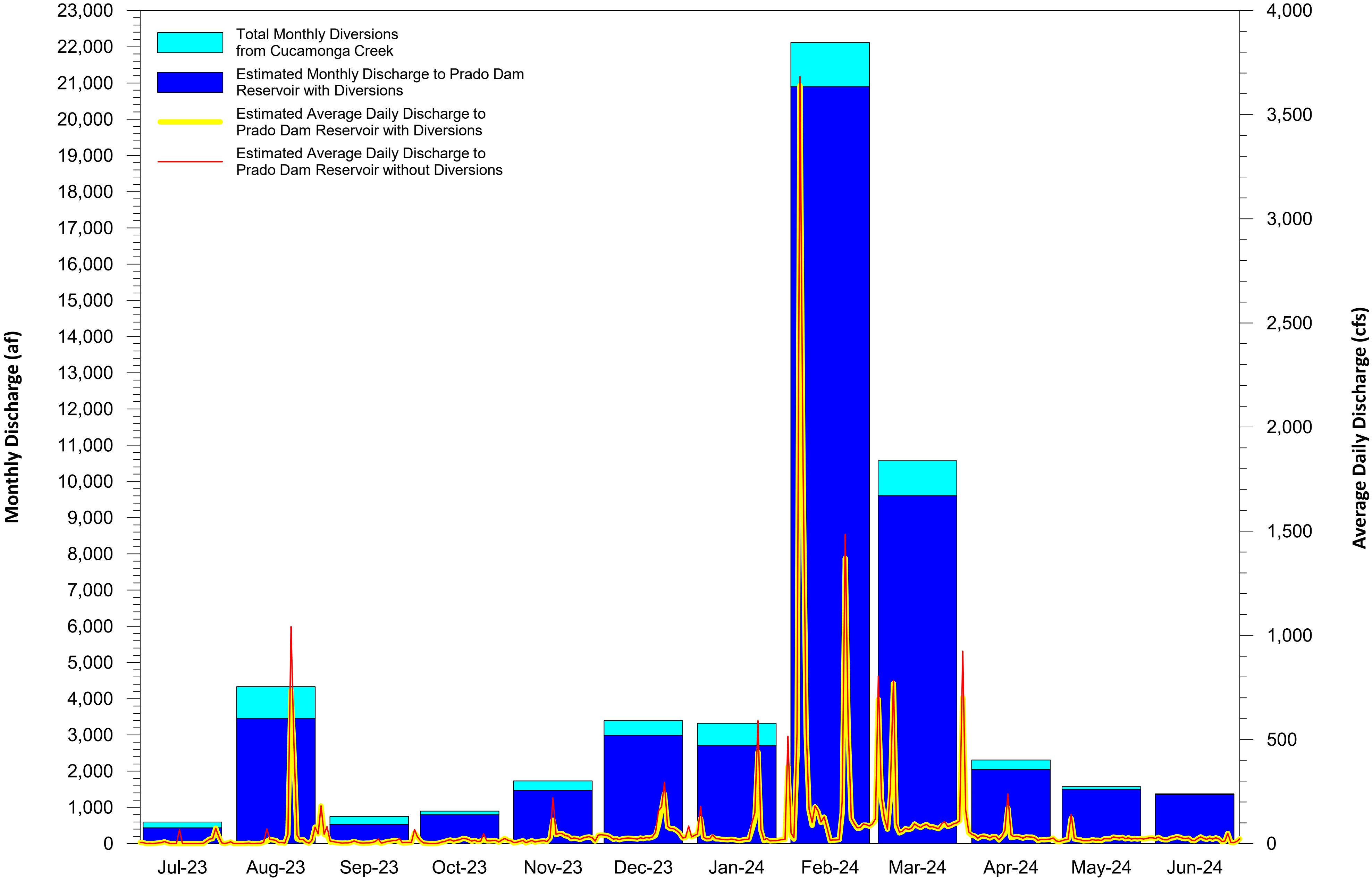
Figure 2b
Estimated Discharge from Cucamonga Creek to Prado Dam Reservoir
With and without Stormwater and Dry-Weather Discharge Diversions



Author: AG
Date: 8/29/2024

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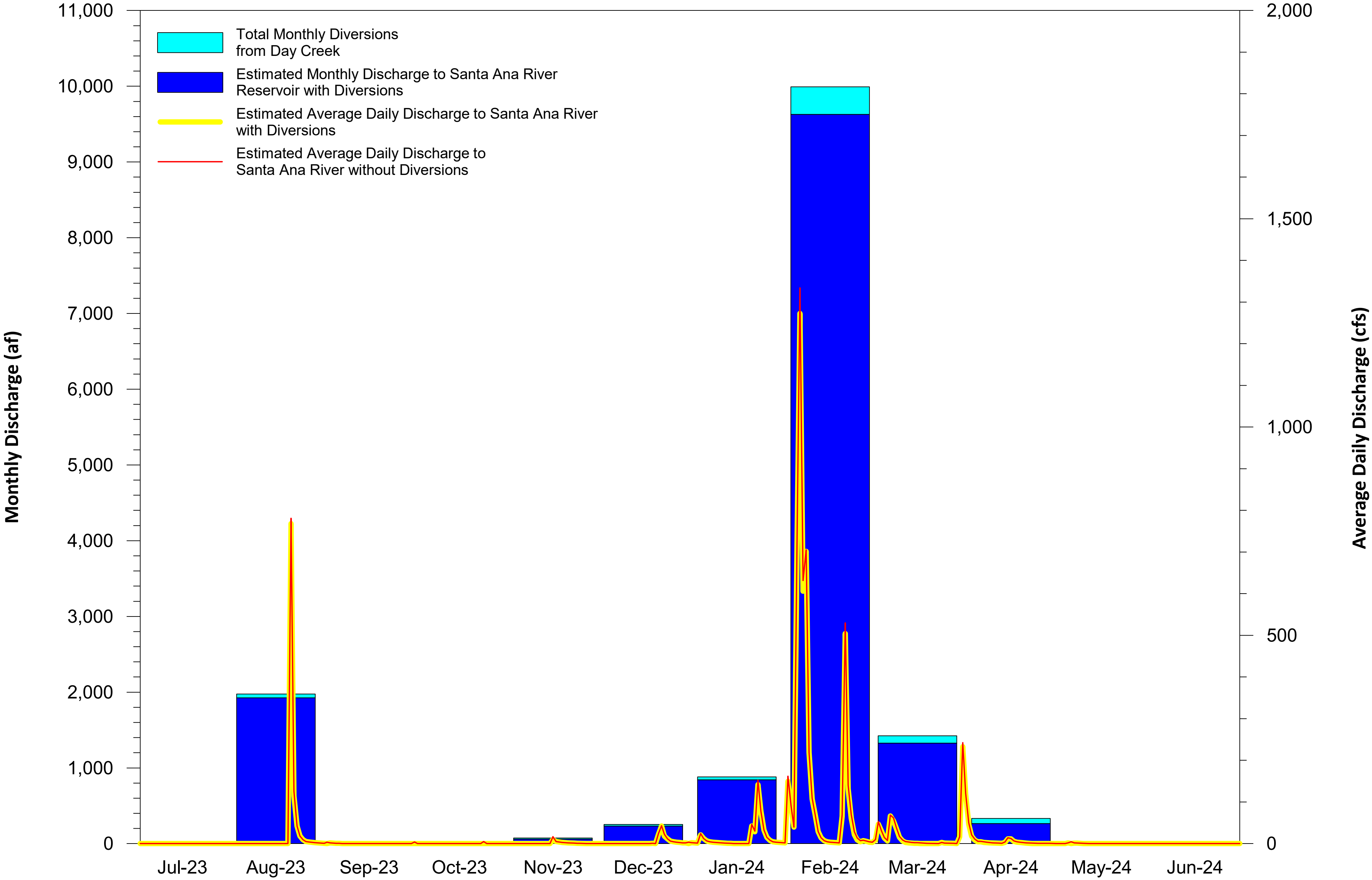
Figure 2c
Estimated Discharge from Day Creek to the Santa Ana River
With and without Stormwater and Dry-Weather Discharge Diversions



Author: AG
Date: 8/29/2024

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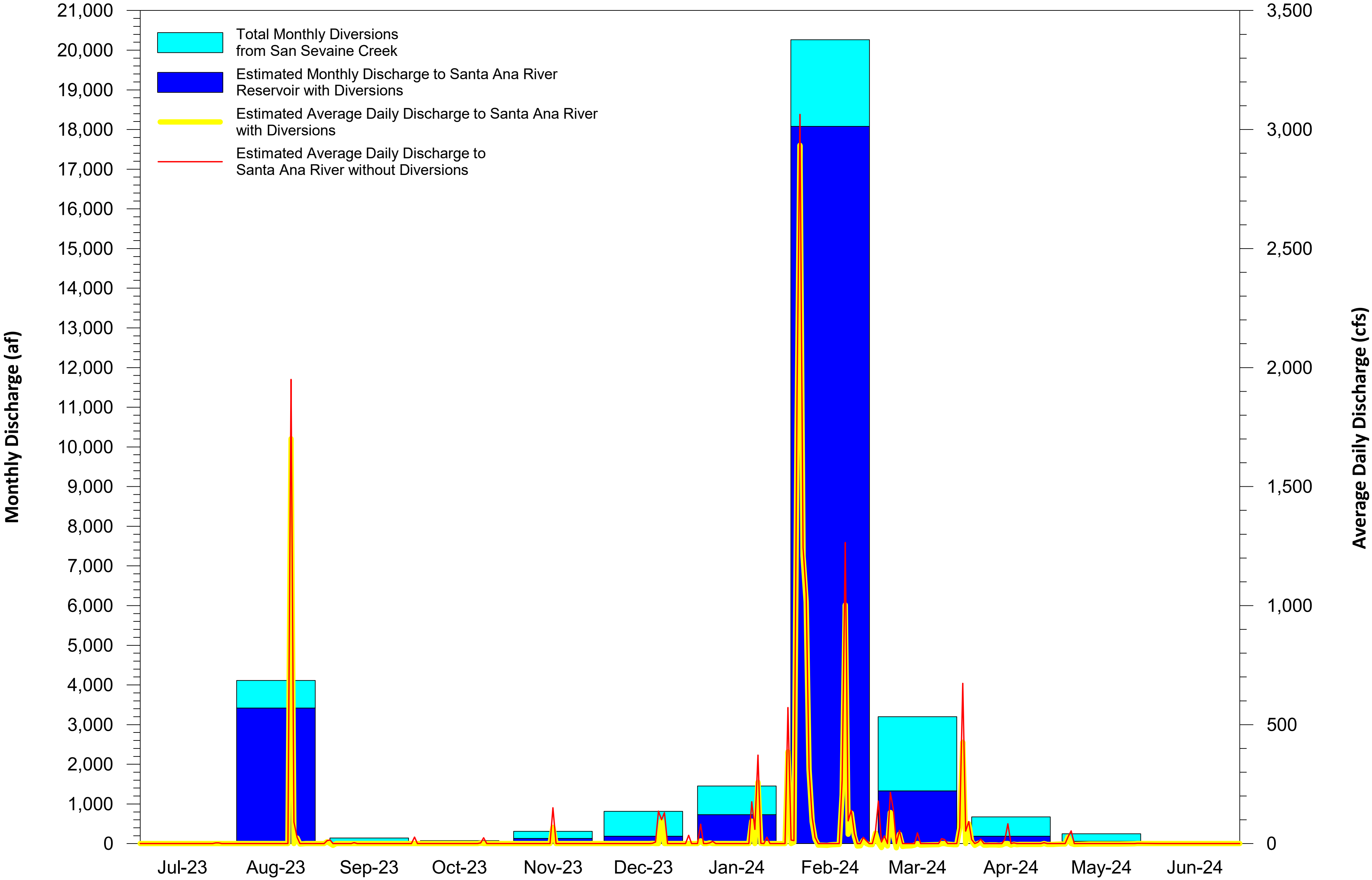
Figure 2d
Estimated Discharge from San Sevaine Creek to the Santa Ana River
With and without Stormwater and Dry-Weather Discharge Diversions



Author: AG
Date: 9/3/2024

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Appendix A1 – A7

Appendix A1
Average Daily Discharge at USGS Gage 11073360 on Chino Creek, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	0.94	0.92	3.51	1.72	0.61	0.86	1.80	391.00	3.01	4.46	1.24	1.11
2	0.99	0.87	8.19	0.89	0.64	0.78	1.97	55.10	67.10	4.38	1.10	1.30
3	0.93	0.84	1.75	0.84	0.73	0.74	58.20	58.80	3.53	4.49	1.07	1.05
4	0.92	0.85	1.19	1.01	0.68	0.77	1.60	515.00	3.06	3.45	1.04	1.03
5	0.88	0.90	1.20	1.26	0.52	0.74	1.29	1190.00	2.82	12.50	27.50	0.89
6	0.97	0.89	1.08	1.33	0.56	0.74	1.72	419.00	81.10	2.82	1.72	0.85
7	0.91	0.96	1.08	1.15	0.68	0.74	11.10	123.00	41.80	2.66	1.39	0.90
8	0.88	1.06	1.02	1.28	0.66	0.75	1.00	74.70	3.78	2.66	1.64	0.84
9	0.89	1.06	0.99	1.36	0.63	0.73	0.69	6.24	3.20	2.63	3.10	0.87
10	0.91	1.26	2.45	0.96	0.69	0.61	0.75	3.60	2.89	2.66	2.61	0.79
11	0.93	1.15	1.74	0.75	0.62	0.65	0.83	3.18	2.88	2.66	2.73	1.48
12	0.83	0.99	1.31	0.81	0.60	0.69	0.72	2.71	2.98	2.34	3.85	0.60
13	0.85	1.14	1.28	0.78	0.69	1.07	0.72	2.39	2.87	7.84	3.25	0.67
14	0.91	1.01	1.60	0.74	0.74	0.88	0.77	2.37	2.62	56.50	3.29	0.69
15	1.69	1.10	1.09	0.62	81.70	1.07	0.76	2.23	2.76	2.97	1.78	0.64
16	1.70	0.99	1.10	0.88	2.30	0.63	0.73	2.23	2.66	1.78	1.45	0.87
17	0.77	0.97	1.03	0.68	1.39	0.94	0.80	2.12	2.50	1.87	1.30	0.96
18	0.76	1.08	1.00	0.66	4.02	0.76	0.75	1.97	2.56	1.65	1.26	0.70
19	0.80	1.47	0.97	1.10	1.06	2.46	0.74	63.50	2.57	1.90	1.23	0.69
20	0.78	542.00	1.17	0.89	1.00	89.00	23.80	484.00	2.53	1.47	1.26	0.70
21	0.72	188.00	0.89	0.69	0.85	9.45	10.60	181.00	2.35	1.59	1.22	0.75
22	1.08	2.07	0.88	0.93	0.75	51.30	241.00	5.03	2.41	2.25	1.20	0.69
23	1.42	1.55	0.86	1.88	0.71	1.06	3.04	3.80	6.97	1.33	1.07	0.68
24	0.89	1.36	0.92	0.66	0.76	1.25	1.63	3.38	47.10	1.40	1.12	0.68
25	0.85	1.33	0.85	0.99	0.71	1.14	1.64	3.16	2.59	1.38	1.09	0.78
26	1.74	1.27	0.94	0.65	0.68	1.15	1.25	4.78	2.24	1.40	1.23	0.52
27	1.29	1.28	0.80	0.94	0.68	1.05	1.56	5.61	2.39	1.38	1.28	0.51
28	0.90	1.14	0.85	0.62	0.66	0.91	1.64	2.95	2.06	1.22	1.22	0.60
29	0.95	1.58	0.96	0.73	0.77	0.83	2.07	2.91	2.12	1.63	1.15	0.54
30	1.80	1.37	1.35	0.55	0.82	31.00	0.83	--	348.00	1.34	1.12	0.50
31	1.92	1.14	--	0.57	--	1.04	0.69	--	41.10	--	1.20	--
Minimum	**0.7**	**0.8**	**0.8**	**0.6**	**0.5**	**0.6**	**0.7**	**2.0**	**2.1**	**1.2**	**1.0**	**0.5**
Maximum	**1.9**	**542.0**	**8.2**	**1.9**	**81.7**	**89.0**	**241.0**	**1,190.0**	**348.0**	**56.5**	**27.5**	**1.5**
Average	**1.0**	**25.4**	**1.5**	**0.9**	**3.6**	**6.8**	**12.5**	**124.7**	**21.9**	**4.6**	**2.5**	**0.8**
Total Volume (af)	**65.1**	**1,514.6**	**87.4**	**57.4**	**214.0**	**408.2**	**747.2**	**7,171.8**	**1,385.6**	**274.9**	**152.2**	**47.4**

Note: For July 1, 2023 to December 2, 2023, data have been approved by the USGS; data after December 2, 2023 are provisional.

Appendix A2
Average Daily Discharge at OC-59 on San Antonio Creek, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	65.3	54.9	78.3	66.9	51.8	49.0	0.0	0.0	0.0	0.0	58.2	36.3
2	64.9	58.5	77.3	64.7	51.2	48.9	0.0	0.0	0.0	0.0	58.4	36.5
3	65.2	54.6	78.3	61.9	52.1	49.3	0.0	0.0	0.0	0.0	58.9	36.5
4	64.5	55.2	78.8	67.0	52.5	49.0	0.0	0.0	0.0	0.0	51.1	36.5
5	65.6	55.4	78.1	63.8	51.8	51.5	0.0	0.0	0.0	0.0	37.2	36.5
6	67.3	56.5	78.3	61.7	50.2	57.7	0.0	0.0	0.0	0.0	35.5	36.3
7	66.9	55.5	79.9	61.3	48.0	59.9	0.0	0.0	0.0	0.0	34.7	36.2
8	64.0	62.5	81.2	60.1	47.0	62.0	0.0	0.0	0.0	0.0	34.8	36.2
9	64.4	67.7	81.3	57.8	51.4	62.5	0.1	0.0	0.0	0.0	34.6	36.2
10	64.3	68.4	81.3	56.1	51.1	62.2	0.0	0.0	0.0	0.0	34.6	36.2
11	68.2	70.0	80.9	55.1	54.3	62.3	0.0	0.0	0.0	0.0	34.8	38.3
12	74.2	69.4	80.2	54.6	52.2	61.9	0.0	0.0	0.0	0.0	34.8	39.9
13	73.9	68.4	80.1	55.6	53.5	62.0	0.0	0.0	0.0	0.0	34.9	39.6
14	73.5	67.5	78.6	55.5	53.4	60.7	0.0	0.0	0.0	0.0	34.8	39.6
15	73.9	71.1	77.9	55.9	52.7	59.0	0.0	0.0	0.0	0.0	34.2	39.6
16	73.0	72.7	81.8	54.3	52.5	59.1	0.0	0.0	0.0	0.0	33.8	39.5
17	73.6	71.5	80.5	50.7	52.5	58.8	0.0	0.0	0.0	0.0	33.7	39.6
18	73.8	40.2	82.0	51.5	52.5	42.0	0.0	0.0	0.0	0.0	33.8	41.0
19	54.9	0.0	80.1	52.4	52.2	30.8	0.0	0.0	0.0	0.0	33.8	43.6
20	33.6	0.0	78.6	51.9	52.3	15.2	0.0	0.0	0.0	0.0	33.8	43.0
21	33.2	0.0	78.0	51.9	52.2	0.0	0.0	0.0	0.0	0.0	34.0	42.6
22	33.6	30.5	78.0	49.3	52.0	0.0	0.0	0.0	0.0	0.0	33.6	42.7
23	35.2	77.9	78.1	50.1	51.7	0.0	0.0	0.0	0.0	0.0	33.3	42.4
24	35.1	76.8	77.3	50.6	52.1	0.0	0.0	0.0	0.0	0.0	33.1	42.3
25	36.4	75.9	78.3	51.1	52.0	0.0	0.0	0.0	0.0	0.0	33.4	45.5
26	41.9	77.0	81.0	51.2	51.9	0.0	0.0	0.0	0.0	0.0	36.9	46.8
27	52.6	78.1	81.2	51.9	51.7	0.0	0.0	0.0	0.0	0.0	37.2	48.0
28	53.0	77.5	70.7	52.1	51.6	34.5	0.0	0.0	0.0	0.0	36.8	48.3
29	53.4	78.2	63.1	52.5	49.5	49.8	0.0	0.0	0.0	34.0	36.4	46.4
30	54.8	77.5	64.8	50.2	49.0	49.7	0.0	-	0.0	59.6	36.4	46.6
31	53.5	76.6	-	51.9	-	47.9	0.0	-	0.0	-	36.4	-
Minimum	**33.2**	**0.0**	**63.1**	**49.3**	**47.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**33.1**	**36.2**
Maximum	**74.2**	**78.2**	**82.0**	**67.0**	**54.3**	**62.5**	**0.1**	**0.0**	**0.0**	**59.6**	**58.9**	**48.3**
Average	**58.3**	**59.5**	**78.1**	**55.5**	**51.6**	**40.2**	**0.0**	**0.0**	**0.0**	**3.1**	**37.7**	**40.6**
Total Volume (af)	**3,585.2**	**3,661.3**	**4,649.2**	**3,415.0**	**3,072.1**	**2,470.9**	**0.1**	**0.0**	**0.0**	**185.8**	**2,316.6**	**2,417.3**

Appendix A3

Daily Diversions of OC-59 Water to Recharge Basins from the Chino Creek Tributary System, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	65.3	54.9	78.3	66.9	51.8	49.0	0.0	0.0	0.0	0.0	58.2	36.3
2	64.9	58.5	77.3	64.7	51.2	48.9	0.0	0.0	0.0	0.0	58.4	36.5
3	65.2	54.6	78.3	61.9	52.1	49.3	0.0	0.0	0.0	0.0	58.9	36.5
4	64.5	55.2	78.8	67.0	52.5	49.0	0.0	0.0	0.0	0.0	51.1	36.5
5	65.6	55.4	78.1	63.8	51.7	51.5	0.0	0.0	0.0	0.0	37.2	36.5
6	67.3	56.5	78.3	61.7	50.2	57.7	0.0	0.0	0.0	0.0	35.5	36.3
7	66.9	55.5	79.9	61.3	48.0	59.9	0.0	0.0	0.0	0.0	34.7	36.2
8	64.0	62.5	81.2	60.1	47.0	62.0	0.0	0.0	0.0	0.0	34.8	36.2
9	64.4	67.7	81.3	57.8	51.4	62.5	0.0	0.0	0.0	0.0	34.6	36.2
10	64.3	68.4	81.3	56.1	51.1	62.2	0.0	0.0	0.0	0.0	34.6	36.2
11	68.2	70.0	80.9	55.1	54.3	62.3	0.0	0.0	0.0	0.0	34.8	38.3
12	74.2	69.4	80.2	54.6	52.2	61.9	0.0	0.0	0.0	0.0	34.8	39.9
13	73.9	68.4	80.1	55.6	53.5	62.0	0.0	0.0	0.0	0.0	34.8	39.6
14	73.5	67.5	78.6	55.5	53.4	60.7	0.0	0.0	0.0	0.0	34.8	39.6
15	73.9	71.1	77.9	55.9	52.7	59.0	0.0	0.0	0.0	0.0	34.2	39.6
16	73.0	72.7	81.8	54.3	52.5	59.1	0.0	0.0	0.0	0.0	33.8	39.5
17	73.6	71.5	80.5	50.7	52.5	58.8	0.0	0.0	0.0	0.0	33.7	39.6
18	73.8	40.2	82.0	51.5	52.5	42.0	0.0	0.0	0.0	0.0	33.8	41.0
19	54.9	0.0	80.1	52.4	52.2	30.8	0.0	0.0	0.0	0.0	33.8	43.6
20	33.6	0.0	78.6	51.9	52.3	15.2	0.0	0.0	0.0	0.0	33.8	43.0
21	33.2	0.0	78.0	51.9	52.2	0.0	0.0	0.0	0.0	0.0	34.0	42.6
22	33.6	30.5	78.0	49.3	52.0	0.0	0.0	0.0	0.0	0.0	33.6	42.7
23	35.2	77.9	78.1	50.1	51.7	0.0	0.0	0.0	0.0	0.0	33.3	42.4
24	35.1	76.8	77.3	50.6	52.1	0.0	0.0	0.0	0.0	0.0	33.1	42.3
25	36.4	75.9	78.3	51.1	52.0	0.0	0.0	0.0	0.0	0.0	33.4	45.5
26	41.9	77.0	81.0	51.1	51.9	0.0	0.0	0.0	0.0	0.0	36.9	46.7
27	52.6	78.1	81.2	51.9	51.7	0.0	0.0	0.0	0.0	0.0	37.2	48.0
28	53.0	77.5	70.7	52.1	51.6	34.5	0.0	0.0	0.0	0.0	36.8	48.3
29	53.4	78.2	63.1	52.5	49.5	49.8	0.0	0.0	0.0	34.0	36.4	46.4
30	54.8	77.5	64.8	50.2	49.0	49.7	0.0	-	0.0	59.6	36.4	46.6
31	53.5	76.6	-	51.9	-	47.9	0.0	-	0.0	-	36.4	-
Minimum	**33.2**	**0.0**	**63.1**	**49.3**	**47.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**33.1**	**36.2**
Maximum	**74.2**	**78.2**	**82.0**	**67.0**	**54.3**	**62.5**	**0.0**	**0.0**	**0.0**	**59.6**	**58.9**	**48.3**
Average	**58.3**	**59.5**	**78.1**	**55.5**	**51.6**	**40.2**	**0.0**	**0.0**	**0.0**	**3.1**	**37.7**	**40.6**
Total Volume (af)	**3,585.3**	**3,661.4**	**4,649.2**	**3,415.0**	**3,072.1**	**2,470.9**	**0.1**	**0.0**	**0.0**	**185.8**	**2,316.7**	**2,417.2**

Note: On days when the non-replenishment discharge recorded was greater than the measured recharge, the total diversion volume was manually changed to 0.

Appendix A4
Average Daily Discharge of All IEUA Recycled Water Effluent Discharges to Chino Creek, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	9.3	3.7	5.6	9.4	8.4	15.0	21.8	27.4	24.9	27.4	13.8	11.9
2	7.7	2.2	6.7	10.1	13.0	15.0	26.5	26.3	29.2	24.1	16.2	11.1
3	7.7	1.5	6.7	10.8	11.6	15.0	28.0	25.4	27.7	26.3	18.7	13.2
4	8.4	2.2	6.5	11.8	11.9	21.2	26.3	27.5	28.8	26.0	18.6	13.2
5	5.0	5.4	8.0	10.1	13.8	16.7	25.7	41.2	26.0	25.4	21.2	14.9
6	4.3	5.7	9.0	11.0	12.1	15.9	25.5	51.5	27.5	24.8	20.3	13.9
7	3.9	3.4	8.5	10.5	10.2	16.1	27.7	41.6	27.7	24.8	17.8	11.3
8	5.4	1.9	10.5	11.0	11.6	19.5	26.0	32.3	29.7	22.9	16.7	13.5
9	6.8	2.8	10.7	9.7	11.3	17.2	25.2	30.8	29.4	21.7	15.5	15.5
10	5.6	5.0	11.0	8.0	12.8	16.6	24.9	28.6	28.6	22.4	17.6	12.2
11	5.6	6.2	10.7	9.0	13.8	16.1	23.5	28.5	28.6	18.1	16.4	11.8
12	6.2	6.2	10.2	8.4	13.9	13.3	24.0	25.5	26.3	21.8	17.9	12.2
13	6.2	6.5	9.9	7.4	8.5	15.6	23.2	28.2	25.5	23.7	17.5	13.0
14	3.7	5.6	10.2	9.3	8.7	16.4	24.3	27.2	24.4	25.1	19.0	10.4
15	7.0	5.4	10.2	11.1	14.1	14.7	24.8	27.1	22.7	24.9	19.5	11.3
16	7.1	5.4	11.4	11.0	20.0	19.8	22.6	24.4	23.7	22.1	16.4	12.7
17	6.5	5.4	10.5	5.3	20.3	19.5	19.3	26.5	24.4	20.9	16.1	10.7
18	4.8	5.7	11.3	4.2	21.0	19.0	20.1	23.7	24.1	20.7	16.9	9.7
19	5.6	7.1	10.7	5.3	20.9	24.4	21.0	27.5	25.1	19.5	17.3	8.7
20	3.1	13.9	7.0	5.3	18.1	24.0	24.6	39.6	23.4	21.4	18.9	8.0
21	2.5	19.3	6.3	6.3	13.5	26.6	24.6	34.8	23.1	21.8	17.2	8.5
22	2.9	16.2	6.3	8.2	11.6	23.5	27.4	28.0	21.5	19.6	16.6	9.3
23	5.4	16.2	9.0	8.0	16.2	24.1	26.6	28.6	23.8	13.9	16.9	12.5
24	5.3	14.2	14.5	11.8	11.8	23.2	24.6	28.3	24.6	20.0	15.9	9.9
25	3.7	12.8	11.3	8.5	12.5	23.5	24.3	29.9	25.1	21.5	16.1	9.1
26	4.2	12.2	6.5	8.5	12.5	22.7	24.3	27.5	20.3	18.7	15.8	10.8
27	4.2	13.9	5.7	6.8	11.1	24.1	25.8	26.0	18.1	18.9	16.6	8.7
28	7.7	13.9	5.6	8.0	10.4	22.3	24.4	28.2	20.0	21.4	16.7	7.6
29	6.3	10.7	5.6	9.1	11.8	22.0	24.9	27.7	23.2	20.0	17.3	9.9
30	4.6	8.5	6.7	7.7	15.0	26.5	23.4	-	28.6	15.8	13.6	10.4
31	4.8	8.8	-	7.6	-	25.5	23.8	-	27.2	-	11.3	-
Minimum	**2.5**	**1.5**	**5.6**	**4.2**	**8.4**	**13.3**	**19.3**	**23.7**	**18.1**	**13.9**	**11.3**	**7.6**
Maximum	**9.3**	**19.3**	**14.5**	**11.8**	**21.0**	**26.6**	**28.0**	**51.5**	**29.7**	**27.4**	**21.2**	**15.5**
Average	**5.5**	**8.0**	**8.8**	**8.7**	**13.4**	**19.8**	**24.5**	**30.0**	**25.3**	**21.8**	**17.0**	**11.2**
Total Volume (af)	**340.0**	**492.2**	**521.1**	**534.0**	**797.9**	**1,220.2**	**1,505.9**	**1,725.3**	**1,553.8**	**1,300.0**	**1,043.7**	**665.9**

Appendix A5
Estimated Average Daily Discharge from Chino Creek to Prado Dam Reservoir
after Watermaster Diversions and Removal of OCWD OC-59 Discharge, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	10.2	4.6	9.1	11.2	9.0	15.9	23.6	418.4	27.9	31.8	15.0	13.0
2	8.7	3.0	14.8	10.9	13.6	15.8	28.4	81.4	96.3	28.5	17.3	12.4
3	8.7	2.4	8.4	11.7	12.3	15.7	86.2	84.2	31.2	30.8	19.8	14.2
4	9.3	3.0	7.7	12.8	12.6	22.0	27.9	542.5	31.8	29.4	19.6	14.2
5	5.8	6.3	9.2	11.3	14.3	17.4	27.0	1,231.2	28.8	37.9	48.7	15.7
6	5.3	6.6	10.1	12.3	12.6	16.7	27.2	470.5	108.6	27.6	22.0	14.8
7	4.8	4.4	9.6	11.7	10.9	16.8	38.8	164.6	69.5	27.4	19.2	12.2
8	6.3	2.9	11.5	12.3	12.3	20.2	27.0	107.0	33.5	25.6	18.3	14.3
9	7.7	3.8	11.7	11.1	11.9	17.9	25.9	37.0	32.6	24.3	18.6	16.3
10	6.5	6.2	13.4	9.0	13.5	17.2	25.7	32.2	31.5	25.1	20.3	13.0
11	6.5	7.3	12.4	9.7	14.4	16.7	24.3	31.6	31.5	20.8	19.1	13.2
12	7.0	7.2	11.5	9.2	14.5	14.0	24.7	28.2	29.3	24.2	21.8	12.8
13	7.0	7.6	11.2	8.2	9.2	16.7	23.9	30.5	28.4	31.5	20.7	13.7
14	4.6	6.6	11.8	10.0	9.4	17.3	25.1	29.6	27.1	81.6	22.3	11.1
15	8.6	6.5	11.3	11.8	95.8	15.8	25.5	29.3	25.5	27.9	21.3	11.9
16	8.8	6.4	12.5	11.9	22.3	20.4	23.3	26.7	26.3	23.9	17.9	13.6
17	7.3	6.4	11.6	5.9	21.7	20.4	20.1	28.6	26.9	22.8	17.4	11.6
18	5.6	6.8	12.3	4.8	25.1	19.8	20.9	25.6	26.7	22.4	18.1	10.4
19	6.4	8.6	11.6	6.4	21.9	26.9	21.8	91.0	27.6	21.4	18.6	9.4
20	3.9	555.9	8.1	6.2	19.1	113.0	48.4	523.6	25.9	22.8	20.1	8.7
21	3.2	207.3	7.2	7.0	14.3	36.1	35.2	215.8	25.4	23.4	18.4	9.3
22	4.0	18.3	7.2	9.1	12.4	74.8	268.4	33.0	23.9	21.9	17.8	10.0
23	6.8	17.8	9.8	9.9	17.0	25.2	29.7	32.4	30.8	15.3	17.9	13.2
24	6.2	15.6	15.5	12.4	12.5	24.5	26.2	31.7	71.7	21.4	17.1	10.6
25	4.6	14.2	12.1	9.5	13.2	24.7	25.9	33.0	27.7	22.9	17.2	9.9
26	5.9	13.5	7.4	9.2	13.2	23.9	25.5	32.3	22.5	20.1	17.0	11.3
27	5.5	15.2	6.5	7.8	11.8	25.2	27.4	31.6	20.5	20.3	17.8	9.2
28	8.6	15.1	6.4	8.7	11.0	23.2	26.1	31.1	22.0	22.6	17.9	8.2
29	7.3	12.3	6.5	9.9	12.5	22.8	27.0	30.6	25.3	21.6	18.5	10.4
30	6.4	9.9	8.0	8.3	15.8	57.5	24.2	-	376.6	17.1	14.7	10.9
31	6.7	10.0	-	8.2	-	26.6	24.5	-	68.3	-	12.5	-
Minimum	**3.2**	**2.4**	**6.4**	**4.8**	**9.0**	**14.0**	**20.1**	**25.6**	**20.5**	**15.3**	**12.5**	**8.2**
Maximum	**10.2**	**555.9**	**15.5**	**12.8**	**95.8**	**113.0**	**268.4**	**1,231.2**	**376.6**	**81.6**	**48.7**	**16.3**
Average	**6.6**	**32.6**	**10.2**	**9.6**	**17.0**	**26.5**	**36.6**	**154.7**	**47.8**	**26.5**	**19.5**	**12.0**
Total Volume (af)	**405.1**	**2,006.9**	**608.5**	**591.4**	**1,011.9**	**1,628.3**	**2,253.0**	**8,897.1**	**2,939.3**	**1,574.9**	**1,195.9**	**713.3**

Appendix A6
Daily Diversions of Stormwater and Dry-Weather Discharges to Recharge Basins from the Chino Creek Tributary System, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	0.0	0.0	19.0	0.0	0.0	0.0	0.0	75.2	2.7	0.0	0.0	0.0
2	0.0	0.0	25.8	0.0	0.0	0.0	0.0	0.2	55.2	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	22.8	0.7	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	145.9	0.0	7.2	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	184.6	0.0	7.2	24.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	74.4	26.6	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	6.3	31.1	16.9	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0
10	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.9	0.0	0.0
15	0.0	0.0	0.0	0.0	18.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	1.8	0.0	30.5	0.0	0.0	0.0	0.0
20	0.0	166.1	0.0	0.0	0.0	31.1	14.4	123.0	0.0	0.0	0.0	0.0
21	0.0	52.8	0.0	0.0	0.0	0.8	10.6	36.6	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	14.9	71.5	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	12.5	0.0	0.0	17.6	0.0	-	104.7	0.0	0.0	0.0
31	0.0	0.0	-	0.0	-	0.0	0.0	-	9.1	-	0.0	-
Minimum	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Maximum	**0.0**	**166.1**	**25.8**	**4.3**	**18.7**	**31.1**	**71.5**	**184.6**	**104.7**	**38.9**	**24.0**	**0.0**
Average	**0.0**	**7.1**	**2.0**	**0.1**	**0.6**	**2.1**	**4.1**	**24.4**	**7.4**	**2.1**	**0.8**	**0.0**
Total Volume (af)	**0.6**	**434.1**	**118.9**	**8.5**	**37.0**	**131.2**	**251.6**	**1,402.0**	**452.0**	**124.3**	**47.6**	**0.0**

Note: On days when the non-replenishment discharge recorded was greater than the measured recharge, the total diversion volume was manually changed to 0.

Appendix A7
Estimated Average Daily Discharge from Chino Creek to Prado Dam Reservoir without Watermaster Diversion, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	10.2	4.6	28.1	11.2	9.0	15.9	23.6	493.6	30.6	31.8	15.0	13.0
2	8.7	3.1	40.7	10.9	13.6	15.8	28.4	81.6	151.6	28.5	17.3	12.4
3	8.7	2.4	8.4	11.7	12.3	15.7	109.0	84.9	31.2	30.8	19.8	14.2
4	9.3	3.0	7.7	12.8	12.6	22.0	27.9	688.4	31.8	36.6	19.6	14.2
5	5.8	6.3	9.3	11.3	14.3	17.4	27.0	1,415.8	28.8	45.1	72.7	15.7
6	5.3	6.6	10.1	12.3	12.6	16.7	27.2	544.9	135.2	27.6	22.0	14.8
7	4.8	4.4	9.6	11.7	10.9	16.8	45.0	195.7	86.4	27.4	19.2	12.2
8	6.3	2.9	11.6	12.3	12.3	20.2	27.0	107.0	33.5	25.6	18.3	14.3
9	7.7	3.8	11.7	11.1	11.9	17.9	25.9	38.0	32.6	24.3	18.6	16.3
10	6.5	6.2	15.0	9.0	13.5	17.2	25.7	32.2	31.5	25.1	20.3	13.0
11	6.5	7.3	12.5	9.7	14.4	16.7	24.3	31.6	31.5	20.8	19.1	13.2
12	7.0	7.2	11.6	9.2	14.5	14.0	24.7	28.2	29.3	24.2	21.8	12.8
13	7.0	7.6	11.2	8.2	9.2	16.7	23.9	30.5	28.4	40.9	20.7	13.7
14	4.6	6.6	11.9	10.0	9.4	17.3	25.1	29.6	27.1	120.4	22.3	11.1
15	8.7	6.5	11.3	11.8	114.4	15.8	25.5	29.3	25.5	27.9	21.3	11.9
16	8.8	6.4	12.6	11.9	22.3	20.4	23.3	26.7	26.4	23.9	17.9	13.6
17	7.3	6.4	11.6	5.9	21.7	20.4	20.1	28.6	27.0	22.8	17.4	11.6
18	5.6	6.8	12.3	4.8	25.1	19.8	20.9	25.6	26.7	22.4	18.1	10.4
19	6.4	8.6	11.7	6.4	21.9	28.7	21.8	121.5	27.7	21.4	18.6	9.4
20	3.9	722.0	8.2	6.2	19.1	144.0	62.8	646.6	25.9	22.8	20.1	8.7
21	3.2	260.1	7.3	7.0	14.3	36.9	45.8	252.4	25.4	23.4	18.4	9.3
22	4.0	18.3	7.3	9.1	12.4	89.7	339.9	33.0	24.0	21.9	17.8	10.0
23	6.8	17.8	9.9	14.2	17.0	25.2	29.7	32.4	33.8	15.3	17.9	13.2
24	6.2	15.6	15.5	12.4	12.5	24.5	26.2	31.7	80.8	21.4	17.1	10.6
25	4.6	14.2	12.2	9.5	13.2	24.7	27.2	33.0	27.7	22.9	17.2	9.9
26	5.9	13.5	7.5	9.2	13.2	23.9	25.5	34.1	22.5	20.1	17.0	11.3
27	5.5	15.2	6.6	7.8	11.8	25.2	27.4	33.4	20.5	20.3	17.8	9.2
28	8.6	15.1	6.5	8.7	11.0	23.2	26.1	31.1	22.1	22.6	17.9	8.2
29	7.3	12.3	6.6	9.9	12.5	22.8	27.0	30.6	25.4	21.6	18.5	10.4
30	6.5	9.9	20.5	8.3	15.8	75.1	24.2	-	481.4	17.1	14.7	10.9
31	6.7	10.0	-	8.2	-	26.6	24.5	-	77.4	-	12.5	-
Minimum	**3.2**	**2.4**	**6.5**	**4.8**	**9.0**	**14.0**	**20.1**	**25.6**	**20.5**	**15.3**	**12.5**	**8.2**
Maximum	**10.2**	**722.0**	**40.7**	**14.2**	**114.4**	**144.0**	**339.9**	**1,415.8**	**481.4**	**120.4**	**72.7**	**16.3**
Average	**6.6**	**39.7**	**12.2**	**9.8**	**17.6**	**28.6**	**40.7**	**179.0**	**55.2**	**28.6**	**20.2**	**12.0**
Total Volume (af)	**405.7**	**2,441.0**	**727.4**	**599.9**	**1,048.9**	**1,759.5**	**2,504.6**	**10,299.1**	**3,391.4**	**1,699.2**	**1,243.5**	**713.3**

Appendix B1 – B3

Appendix B1
Estimated Average Daily Discharge from Cucamonga Creek to Prado Dam Reservoir after Watermaster Diversions, (cfs)
(Average Daily Discharge at USGS Gage 11073495)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	5.5	0.0	40.8	32.5	12.0	41.8	39.3	368.0	111.0	51.9	9.5	28.1
2	4.7	0.5	6.8	13.5	3.6	40.3	46.2	37.7	693.0	41.2	13.2	24.4
3	0.3	0.0	8.2	3.1	6.3	38.5	120.0	21.7	212.0	37.1	17.2	30.7
4	0.9	0.1	5.2	2.1	9.9	31.8	30.3	429.0	121.0	25.8	19.9	22.2
5	0.4	1.0	3.5	0.5	14.6	20.9	22.8	3,640.0	69.8	33.2	121.0	18.3
6	1.6	2.3	2.4	0.1	3.7	23.7	23.5	1,780.0	222.0	36.7	22.8	18.5
7	3.5	0.5	3.2	0.3	8.7	19.0	32.1	528.0	768.0	33.4	19.7	26.6
8	4.9	0.3	3.1	2.3	14.8	23.4	23.3	160.0	83.8	27.2	18.4	28.6
9	9.2	0.7	6.6	7.3	6.9	25.2	22.5	88.2	51.6	34.3	13.3	33.9
10	4.0	1.6	10.9	9.3	10.3	26.5	20.4	177.0	58.3	33.7	14.1	31.3
11	0.6	6.6	6.3	15.1	12.5	25.3	19.5	152.0	72.3	17.9	14.1	25.3
12	0.0	10.7	3.0	18.0	13.8	23.6	18.7	102.0	68.2	34.3	19.1	24.4
13	0.0	20.6	1.9	11.3	9.7	21.4	21.3	127.0	72.1	48.6	16.1	26.3
14	0.1	18.0	2.8	15.2	26.6	27.6	20.1	70.9	94.0	171.0	16.7	15.8
15	0.0	15.0	2.8	18.1	112.0	24.5	16.0	14.8	84.7	29.4	14.7	14.1
16	0.3	4.4	5.5	25.0	43.7	28.5	14.9	15.9	76.8	31.0	23.3	24.0
17	0.6	4.9	9.2	23.5	48.2	27.2	17.9	17.1	86.3	34.9	23.1	32.4
18	0.4	2.6	6.6	18.5	48.0	31.7	20.4	19.5	91.8	31.3	22.6	24.2
19	0.3	44.5	1.7	11.4	38.2	38.8	20.4	148.0	80.1	25.7	31.9	20.8
20	0.4	735.0	5.4	15.3	35.5	87.6	63.3	1,370.0	81.4	32.8	29.3	26.9
21	0.6	435.0	10.7	9.7	23.6	166.0	115.0	549.0	76.1	31.9	27.2	21.1
22	0.8	23.3	11.2	11.8	26.0	238.0	440.0	121.0	71.9	31.0	30.8	27.9
23	12.3	18.1	15.4	20.0	24.5	80.4	64.2	93.9	85.4	26.1	23.4	22.6
24	21.9	19.8	15.0	13.4	19.3	72.3	14.6	74.6	93.5	14.1	27.9	9.3
25	23.8	8.0	9.1	12.8	26.4	72.0	19.1	75.3	82.7	19.2	21.6	12.2
26	73.8	2.3	4.1	14.1	30.4	63.1	13.3	88.6	86.4	18.5	24.9	49.5
27	35.2	15.7	3.7	14.4	32.3	50.5	13.9	89.5	94.7	20.0	22.3	5.9
28	3.5	79.4	5.0	7.2	27.5	27.0	14.6	83.7	99.5	21.2	25.2	4.9
29	0.4	47.0	5.4	16.4	11.8	29.1	16.4	94.2	110.0	26.0	21.5	10.9
30	3.5	181.0	51.9	24.6	39.7	49.4	19.6	--	701.0	12.6	24.7	22.5
31	8.1	44.6	--	15.6	--	32.6	20.3	--	143.0	--	27.5	--
Minimum	**0.0**	**0.0**	**1.7**	**0.1**	**3.6**	**19.0**	**13.3**	**14.8**	**51.6**	**12.6**	**9.5**	**4.9**
Maximum	**73.8**	**735.0**	**51.9**	**32.5**	**112.0**	**238.0**	**440.0**	**3,640.0**	**768.0**	**171.0**	**121.0**	**49.5**
Average	**7.2**	**56.2**	**8.9**	**13.0**	**24.7**	**48.6**	**44.0**	**363.3**	**156.2**	**34.4**	**24.4**	**22.8**
Total Volume (af)	**439.8**	**3,458.1**	**529.8**	**797.8**	**1,468.7**	**2,990.5**	**2,705.3**	**20,899.0**	**9,604.8**	**2,046.9**	**1,501.4**	**1,355.8**

Note: For July 1, 2023 to December 1, 2023, data have been approved by the USGS; data after December 1, 2023 are provisional.

Appendix B2
Daily Diversions to Recharge Basins on the Cucamonga Creek Tributary System, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	0.4	0.5	40.8	0.5	0.9	0.8	0.3	147.4	7.9	3.6	1.0	0.2
2	0.4	0.5	5.1	0.5	0.9	0.8	0.3	12.6	110.7	3.6	1.0	0.2
3	0.4	0.5	1.5	0.5	0.9	0.8	58.9	6.7	12.9	1.8	1.0	0.2
4	0.4	0.5	1.5	0.5	0.9	0.4	0.1	101.5	2.4	0.4	1.0	0.2
5	0.4	0.5	1.5	0.5	0.9	0.4	0.3	42.7	0.4	3.3	19.2	0.2
6	0.4	0.5	0.4	0.5	0.9	0.4	0.3	34.2	43.2	0.4	3.0	0.2
7	0.4	0.5	0.4	0.5	0.9	0.4	10.0	29.7	15.9	0.4	2.3	0.2
8	0.4	0.5	0.4	0.5	0.9	0.4	0.3	5.9	14.0	0.4	0.7	0.2
9	0.4	0.5	0.4	0.5	0.9	0.4	0.4	14.0	3.1	0.5	0.7	0.2
10	0.4	0.5	2.2	0.5	0.9	0.4	0.3	3.7	1.7	0.7	0.7	0.2
11	0.4	0.5	0.4	0.9	0.9	0.5	0.3	3.6	0.8	0.8	0.7	0.5
12	0.4	60.3	0.4	0.9	0.9	0.5	0.3	1.5	0.8	0.8	0.7	0.5
13	0.4	0.5	0.4	0.9	0.9	0.5	0.3	1.5	0.8	16.4	0.7	0.5
14	67.6	0.5	0.5	0.9	0.9	0.5	0.3	1.5	0.4	68.7	0.9	0.5
15	0.4	0.5	0.5	0.9	107.9	0.5	0.3	1.4	0.5	12.9	0.2	0.5
16	0.4	0.5	0.5	0.9	0.9	0.5	0.3	1.4	0.4	2.7	0.2	0.5
17	0.4	0.5	0.5	0.9	0.9	0.5	0.3	0.1	0.4	1.0	0.2	0.4
18	0.4	0.4	16.5	0.9	0.9	0.3	0.3	0.2	0.4	1.0	0.2	0.4
19	0.4	0.3	0.5	0.9	0.9	16.5	0.3	52.3	0.4	0.9	0.2	0.3
20	0.4	306.6	0.5	0.9	0.9	69.5	34.0	115.4	0.4	0.9	0.2	0.3
21	0.4	41.8	0.5	0.9	0.8	10.8	34.3	20.1	0.4	0.9	0.2	0.3
22	0.4	17.8	0.5	0.9	0.8	55.9	150.3	1.7	0.4	0.9	0.2	0.3
23	0.4	1.6	0.5	27.8	0.8	2.0	5.6	1.7	8.9	1.0	0.2	0.3
24	0.4	0.8	0.5	0.9	0.8	1.1	3.8	1.6	13.0	1.0	0.2	0.3
25	0.4	0.5	15.2	0.9	0.8	0.3	5.9	1.5	0.4	1.0	0.2	0.3
26	0.4	0.5	0.5	0.9	0.8	0.3	0.1	5.2	0.4	1.0	0.2	0.3
27	0.4	0.5	1.7	0.9	0.8	0.3	0.1	2.2	0.5	1.0	0.2	0.3
28	0.4	0.5	0.5	0.9	0.8	0.3	0.1	1.0	0.5	1.0	0.2	0.3
29	0.4	0.5	0.5	0.9	0.8	0.3	0.1	0.2	0.5	1.1	0.2	0.3
30	0.4	0.5	15.5	0.9	0.9	35.3	0.1	-	223.3	1.0	0.2	0.3
31	0.4	0.3	-	0.9	-	0.3	0.1	-	20.0	-	0.2	-
Minimum	**0.4**	**0.3**	**0.4**	**0.5**	**0.8**	**0.3**	**0.1**	**0.1**	**0.4**	**0.4**	**0.2**	**0.2**
Maximum	**67.6**	**306.6**	**40.8**	**27.8**	**107.9**	**69.5**	**150.3**	**147.4**	**223.3**	**68.7**	**19.2**	**0.5**
Average	**2.6**	**14.2**	**3.7**	**1.7**	**4.5**	**6.5**	**10.0**	**21.1**	**15.7**	**4.4**	**1.2**	**0.3**
Total Volume (af)	**157.5**	**873.4**	**220.4**	**102.0**	**264.9**	**401.3**	**612.9**	**1,215.0**	**964.4**	**260.4**	**74.5**	**19.8**

Appendix B3
Estimated Average Daily Discharge from Cucamonga Creek to Prado Dam Reservoir without Watermaster Diversions, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	5.9	0.5	81.6	33.0	12.9	42.6	39.6	515.4	118.9	55.5	10.5	28.3
2	5.1	1.0	11.9	14.0	4.5	41.1	46.5	50.3	803.7	44.8	14.2	24.6
3	0.7	0.5	9.7	3.7	7.2	39.3	178.9	28.4	224.9	38.9	18.2	30.9
4	1.3	0.6	6.6	2.6	10.8	32.2	30.4	530.5	123.4	26.2	20.9	22.4
5	0.8	1.5	4.9	1.0	15.5	21.3	23.1	3,682.7	70.2	36.5	140.2	18.5
6	2.0	2.8	2.8	0.6	4.6	24.1	23.8	1,814.2	265.2	37.1	25.8	18.7
7	3.9	0.9	3.6	0.8	9.6	19.4	42.1	557.7	783.9	33.8	22.0	26.8
8	5.2	0.8	3.5	2.9	15.7	23.8	23.6	165.9	97.8	27.6	19.1	28.8
9	9.6	1.2	7.0	7.8	7.8	25.6	22.9	102.2	54.7	34.8	14.0	34.1
10	4.4	2.0	13.1	9.8	11.2	26.9	20.7	180.7	60.0	34.4	14.8	31.5
11	1.0	7.0	6.7	16.0	13.4	25.8	19.8	155.6	73.1	18.7	14.8	25.8
12	0.4	71.0	3.3	18.9	14.7	24.1	19.0	103.5	69.0	35.1	19.8	24.9
13	0.4	21.1	2.3	12.2	10.6	21.9	21.6	128.5	72.9	65.0	16.8	26.8
14	67.7	18.5	3.3	16.1	27.5	28.1	20.4	72.4	94.4	239.7	17.6	16.3
15	0.4	15.5	3.3	19.0	219.9	25.0	16.3	16.2	85.2	42.3	14.9	14.6
16	0.6	4.9	6.0	25.9	44.6	29.0	15.2	17.3	77.2	33.7	23.5	24.5
17	1.0	5.3	9.7	24.4	49.1	27.7	18.2	17.2	86.7	35.9	23.3	32.8
18	0.8	3.0	23.1	19.4	48.9	32.0	20.7	19.7	92.2	32.3	22.8	24.6
19	0.7	44.8	2.2	12.3	39.1	55.3	20.7	200.3	80.5	26.6	32.1	21.1
20	0.7	1,041.6	5.9	16.2	36.4	157.1	97.3	1,485.4	81.8	33.7	29.5	27.2
21	1.0	476.8	11.2	10.6	24.4	176.8	149.3	569.1	76.5	32.8	27.4	21.4
22	1.2	41.1	11.7	12.7	26.8	293.9	590.3	122.7	72.3	31.9	31.0	28.2
23	12.7	19.7	15.9	47.8	25.3	82.4	69.8	95.6	94.3	27.1	23.6	22.9
24	22.3	20.6	15.5	14.3	20.1	73.4	18.4	76.2	106.5	15.1	28.1	9.6
25	24.2	8.4	24.3	13.7	27.2	72.3	25.0	76.8	83.1	20.2	21.8	12.5
26	74.2	2.8	4.6	15.0	31.2	63.4	13.4	93.8	86.8	19.5	25.1	49.8
27	35.6	16.2	5.4	15.3	33.1	50.8	14.0	91.7	95.2	21.0	22.5	6.2
28	3.9	79.9	5.5	8.1	28.3	27.3	14.7	84.7	100.0	22.2	25.4	5.2
29	0.8	47.5	5.9	17.3	12.6	29.4	16.5	94.4	110.5	27.1	21.7	11.2
30	3.9	181.5	67.4	25.5	40.6	84.7	19.7	--	924.3	13.6	24.9	22.8
31	8.5	44.9	--	16.5	--	32.9	20.4	--	163.0	--	27.7	--
Minimum	**0.4**	**0.5**	**2.2**	**0.6**	**4.5**	**19.4**	**13.4**	**16.2**	**54.7**	**13.6**	**10.5**	**5.2**
Maximum	**74.2**	**1,041.6**	**81.6**	**47.8**	**219.9**	**293.9**	**590.3**	**3,682.7**	**924.3**	**239.7**	**140.2**	**49.8**
Average	**9.7**	**70.4**	**12.6**	**14.6**	**29.1**	**55.2**	**54.0**	**384.5**	**171.9**	**38.8**	**25.6**	**23.1**
Total Volume (af)	**597.3**	**4,331.5**	**750.2**	**899.8**	**1,733.5**	**3,391.8**	**3,318.2**	**22,114.0**	**10,569.2**	**2,307.4**	**1,575.9**	**1,375.6**

Appendix C1 – C3

Appendix C1
WLAM Estimated Daily Discharge from Day Creek to the Santa Ana River
without Watermaster Diversions (Stormwater Flow only), (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	0.0	0.0	3.6	0.0	0.0	0.0	1.9	162.1	9.6	50.1	0.3	0.0
2	0.0	0.0	1.6	0.0	0.0	0.0	1.5	90.9	53.2	21.1	0.2	0.0
3	0.0	0.0	1.2	0.0	0.0	0.0	24.1	39.5	30.6	10.7	0.0	0.0
4	0.0	0.0	0.8	0.0	0.0	0.0	12.3	729.7	14.5	5.7	2.0	0.0
5	0.0	0.0	0.6	0.0	0.0	0.0	6.5	1,334.3	7.6	5.8	4.7	0.0
6	0.0	0.0	0.3	0.0	0.0	0.0	4.6	631.7	68.3	4.3	1.6	0.0
7	0.0	0.0	0.1	0.0	0.0	0.0	3.6	705.1	62.0	3.4	1.2	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	2.9	218.7	38.6	2.7	0.9	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	2.2	108.8	17.2	2.1	0.6	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	1.7	71.0	8.9	1.6	0.4	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	1.3	29.1	5.0	1.2	0.2	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	1.0	13.9	3.9	0.9	0.1	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.7	7.3	3.1	4.2	0.1	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.5	4.5	2.4	14.1	0.1	0.0
15	0.0	0.0	0.0	0.0	16.6	0.0	0.4	3.6	2.2	12.6	0.1	0.0
16	0.0	0.0	0.0	0.0	5.1	0.0	0.2	2.9	1.5	6.6	0.0	0.0
17	0.0	0.0	0.0	0.0	3.9	0.0	0.1	2.3	1.1	4.3	0.0	0.0
18	0.0	0.0	0.0	0.0	3.1	0.6	0.1	1.8	0.8	3.4	0.0	0.0
19	0.0	0.1	0.0	0.0	2.5	0.0	0.0	69.3	0.6	2.7	0.0	0.0
20	0.0	781.3	0.0	0.0	1.9	24.5	45.9	529.9	0.4	2.1	0.0	0.0
21	0.0	126.0	0.0	0.0	1.5	42.9	30.3	140.7	0.3	1.6	0.0	0.0
22	0.0	42.5	0.0	0.0	1.1	22.0	152.0	69.7	0.1	1.2	0.0	0.0
23	0.0	18.5	0.0	5.1	0.8	11.7	78.6	28.4	3.1	1.0	0.0	0.0
24	0.0	9.4	0.0	0.0	0.6	6.2	32.6	13.7	1.3	0.9	0.0	0.0
25	0.0	5.1	0.0	0.0	0.4	4.3	15.2	7.2	1.1	0.9	0.0	0.0
26	0.0	3.8	0.0	0.0	0.2	3.4	8.0	8.3	0.8	0.8	0.0	0.0
27	0.0	3.0	0.0	0.0	0.1	2.7	4.7	6.2	0.6	0.7	0.0	0.0
28	0.0	2.2	0.0	0.0	0.0	2.1	3.7	4.3	0.4	0.7	0.0	0.0
29	0.0	1.6	0.0	0.0	0.0	1.7	3.0	3.4	16.1	0.6	0.0	0.0
30	0.0	1.2	4.2	0.0	0.0	3.3	2.3	-	242.3	0.5	0.0	0.0
31	0.0	0.8	-	0.0	-	2.4	1.8	-	120.7	-	0.0	-
Minimum	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.8**	**0.1**	**0.5**	**0.0**	**0.0**
Maximum	**0.0**	**781.3**	**4.2**	**5.1**	**16.6**	**42.9**	**152.0**	**1,334.3**	**242.3**	**50.1**	**4.7**	**0.0**
Average	**0.0**	**32.1**	**0.4**	**0.2**	**1.3**	**4.1**	**14.3**	**173.7**	**23.2**	**5.6**	**0.4**	**0.0**
Total Volume (af)	**0.0**	**1,974.5**	**24.6**	**10.1**	**75.0**	**253.5**	**880.1**	**9,993.3**	**1,424.7**	**334.0**	**24.8**	**0.0**

Note: On dates highlighted in grey, stormwater was recharged in diversion basins. Stormwater can continue to be recharged for several days after a storm has passed.

Appendix C2
Daily Diversions to Recharge Basins on the Day Creek Tributary System, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	0.0	0.0	3.6	0.0	0.0	0.0	0.0	12.3	0.7	4.0	0.3	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	6.4	3.1	0.2	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.7	2.2	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	0.7	1.3	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.4	0.7	1.2	4.7	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.6	1.8	1.2	0.1	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	7.3	1.1	0.1	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.1	0.1	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	2.0	0.8	0.1	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.5	0.1	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.3	0.1	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.3	0.1	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.2	0.1	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	2.9	0.1	0.0
15	0.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0	1.5	1.3	0.1	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.1	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.4	0.8	0.0	0.0
20	0.0	13.0	0.0	0.0	0.0	2.5	3.3	25.7	0.3	0.9	0.0	0.0
21	0.0	11.7	0.0	0.0	0.0	0.3	1.9	9.2	0.2	1.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	4.0	10.3	8.7	0.1	1.0	0.0	0.0
23	0.0	0.0	0.0	5.1	0.0	0.0	0.0	6.8	0.0	1.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.9	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.9	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.8	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.7	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.7	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.6	0.0	0.0
30	0.0	0.0	4.2	0.0	0.0	3.3	0.0	-	9.8	0.5	0.0	0.0
31	0.0	0.0	-	0.0	-	0.0	0.0	-	1.7	-	0.0	-
Minimum	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**
Maximum	**0.0**	**13.0**	**4.2**	**5.1**	**6.8**	**4.0**	**10.3**	**61.4**	**9.8**	**4.0**	**4.7**	**0.0**
Average	**0.0**	**0.8**	**0.3**	**0.2**	**0.2**	**0.3**	**0.6**	**6.3**	**1.6**	**1.2**	**0.2**	**0.0**
Total Volume (af)	**1.5**	**49.9**	**15.8**	**10.4**	**13.7**	**20.5**	**37.9**	**364.1**	**96.5**	**68.9**	**12.5**	**0.8**

Note: On dates highlighted in grey, stormwater was recharged in diversion basins. Stormwater can continue to be recharged for several days after a storm has passed.

Appendix C3
Estimated Daily Dry-Weather Flows Captured by Diversion Basins, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0
31	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	-
Minimum	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Maximum	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Average	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Total Volume (af)	**1.5**	**0.5**	**0.2**	**0.3**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.8**

Note: On dates highlighted in grey, stormwater was recharged in diversion basins. Stormwater can continue to be recharged for several days after a storm has passed. On dates when stormwater diversions are measured after storm flow has stopped, dry-weather flows could not be estimated and are assumed to be 0. Within each storm period, however, any diversions in excess of total WLAM estimated stormflow are assumed to be dry-weather flows.

Appendix D1 – D3

Appendix D1
WLAM Estimated Daily Discharge from San Sevaine Creek to the Santa Ana River without Watermaster Diversions (Stormwater Flow only), (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	0.0	0.0	12.2	0.0	0.0	0.0	0.0	571.3	52.1	92.8	0.0	0.0
2	0.0	0.0	15.3	0.0	0.0	0.0	0.0	15.6	178.3	17.7	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	81.7	12.4	6.7	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,892.1	32.9	6.4	28.7	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3,064.1	0.0	19.5	53.3	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	3.1	1,244.1	215.1	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	9.9	1,049.3	140.2	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	318.4	0.2	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	110.7	55.3	0.0	0.0	0.0
10	0.0	0.0	4.2	0.0	0.0	0.0	0.0	26.8	0.3	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	83.2	0.0	0.0
15	0.0	0.0	0.0	0.0	150.8	0.0	0.0	0.0	45.6	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	3.1	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	6.8	0.0	266.6	0.0	0.0	0.0	0.0
20	0.0	1,950.3	0.0	0.0	0.0	136.4	175.5	1,265.5	0.0	0.0	0.0	0.0
21	0.0	91.0	0.0	0.0	0.0	100.0	59.8	95.6	0.0	0.0	0.0	0.0
22	0.0	27.8	0.0	2.8	0.0	130.6	372.2	140.6	0.0	0.0	0.0	0.0
23	0.0	0.5	0.0	24.8	0.0	0.0	1.0	42.1	20.7	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.1	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	27.5	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.5	0.0	3.9	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.2	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	68.1	0.0	0.0	0.0
30	0.0	0.0	27.2	0.0	0.0	34.7	0.0	-	673.1	0.0	0.0	0.0
31	0.0	0.0	-	0.0	-	0.0	0.0	-	52.5	-	0.0	-
Minimum	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Maximum	**0.0**	**1,950.3**	**27.2**	**24.8**	**150.8**	**136.4**	**372.2**	**3,064.1**	**673.1**	**92.8**	**53.3**	**0.0**
Average	**0.0**	**66.8**	**2.0**	**0.9**	**5.0**	**13.2**	**23.6**	**350.1**	**50.3**	**8.2**	**2.6**	**0.0**
Total (af)	**0.0**	**4,105.0**	**116.9**	**54.8**	**299.7**	**812.9**	**1,449.5**	**20,139.9**	**3,090.5**	**486.7**	**162.7**	**0.0**

Note: On dates highlighted in grey, stormwater was recharged in diversion basins. Stormwater can continue to be recharged for several days after a storm has passed.

Appendix D2
Daily Diversions to Recharge Basins on the San Sevaine Creek Tributary System, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	0.1	0.1	4.3	0.2	0.2	0.2	0.1	185.5	7.6	9.0	1.9	0.8
2	0.1	0.1	15.3	0.2	0.2	0.2	0.1	15.6	175.3	8.2	1.5	0.8
3	0.1	0.1	7.0	0.7	0.2	0.2	69.6	6.5	23.0	7.3	1.1	0.7
4	0.1	0.1	0.1	0.7	0.2	0.2	0.1	161.7	20.0	6.4	0.7	0.7
5	0.1	0.1	0.2	0.7	0.2	0.2	0.1	130.2	9.6	13.1	53.3	0.6
6	0.1	0.1	0.2	0.7	0.2	0.2	0.1	35.6	83.6	6.0	3.5	0.5
7	0.1	0.1	0.2	0.7	0.2	0.2	9.9	34.2	108.4	5.7	3.0	0.5
8	0.1	0.1	0.2	0.7	0.2	0.2	0.1	8.1	17.1	5.5	2.5	0.4
9	0.1	0.1	0.2	0.2	0.2	0.2	0.1	18.4	15.3	5.5	2.0	0.4
10	0.1	0.1	4.2	0.2	0.2	0.2	0.1	6.5	12.5	5.6	1.8	0.3
11	0.1	0.1	0.2	0.2	0.2	0.2	0.1	6.5	9.6	5.7	1.8	0.4
12	0.1	0.1	0.2	0.2	0.2	0.2	0.1	6.5	9.1	5.4	1.7	0.4
13	0.1	0.1	0.2	0.2	0.2	0.2	0.1	6.5	8.7	18.8	1.6	0.4
14	0.1	0.1	0.2	0.2	0.2	0.2	0.1	6.7	6.2	83.2	1.5	0.4
15	0.1	0.1	0.2	0.2	82.0	0.2	0.1	5.3	45.6	6.3	1.7	0.4
16	0.1	0.1	0.2	0.2	0.2	0.2	0.1	4.4	5.7	5.7	1.7	0.4
17	0.1	0.1	0.2	0.2	0.2	0.2	0.1	3.7	5.5	4.3	1.6	0.4
18	0.1	0.1	0.2	0.2	0.2	0.2	0.1	3.2	5.2	3.8	1.5	0.4
19	0.1	0.1	0.2	0.2	0.2	6.8	0.1	61.4	5.0	3.6	1.4	0.4
20	0.1	249.5	0.2	0.2	0.2	136.4	80.6	262.2	4.9	3.4	1.2	0.4
21	0.1	91.0	0.2	0.2	0.2	3.9	59.8	55.7	4.6	3.3	1.2	0.3
22	0.1	4.3	0.2	0.2	0.2	130.6	114.5	12.7	4.4	3.2	1.1	0.3
23	0.1	1.8	0.2	24.8	0.2	0.1	0.1	10.7	20.7	3.3	1.1	0.3
24	0.1	0.7	0.2	0.2	0.2	0.1	0.1	9.8	17.1	3.3	1.0	0.3
25	0.1	0.1	0.2	0.2	0.2	0.1	27.5	9.0	2.7	3.2	1.0	0.3
26	2.9	0.1	0.2	0.2	0.2	0.1	0.1	13.0	3.1	3.2	1.0	0.3
27	2.9	0.1	0.2	0.2	0.2	0.1	0.1	12.2	4.1	3.2	0.9	0.3
28	0.1	0.1	0.2	0.2	0.2	0.1	0.1	4.5	4.5	3.2	0.9	0.3
29	0.1	0.1	0.2	0.2	0.2	0.1	0.1	3.9	4.5	3.2	0.8	0.3
30	0.1	0.1	27.2	0.2	0.2	34.7	0.1	-	247.4	2.8	0.8	0.3
31	0.1	0.1	-	0.2	-	0.1	0.1	-	52.5	-	0.8	-
Minimum	**0.1**	**0.1**	**0.1**	**0.2**	**0.2**	**0.1**	**0.1**	**3.2**	**2.7**	**2.8**	**0.7**	**0.3**
Maximum	**2.9**	**249.5**	**27.2**	**24.8**	**82.0**	**136.4**	**114.5**	**262.2**	**247.4**	**83.2**	**53.3**	**0.8**
Average	**0.3**	**11.3**	**2.1**	**1.1**	**2.9**	**10.2**	**11.7**	**37.9**	**30.4**	**8.1**	**3.1**	**0.4**
Total (af)	**16.3**	**693.5**	**125.8**	**68.2**	**175.1**	**629.1**	**722.0**	**2,182.5**	**1,871.4**	**484.7**	**192.9**	**25.1**

Note: On dates highlighted in grey, stormwater was recharged in diversion basins. Stormwater can continue to be recharged for several days after a storm has passed.

Appendix D3
Estimated Daily Dry-Weather Flows Captured by Diversion Basins, (cfs)

Day	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
1	0.1	0.1	0.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	1.9	0.8
2	0.1	0.1	0.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	1.5	0.8
3	0.1	0.1	7.0	0.7	0.2	0.2	0.0	0.0	0.0	7.3	1.1	0.7
4	0.1	0.1	0.1	0.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.7
5	0.1	0.1	0.2	0.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.6
6	0.1	0.1	0.2	0.7	0.2	0.2	0.0	0.0	0.0	6.0	3.5	0.5
7	0.1	0.1	0.2	0.7	0.0	0.2	0.0	0.0	0.0	5.7	3.0	0.5
8	0.1	0.1	0.2	0.7	0.0	0.2	0.0	0.0	0.0	5.5	2.5	0.4
9	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	5.5	2.0	0.4
10	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	5.6	1.8	0.3
11	0.1	0.1	0.2	0.2	0.0	0.0	0.0	6.5	9.6	5.7	1.8	0.4
12	0.1	0.1	0.2	0.2	0.0	0.0	0.0	6.5	9.1	0.0	1.7	0.4
13	0.1	0.1	0.2	0.2	0.0	0.0	0.0	6.5	0.0	0.0	1.6	0.4
14	0.1	0.1	0.2	0.2	0.0	0.0	0.0	6.7	6.2	0.0	1.5	0.4
15	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	6.3	1.7	0.4
16	0.1	0.1	0.2	0.2	0.0	0.0	0.0	4.4	5.7	2.6	1.7	0.4
17	0.1	0.1	0.2	0.2	0.2	0.0	0.0	3.7	5.5	4.3	1.6	0.4
18	0.1	0.1	0.2	0.2	0.2	0.0	0.0	3.2	0.0	3.8	1.5	0.4
19	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.0	5.0	3.6	1.4	0.4
20	0.1	0.0	0.2	0.2	0.2	0.0	0.0	0.0	4.9	3.4	1.2	0.4
21	0.1	0.0	0.2	0.2	0.2	0.0	0.0	0.0	4.6	3.3	1.2	0.3
22	0.1	0.0	0.2	0.0	0.2	0.0	0.0	0.0	4.4	3.2	1.1	0.3
23	0.1	1.3	0.2	0.0	0.2	0.0	0.0	0.0	0.0	3.3	1.1	0.3
24	0.1	0.7	0.2	0.2	0.2	0.0	0.0	9.8	0.0	3.3	1.0	0.3
25	0.1	0.1	0.2	0.0	0.2	0.0	0.0	9.0	0.0	3.2	1.0	0.3
26	2.9	0.1	0.2	0.0	0.2	0.0	0.1	0.0	0.0	0.0	1.0	0.3
27	2.9	0.1	0.2	0.2	0.2	0.0	0.1	0.0	0.0	3.2	0.9	0.3
28	0.1	0.1	0.2	0.2	0.2	0.0	0.1	4.5	0.0	3.2	0.9	0.3
29	0.1	0.1	0.2	0.2	0.2	0.0	0.1	0.0	0.0	3.2	0.8	0.3
30	0.1	0.1	0.0	0.2	0.2	0.0	0.1	-	0.0	2.8	0.8	0.3
31	0.1	0.1	-	0.2	-	0.0	0.0	-	0.0	-	0.8	-
Minimum	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**
Maximum	**2.9**	**1.3**	**7.0**	**0.7**	**0.2**	**0.2**	**0.1**	**9.8**	**9.6**	**7.3**	**3.5**	**0.8**
Average	**0.3**	**0.1**	**0.4**	**0.3**	**0.1**	**0.1**	**0.0**	**2.1**	**1.8**	**3.1**	**1.4**	**0.4**
Total (af)	**16.3**	**8.7**	**24.6**	**17.6**	**8.6**	**3.4**	**1.1**	**120.7**	**109.1**	**186.6**	**85.8**	**25.1**

Note: On dates highlighted in grey, stormwater was recharged in diversion basins. Stormwater can continue to be recharged for several days after a storm has passed. On dates when stormwater diversions are measured after storm flow has stopped, dry-weather flows could not be estimated and are assumed to be zero. Within each storm period, however, any diversions in excess of total WLAM estimated stormflow are assumed to be dry-weather flows.

CHINO BASIN WATERMASTER

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STAFF REPORT

DATE: October 24, 2024

TO: Board Members

SUBJECT: Annual and Semi-Annual Plume Status Reports (Business Item II.B.)

Issue: The Annual and Semi-Annual Plume Status Reports for FY 23/24 have been completed [Information Only]

Recommendation: None.

Financial Impact: None.

Future Consideration
Watermaster Board – October 24, 2024: Approval.

BACKGROUND

Chino Basin Watermaster (Watermaster), at the Court's direction, developed the Optimism Basin Management Program (OBMP) through a collaborative stakeholder process in 2000. One of the goals of the OBMP was to "Protect and Enhance Water Quality" to ensure the protection of the long-term beneficial uses of Chino Basin groundwater. The OBMP includes multiple Program Elements with actions to protect and enhance water quality. Program Element 6 is to Develop and Implement Cooperative Programs with the Regional Board and Other Agencies to Improve Basin Management. Program Element 6 was designed to assess groundwater quality trends in the Basin, evaluate the impact of OBMP implementation on groundwater quality, determine whether point and non-point contamination sources are being addressed by regulators, and enable collaboration with water quality regulators, in particular the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board), to identify and facilitate the cleanup of soil and groundwater contamination.

Pursuant to Program Element 6, Watermaster has committed resources to managing water quality contaminants as follows:

- Identify water quality anomalies through monitoring and analysis.
- Assisting the Santa Ana Water Board in determining sources of water quality anomalies.
- Establishing priorities for clean-up jointly with the Santa Ana Water Board; and seeking funding from outside sources to accelerate detection and cleanup efforts.
- Identifying opportunities to remove organic contaminants through regional groundwater treatment projects in the southern half of the Basin; and collaborating with the Chino Desalter Authority to implement such solutions.
- Conducting investigations to assist the Santa Ana Water Board in accomplishing mutually beneficial objectives.

Much of the work listed above was started by the Chino Basin Water Quality Committee from 2003 through 2010. Since 2010, Watermaster has supported ongoing monitoring and analysis to ensure the efforts to manage water quality contamination under Program Element 6 are achieving the intended outcomes and identify any outcomes that may be of concern. This primarily involves analyzing water quality data to assess the movement of identified groundwater plumes in the Basin and tracking the activities of plume cleanup by the responsible parties and the regulatory oversight of the Santa Ana Water Board, but also includes as-needed work to support the Santa Ana Water Board or others in assessing groundwater quality conditions in and around the plumes.

DISCUSSION

As part of the ongoing work for Program Element 6, Watermaster prepares plume status reports for the known point-source contaminant plumes in the Chino Basin. Six plumes are reported on annually which include General Electric (GE) Flatiron Plume, GE Test Cell Plume, Milliken Landfill Plume, Stringfellow Plume, Former Kaiser Steel Mill Plume, and the Chino Institution for Men (CIM) Plume. Two plumes are also reported semi-annually which are the South Archibald Plume and the Chino Airport Plume. These two plumes are reported on more frequently because there is more current activity related to the Santa Ana Water Board regulatory oversight, identification of the responsible parties, and the development and implementation of the appropriate remediation strategy; and both plumes include remedial strategies that include the use of the Chino Basin Desalters.

The plume status reports are standardized with similar sections that describe: the contaminants, location, regulatory orders for cleanup, a summary of the regulatory and monitoring history, the remedial action for cleanup, the monitoring and reporting of plume sampling, and the recent activity. The reports are updated using recent documents available on the State Board's GeoTracker website; data collected by the responsible parties, Watermaster, or others; input and review by the responsible parties for some; and when needed coordination with the Santa Ana Water Board. Each report includes a map exhibit that shows the current delineation of the plume prepared by the Watermaster in the biannual OBMP State of the Basin Reports.

Understanding and tracking the monitoring and remediation activities of groundwater contaminant plumes is critical to the overall management of groundwater quality to ensure that Chino Basin groundwater remains a sustainable resource. This knowledge is also important for assessing the potential impacts on nearby drinking water wells or recharge basins, and evaluating potential material physical injury of the basin related to the movement of plumes from recharge activities, water transfers, and storage programs.

A presentation containing up to date plumes status was provided to the Pool Committees on October 10, 2024 and the Advisory Committee on October 17, 2024 as an informational item.

ATTACHMENTS

1. Chino Airport Semi-Annual Plumes Status Report
2. South Archibald Semi-Annual Plumes Status Report
3. Annual Plumes Status Report

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Semi-Annual Plume Status Report

Chino Airport Plumes
October 2024

CONTAMINANTS

San Bernardino County Department of Airports (County) identifies four primary volatile organic compound (VOC) contaminants associated with the Chino Airport groundwater plumes: trichloroethene (TCE), 1,2,3-trichloropropane (1,2,3-TCP), cis-1,2-dichloroethene (cis-1,2-DCE), and 1,2-dichloroethane (1,2-DCA) with TCE and 1,2,3-TCP being the most frequently detected contaminants at the highest concentrations. For each of the four primary contaminants, the table below lists the California maximum contaminant level (MCL) and the maximum concentrations detected in groundwater samples from wells within the plumes over the last five years.

Table 1. Maximum Concentration of Contaminants of Concern between July 2019 to June 2024

Contaminant	MCL, micrograms per liter (µgl)	Max Concentration, µgl	Sample Date	Well
TCE	5	860	April 2023	CAMW30
1,2,3-TCP	0.005	22	April 2023	CAMW13-I
cis-1,2-DCE	6	26	April 2023	CAMW30
1,2- DCA	0.5	1.4	June 2020	CAMW56

Secondary contaminants of concern include 1,1-dichloroethene (1,1-DCE), carbon tetrachloride, 1,4-dioxane, tert-butyl alcohol (TBA), and 1,4-dichlorobenzene.

LOCATION

The Chino Airport is located in the southwestern portion of the Chino Basin within the City of Chino. Exhibit 1 shows the spatial extent of the TCE and 1,2,3-TCP plumes in groundwater, as delineated by both the Chino Basin Watermaster (Watermaster) for the *2022 State of the Basin Report* and the County for their *Semiannual Groundwater Monitoring Report – Winter and Spring 2023*.[1,2] The delineations prepared

[1] West Yost. (2023). *Optimum Basin Management Program – 2022 State of the Basin Report*. Prepared for the Chino Basin Watermaster. June 2023.

[2] Tetra Tech. (2023). *Semiannual Groundwater Monitoring Report-Winter and Spring 2023*. Prepared for San Bernardino County Department of Airports. December 2023.

by Watermaster show the spatial extent of the plumes with detectable concentrations of TCE and 1,2,3-TCP based on the five-year maximum concentrations measured over the period of July 2017 to June 2022. The delineations by the County show the area where TCE concentrations are greater than or equal to the MCL of 5 micrograms per liter (µgl), and where 1,2,3-TCP concentrations are greater than or equal to the MCL of 0.005 µgl, based on concentrations measured during the 2023 winter and spring sampling events and data provided by Chino Basin Desalter Authority (CDA) for the desalter wells within the plumes.

The County characterizes West and East plumes, originating from two different main source areas at the Chino Airport. TCE and 1,2,3-TCP concentrations are higher within the West plumes than the East plumes, and the extent of the West plumes are also longer. The West and East TCE plumes have been interpreted as comingling within the airport boundaries since 2017. The West and East 1,2,3-TCP plumes were shown to be comingled within the airport property for the first time in 2021.

TCE and 1,2,3-TCP Plumes

The extent of the West TCE Plume with detectable TCE concentrations greater than 0.5 µgl is about 2.5 miles long. The plume extends south-southwest approximately two miles from the source area to just north of Pine Avenue and then turns southeast extending another 0.6 miles in this direction terminating south of Pine Avenue. The change in direction of the plume in this area may be associated with the location of the Central Avenue Fault that forms a local groundwater barrier and historical pumping at irrigation wells. The source of the smaller East TCE Plume is approximately 1,500 feet northeast of the source of the West TCE Plume. The East TCE Plume comingles with the West TCE Plume on the airport property and extends southeast from the source area about 0.8 miles towards CDA well I-20. The known lateral extent of TCE at concentrations above the MCL covers an area of approximately 785 acres.

The extent of the West 1,2,3-TCP Plume with detectable 1,2,3-TCP concentrations greater than 0.005 µgl follows the same general path as the West TCE Plume and extends about 2.9 miles southwest past Pine Avenue and follows the same pathway as the West TCE Plume, turning southeast for approximately 0.6 miles just east of Euclid Avenue. The smaller East 1,2,3-TCP Plume is approximately 0.7 miles lengthwise trending south and comingles with the West 1,2,3-TCP Plume on airport property. The known lateral extent of 1,2,3-TCP in groundwater above the MCL currently covers an area of approximately 1,940 acres.

Over time, the vertical and lateral extents of the plumes have changed in response to groundwater production at nearby wells and other hydrological factors. Since monitoring began, groundwater production at CDA wells I-1, I-2, and I-3 has increased the vertical thickness of the West Plumes by more than 100 feet, and the pumping from the Chino II desalter wells east of the Airport and CDA wells I-20 and I-21 has drawn the East plumes laterally in a southeast direction. Additionally, detections of 1,2,3-TCP in 2022 indicated that the low concentration portion of the 1,2,3-TCP plume south of Pine Avenue may exist further to the south, compared to earlier interpretation.

REGULATORY ORDERS

- Cleanup and Abatement Order (CAO) No. 90-134 for the County of San Bernardino Department of Airports, Chino Airport—Issued to the County to address the groundwater contamination originating from the Chino Airport.
- CAO No. R8-2008-0064 for the San Bernardino County Department of Airports, Chino Airport—Required the County to define the lateral and vertical extent of the plume offsite from the Chino Airport and prepare a remedial action plan (RAP).

- CAO No. R8-2017-0011 for the San Bernardino County Department of Airports, Chino Airport—Required the County to respond to Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) comments on the draft Feasibility Study and submit a final Feasibility Study. Additionally, it required the County to submit a final RAP within 60 days of the Santa Ana Water Board approval of the Final Feasibility Study and implement the RAP.

REGULATORY AND MONITORING HISTORY

In 1990, the Santa Ana Water Board issued CAO No. 90-134 to address groundwater contamination originating from the Chino Airport. From 1991 to 1992, ten inactive underground storage tanks and 310 containers of hazardous waste were removed, and 81 soil borings were drilled and sampled on the Chino Airport property. From 2003 to 2005, nine onsite monitoring wells were installed and used to collect groundwater quality samples. In 2007, the County conducted its first offsite groundwater characterization effort, which included 22 cone penetrometer tests (CPT) and direct push borings from which water quality samples were collected. In 2008, the Santa Ana Water Board issued CAO No. R8-2008-0064, requiring the County to define the lateral and vertical extent of the plume offsite and to prepare a RAP. From 2009 to 2012, 33 offsite monitoring wells were installed at 15 locations to characterize the extent of the contamination downgradient from the Chino Airport property. From 2013 to 2014, the County conducted an extensive investigation of 20 areas of concern identified for additional characterization of the soil and groundwater contamination associated with the Chino Airport. The investigative work included: piezocone-penetrometer tests, vertical-aquifer-profiling (VAP) borings with depth-discrete groundwater sampling, soil-gas probe sampling, high-resolution soil sampling and analysis, real-time data analysis, and three-dimensional contaminant distribution modeling. Following the completion of this investigative work, from September 2014 through February 2015, an additional 33 groundwater monitoring wells were installed in 17 locations on and adjacent to the Chino Airport property.

The County completed a draft feasibility study in August 2016 that identified remedial action objectives for groundwater contaminants originating from the Chino Airport and evaluated potential remediation alternatives for mitigation.[3] On January 11, 2017, the Santa Ana Water Board issued CAO R8-2017-0011 to the County, which superseded CAO R8-2008-0064. The order required that the County: (1) submit a final feasibility study within 60 days of receiving the Santa Ana Water Board's comments on the draft feasibility study, (2) submit a final RAP within 60 days of the Santa Ana Water Board approval of the final feasibility study, (3) implement the RAP in accordance with a Santa Ana Water Board-approved schedule, and (4) prepare and submit technical reports and work plans as the Santa Ana Water Board deems necessary. The County submitted the final feasibility study on May 15, 2017.[4] The feasibility study identified a groundwater pump-and-treat system as the preferred remedial action to provide hydraulic containment and cleanup of both the West and the East Plumes. The Santa Ana Water Board approved the final feasibility study on June 7, 2017, and requested that a RAP be prepared.

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[3] Tetra Tech. (2016). *Draft Feasibility Study Chino Airport San Bernardino County, California*. Prepared for San Bernardino County Department of Airports. August 2016.

[4] Tetra Tech. (2017). *Final Feasibility Study Chino Airport San Bernardino County, California*. Prepared for San Bernardino County Department of Airports. May 2017.

On December 18, 2017, the County submitted a draft interim remedial action plan (IRAP).[5] The IRAP was considered “interim” because the County is moving forward on an interim basis to initiate the remedial action as soon as possible, with the opportunity to evaluate and modify the remedy in the future. The draft IRAP identified a combination of institutional controls, monitored natural attenuation, and groundwater extraction and ex-situ treatment as the best remedial alternative. From April 2018 to January 2019 a CEQA analysis was completed for the proposed remedial strategy.[6] During this time, the Santa Ana Water Board and County went through a series of comments and response to comments on the draft IRAP. Modifications were made to the draft IRAP and the Final IRAP was submitted to the Santa Ana Water Board on May 18, 2020.[7] The Final IRAP was approved by the Santa Ana Water Board on November 4, 2020.

In April and May 2020, the County installed a cluster of three downgradient wells to monitor the increasing concentrations of TCE in wells located along the southeastern plume boundary. While the County was reviewing and finalizing the IRAP, they were simultaneously working on a Human Health and Screening Ecological Risk Assessment (HHERA) to support to the IRAP by identifying remedial actions to protect human health and the environment.[8] A draft of the HHERA was submitted to the Santa Ana Water Board for review in August 2018. The Santa Ana Water Board and the Office of Environmental Health Hazard Assessment reviewed the report and identified several data gaps. The Santa Ana Water Board requested that the County produce a work plan to address these data gaps, including additional shallow soil and soil gas sampling to evaluate the potential presence of VOCs and other contaminants. In July 2021, the Santa Ana Water Board approved the HHERA Data Gap Workplan and in September 2021, the results of the investigation were published in *The Supplemental Vapor Intrusion and Shallow Soil Investigation Report*.[9,10] The report concluded that no further investigation of shallow soils or soil gas was needed in several of the areas investigated, two of the areas investigated may require land-use controls, and one area will require additional investigation. On March 14, 2023, the Santa Ana Water Board approved the *Work Plan for Focused Supplemental Investigation at Areas of Concern EE, HH, and J/K* to perform soil, soil gas, and groundwater sampling at the additional locations, and vapor sampling at various buildings.[11]

[5] Tetra Tech. (2017). *Draft Interim Remedial Action Plan Chino Airport, San Bernardino County, California*. Prepared for San Bernardino County Department of Airports. December 2017.

[6] Filing of the Notice of Determination for the Mitigated Negative Declaration was completed on January 29, 2019.

[7] Tetra Tech. (2020). *Final Interim Remedial Action Plan Chino Airport San Bernardino County, California*. Prepared for San Bernardino County Department of Airports. May 18, 2020.

[8] Tetra Tech. (2018). *Human Health and Screening Ecological Risk Assessment Chino Airport San Bernardino County, California*. Prepared for San Bernardino County Department of Airports. August 8, 2018.

[9] Tetra Tech. (2021). F*inal Work Plan for Supplemental Data Collection for Vapor Intrusion and Shallow Soil, Chino Airport, San Bernardino County, California*. Prepared for San Bernardino County Department of Airports. April 9, 2021.

[10] Tetra Tech. (2021). *Supplemental Vapor Intrusion and Shallow Soil Investigation Report, Chino Airport, San Bernadino County, California*. Prepared for San Bernardino County Department of Airports. September 2021.

[11] Tetra Tech. (2023). *Work Plan for Focused Supplemental Investigation at Areas of Concern EE, HH, and J/K, Chino Airport, San Bernadino County, California*. Prepared for the California Regional Water Quality Control Board, Santa Ana Region. January 3, 2023.

In January 2022, the County completed construction of six piezometers at four locations in the Prado Basin riparian habitat area southwest of the airport (see Exhibit 1) to monitor potential impacts to shallow groundwater from pumping at the proposed County extraction wells.[12,13]

REMEDIAL ACTION

As described in the IRAP, remedial action for the TCE and 1,2,3-TCP plumes will consist of a groundwater pump-and-treat system, institutional controls, and monitored natural attenuation. The groundwater pump-and-treat system well network will include a total of twenty-two wells located across ten extraction well sites (EW-1 through EW-10) both onsite and offsite. Due to the depth of the plumes, each extraction well site will consist of up to three individual extraction wells to focus extraction at different depths. Exhibit 1 shows the location of the ten proposed extraction well sites.

To assist in the design of the groundwater pump-and-treat system, the County installed two of the extraction well sites (EW-2 and EW-5) in 2018, along with twelve piezometers and eleven monitoring wells, and conducted aquifer pumping tests at these locations. The findings were submitted to the Santa Ana Water Board on June 19, 2019 and used by the County to refine the design of the system.[14] Altogether, the extraction wells are predicted to produce 1,700 gallons per minute (gpm) of groundwater, with individual wells ranging from 20-150 gpm each. The extraction well network will also include existing CDA wells I-16, I-17, and I-18 to pump up to an additional 500 gpm of groundwater, and potentially CDA wells I-20 and I-21 if treatment is required.

Extracted groundwater will be conveyed via a pipeline network to the main raw water influent line to the existing CDA Chino-I Desalter facility, where it will be treated for VOCs (including 1,2,3-TCP and TCE) at a new granular activated carbon (GAC) treatment system constructed at the CDA's existing Chino-I Desalter facility (South GAC system). The South GAC system is designed to treat a total flow of 2,325 gpm from the County extraction wells and CDA wells I-16, I-17, I-18, and can be expanded to 3,125 gpm for CDA wells I-20 and I-21 if needed. Other treatment processes may also be added as needed to treat increasing concentrations of constituents or if there are new regulatory limits. The CDA designed and constructed the treatment system and is operating it, and the County is providing the funding. An additional treatment system, the North GAC Treatment System was also constructed by CDA to treat water from four CDA wells (I-I through I-4) that produce from the lower aquifer; however, this system is not associated with the County's remedial action.

Once treated at the South GAC system, water will be conveyed to the existing Chino-I Desalter that uses reverse osmosis and ion exchange to treat for nitrates and total dissolved solids (TDS), both of which are regional contaminants and not associated with Chino Airport operations or plumes. Treated water will be discharged for use as potable municipal water supply.

On December 8, 2021, the County submitted the *Final Preliminary Well Design Report* for the pump-and-treat system for remediation of the plumes and began working on a remedial action work plan (RAWP) to

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[12] Tetra Tech. (2021). *Work Plan for Installation of Piezometers for Riparian Area Monitoring, Chino Airport, San Bernardino County, California*. Prepared for San Bernardino County Department of Airports. May 17, 2021.

[13] Tetra Tech. (2022). *Riparian Area Piezometer Installation Report, Chino Airport Groundwater Assessment, San Bernadino County, California*. Prepared for San Bernardino County Department of Airports. October 28, 2022.

[14] Tetra Tech. (2019). *Well Installation, Well Destruction, and Aquifer Pumping Test Report, Chino Airport, San Bernardino County, California*. Prepared for San Bernardino County Department of Airports. June 19, 2019.

provide a detailed description of the remediation and construction activities associated with the implementation of the remedial action, including the construction and installation of the extraction wells, pipelines for conveyance of extracted groundwater, and the groundwater treatment system.[15] The 2022 RAWP was submitted to the Santa Ana Water Board on July 22, 2022.[16]

The RAWP divides the construction of the pump-and-treat system into two phases: Phase 1 includes the construction of onsite extraction wells and conveyance piping, as well as five monitoring wells; and Phase 2 includes the construction of offsite extraction wells and conveyance piping. For Phase 1, five extraction wells at two onsite well sites (EW-2 and EW-5) were installed in 2018 and the remaining five extraction wells at three onsite well sites (EW-1, EW-3, and EW-4) were constructed in 2023. Wells will go into operation once the conveyance system is constructed and tested and wells are developed, tested, and approved by State Water Resources Control Board Division of Drinking Water (DDW). Because the 2022 RAWP only addresses Phase 1 construction, an addendum to the RAWP will be submitted at a later date for Phase 2 construction of the remaining extraction wells at five offsite well sites and the conveyance piping.

In April 2023, pumping began at CDA wells I-17 and I-18 within the Chino Airport West plumes offsite and treatment of groundwater from these wells commenced at the South GAC System at Chino-I Desalter. CDA well I-17 has been offline since 2017 and CDA well I-18 has never been in operation.

MONITORING AND REPORTING

On May 5, 2023, the County submitted a *Sampling and Analysis Plan Update (SAP)*.[17] The update was prepared to quality assurance and quality control (QA/QC) procedures, as well as provide guidance for field operations and environmental sampling activities. The SAP will continue to be updated as necessary as site conditions and activities change and updates become available for analytical methods, field procedures, screening levels, and guidelines for data validation.

Currently the County conducts quarterly, annual, or biennial water quality monitoring at 89 site-related monitoring wells and four on-site agricultural wells to monitor the plume extents. The sampling frequency is determined by well classification (i.e., background wells, horizontal or vertical extent wells, seasonal/increasing trend wells, and guard wells). The County also conducts quarterly water-level monitoring at the 89 site-related monitoring wells, five extraction wells, 12 onsite piezometers (two of which were destroyed in June 2023), and six riparian habitat area piezometers. All water quality data collected by the County are posted on the State Water Resources Control Board's GeoTracker website.[18] Conclusions from the monitoring program can also be found in the semi-annual reports posted on GeoTracker. The most recent monitoring report, the *Semiannual Groundwater Monitoring Report-Winter*

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[15] Tetra Tech. (2021). *Final Preliminary Well Design Report, Chino Airport, San Bernardino County, California.* Prepared for San Bernardino County Department of Airports. December 8, 2021.

[16] Tetra Tech. (2022). *Remedial Action Work Plan, Chino Airport, San Bernardino County, California.* Prepared for San Bernardino County Department of Airports. July 22, 2022.

[17] Tetra Tech. (2023). *Sampling and Analysis Plan Update, Chino Airport, San Bernardino County, CA*. Prepared for San Bernardino County Department of Airports. May 5, 2023.

[18] https://geotracker.waterboards.ca.gov/profile_report?global_id=SL208634049

and Spring 2023, was submitted to the Santa Ana Water Board on December 14, 2023.[19] Additionally, in cooperation with the CDA, the County has been sampling extraction wells and selected proxy monitoring wells since fall 2021 to submit baseline water quality data to DDW for compliance with the Policy Memo 97-005 and CDA's drinking water permit. As of October 2023, the 97-005 data is also being submitted to the Santa Ana Water Board and reports of the monitoring results are available on GeoTracker.

Watermaster also collects groundwater quality samples from private wells in the plume area and at its HCMP-4 monitoring well, located in the southern end of the plumes. Additionally, the CDA collects groundwater quality samples from its production wells; these data are shared with Watermaster and the County. Watermaster uses data from the County, CDA, and its own sampling to perform an independent characterization of the areal extent and concentration of the TCE and 1,2,3-TCP plumes.

RECENT ACTIVITY

In June 2024, the County submitted a monitoring and reporting plan for the pump-and-treat system at the Chino Airport.[20]

Also in June 2024, the County submitted preliminary results to the Santa Ana Water Board on June 25th from the recent soil gas investigations at the Chino Airport performed pursuant to a January 2024 Work Plan and a proposed plan for the next phase of work inclusive of additional sampling and the construction of additional monitoring wells.[21] This information was provided to the Santa Ana Water Board in advance of a scheduled meeting on June 27, 2024. The County proposed to install six new monitoring wells to monitor the extent of the plumes, and/or areas where high concentrations were detected for the contaminants of concern in the vapor sampling. Exhibit 1 shows the locations of the proposed monitoring wells. On July 19, 2024, the Santa Ana Water Board emailed the County to concur with these proposed additional locations for sampling groundwater at the Chino Airport that were presented on June 25, 2024 and discussed at the June 27, 2024 meeting.

The County has continued quarterly monitoring events through the third quarter of 2024. The most recent semi-annual groundwater monitoring report prepared by the County was submitted to the Regional Board in April 2024 for the summer and fall 2023 sampling events conducted in July and October 2023.[22] The summer and fall quarterly monitoring events are less comprehensive, and monitoring reports are more abbreviated than the winter and spring events. Concentrations of TCE, 1,2,3-TCP, and the other contaminants of concern above the MCL were consistent with previous monitoring.

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[19] Tetra Tech. (2023). *Semiannual Groundwater Monitoring Report- Winter and Spring 2023*. Prepared for San Bernardino County Department of Airports. December 14, 2023.

[20] Tetra Tech (2024) Groundwater Extraction and Treatment System Monitoring and Reporting Plan Chino Airport San Bernardino County, California.

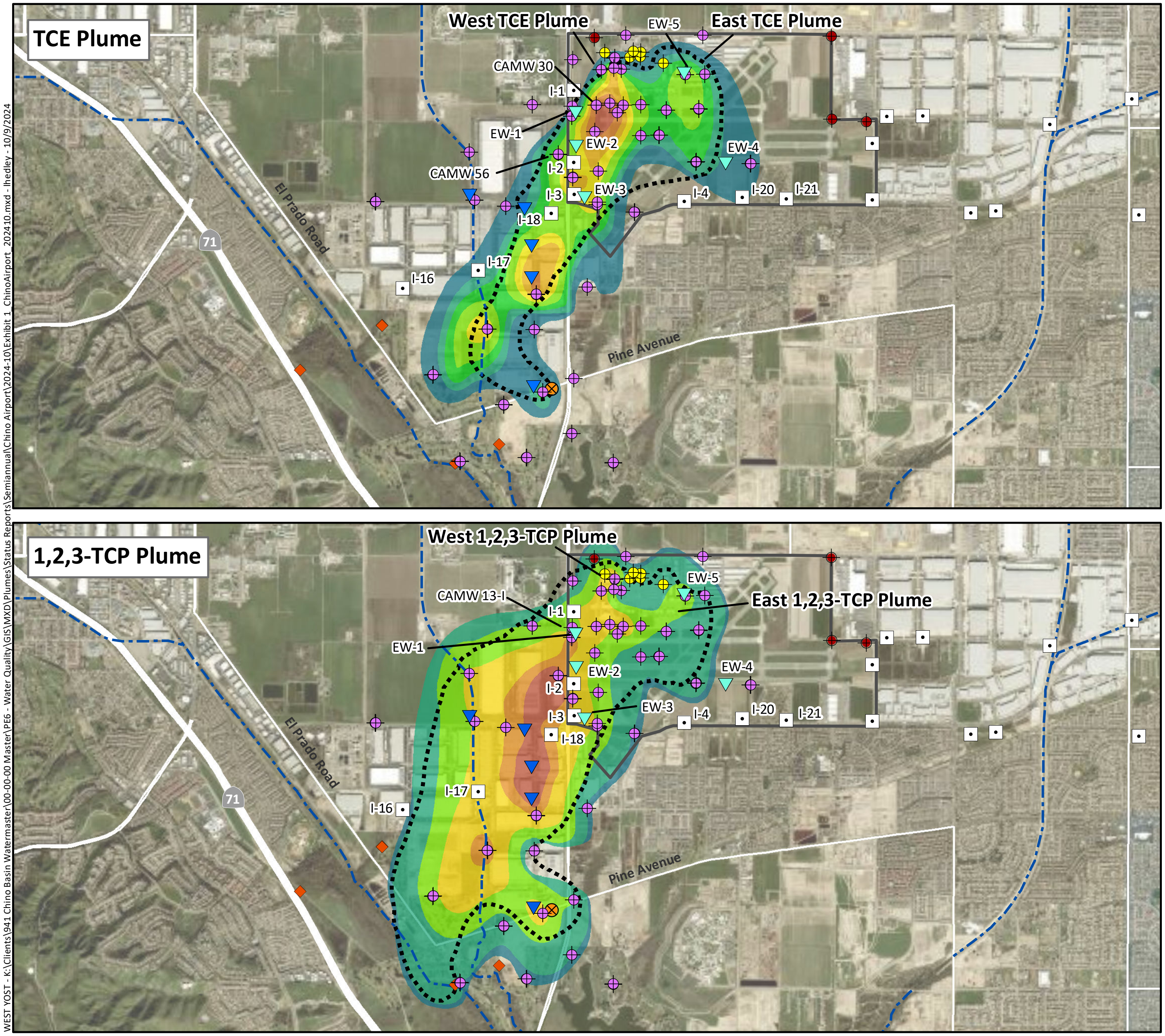
[21] Tetra Tech. (2024). *Final Work Plan Addendum for Focused Supplemental Investigation at Areas of Concern EE, HH, and J/K, – Chino Airport, San Bernardino County, California*. Prepared for the San Bernardino County Department of Airports. January 19, 2024

[22] Terta Tech (2024). *Semiannual Groundwater Monitoring Report Summer and Fall 2023 Chino Airport San Bernardino County, California*. April 2024

The most recent report submitted to the Regional Board and on GeoTracker for results from the DDW 97-005 Policy Memo baseline groundwater sampling for the South GAC System, is for the 2023 quarter 1 and 2 sampling.[23]

The County continues to work on the construction of the pump-and-treat system for the onsite portion of the system (Phase 1).   The installation and development of onsite extraction wells EW-1, EW-3, and EW-4 and their associated piezometers were completed in the first quarter of 2024. Installation of the raw water conveyance piping is nearly 90 percent complete with only a few small pipeline sections and tie ins to the existing pipeline at Kimball Avenue remaining. Remaining items to be completed include electrical power being brought into each well site by Southern California Edison, installation of the main control center panels and equipment, pressure testing and disinfection of the pipelines, installation of fiber optic cable and equipment, and final startup testing and sampling of each well site.

[23] Tetra Tech. (2023). *Groundwater Sampling and Analysis Results for Developing Baseline Water Quality – First Quarter and Second Quarter 2023*, *Groundwater Monitoring for Policy Memo 97-005 Purposes, Chino Airport Project, County of San Bernardino*. September 28, 2023.



Maximum Concentration (µgL)
July 2017 - June 2022

TCE	1,2,3-TCP
0.5 to ≤ 5	> 0.0025 to ≤ 0.005
> 5 to ≤ 10	> .005 to ≤ .05
> 10 to ≤ 20	> .05 to ≤ .5
> 20 to ≤ 50	> 0.5 to ≤ 5
> 50 to ≤ 100	>5 to ≤10
> 100 to ≤ 200	> 10
> 200 to ≤ 500	
> 500	

MCL = 5 µgl

1,2,3-TCP MCL = 0.005 µgl

(Delineated by Watermaster in the 2022 SOB Report)

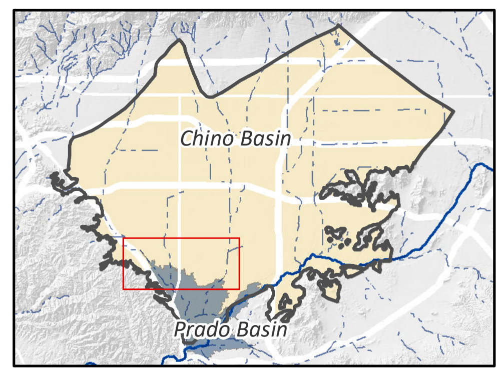
Approximate Extent of TCE (>5 µgl) or 1,2,3-TCP (>0.005 µgl) Plume

(Delineated by the County of San Bernardino for the Winter/Spring 2023 Groundwater Monitoring Report)

- County of San Bernardino Monitoring Well (Some locations have multiple well casings at various depths)
- Former Agricultural Well
- Piezometer Near Prado Basin Habitat
- HCMP Monitoring Well 4
- Extraction Well Site
- Location of Future Extraction Well Site
- Proposed wells for HHERA
- CDA Production Well

Wells are labeled by well name if mentioned in the report

- Chino Airport Boundary
- Streams & Flood Control Channels



Prepared by:

WEST YOST

N

0 1 Miles

0 1 2 Km

Prepared for:

Chino Basin Watermaster
Semi-Annual Plume Report

Chino Airport
TCE and 1,2,3-TCP Plumes

Exhibit 1

WEST YOST - K:\Clients\941 Chino Basin Watermaster\00-00-00 Master\PE6 - Water Quality\GIS\MXD\Plumes\Status Reports\Semiannual\Chino Airport\2024-10\Exhibit 1_ChinoAirport_20241010.mxd - lhedley - 10/9/2024

23692 Birtcher Drive
Lake Forest CA 92630

949.420.3030 phone
530.756.5991 fax
westyost.com

Semi-Annual Plume Status Report

South Archibald Plume
October 2024

CONTAMINANTS

The primary contaminant is trichloroethene (TCE). The California maximum contaminant level (MCL) for TCE is 5 micrograms per liter (µgl). The maximum TCE concentration detected in a groundwater sample collected from wells within the plume during the last five years (July 2019 to June 2024) is 74 µgl.

LOCATION

The South Archibald TCE plume is located in the southern Chino Basin within the City of Ontario. Exhibit 1 shows the spatial extent of the plume with detectable TCE concentrations equal to or greater than 0.5 µgl, as delineated by the Chino Basin Watermaster (Watermaster) for the *2022 State of the Basin Report*.[1] This extent is based on the five-year maximum TCE concentration measured over the period of July 2017 to June 2022. The TCE plume is about 23,200 feet long, extending southward from State Route 60 to approximately Kimball Avenue, and is about 14,300 feet wide extending from Grove Avenue to Turner Avenue. Exhibit 1 also shows the approximate extent of the plume, and extent greater than 5 µgl, delineated by the responsible parties during the most recent sampling event in 2023.

REGULATORY ORDERS

- Draft Cleanup and Abatement Orders (CAOs) — Six Draft CAOs were issued in 2005 to the following parties: Aerojet-General Corporation, The Boeing Company, Northrop Grumman Corporation, Lockheed Martin Corporation, General Electric Company, and United States Department of Defense.
- Draft CAO R8-2012-00XX for the City of Ontario, City of Upland, and Inland Empire Utilities Agency (IEUA), Former Ontario-Upland Sewage Treatment Plant (Regional Recycling Plant No. 1), City of Ontario, San Bernardino County — This CAO was issued jointly to the City of Ontario, City of Upland, and IEUA.
- Stipulated Settlement and CAO No. R8-2016-0016 for the City of Ontario, the City of Upland, the IEUA, Aerojet Rocketdyne, Inc.[2], The Boeing Company, General Electric Company, Lockheed Martin Corporation and the United States of America, Former Ontario-Upland

[1] West Yost. (2023). *Optimum Basin Management Program – 2022 State of the Basin Report.* Prepared for the Chino Basin Watermaster. June 2023.

[2] Formerly known as Aerojet-General Corporation.

Sewage Treatment Plant (Regional Recycling Plant No. 1) City of Ontario— This was the final CAO issued to all parties previously issued draft CAOs in 2005 and 2012, excluding Northrop Grumman.

REGULATORY AND MONITORING HISTORY

In the mid-1980s, as part of its work associated with the Chino Basin Storage Program, the Metropolitan Water District of Southern California took water quality samples that indicated that TCE was present in private wells in the southern Chino Basin. The Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) confirmed this with subsequent rounds of sampling.

The Santa Ana Water Board issued Draft CAOs in 2005 for six different parties who were tenants on the Ontario Airport property. On a voluntary basis, four of the parties — Aerojet-General Corporation, The Boeing Company, General Electric Company, and Lockheed Martin Corporation, collectively the ABGL parties, worked together, along with the U.S. Department of Defense, to investigate the source of contamination. Part of the investigations included collecting water quality samples from private wells and taps at residences and the construction and sampling of four triple-nested monitoring wells (ABGL wells) in the northern portion of the plume. Alternative water systems were provided to private residences in the area where groundwater was contaminated with TCE above the MCL.

In 2008, Santa Ana Water Board staff conducted research pertaining to the likely source of TCE contamination. Based on their work, Santa Ana Water Board staff identified discharges of wastewater to the RP-1 treatment plant and associated disposal areas that potentially contained TCE, as the potential sources. The Santa Ana Water Board identified several industries, including some previously identified tenants of the Ontario Airport property, that likely used TCE solvents before and during the early 1970s, and discharged wastes to the Cities of Ontario and Upland sewage systems tributary to the RP-1 treatment plant and disposal areas. In 2012, the Santa Ana Water Board issued an additional Draft CAO jointly to the City of Ontario, City of Upland, and IEUA as the previous and current operators of the RP-1 treatment plant and disposal area (collectively the RP-1 parties).

Under the Santa Ana Water Board's oversight from 2007 through 2014, the ABGL parties and the RP-1 parties individually and jointly conducted sampling at private residential wells and taps approximately every two years in the region where groundwater was potentially contaminated with TCE. By 2014, all private wells and taps in the area of the plume had been sampled at least once as part of the monitoring program. The report documenting this data was published in November 2014.[3] Both the ABGL and RP-1 parties provided potable water to residences in the area where well water contained TCE concentrations equal to or above 80 percent of the MCL for TCE (e.g., equal to or greater than 4.0 µgl) by either water tank systems where potable water is delivered via truck or by bottled water service.

In July 2015, the RP-1 parties completed a draft feasibility study report for the South Archibald plume (Feasibility Study).[4] The Feasibility Study established cleanup objectives for domestic water supply and plume remediation and evaluated alternatives to accomplish these objectives. In August 2015, the RP-1 parties prepared a Draft Remedial Action Plan (RAP) to present the preferred plume remediation and domestic water

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[3] Erler & Kalinowski, Inc. (2014). *Supplemental Data Report Trichloroethene Plume Central Chino Basin.* Prepared for Aerojet Rocketdyne, Boeing, General Electric, and Lockheed Martin. November 19, 2014.

[4] Dudek. (2015). *Draft Feasibility Study Report South Archibald Plume, Ontario, California.* Prepared for City of Ontario, City of Upland, and Inland Empire Utilities Agency. July 2015.

supply alternatives.[5] A public review period followed, and two community meetings were held in September 2015 to educate the public about the plume, the Feasibility Study, and the RAP, and to solicit comments on these reports. In November 2015, the revised Draft Feasibility Study and RAP and responses to comments were completed to address input from the public, ABGL, and other parties.[6,7]

In September 2016, the Santa Ana Water Board issued the Final Stipulated Settlement and CAO R8-2016-0016 (Stipulated CAO) collectively to the RP-1 parties and the ABGL parties (excluding Northrop Grumman). The Stipulated CAO was adopted by all parties in November 2016, thus approving the preferred plume remediation and domestic water supply alternatives identified in the RAP. The parties also reached a settlement agreement that aligned with the Stipulated CAO and authorized funding to initiate implementation of the plume remediation alternative.

In July 2021, the RP-1 parties collaborated with the Santa Ana Water Board and Watermaster to distribute a Community Fact Sheet to residences overlying the plume on the health and environmental impacts of the groundwater contaminants of TCE and other potential contaminants such as per- and polyfluoroalkyl substances (PFAS), their presence in the area of the plume, and sampling resources.[8]

REMEDIAL ACTION

Plume Remediation. The plume remediation alternative identified in the Feasibility Study, RAP, and Stipulated CAO involves the use of previously existing and newly constructed Chino Basin Desalter Authority (CDA) wells and treatment facilities. The RP-1 parties and the CDA reached a Joint Facility Development Agreement for implementation of a project designed to remediate the South Archibald plume by modifying the CDA facilities to treat TCE and other volatile organic compounds (VOCs), as well as using existing facilities (i.e. reverse osmosis membranes) to treat total dissolved solids (TDS) and nitrate. The project consists of the construction and operation of three new CDA wells (II-10, II-11, and II-12), a dedicated pipeline to convey groundwater produced from these wells to the Chino-II Desalter treatment facility, and replacement of existing decarbonators at Chino-II Desalter with an air stripping system to remove TCE and other VOCs from the water treated through the reverse osmosis (RO) trains. A new pipeline was also constructed to allow existing CDA well I-11 to be pumped into the new dedicated pipeline to the Chino-II Desalter for treatment via the new air-stripping system. The construction of portions of the project were funded by Proposition 1 Grant Agreement No. D1712507 (Prop 1 Grant Agreement) and Title XVI grants from the United States Bureau of Reclamation. Construction of CDA wells II-10 and II-11 was completed in September 2015. The equipping of these wells was completed in 2018, and pumping initiated at wells II-11 and II-10 in July and September 2018, respectively. The construction of an onsite monitoring well near the proposed location of well II-12 was completed in 2019 (well II-MW-

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[5] Dudek. (2015). *Draft Remedial Action Plan South Archibald Plume, Ontario, California.* Prepared for City of Ontario, City of Upland, and Inland Empire Utilities Agency. August 2015.

[6] Dudek. (2015). *Draft Feasibility Study Report South Archibald Plume, Ontario, California.* Prepared for City of Ontario, City of Upland, and Inland Empire Utilities Agency. November 2015.

[7] Dudek. (2015). *Draft Remedial Action Plan South Archibald Plume, Ontario, California.* Prepared for City of Ontario, City of Upland, and Inland Empire Utilities Agency. November 2015.

[8] Santa Ana Water Board. (2021). Community Fact Sheet. https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/9334058463/20210407_CommunityFactSheet_SouthArchibaldPrivateWells-Short_ADA_Final.pdf

3) and the construction of well II-12 was completed in November 2020. The CDA completed the equipping of well II-12 in July 2021, and pumping began on August 24, 2021.

Domestic Water Supply. The domestic water supply alternative identified in the Feasibility Study and RAP is a hybrid between the installation of tank systems for some residences where potable water is delivered from the City of Ontario and the installation of a pipeline to connect some residences to the City of Ontario potable water system. Pursuant to the Stipulated CAO, the Cities of Ontario and Upland have assumed the responsibility for implementing the domestic water supply alternative for private residences currently receiving bottled water due to TCE groundwater contamination. In February 2017, the Cities of Ontario and Upland submitted a *Domestic Water Supply Work Plan* to the Santa Ana Water Board (2017 Work Plan), outlining the approach to provide alternative water supplies to affected residences receiving bottled water.[9] The Santa Ana Water Board approved the 2017 Work Plan on March 3, 2017.[10] At that time, 32 residences were using tank systems that were previously installed and 21 residences were receiving bottled water. The alternative water supply options included: 1) installation of a tank system; 2) connection to an existing City of Ontario water main; 3) connection to a future City of Ontario water main; or 4) remain on bottled water. In accordance with the schedule in the Stipulated CAO and the work plan, tank systems would be installed within six months of resident consent, connections to Ontario's existing municipal water system would be constructed within three months of resident consent, and construction and connection to a new water main would occur within 18 months of resident consent. Additionally, bottled water would be supplied to any newly affected residents immediately upon determining that TCE is present at concentrations greater than 4 µgl. The City of Ontario performs annual monitoring of private wells and taps in the area potentially affected by the plume to support the Stipulated CAO and 2017 Work Plan.

MONITORING AND REPORTING

Pursuant to the Stipulated CAO and the 2017 Work Plan, the Cities of Ontario and Upland collect annual groundwater quality samples at about 50-60 private wells and taps at about 45 residential and agricultural locations within the plume. The purpose of groundwater sampling is to: 1) evaluate the lateral extent of the plume per the Stipulated CAO, 2) identify locations where concentrations of TCE in private water supply wells are above the MCL, 3) identify locations where concentrations of TCE that were previously above the MCL are now below 80 percent of the MCL, and 4) identify residences that may be able to participate in the City of Ontario's alternative water supply program. The Cities of Ontario and Upland have conducted seven rounds of sampling since 2017, and the results are reported in annual groundwater monitoring reports submitted to the Santa Ana Water Board. The annual reports are available on the State Water Resources Control Board's GeoTracker online portal.[11]

From 2019 to 2021, the IEUA and CDA worked with the California State Water Resources Control Board (State Board) and the Santa Ana Water Board to design a monitoring and reporting plan pursuant to the Prop 1 Grant Agreement for funding the expansion of the CDA facilities to cleanup TCE in the South Archibald plume, and the high nitrates and TDS in groundwater. The final monitoring and reporting plan (Prop 1 Monitoring Plan) was completed in January 2021 and includes collecting samples at the CDA

[9] Dudek. (2017). *Domestic Water Supply Work Plan South Archibald Plume, Ontario, California.* Prepared for the City of Ontario, City of Upland. February 2017.

[10] Santa Ana Water Board. (2017). *Domestic Water Supply Workplan – South Archibald Trichloroethylene Plume, Ontario, California*. Letter to the City of Ontario from Kurt Berchtold. March 3, 2017.

[11] https://geotracker.waterboards.ca.gov/profile_report?global_id=T10000004658

production and monitoring wells within and near the plume and nearby agency-owned wells.[12] Two of the CDA monitoring wells (II-MW-4 and II-MW-5) were constructed at the request of the Santa Ana Water Board and State Board for monitoring at two additional locations in the plume: one location within the area of the highest concentration of TCE within the plume (II-MW-5), and one location just upgradient of CDA well II-12 (II-MW-4).[13,14] Construction of four multi-depth well casings (a,b,c,d) at II-MW-5 was completed in February 2021 and in March 2021 one well casing at II-MW-4 was completed. The locations of II-MW-5 (a,b,c,d) and II-MW-4 are shown in Exhibit 1 along with the location of the monitoring well II-MW-3. The Prop 1 Monitoring Plan includes sampling for TCE, nitrate, and TDS, as well as additional constituents 1,2,3-trichloropropane (1,2,3-TCP), 1,4-dioxane, perchlorate, and hexavalent chromium. All of these constituents except for 1,4-dioxane are currently monitored at all the CDA wells except for II-MW-5, as required by the State Water Resources Control Board Division of Drinking Water (DDW). Per the Prop 1 Monitoring Plan, sampling for these additional constituents was to be performed at all four well casings at II-MW-5 once at the time of completion of construction and again after one year. If the sampling results showed concentrations of these constituent(s) above 80 percent of their respective MCLs[15] or California notification levels (NLs), these constituents would be added to the Prop 1 Monitoring Plan for the CDA monitoring wells. Sampling at the four well casings at II-MW-5 occurred in March 2021 after construction and results showed that concentrations for all of these constituents were above 80 percent of their respective MCLs or NLs for at least one well in the cluster. Sampling was not performed at II-MW-5 for quarters 2, 3, and 4 in 2021 and for quarter 1 of 2022 due to the well not having a pump installed. Sampling occurred quarterly after that using a portable pump. In April 2023, the IEUA submitted official correspondence to the Santa Ana Water Board informing them of their plans for installing permanent pumps at Well-II-MW-5 so sampling events will not be missed moving forward.[16]

The Prop 1 Monitoring Plan also requires Operational Reports[17] to be submitted quarterly and annually that include the data collected during that period. Additionally, the groundwater data is uploaded to the State Board's GeoTracker website.

In addition to the monitoring performed by the CDA and the RP-1 Parties, Watermaster routinely collects groundwater samples at private wells in the plume area. Watermaster uses the data obtained from its own monitoring efforts, with monitoring data collected by the CDA, IEUA and the City of Ontario, to delineate the South Archibald TCE plume as part of the biennial Chino Basin State of the Basin Report.

RECENT ACTIVITY

In accordance with the Stipulated CAO, the most recent annual sampling event by the Cities of Ontario and Upland at private wells and taps in the plume area was conducted in October through December

[12] Hazen and Sawyer. (2021). *Monitoring Plan – Chino Basin Improvement and Groundwater Clean-up Project.* Prepared for CDA and IEUA. January 2021.

[13] CDA Board of Directors July 2020 Meeting Agenda and Minutes. https://www.chinodesalter.org/AgendaCenter/ViewFile/Agenda/_07022020-309

[14] Santa Ana Water Board. (2020). *Comments on Responses to Comments on Monitoring and Reporting Plan and Request for Additional Monitoring for Inland Empire Utilities Agency and Chino Basin Desalter Authority Clean-Up Project (Grant Agreement No. D1712507)*. April 24, 2020.

[15] The MCL for hexavalent chromium is a proposed MCL that will likely be adopted in 2024.

[16] Email Correspondence with DTSC on April 27, 2023.

[17] Operational Reports are required to be submitted after the end of the grant term in 2024.

2023. A total of 40 samples were collected at 34 residential, commercial, and agricultural locations. The water quality monitoring data performed by the CDA at the pumping and monitoring wells within and adjacent to the plume are collected and reviewed with this data. The results are documented in the *2023 Annual Groundwater Monitoring Report*[18]*:*

- TCE was detected at 26 sample locations above the laboratory reporting limit and 8 sample locations were above the MCL of 5 µgl.
- Concentrations of TCE on the western and southwestern edge of the plume are generally decreasing.
- TCE concentrations are increasing in the central portion of the plume just north of CDA well II-12, and the eastern and southeastern edge of the plume. Increased concentrations of TCE north of CDA well II-12 is likely the result of groundwater extraction at this well.
- TCE was detected for the first time since this annual monitoring and reporting program began at CDA pumping well I-8 and TCE continues to be detected at the CDA pumping wells I-9, I-10, I-6, I-11, and II-11.

In July 2024, the City of Ontario submitted their private water supply annual well sampling workplan for the annual sampling in 2024 for review by the Santa Ana Water Board.[19] The plan includes collecting groundwater samples from approximately 70 properties as well as an additional 19 private wells identified as candidate samples. Groundwater samples will be analyzed for VOCs using EPA Method 524.2. On August 22, 2024, the Santa Ana Waterboard provided comments on the workplan to consider various practices in coordinating and conducting the sampling at the private residencies and the reporting of the data.[20]

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[18] Dudek. (2023). *Annual Groundwater Monitoring Report South Archibald TCE Plume – Ontario, California.* Prepared for the City of Ontario and City of Upland. December 2023

[19] EEC Environmental. (2024). *Workplan – Private Water Supply Well Sampling*. Prepared for the City of Ontario. July 15, 2024.

[20] Santa Ana Water Board (2024) Comment Letter to City of Ontario. August 22, 2024. https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/5568219840/2024AnnualPWSWorkplan_Comments.pdf

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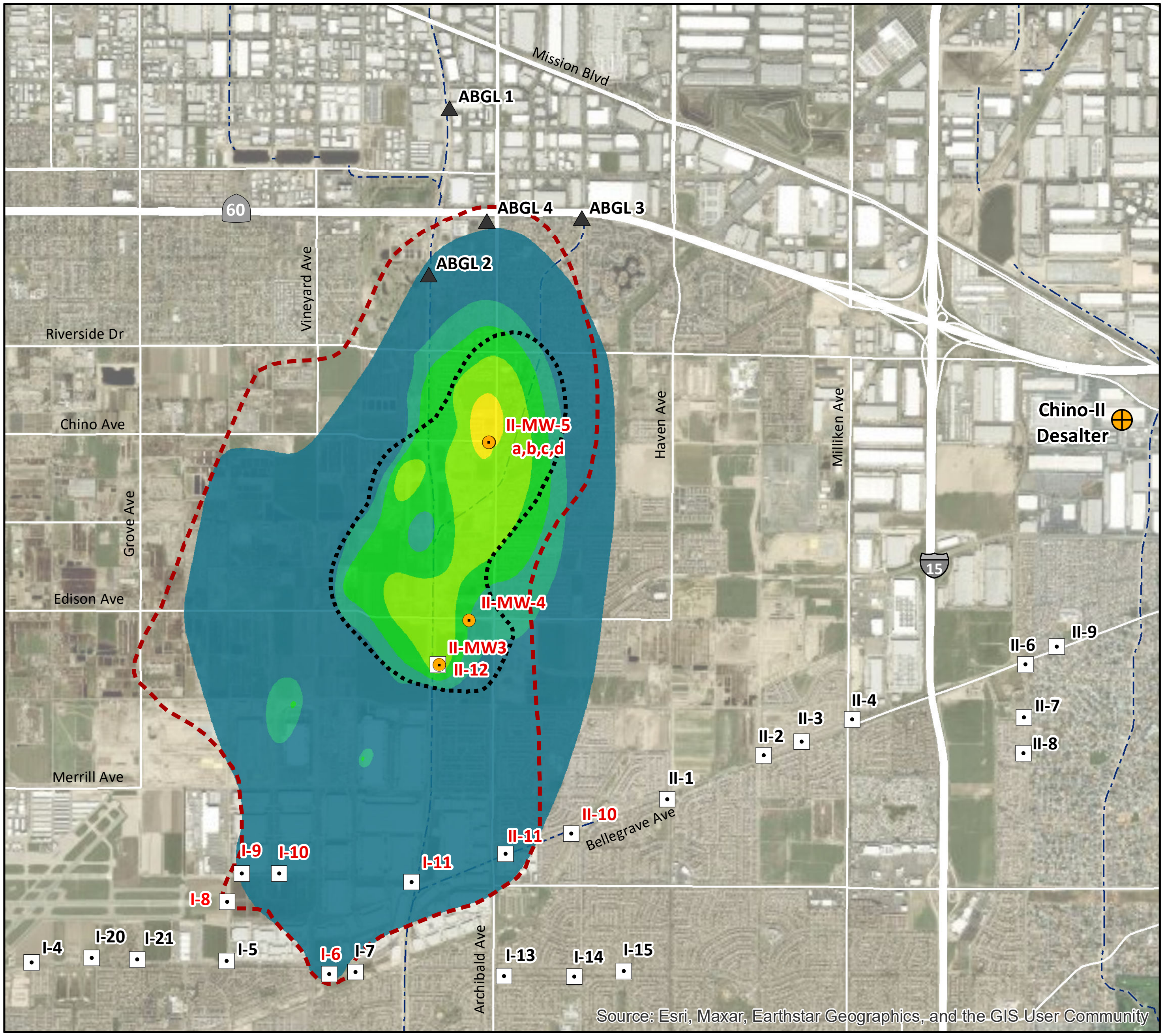


Maximum TCE Concentration (µgl)
July 2017 to June 2022

- 0.5 to ≤ 5
- > 5 to ≤ 10
- > 10 to ≤ 20
- > 20 to ≤ 50
- > 50 to ≤ 100

(Delineated by Chino Basin Watermaster in the 2022 State of the Basin Report)

Approximate Extent of the Plume Delineated in the 2023 Annual Groundwater Monitoring Report

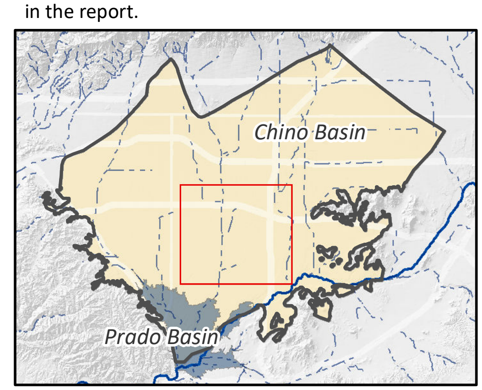
- Extent Greater Than 5 µgl
- Complete Extent

Chino Basin Desalter Authority Facilities:

- Pumping Well*
- Monitoring Well*
- Chino-II Desalter Treatment Facility

- ABGL Monitoring Well
- Streams & Flood Control Channels

*Red labels indicate wells that are specifically discussed in the report.



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Chino Basin Watermaster
Semi-Annual Plume Report
South Archibald

South Archibald
TCE Plume

Exhibit 1

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Annual Plume Status Report

California Institution for Men Plume
October 2024

CONTAMINANTS

The primary contaminant is tetrachloroethene (PCE). The California maximum contaminant level (MCL) for PCE is 5 micrograms per liter (µgl). The highest concentration of PCE measured historically within the plume is approximately 1,990 µgl.[1] Other contaminants of concern include the following volatile organic compounds (VOCs): trichloroethene (TCE), 1,2-dichloroethene, bromodichloromethane, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, and toluene.

LOCATION

The California Institution for Men (CIM) is a state correctional facility located in the City of Chino. The property is approximately 1,500 acres and is bounded by Eucalyptus Avenue to the north, Euclid Avenue to the east, Kimball Avenue to the south, and Central Avenue to the west. The plume is located predominantly beneath the northwestern portion of the CIM property. Exhibit 1 shows the spatial extent of the PCE plume, as delineated by the Chino Basin Watermaster (Watermaster) in the *2022 State of the Basin Report*.[2] The extent of the plume with detectable PCE concentrations greater than 0.5 µgl is about 4,000 feet long and 3,000 feet wide.

SITE HISTORY

The State of California Department of Corrections and Rehabilitation (State) has operated CIM since 1939. The primary uses of the CIM property include agricultural operations, inmate housing, and correctional facilities. The Heman G. Stark Youth Correctional Facility (Youth Correctional Facility) occupies the eastern portion of the CIM property. There are eleven drinking water supply wells located on the CIM property; six of these wells are actively producing groundwater as of 2024. The CIM operates the drinking water supply wells, a potable water distribution system, and a treatment plant to provide drinking water supply to the CIM facilities, Youth Correctional Facility, and the California Institution for Women. The land surrounding the CIM property was historically used for agriculture and dairy activities but has rapidly developed in recent years for residential and commercial uses.

[1] Based on a water quality sample collected at MW-7 in 1998.

[2] West Yost. (2023). *Chino Basin Optimum Basin Management Program-2022 State of the Basin Report*. Prepared for the Chino Basin Watermaster. June 2023.

REGULATORY ORDERS

No regulatory orders for site remediation and monitoring were issued by the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) for PCE contamination. The State conducted voluntary cleanup and monitoring under the Santa Ana Water Board's direction from 1992 to 2009. On December 17, 2009, the Santa Ana Water Board determined "No Further Action" was required for remediation and monitoring.

Unrelated to the PCE contamination, there are three leaking underground storage tank (LUST) cleanup sites located on the CIM property that are regulated under the State Water Resources Control Board (State Board) Underground Storage Tank (UST) program. The UST program directs Regional Water Boards to implement a monitoring plan and oversee site closures under the State Board's Low Threat Closure Policy (LTCP). There are no regulatory orders for groundwater remediation or monitoring at the CIM LUST sites. Two of the three sites met the requirements for site closure under the LTCP and were closed by the State Board in 2006. The remaining LUST site is the CIM State Garage LUST, which is currently open with ongoing monitoring and remediation for petroleum hydrocarbons. The CIM State Garage LUST is included in Exhibit 1.

REGULATORY AND MONITORING HISTORY

In 1990, PCE was detected at a concentration of 26 µgl at CIM drinking water supply Well 1. This prompted the California Department of Health Services (CDHS), now the California State Board Division of Drinking Water (DDW), to direct CIM to stop using the well as a source of drinking water. The detection of PCE concentrations in two other CIM drinking water supply wells (1A and 11A) triggered the Santa Ana Water Board to request an investigation of the source and extent of the onsite PCE contamination. Following an initial investigation, the Santa Ana Water Board sent the State a written request to perform a subsurface investigation to define the vertical and lateral extent of PCE in soil at four locations where PCE was detected in soil vapor samples during the investigation.

The Phase I Site Assessment was performed at the CIM site in 1992, and included a review of CIM's history, operations, and chemical use.[3] The investigation identified five potential sites where VOCs were used and could have impacted soil and groundwater. These areas included: the old laundry building, the furniture factory, the vocational shops, the state garage, and the powerhouse.

The Phase II Site Assessment was performed from 1992 to 1994 to assess the presence and concentrations of VOCs in soil vapor, soil, and groundwater beneath the five potential sites identified in Phase I.[4] Seven groundwater monitoring wells were installed and sampled as part of this investigation. The results from the soil and the groundwater investigations showed low concentrations of contaminants throughout the site, with concentrations of PCE in groundwater samples from monitoring wells ranging from 0.6 to 19 µgl. The old laundry facility and nearby areas had the highest concentration of PCE in soil samples and was thus identified as the most likely principal source of VOCs. A Phase III assessment was performed in 1996 to further investigate the distributions of VOC contamination beneath the CIM and included depth

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[3] Geomatrix Consultants, Inc. (1992). *Report of Phase I Investigation, VOCs in Soil and Groundwater, Department of Corrections California Institution for Men, Chino*. April 20, 1992.

[4] Geomatrix Consultants, Inc. (1994). *Phase II Assessment of VOCs in Soil and Groundwater, California Institution for Men Chino, California.* Prepared for the Department of General Services Development and Management. October 4, 1994.

discrete groundwater sampling at four exploratory boreholes. The investigation showed three distinct aquifer zones below the CIM, and PCE and other VOCs were migrating laterally from the shallow zone to the intermediate and deep zones where the drinking water supply wells are screened.[5] Between August 1994 and May 2001, a network of 43 monitoring wells at varying depths in the shallow, intermediate, and deep aquifer zones were constructed.

In 1997, the Santa Ana Water Board approved an interim pump-and-treat system for the hydraulic containment of VOC-affected groundwater using Well 1. In 2001, construction began on two new CIM water supply wells (Wells 14 and 15) and associated pipelines to prevent VOC-impacted groundwater at the southern end of the plume from migrating away from the site. Additionally, two agricultural wells were destroyed to protect the deeper aquifer from the downward movement of VOC contaminated groundwater due to pumping.

The 43 monitoring wells were sampled intermittently through 2007 to analyze the extent and concentrations of VOCs in the groundwater beneath the CIM property. It was determined that the VOC impacts to groundwater were limited to the source area and immediately downgradient. Furthermore, the plume had not and was not expected to migrate off the property. A final monitoring event was conducted by the State in January 2007, which included groundwater quality sampling at 39 water supply and monitoring wells at the CIM property.[6] The results of this and previous monitoring events indicated that despite the PCE concentrations exceeding the MCL at three monitoring wells, PCE concentrations in the shallow groundwater were decreasing or remaining stable. PCE concentrations in the deeper aquifer at the CIM drinking water supply wells had been below the MCL since April 2003 with a few exceptions in early/mid 2006. Moreover, there had been no detections of TCE or other VOCs above the MCL in groundwater samples since December 2002. Based on this monitoring through 2007, in February 2007 the State submitted a request to the Santa Ana Water Board for a No Further Action (NFA) finding for groundwater remediation and monitoring at the CIM site. On December 17, 2009, the Santa Ana Water Board issued a determination of NFA for the CIM site.[7]

In March 2019, the Santa Ana Water Board formally rejected the State's request for closure of the State Garage LUST site located northwest of the CIM drinking water supply Well 1A within the center of the PCE plume, and requested further assessment to determine if fuel-related contaminants beneath the site could impact downgradient Well 1A.[8] An investigation was completed in May 2020 and a report on the monitoring and findings was submitted to the Santa Ana Water Board in July 2020.[9] The investigation concluded that: (1) fuel-related contaminants have decreased several orders of magnitude in the perched aquifer below the State Garage LUST site; and (2) the downgradient extent of the dissolved total petroleum hydrocarbon plume from the site is not migrating and has not impacted the CIM water supply Well 1A. However, the findings indicated that gasoline residue remains in the soil downgradient of the

[5] Geomatrix Consultants, Inc. (1997). *Phase III Groundwater Assessment and Remediation Planning Report, California Institution for Men, Chino*. July 21, 1997.

[6] Geomatrix Consultants, Inc. (2007). *January 2007 Groundwater Monitoring PCE Remediation Project California Institution for Men Chino*, *California*. Prepared for the Department of General Services Real Estate Services Division Project Management Branch. May 17, 2007.

[7] California Regional Water Quality Control Board, Santa Ana Region (2009). *Determination of No Further Action (NFA), Tetrachloroethylene Remediation Project, California Institution for Men, Chino*. December 17, 2009.

[8] California Regional Water Quality Control Board, Santa Ana Region. (2019*). Response to Soil Vapor Investigation and Path to Closure, California Institution for Men, Garage*. March 8, 2019.

[9] Avocet Environmental, Inc. (2020). *2020 Annual Groundwater Monitoring and Additional Investigations Report California Institution for Men – State Garage*. July 29, 2020.

source area. Results from the annual groundwater monitoring event in May 2021 indicated that fuel-related contaminants have decreased, and the plume is not migrating or impacting Well 1A.[10] Due to these findings, the State recommended the State Garage LUST site for closure under the LTCP in August 2021, and there has been not action on this since.

REMEDIAL ACTION

In July 1997, the State implemented remediation activities, termed *The PCE Remediation Project,* with an interim remedial measure to pump and treat groundwater from Well 1.[11] The groundwater was treated for VOCs using air stripping. Operation of the air stripper continued until 2004, when the permeability of the air stripper packing was compromised by the accumulation of mineral precipitates. During its operation, the pump-and-treat process at Well 1 removed approximately 58 pounds of PCE and TCE collectively. After 2004, both PCE and TCE concentrations were below the MCL in groundwater extracted from Well 1, and pumping continued without treatment with approval from the CDHS and Santa Ana Water Board. A supplemental remedial measure began in 2001 which included the construction of two new CIM water supply wells (Well 14 and Well 15) located in an area to intercept the toe of the VOC plume, promoting hydraulic containment of the VOCs within the groundwater beneath CIM. Wells 14 and 15 operated without treatment from January 2003 to December 2008; during this time, these two wells removed an additional 14 pounds of PCE and TCE collectively.

The need for remedial action was considered to address elevated levels of PCE in the soil below the old laundry site, but it was determined that it would not be cost-effective in protecting the groundwater quality despite some potential contribution of PCE from the soil to groundwater beneath the site.

Remediation requirements at CIM ended in December 2009 with the Santa Ana Water Board's determination of NFA. Since then, PCE has been periodically detected at concentrations above the MCL at CIM supply Wells 1 and 15. Additionally, other contaminants have been detected above their respective MCLs, including 1,2,3-TCP and nitrate. CIM operates a water treatment plant to remove contaminants for drinking water supply.

MONITORING AND REPORTING

The State conducted voluntary monitoring at CIM from 1992 to 2007 at 43 monitoring wells and 14 water supply wells. Voluntary monitoring ended in December 2009 with the Santa Ana Water Board's determination of NFA. As part of the NFA, the State was required to decommission the monitoring wells located onsite in accordance with California Well Standards (DWR Bulletin No. 74-81). The State decommissioned a majority of these wells and preserved 16 wells to be included in the Watermaster's groundwater-level monitoring program conducted pursuant to the *Optimum Basin Management Program* (OBMP).[12] The location of these wells is included in Exhibit 1.

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[10] Avocet Environmental, Inc. (2021). *2021 Annual Groundwater Monitoring Report and Request for Closure.* Prepared for California Department of Corrections and Rehabilitation, FPCM – Environmental and Regulatory Compliance Section. August 17, 2021.

[11] Geomatrix Consultants, Inc. (2005). *PCE Remediation Project Report. California Institution for Men.* Prepared for the California Department of General Services. July 2005.

[12] Wildermuth Environmental, Inc. (1999). *Optimum Basin Management Program. Phase I Report*. Prepared for the Chino Basin Watermaster. August 19, 1999.

The CIM continues to monitor groundwater quality at its supply wells as part of its water supply operations under DDW regulations. The State samples the active drinking water supply wells for PCE and TCE quarterly and reports the data to the DDW. Watermaster routinely collects all groundwater-quality data from the DDW's Water Quality Analyses Database for the CIM potable supply wells as part of the OBMP groundwater-quality monitoring program and uses these data to characterize the areal extent and concentration of the PCE plume every two years. [13]

RECENT ACTIVITY

There has been no further regulatory activity associated with PCE contamination monitoring and remediation at CIM since the NFA determination in December 2009.

The most recent characterization of the plume was completed by Watermaster in the *2022 State of the Basin Report* (Exhibit 1). Based on available data, the PCE plume has shown no significant change since the NFA determination.

The State has recently sampled its drinking water supply wells pursuant to the DDW regulation. Table 1 below summarizes the five-year maximum PCE concentration (July 2019 to June 2024) sampled at the CIM drinking water supply wells.

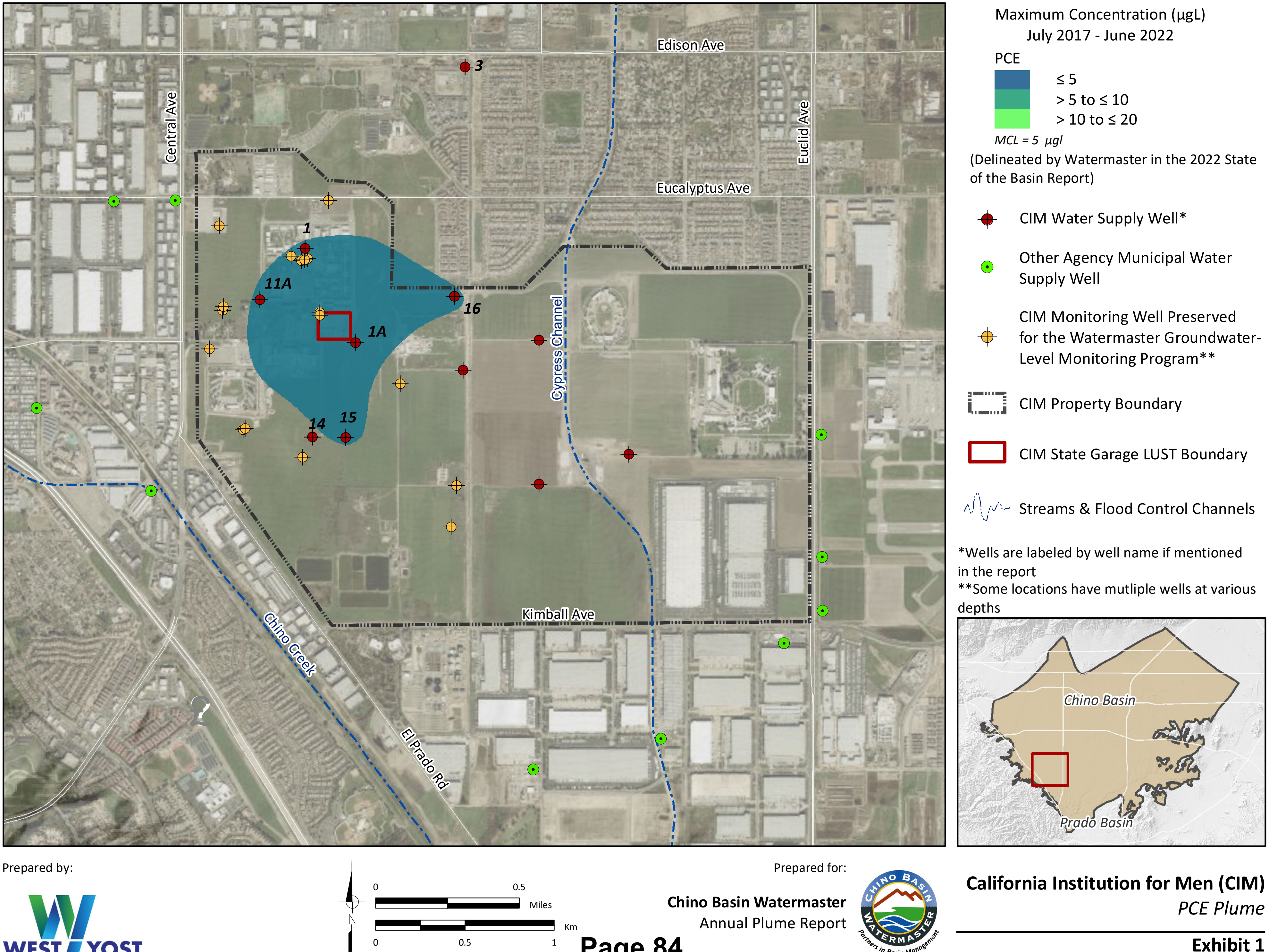
Table 1. Maximum PCE Concentration in CIM Supply Wells between July 2019 – June 2024

Well	Maximum PCE, µgl	Date
1	17	1/24/2024
1A	1.6	11/23/2022
3	ND (<0.5)	all samples during this period
11A	0.98	7/5/2023
15	2.1	11/23/2022
16	ND (<0.5)	all samples during this period

In August 2021, the State recommended the closure of the CIM State Garage LUST site under the LTCP. [14] This recommendation is currently pending review by the Santa Ana Water Board. There has been no official response from the Santa Ana Water Board on this request.

[13] https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/EDTlibrary.shtml

[14] Avocet Environmental, Inc. (2021). *2021 Annual Groundwater Monitoring Report and Request for Closure.* Prepared for California Department of Corrections and Rehabilitation, FPCM – Environmental and Regulatory Compliance Section. August 17, 2021.



Prepared by:

WEST YOST

Prepared for:

Chino Basin Watermaster
Annual Plume Report

CHINO BASIN WATERMASTER Partners in Basin Management

California Institution for Men (CIM)
PCE Plume

Exhibit 1

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Annual Plume Status Report

General Electric Flatiron Plume
October 2024

CONTAMINANTS

The primary contaminant is trichloroethene (TCE). Other contaminants of concern include tetrachloroethylene (PCE), total chromium, and hexavalent chromium. For each of these contaminants, the table below list the California maximum contaminant level (MCL) and maximum concentrations detected in groundwater samples from wells within the plume over the last five years.

Table 1. Maximum Concentration of Contaminants of Concern between July 2019 to June 2024

Contaminant	MCL, micrograms per liter (µgl)	Max Concentration, µgl	Sample Date	Well
TCE	5	33,000 [(a)]	April 2021	MW-22A
PCE	5	5,800	July, 2020	MW-21
Total Chromium	50	5,930	February, 2023	MW-23A
Hexavalent Chromium	10[(b)]	7,000	February, 2023	MW-23A

Notes:
(a) This is the maximum TCE concentration ever measured at a monitoring well in the GE Flatiron plume.
(b) The MCL for hexavalent chromium was adopted by the State Water Resources Control Board Division of Drinking Water on October 1, 2024. Prior to that, the MCL for total chromium was used to regulate hexavalent chromium after the initial 2014 MCL of 10 µgl for hexavalent chromium was invalidated in 2016.

LOCATION

The General Electric (GE) Flatiron TCE plume is located in the northern Chino Basin within the City of Ontario; it extends south-southwest from the former GE Flatiron Facility, located at 234 East Main Street. The Chino Basin Watermaster (Watermaster) last updated its delineation of the extent of the plume in the *2022 State of the Basin Report*.[1] This characterization is based on the five-year maximum TCE concentration measured between July 2017 and June 2022. Exhibit 1 shows the location and extent of the TCE plume as delineated by Watermaster in 2022. The extent of the plume with TCE concentrations greater than 0.5 µgl measures approximately 0.6 miles wide and about 2.6 miles long.

[1] West Yost. (2023). *Optimum Basin Management Program – 2022 State of the Basin Report*. Prepared for the Chino Basin Watermaster. June 2023.

SITE HISTORY

GE manufactured clothes irons at the Flatiron Facility from the early 1900s to 1982. During World War II, the facility was also used to manufacture equipment to support the war effort for the U.S. War Department. In 1982, GE closed the facility and sold the property. Since then, ownership has changed several times; the property is currently owned by Ontario Business Park, LLC.

REGULATORY ORDERS

- Investigative Order No. 87-146—Requires the characterization of onsite conditions and groundwater beneath and downgradient of the GE Flatiron site using gas surveys, soil boring installation and sampling, and groundwater monitoring well installation and sampling.
- Waste Discharge Requirements (WDRs) and Monitoring and Reporting Programs (M&RPs) Order No. 95-62 and R8-2011-0019 (current)—General WDRs and M&RPs for the discharge of treated water from the pump-and-treat system.

REGULATORY AND MONITORING HISTORY

In 1987, groundwater-quality samples collected from an inactive City of Ontario production well downgradient of the Flatiron Facility had TCE and chromium concentrations above drinking water MCLs. This prompted the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) to request that GE prepare a Phase I investigation to determine if the Flatiron Facility was the source of the contaminants detected. The results of the Phase I investigation prompted the Santa Ana Water Board to issue Investigative Order No. 87-146, requiring GE and West End Investments (the property owner at the time) to characterize onsite conditions and the groundwater flow gradient beneath the Flatiron Facility. The Phase II through V investigations[2, 3, 4, 5] included soil gas surveys, soil boring installation and sampling, as well as groundwater monitoring well installation and sampling, to define the extent of contaminants in groundwater both on and offsite. These investigations conducted from 1987 to 1992 indicated a contaminant plume was present beneath and downgradient of the Flatiron Facility and showed that the TCE and total dissolved chromium concentrations in groundwater were above the California primary MCLs of 5 and 50 µgl, respectively.

In 1993, the results from the multi-phase investigations prompted the proposal of an interim remedial measure (IRM) for groundwater contamination. Local and regional-scale numerical groundwater models were constructed to provide a basis for the design of the IRM and were used to investigate the use of extraction wells to obtain hydraulic containment near the downgradient extent of the plume. In December

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[2] Bechtel Environmental, Inc. (1989). *Phase II Soil and Groundwater Investigation, Former GE Flatiron Manufacturing, Ontario, California*. January 1989.

[3] Bechtel Environmental, Inc. (1990). *Phase III Investigation Report*, *Former GE Flatiron Manufacturing, Ontario, California*. August 1990.

[4] Geomatrix Consultants, Inc. and Beak Consultants Ltd. (1992). *Phase IV Investigation Report, 234 East Main Street and Vicinity, Ontario, California*. January 1992.

[5] Geomatrix Consultants, Inc. and Beak Consultants Ltd. (1993). *Phase V Investigation Report, 234 East Main Street and Vicinity, Ontario, California*. January 1993.

1993, extraction well EW-01 was completed. A monitoring well and three piezometers were also constructed nearby to provide observation points during aquifer testing at EW-01. The IRM began in 1996 and involved pumping groundwater from EW-01, treating it at GE Flatiron's groundwater treatment system to remove TCE and other contaminants of concern, and discharging the treated water to the Ely Basins for groundwater recharge. Discharge to the Ely Basins was regulated under WDR Order No. 95-62, issued by the Santa Ana Water Board.

In 1995, a feasibility study was completed to evaluate groundwater and soil remediation alternatives.[6] In October of 1997, the Santa Ana Water Board approved a groundwater remediation alternative that included the ongoing use of extraction well EW-01 and the construction of an additional extraction well (EW-02) near the center of the contaminant plume to pump and treat contaminated groundwater. Extraction well EW-02 was constructed in 1999 and began operation in 2002. In 2003, GE constructed a soil vapor extraction (SVE) system to remove VOC mass from impacted site soils. The system consisted of five SVE wells and a treatment system. It was completed and began operation in 2003.

Due to the Inland Empire Utilities Agency (IEUA) and Watermaster's increased use of the Ely Basins for storm, recycled, and imported water recharge, capacity eventually became insufficient for GE's discharge into the Ely Basins. In 2005, GE began evaluating alternative discharge options for its treated groundwater and decided to install an injection well field at 2025 South Bon View Avenue to accept the treated groundwater. In 2011, the Santa Ana Water Board approved WDR Order R8-2011-0019 to modify the point of discharge for the treated groundwater to injection wells located at this site.[7] The 2011 WDR defines the discharge prohibitions, effluent limitations, and required monitoring and reporting program.

In 2015, GE submitted a work plan to the Santa Ana Water Board to outline a program for evaluating the effectiveness of existing remedial measures and to provide recommendations for additional investigation or remediation.[8] Implementation of the work plan began in 2016 with the drilling of four borings to collect discrete-depth soil and groundwater samples, which were tested for TCE, PCE, total dissolved chromium, and hexavalent chromium.

From May 2016 to March 2017, four additional monitoring well clusters (MW-21 through MW-24) were constructed at the upgradient end of the plume as part of the supplemental remedial investigation activities. Since monitoring began at these well, the highest concentrations of PCE, TCE, total dissolved chromium, and hexavalent chromium associated with the plume are detected at these wells (specifically, MW-21 through MW-23).

In 2016, the Santa Ana Water Board required the development of a conceptual site model that incorporated all historical data, as well as new information from recent investigations. This model was to

[6] Geomatrix Consultants, Inc. (1995). *Feasibility Study Report, 234 East Main Street and Vicinity, Ontario, California*. November 1995.

[7] Santa Ana Regional Water Quality Control Board. (2011). *Issuance of Waste Discharge Requirements for General Electric Company, GE Francis Water Treatment Plant*, *San Bernardino County, Order No. R8-2011-0019*. April 22, 2011.

[8] Amec Foster Wheeler. (2015). *Work Plan for Supplemental Remedial Investigation*, *234 East Main Street and Vicinity, Ontario California*. Prepared for General Electric Company. March 30, 2015.

be used to develop a framework to identify data gaps and guide future decisions on investigation, monitoring, and remedial actions.[9]

One critical component of the conceptual site model, as highlighted by the Santa Ana Water Board, was the installation of a sentinel monitoring well downgradient of the plume. On June 22, 2016, a work plan was submitted to the Santa Ana Water Board, defining the plan and schedule to construct a new-multi-depth well cluster (MW-19) to further assess the dissolved-phase chromium and VOC concentrations downgradient of the known plume extent.[10] The first sampling event at well cluster MW-19 in January 2017 indicated that TCE concentrations in the shallow casing were greater than the MCL. This finding prompted the Santa Ana Water Board to request that an additional monitoring well cluster be constructed downgradient of MW-19 and upgradient of the City of Chino's municipal production well (Chino-11) to allow for further evaluation of the plume's extent. On November 14, 2016, GE submitted a work plan for the construction of well cluster MW-20, to be located about 420 feet upgradient from Chino-11, and by May 2017, construction was complete.[11] The first sampling event at well cluster MW-20 in July 2017 indicated that TCE in the intermediate-depth casing (MW-20B) was greater than the MCL.

In July 2021, the City of Chino wrote a letter to the Santa Ana Water Board to request information on the migration and remediation of the GE Flatiron plume and to investigate whether Chino-11 directly downgradient of the plume is, or will be, impacted by the plume. The State of California Division of Drinking Water's (DDW) recommended Chino-11 be sampled for TCE and PCE that potentially migrated from the Flatiron plume to the well. The results yielded concentrations of TCE above the MCL. The Santa Ana Water Board responded to the City of Chino in October 2021, acknowledging that the current extraction well network in the GE Flatiron plume does not adequately address the migration of the plume, and that the TCE contamination in the plume is likely from the migration of the GE Flatiron plume.[12] The Santa Ana Water Board requested that GE install an additional monitoring well cluster downgradient of Chino-11 to further delineate the extent of the plume, and asked that it be constructed before the proposed start-up of Chino-11 since operating the well could complicate the investigation and possibly move the plume into deeper zones. On August 30, 2021, GE submitted a *Work Plan for Groundwater Investigation Downgradient of Chino-11 and Engineering Studies for Installation of Groundwater Extraction Well EW-03* to the Santa Ana Water Board. The objectives of the work plan were to evaluate whether the site-related plume of TCE and hexavalent chromium extends to the area downgradient of Chino-11 with the construction of a new well cluster and to determine the optimum location for an anticipated third extraction well in the area between wells EW-01 and EW-02.[13]

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[9] Amec Foster Wheeler. (2016). *2016 Conceptual Site Model*, *Former General Electric Company Housewares Site 234 East Main Street, Ontario, California*. Prepared for General Electric Company. October 4, 2016.

[10] Amec Forster Wheeler. (2016). *Work Plan for Installation of Cross-Gradient Monitoring Well Clusters, General Electric Company Former Flatiron Facility*. Prepared for General Electric Company. August 15, 2016.

[11] Amec Forster Wheeler. (2016). *Work Plan for Installation of Additional Sentinel Monitoring Well* Cluster, General Electric Company Former Flatiron Facility. Prepared for General Electric Company. November 14, 2016.

[12] Santa Ana Water Board. (2021). Response to the City of Chino's Letter regarding General Electric Flatiron Contaminant Plume for GE Flatiron. Letter dated October 18, 2021.

[13] Wood Environment & Infrastructure Solutions, Inc. (2021). *Work Plan for Groundwater Investigation. Downgradient of Chino 11 and Engineering Studies for Installation of Groundwater Extraction Well EW-03*. Prepared for General Electric Company. August 30, 2021.

In September 2022 GE submitted a *Technical Report for Groundwater Investigation Downgradient of Chino 11* with results from the work done to investigate the presence of VOCs downgradient of Chino-11, as described in work plan.[14] GE installed well cluster MW-25 with three discrete-depth monitoring wells (A, B, C). PCE was not detected in any groundwater samples, TCE was detected only in MW-25C at a concentration of 3.8 µgl and hexavalent chromium was detected in all three wells at concentrations of 9.8-13 µgl. These values are similar to historical concentrations in monitoring wells upgradient of the GE Flatiron site.

REMEDIAL ACTION

Groundwater

In 1996, GE began operation of a groundwater treatment system located at 501 West Francis Street in Ontario, CA. Its two extraction wells (EW-01 and EW-02) began operating in 1996 and 2002, respectively, and are intended to prevent migration of the plume. EW-01 pumps at an approximate rate of 850 gallons per minute (gpm), and EW-02 pumps at a rate of approximately 600 gpm, although the rate at EW-01 is often reduced due to low groundwater levels. Groundwater pumped from the extraction wells is conveyed by separate pipelines to the treatment system where it is combined into a single stream and treated. Pumped groundwater is first treated with an ion exchange resin, which removes chromium, and then with liquid-phase granular activated carbon to remove VOCs. As detailed in WDR Order No. R8-2011-0019, the discharge from the treatment system facility is required to have average monthly concentrations of TCE, PCE, 1,1,1-TCA, and chromium below their respective MCLs of 5, 5, 200, and 50 µgl. Currently, three injection wells (IW-01, IW-02, and IW-03) are used to inject treated water into the Chino Basin. Exhibit 1 shows the locations of the extraction wells, the treatment system facility, and the injection well field.

As of June 2024, EW-01 and EW-02 had extracted about 16,911 acre-feet and 6,122 acre-feet of groundwater, respectively.[15] Collectively, the treatment system has removed approximately 15,623 pounds of TCE and 4,819 pounds of chromium.[16]

In 2022, GE began the initial planning steps to construct a third well EW-03, to increase groundwater extraction and extend the lifespan of EW-01 and EW-02. See the recent activity section of this report for more information.

Soil

In 2003, in accordance with the *Draft Remedial Action Plan*, GE began operating a soil vapor extraction (SVE) system (SVE1) on the east side of the property to treat TCE and PCE in the soil, as well as 1,1,1-trichlorethane and 1,1,2-trichlorethane.[17,18] The SVE system consisted of five onsite soil vapor extraction

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[14] Wood Environment & Infrastructure Solutions, Inc. (2022). *Technical Report for Groundwater Investigation Downgradient of Chino 11*. Prepared for General Electric Company. September 1, 2022.

[15] Wood Environment & Infrastructure Solutions, Inc. (2024). *GE Flatiron Facility Treatment System Summary – June 2024.* June 30, 2024 email from Paul Deutsch to Santa Ana Water Board.

[16] WSP USA Environment and Infrastructure Inc. (2024). *First Half 2024 Groundwater Monitoring and Remediation Report*. Prepared for General Electric Company. July 22, 2024.

[17] Geomatrix. (2002). *Draft Remedial Action Plan*. August 2002.

[18] Geomatrix. (2003). *SVE Implementation Report*. July 2003.

wells, which extracted VOC impacted vapors from the shallow soils. In 2007, GE constructed three additional SVE wells, which were later connected to the system.[19] There are currently six SVE wells connected to the system, and in total, SVE1 has removed 49,995 pounds of VOCs.[20] On June 21, 2018, GE submitted its *Work Plan for Interim Measures – Phase I Expansion* to the Santa Ana Water Board for an expansion of the SVE system to reduce potential migration of soil vapor off site and to groundwater.[21] Between 2019 and 2020, GE expanded the treatment system to include two additional SVE systems (SVE2 and SVE3) and installed three nested deep SVE wells and three shallow SVE wells on the west side of the property. GE also converted three deep soil vapor probes to nested SVE wells and connected them to the system. On April 8, 2021, following the installation of the new SVE wells, GE submitted the *Implementation of the Phase I Expansion of the Interim Measures* summarizing the work performed.[22] From November 2020 when the system began operation through June 2024 the SVE2 and SVE3 systems have removed approximately 99,151 pounds and 37 pounds of TCE and PCE, respectively. [23, 24]

Monitoring and Reporting

The monitoring and reporting program for the GE Flatiron site includes both plume and remediation system monitoring and reporting. The objectives of the respective programs are to monitor groundwater elevations and the concentrations of the plume over time and to track and evaluate the performance of the remediation system.

The plume monitoring and reporting includes measuring groundwater levels and collecting groundwater-quality samples for chemical analyses from monitoring wells at a quarterly frequency. Currently, depth to groundwater is measured at 36 wells and three piezometers every quarter. Groundwater-quality samples are also collected from 36 monitoring wells and three piezometers, although the number of wells sampled each quarter varies based on the specific quarter's monitoring plan. Water-quality samples are analyzed for dissolved metals, VOCs, and general minerals. Reports summarizing the results of the GE Flatiron groundwater monitoring are published semiannually in January and July.

The remediation system monitoring and reporting consists of the monitoring for the operations for both the groundwater and SVE treatment systems. For the groundwater treatment system, at a minimum, monthly sampling and analysis of the influent to the treatment plant from EW-01 and EW-02 and treated effluent is performed pursuant to WDR Order No. R8-2011-0019. The results from the treatment system monitoring are included in the semiannual reports for the groundwater monitoring. Additionally, monthly

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[19] Arcadis U.S., Inc. (2007). *Soil Vapor Extraction System Modification Workplan, General Electric (GE) Flatiron Facility*, *234 E. Main Street, Ontario, CA*. Letter to General Electric Company. August 21, 2007.

[20] WSP USA Environment and Infrastructure Inc. (2024). *Second Quarter 2024 Eastside Shallow Soil Vapor Extraction System Operation, Maintenance, and Monitoring Status Report.* Prepared for General Electric Company. July 17, 2024.

[21] Wood Environment & Infrastructure Solutions, Inc. (2018). *Work Plan for Interim Measures – Phase I Expansion*. June 21, 2018.

[22] Wood Environment & Infrastructure Solutions, Inc. (2021). *Implementation of the Phase I Expansion of the Interim Measures, General Electric Company Flatiron Facility, 234 East Main Street and Vicinity, Ontario, California*. Prepared for General Electric Company. April 8, 2021.

[23] WSP USA Environment and Infrastructure Inc. (2024). *Second Quarter 2024 Operation Report, Soil Vapor Extraction System 2.* Prepared for General Electric Company. July 17, 2024.

[24] WSP USA Environment and Infrastructure Inc. (2024). *Second Quarter 2024 Operation Report, Soil Vapor Extraction System 3*. Prepared for General Electric Company. July 17, 2024.

reports are submitted to the Santa Ana Water Board on the groundwater treatment system operations and compliance for WDR Order No. R8-2011-0019.

For the SVE treatment system, monitoring activities occur both weekly and monthly, and reporting activities occur quarterly in compliance with the Sampling and Monitoring Plan.[25] Additionally, indoor air sampling is conducted on a semiannual basis. Overtime, the monitoring has demonstrated that vapor mitigation measures are effective at controlling vapor intrusion.

All semiannual and monthly reports, and other relevant documents/data, can be found on the State Water Resources Control Board GeoTracker website.[26]

RECENT ACTIVITY

The most recent groundwater monitoring report prepared by GE is the *First Half 2024 Groundwater Monitoring and Remediation Report*.[27] This report summarizes groundwater monitoring at 36 wells and three piezometers, as well as the remediation activities performed between January 1 and June 30, 2024. First quarter groundwater elevation measurements and groundwater samples were collected in February 2023 and second quarter groundwater elevation measurements and groundwater samples were collected in April 2023. The following describes the key findings presented in the report:

- Groundwater flow trended generally towards the south-southwest. Groundwater elevations generally increased from the second half of the 2023 through the first half of 2024.
- Concentrations of all four contaminants of concern remain stable and consistent with historical values.
- MW-22A had the highest concentrations of TCE and PCE (16,000 and 1,000 µgl, respectively).
- MW-23A had the highest concentration of chromium and hexavalent chromium (3,130 and 3,500 µgl, respectively).
- Overall, the highest concentrations of TCE, PCE, total chromium, and hexavalent chromium continue to be detected at onsite wells at the north end of the plume (MW-21 through MW-23).
- In both quarters, TCE and chromium concentrations were below the MCL in wells downgradient of EW-01.
- Approximately 144 acre-feet of groundwater from EW-01 and 366 acre-feet of groundwater from EW-02 were treated and discharged to the Bon View injection well field, removing approximately:
  - 28.1 pounds of TCE and 11.6 pounds of total chromium from EW-01
  - 704.7 pounds of TCE and 142.1 pounds of total chromium from EW-02

[25] Geomatrix. (2002). *Sampling and Monitoring Plan*. Prepared for General Electric Company. 2002.

[26] https://geotracker.waterboards.ca.gov/profile_report?global_id=SL0607132486

[27] WSP USA Environment and Infrastructure Inc. (2024). *First Half 2024 Groundwater Monitoring and Remediation Report*. Prepared for General Electric Company. July 22, 2024.

In January 2024, monitoring of per- and poly-fluoroalkyl substances (PFAS) was conducted pursuant to a May 2023 workplan to monitor for PFAS in selected monitoring wells onsite and downgradient of the former GE Flatiron facility.[28] Groundwater samples were collected from five monitoring wells, four of which contain hexavalent chromium concentrations greater than the MCL, including: P-01, MW-09, MW-17 and MW-23A. A sample was also collected from a deeper monitoring (MW-23B) well to assess the potential vertical distribution of PFAS in the groundwater. GE submitted a report to the Regional Board in April 2024 summarizing the results from the sampling and analysis of PFAS.[29] At four of the monitoring wells sampled (MW-09, MW-17, MW-23A, and MW-23B) PFAS concentrations were non-detect or very low near the respective reporting limits for the 24 PFAS compounds analyzed. At well P-01, PFAS concentrations were non-detect or low concentrations slightly above the reporting limits; the concentrations of two PFAS that have new federal EPA MCLs, Perfluorooctane sulfonic acid (PFOS), and Perfluorooctanoic acid (PFOA), were slightly above their respective MCLs.

During the reporting period, *Facility Treatment System Summaries* were posted to GeoTracker monthly providing information on the current system status, including well operation, water quality compliance sampling, and system operation. The reports detail operations of the two extraction wells and three injection wells, including any period of shutdowns. Over the last year through September 2024, EW-01 and EW-02 treated 406 and 777 acre-feet, respectively. EW-01 was offline from mid-January to early April for rehabilitation and development.

GE will continue remediation and monitoring at the Flatiron Facility with the next groundwater monitoring activities scheduled for October 2024. The next semiannual monitoring report will be submitted to the Santa Ana Water Board in 2025.

On November 21, 2023, GE submitted a work plan to construct an additional injection well, IW-04, at the Bon View Park Injection Well Field. IW-04 will be drilled, constructed, and developed consistent with the procedures used to install wells IW-01, IW-02, and IW-03. The workplan anticipated that construction of IW-04 will initiate during the second quarter of 2024. There have been no formal updates on GeoTracker on the progress of this work.

On January 16, 2024, on behalf of GE, WSP submitted a *Work Plan For Interim Measures – Phase II Soil Vapor Extraction Expansion* (Phase II SVE Workplan).[30] Phase I of the workplan expanded the SVE system through the construction and operation of the SVE2 and SVE3 systems. The Phase II expansion will involve constructing deeper SVE wells on the eastern portion of the site to extend the influence of the SVE.

In March 2024, B. Kueper & Associates, Ltd. (BKA) submitted a report on the development of a groundwater flow model of the GE Flatiron and GE Test Cell area that they prepared for GE.[31] The model will be used to quantitatively assess and predict groundwater flow conditions in the vicinity of the Flatiron and Test Cell Sites, including the directions of groundwater flow. The model was developed using the Telescopic Mesh Refinement technique that built upon the 2007 Chino Basin Model (which was publicly

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[28] WSP USA Environment and Infrastructure Inc. (2023). *Work Plan to Evaluate the Presence of Selected Per- and Poly-Fluoroalkyl Substances*. Prepared for General Electric Company. May 24, 2023.

[29] WSP USA Environment and Infrastructure Inc. (2024). *Sampling and Analysis Report to Evaluate the Presence of Selected Per-and-Poly-Fluoroalkyl Substances*. Former General Electric Company Flatiron Facility. April 29, 2024.

[30] WSP USA Environment and Infrastructure Inc. (2024). *Work Plan For Interim Measures – Phase II Soil Vapor Extraction Expansion*. Prepared for General Electric Company. January 16, 2024.

[31] B. Kueper & Associates, Ltd. (2024). *Groundwater Flow Model Report. GE Flatiron and Test Cell Sites Ontario California*. Prepared for General Electric Company. March 12, 2024.

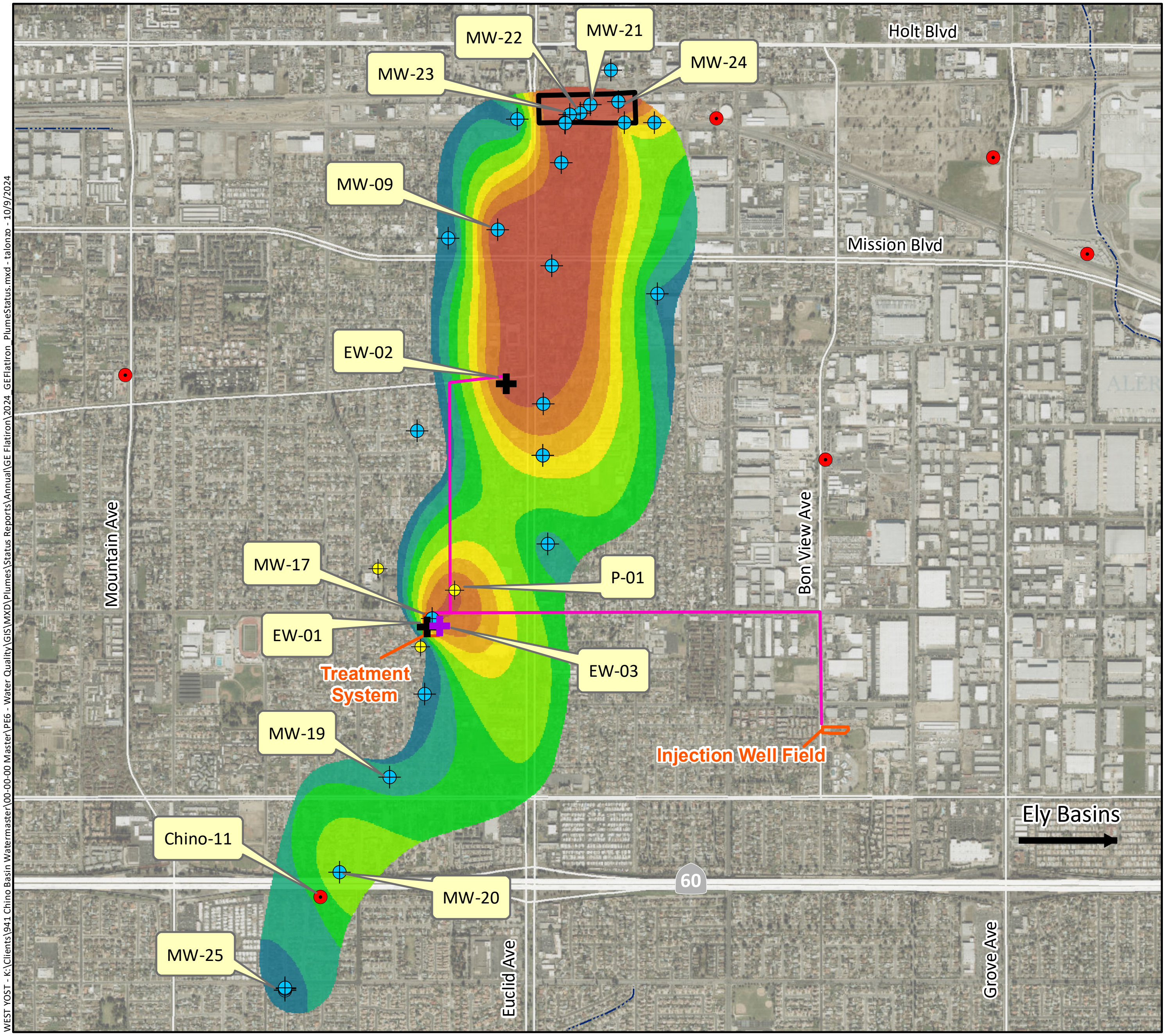
available at the time) developed by Wildermuth Environmental for the Watermaster. The report details the development and calibration of this groundwater flow model for the GE Flatiron and GE Test Cell area.

In April 2024, a revised design was submitted for a new extraction well, EW-03, for the GE Flatiron groundwater treatment system.[32] The design was revised to reflect the final location of the well, which is different than the proposed area in the original design report in 2022. GE was unable acquire any of the properties in the original proposed area after negotiating with multiple owners and making multiple purchase offers. EW-03 will be constructed on the 501 West Francis Street property where extraction well EW-01 and the groundwater treatment facility are located. There is no schedule yet for the construction of EW-03.

In April 2024, the Santa Ana Water Board prepared and issued a Community Fact Sheet on the notice of environmental investigation on the former Flatiron Facility.[33] The Santa Ana Water Board has requested that GE distribute this fact sheet to the public who reside, work, or own property near the facility, to inform them on the environmental investigation and cleanup at the former Flatiron Facility.

[32] WSP USA Environment and Infrastructure Inc. (2024). *Revised Basis of Design for Well EW-03. Former General Electric Company Flatiron Facility*. Prepared for General Electric Company. April 30, 2024.

[33] Santa Ana Regional Water Quality Control Board and General Electric Company. Community Fact Sheet. Notice: Environmental Investigation Former General Electric Flatiron Site – Ontario, CA. April 2024. https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/9847669303/20240325%20GE%20Flatiron%20Community%20Fact%20Sheet.pdf



Maximum Concentration (µgL)
July 2017 - June 2022

TCE

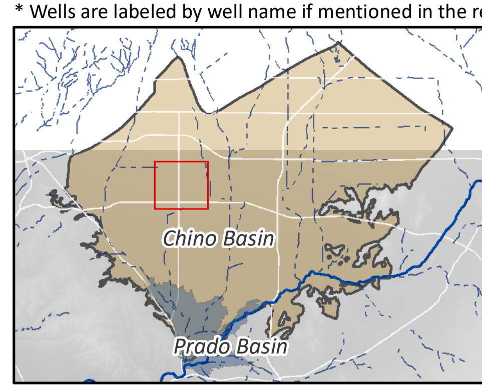
- > 0.5 to ≤ 5
- > 5 to ≤ 10
- > 10 to ≤ 20
- > 20 to ≤ 50
- > 50 to ≤ 100
- > 100 to ≤ 200
- > 200 to ≤ 500
- > 500

MCL = 5 µgl

(Delineated by Watermaster in the 2022 State of the Basin Report)

- GE Extraction Well
- Proposed Location of New Extraction Well
- GE Monitoring Well (some locations have multiple wells at various depths)*
- GE Piezometer
- Active/Inactive Potable Municipal Water Supply Well
- Conveyance Pipeline
- Former GE Flatiron Property Boundary

* Wells are labeled by well name if mentioned in the report



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Prepared by:

WEST YOST

N

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0 0.5 1 Km

Prepared for:

Chino Basin Watermaster
Annual Plume Report

CHINO BASIN WATERMASTER Partners in Basin Management

General Electric (GE) Flatiron
TCE Plume

Exhibit 1

23692 Birtcher Drive
Lake Forest CA 92630

949.420.3030 phone
530.756.5991 fax
westyost.com

Annual Plume Status Report

General Electric Test Cell Plume
October 2024

CONTAMINANTS

The primary contaminant is trichloroethene (TCE). Other contaminants of concern include the following volatile organic compounds (VOCs): tetrachloroethene (PCE), 1,1-dichloroethene (1,1-DCE), 1,2-dichloroethane (1,2-DCA), and cis-1,2-dichloroethene (cis-1,2-DCE). For each of these contaminants, the table below list the California maximum contaminant level (MCL) and maximum concentrations detected in groundwater samples from wells within the plume over the last five years.

Table 1. Maximum Concentration of Contaminants of Concern between July 2019 to June 2024

Contaminant	MCL, micrograms per liter (µgl)	Max Concentration, µgl	Sample Date	Well
TCE	5	6,200 [(a)]	04/2024	AW-01
PCE	5	55	04/2020	MW-8-s
1,1-DCE	6	45	04/2024	OW-16-i
1,2-DCA	0.5	2.2	01/2020	MW-8-s
cis-1,2-DCE	6	28	07/2021	OW-18-d

Notes:
(a) This is the maximum TCE concentration ever measured at a monitoring well in the GE Test Cell plume.

LOCATION

The General Electric (GE) Test Cell plume is located in the central Chino Basin in the City of Ontario, south of the Ontario International Airport. It extends southwest from the former GE Engine Services Test Cell Facility (Test Cell Facility) located at 2264 East Avion Place. The plume is elongated and extends offsite from the facility in a downgradient direction approximately 1.9 miles, and measures approximately 0.6 miles wide. The most recent delineation of the extent of the plume was done by Chino Basin Watermaster (Watermaster) for the *2022 State of the Basin Report*.[1] This characterization is based on the five-year maximum TCE concentration measured over the period of July 2017 through June 2022. Exhibit 1 shows

[1] West Yost Associates. (2023). *Chino Basin Optimum Basin Management Program, 2022 State of the Basin Report.* Prepared for Chino Basin Watermaster. June 2023.

the location and extent of the plume as delineated by Watermaster in 2022, compared to the most recent characterization by GE in its *2024 Second Quarter Groundwater Monitoring Report*.[2]

SITE HISTORY

From 1956 to 2010, the Test Cell Facility was used to test and maintain commercial and military jet engines. Chlorinated solvents used at the facility for cleaning and degreasing, including TCE, were stored in 55-gallon drums and aboveground storage tanks. In the early 1970s, TCE was replaced with 1,1,1-TCA, which was then replaced in 1981 with isopropyl alcohol—the only solvent used onsite through 1996. Until 1974, wastewater with residual solvents, along with fuel and oil residues, was diverted to below-ground separators where it was recycled. Excess wastewater from the separators occasionally flowed into a natural wash along the north side of the property, which drained into the Cucamonga Creek. From 1974 to 1980, two dry wells were connected to the separators, extending approximately 270 feet below ground surface (ft-bgs). From 1980 to 2006, wastewater continued to be captured by the separators where it was either recycled or treated offsite. Beginning in 2006, the wastewater was stored in above ground storage tanks and transported offsite for treatment and disposal. The Test Cell Facility ceased operations in 2011, and the site is currently vacant.

REGULATORY ORDERS

- State of California Department of Health Services (CDHS) Docket No. 88/89- 009CO. Consent Order Health and Safety Code Section 25355.5(a)(1)(B) and 25355.5 (a)(1)(C). In the Matter of: General Electric Engine Maintenance Center. September 1988. This Order required GE to perform a remedial investigation and feasibility study to evaluate and monitor soil, surface water, and groundwater contamination at the site and to prepare a remedial action plan.

REGULATORY AND MONITORING HISTORY

In 1984, an investigation performed by C.H.J, Inc. soil engineers detected TCE, PCE, 1,1,1-TCA, and dibromochloromethane in soil samples in the vicinity of the dry wells. Results from this investigation were deemed invalid due to inappropriate analytical methods.[3] In 1985, another consulting firm retained by GE detected 1,1,1-TCA, TCE, and PCE in onsite subsurface soil samples.[4] An investigation performed in 1987 revealed the presence of multiple VOCs in the soil near the disposal sites.[5]

In 1988, a Consent Order was signed between GE and the CDHS (now Department of Toxic Substances and Control [DTSC]) to initiate an investigation of soil, surface water, and groundwater contamination, and the appropriate remedial actions. In 1990, GE performed a Phase I remedial soil investigation to

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[2] WSP USA Environment and Infrastructure Inc. (2024). *Second Quarter 2024 Groundwater Monitoring Report Former General Electric Engine Services Test Cell Facility.* Prepared for General Electric Company. July 16, 2024.

[3] The investigation is described in State of California Department of Health Services. (1998). Docket No. 88/89-009CO. Consent Order Health and Safety Code Section 25355.5(a)(1)(B) mad 25355.5 (a)(1)(C). In the Matter of General Electric Engine Maintenance Center. September 1988.

[4] Ibid.

[5] Dames & Moore. (1987). *Subsurface Investigation, Ontario California, for General Electric Aviation Services Operations.* Prepared for GE Engine Services Test Cell Facility. February 4, 1987.

determine the impacts of VOCs and jet fuel in the soil in the vicinity of the dry wells and Cucamonga Creek.[6] During the Phase I remedial investigation, VOCs were detected in soil samples collected onsite and in excavated soil from the dry wells. Phase II of the remedial investigation was to assess groundwater conditions beneath the site, including an evaluation of the nature, extent, and migration characteristics of dissolved VOCs in groundwater.[7,8] In 1991, as part of the Phase II investigation, GE installed seven monitoring wells onsite and upgradient of the site. Monitoring performed at these wells indicated the presence of VOCs in groundwater beneath the Test Cell Facility with the possibility of offsite migration. Pursuant to the DTSC 1988 Consent Order, a feasibility study and a remedial investigation was completed in 1993, and a remedial action plan was prepared in 1994.[9,10,11] The remedial action identified was an in-situ soil vapor extraction treatment system (VETS) to reduce VOCs to levels that would not impact groundwater. The VETS began operating in 1996.

In 1994, the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) was retained as the lead agency to oversee the groundwater investigation, while the DTSC maintained oversight of the soil investigation and operation of the VETS. The Santa Ana Water Board requested an offsite investigation be performed to determine the extent of groundwater contamination. An extensive offsite investigation was completed in multiple phases from 1995 to the early 2000s. The initial phase was completed in 1995 and included the installation of four offsite monitoring wells. Offsite groundwater investigations continued from 1996 to the early 2000s when 22 additional offsite monitoring wells were constructed within multi-depth well clusters. Monitoring at these wells indicated that the VOC plume composed of TCE, cis-1,2-DCE, and 1,1-DCE (byproducts of TCE degradation) extended offsite and that TCE concentrations were highest in the intermediate and deep aquifer zones. In 2003, GE submitted a groundwater feasibility study to the Santa Ana Water Board (2003 Feasibility Study), followed by a draft remedial action plan (RAP) in 2006.[12,13] The 2003 Feasibility Study and 2006 RAP identified pump-and-treat and monitored natural attenuation as remedial alternatives.

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[6] Dames & Moore. (1990). *Phase I Remedial Investigation, Engine Maintenance Center Test Cell Facility, Ontario, California*. Prepared for General Electric Company. 1990.

[7] Dames & Moore. (1990). *Phase II A Remedial Investigation Work Plan, Engine Maintenance Center Test Cell Facility, Ontario, California*. Prepared for General Electric Company. 1990.

[8] Dames & Moore. (1991). *Phase II B Remedial Investigation, Engine Maintenance Center Test Cell Facility, Ontario, California*. Prepared for General Electric Company. 1991.

[9] Dames & Moore. (1993). *Feasibility Study Report*, *General Electric Jet Engine Test Cell Facility, Jet Engine Test Cell Facility, 2264 Avion Place, Ontario, California*. 1993.

[10] Dames & Moore (1993). *Remedial Investigation Report*, *Jet Engine Test Cell Facility, 2264 Avion Place, Ontario California*. 1993

[11] Dames & Moore. (1994). *Remedial Action Plan for Impacted Soil, General Electric Jet Engine Test Cell Facility, 2264 Avion Place, Ontario, California*. September 16, 1994.

[12] Geosyntec. (2003). *Groundwater Feasibility Study – GE Engines Test Cell Facility, Ontario, California*. Prepared for GE Engine Services. December 3, 2003.

[13] Geosyntec. (2006). *Draft Groundwater Remedial Action Plan*, *GE Engine Services Test Cell Facility, 2264 Avion Place, Ontario, California*. Prepared for GE Engine Services Test Cell Facility. November 17, 2006.

In 2005 and 2008, GE submitted five-year review reports to the DTSC in compliance with the 1988 Consent Order on the evaluation of the soil VETS.[14,15] Following the 2008 report, GE requested site closure and to cease operation of the soil VETS. The DTSC granted final closure and completion of the soil remediation in 2009 with the condition that institutional controls were implemented to limit the site to commercial/industrial uses.

Following the closure of the soil VETS, GE continued conducting quarterly groundwater monitoring at their network of onsite and offsite monitoring wells and constructed additional multi-depth wells at six locations.

In May 2019, the DTSC transferred regulatory oversight of all environmental activities at the Test Cell Facility to the Santa Ana Water Board, including the soil investigation, for the following reasons: (1) the Santa Ana Water Board was the lead agency overseeing the groundwater investigations related to the site; (2) there had been recent increasing trends in VOC concentrations in some groundwater monitoring wells that could have required additional evaluation; and (3) to minimize any overlap of the investigation or cleanup activities between the two agencies.

In 2019, the Santa Ana Water Board stated that the impacts to groundwater and soil had not been adequately addressed and indicated that monitored natural attenuation may not be suitable as the only groundwater remedial action, and requested that GE prepare a Conceptual Site Model (CSM) to aid in determining the appropriate remedial action.[16] GE submitted the CSM to the Santa Ana Water Board in November 2019.[17] The CSM showed that TCE concentrations near the onsite source area (old dry wells) have decreased one to two orders of magnitude since monitoring began, demonstrating the success of the onsite remediation of soil vapor. Also, TCE concentrations in the most downgradient monitoring well (OW-11) have remained below the MCL since monitoring began. Several monitoring wells located along the northern edge of the plume have, however, shown notable increases in TCE concentrations since around 2016, likely due to displacement from increased recharge at the Ely Basins. Overall, the CSM concluded that natural attenuation is occurring and has maintained a stable groundwater plume.

In October 2021, GE conducted sampling of on-site SVE wells to evaluate if VOC concentrations in soil vapor have rebounded and whether the historical SVE systems had sufficiently removed VOCs. This work was conducted in accordance with the *Work Plan for On-Site Soil Vapor and Groundwater Investigation* which was partially approved by the Santa Ana Water Board on October 1, 2021.[18] The SVE well sampling occurred from October 4 through 11, 2021 and the results were submitted to the Santa Ana Water Board

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[14] Geosyntec. (2005). *First Five-Year Review Report Shallow Soil Remedy.* Prepared for GE Engine Services Test Cell Facility, City of Ontario, San Bernardino County, California. July 15, 2005.

[15] Geosyntec. (2008). *Second Five-Year Review Report, GE Engine Services Test Cell Facility, 2264 Avion Place Ontario, California.* Prepared for GE Engine Services. October 27, 2008.

[16] Email correspondence with Mr. Alan Kouch at the Santa Ana Water Board on September 19, 2019.

[17] Wood Environmental & Infrastructure Solutions, Inc. (2019). *Conceptual Site Model Former General Electric Engine Services Test Cell Facility*. Prepared for General Electric Company. November 5, 2019.

[18] Wood Environmental & Infrastructure Solutions, Inc. (2021). *Work Plan for On-Site Soil Vapor and Groundwater Investigation*. Prepared for General Electric Company. July 29, 2021.

in January 2022.[19] WSP submitted a summarized report of soil vapor and groundwater sampling and analysis conducted at the sites from October 2021 through October 2023.

Between April and July 2023, GE installed vapor probes and deep groundwater monitoring wells at seven onsite locations (MW-10D to MW-16D). The locations of the deep groundwater monitoring wells are shown in Exhibit 1.

REMEDIAL ACTION

Groundwater

The 2003 Feasibility Study and 2006 draft RAP identified two groundwater remediation alternatives:

1. Extraction and treatment of groundwater for areas that have VOC concentrations approximately ten times the MCL (>50 µgl).
2. Monitored natural attenuation of groundwater for areas that have VOC concentrations less than ten times the MCL.

Following the submittal of the draft RAP, GE determined that the plume extending downgradient from the facility with TCE concentrations above 50 µgl had decreased in size from about 4,000 feet to about 2,600 feet. Fate and transport modeling indicated that either natural attenuation or a pump-and-treat alternative would decrease the TCE in the plume to concentrations equal to or less than the MCL within the same time frame of 50 years. In 2008, GE met with the Santa Ana Water Board to discuss the status of the plume and to reevaluate the RAP to consider monitored natural attenuation as the primary remedial action. Based on this discussion, GE agreed to install additional monitoring well clusters between the former GE facility and well cluster OW-16, located in the center of the plume.[20] This well was selected because, at the time, it had the highest historical offsite TCE concentrations in the intermediate and deep intervals of the aquifer. Pursuant to this agreement, two offsite well clusters (OW-17 and OW-18) and one onsite well cluster (MW-8) were installed in August and September 2009. The 2006 draft RAP was withdrawn in February 2010, and since then, GE and the Santa Ana Water Board have continued to meet to evaluate if monitored natural attenuation is the appropriate remedial action for the Test Cell Facility.

Soil

In 1996, pursuant to the 1988 Consent Order, GE began operating the VETS to remove VOCs in the soil onsite and to prevent the soil contaminants from entering groundwater. The treatment system operated from 1996 to 2005, with verification monitoring from 2004 to 2007. During this time, GE was required to submit a review and reevaluation of the remedial actions every five years. The *Second Five-Year Review Report* was submitted to the DTSC in October 2008 and concluded that the soil remediation program had significantly reduced VOC concentrations in soil to levels that are no longer harmful to human health or groundwater quality.[21] It also indicated that there was no significant VOC rebound after treatment ceased

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[19] Wood Environmental & Infrastructure Solutions, Inc. (2022). *Data Transmittal for On-Site Soil Vapor Well Sampling*. Letter sent on behalf of GE Engine Services Test Cell Facility to the Santa Ana Water Board. January 24, 2022.

[20] Geosyntec. (2009). *Monitoring Well Installation Work Plan, GE Engines Services Test Cell Facility.* Prepared for GE Engine Services Test Cell Facility. July 2, 2009.

[21] Geosyntec. (2008). *Second Five-Year Review Report, Ge Engine Services Test Cell Facility*. Prepared for GE Engine Services Test Cell Facility. October 27, 2008.

in 2005. The report recommended that soil remediation be deemed complete, and that the DTSC grant final closure on soil remediation. The DTSC granted final closure in 2009 with the condition that institutional controls to limit the site to commercial/industrial use were implemented.

MONITORING AND REPORTING PROGRAM

The objectives of the monitoring program are to evaluate the extent and magnitude of the plume emanating from the Test Cell Facility and to support the ongoing evaluation of monitored natural attenuation as a remedial action. Groundwater monitoring is performed quarterly and consists of measuring groundwater levels and collecting groundwater samples at 50 onsite and offsite monitoring wells and measuring groundwater levels at four piezometers located adjacent to the Ely Basins. Exhibit 1 shows the locations of all monitoring sites. Quarterly groundwater quality samples are analyzed for VOCs and reports summarizing the results and conclusions of the monitoring are published each quarter. These reports and all data that have been collected by GE since 2005 are posted on the State Water Resources Control Board GeoTracker website.[22]

Annual soil sampling and monitoring ceased following the approval of the request for closure of the VETS in 2009. Since then, soil-vapor has been sampled twice, once in 2014 and again in 2021, per request of the Santa Ana Water Board.

RECENT ACTIVITY

The most recently submitted monitoring report for the GE Test Cell Facility is the *Second Quarter 2024 Groundwater Monitoring Report*.[23] Groundwater quality samples and groundwater-level measurements were collected at 47 monitoring wells and groundwater level measurements were collected at four Ely Basin piezometers owned by San Bernadino County. The monitoring event was conducted in April 2024. The following summarizes some of the key results and conclusions contained in the report:

- Groundwater sampling indicated the presence of detectable concentrations of 22 VOCs, with TCE having the highest concentrations in most wells.
- TCE concentrations exceeded the MCL in 34 of the 47 wells sampled and three wells were non-detect for TCE. Five wells contained the highest reported TCE concentrations compared to historical results.
- The highest TCE concentration in groundwater was 6,200 µgl at the new offsite monitoring well AW-01, indicating that there are one or more sources of TCE to groundwater present north-northeast of the property and that relatively high concentrations of TCE are migrating in a southwest to south-southwest direction. These elevated concentrations cannot be attributed to historical TCE concentrations in groundwater beneath the former GE Test Cell Facility.

[22] https://geotracker.waterboards.ca.gov/profile_report?global_id=SL208133868

[23] WSP USA Environment and Infrastructure Inc. (2024). *Second Quarter 2024 Groundwater Monitoring Report Former General Electric Engine Services Test Cell Facility.* Prepared for General Electric Company. July 16, 2024.

- Overall, detected TCE concentrations at wells onsite and adjacent to the former GE Test Cell Facility remain relatively low, with a maximum TCE concentration of 24 µgl at well MW-10-sR.
- The most downgradient monitoring well (OW-11) has had TCE concentrations below the MCL since groundwater monitoring began.
- Groundwater elevations are generally within historical ranges but have been rising beneath the site and vicinity since October 2022. Additionally, higher elevations were observed closer to the Ely Basins, indicating recharge was likely occurring at the Ely Basins at the time of water level monitoring and sample collection. The general groundwater flow direction continues to be predominantly southwest.

In November 2023, the Santa Ana Water Board requested that GE test for 1,4-dioxane at nine onsite monitoring wells. A sampling plan was submitted to the Santa Ana Water Board in December 2023 and it was approved in January 2024. The sampling for 1,4-dioxane was completed during the second quarter 2024 monitoring event. All of the samples were non-detect for 1,4-dioxane and no further sampling is planned.

In March 2024, B. Kueper & Associates, Ltd. (BKA) submitted a report on the development of a site-specific steady state groundwater flow model (GWF Model) of the GE Flatiron and GE Test Cell area that they prepared for GE.[24] The model was used to quantitatively assess and predict groundwater flow conditions in the vicinity of the Flatiron and Test Cell Sites, including the directions of groundwater flow. Specifically, the GWF Model uses backward particle tracking to better interpret changing groundwater flow directions upgradient of the GE Test Cell Facility, where there had been a notable increase in TCE concentrations. The model results were used to identify an investigation area for sampling upgradient from well OW-6.

In December 2022, GE submitted the *Plan for Groundwater Sampling Upgradient from Well OW-6* to the Santa Ana Water Board after identifying increased concentrations of TCE in monitoring wells upgradient of well OW-6 following a change in groundwater flow direction.[25] The purpose of the investigation was to identify potential contributing sources of TCE to the plume. It was approved by the Santa Ana Water Board in March 2023 and work was conducted from July to November 2023. The work included a borehole investigation and the installation of two new water table monitoring wells (AW-01 and AW-02 shown in Exhibit 1) where TCE concentrations were high. Groundwater sampling activities conducted during this investigation identified elevated TCE concentrations in groundwater beneath the investigation area, which were determined to be from a source or sources at Ontario Internation Airport.

In March 2023, the Santa Ana Water Board approved the work plan *Plume Migration Control Near the Former GE Engine Services Test Cell Facility* for the feasibility, design, and installation of a plume migration control system in the relatively higher concentration core of the plume.[26] In April 2023, however, GE and the Santa Ana Water Board determined that the plume needed to be carefully defined through assessing

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[24] B. Kueper & Associates, Ltd. (2024). *Groundwater Flow Model Report. GE Flatiron and Test Cell Sites Ontario California*. Prepared for General Electric Company. March 12, 2024.

[25] WSP USA Environment & Infrastructure Inc. (2022). *Plan for Groundwater Sampling Upgradient from Well OW-06, Former General Electric Engine Services Test Cell Facility, 2264 East Avion Place, Ontario, California*. December 12, 2022.

[26] Wood. (2022). *Work Plans for Off-Site Groundwater Investigations and Plume Migration Control Near the Former General Electric Engine Services Test Cell Facility, Ontario, California*. April 14, 2022.

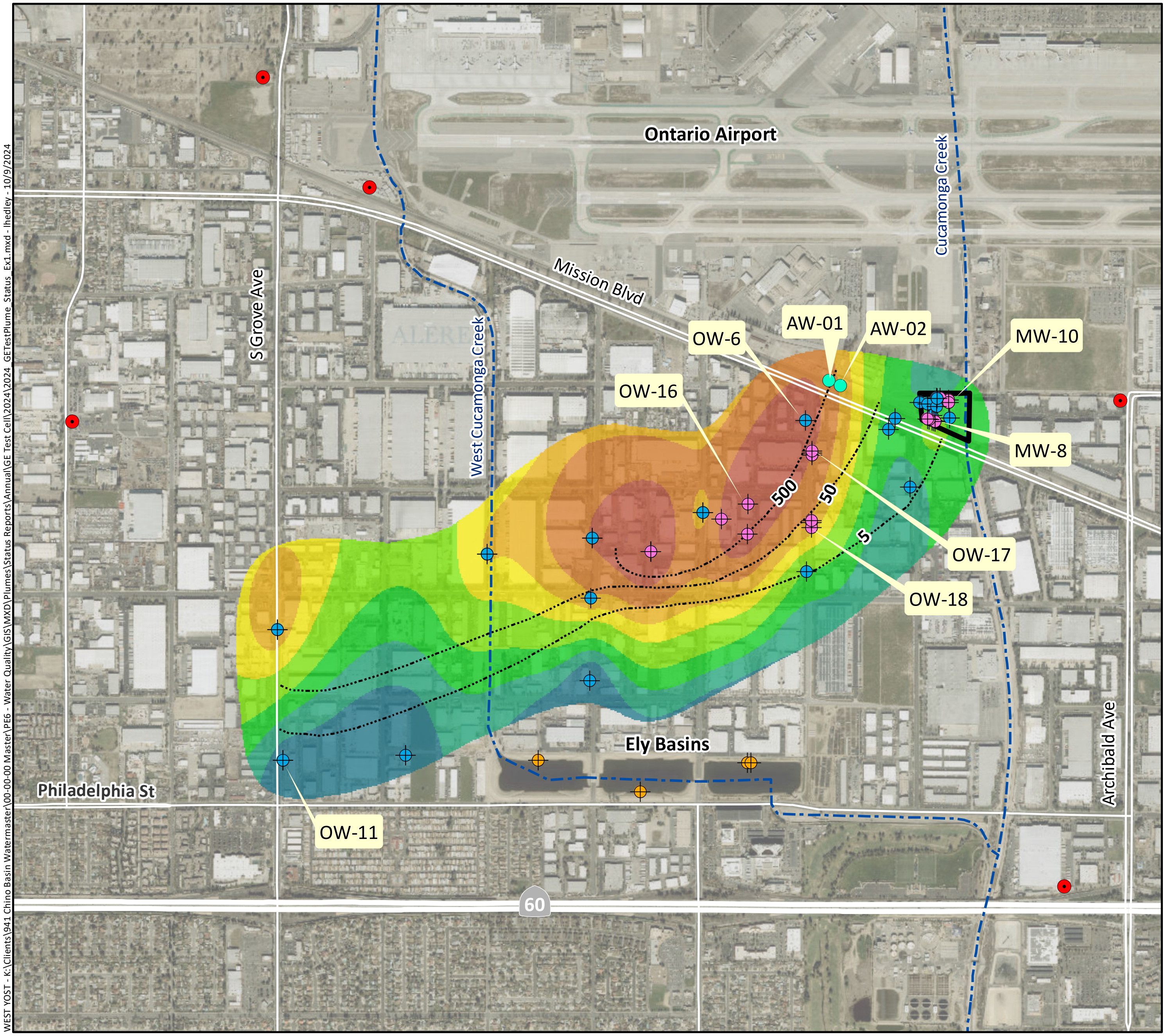
upgradient contributions before selecting a site for groundwater extraction and treatment.[27] Upon completion of the offsite groundwater investigations, GE plans to submit an updated conceptual site model for the plume, plume sources, and related pathways, which will then guide the site selection for a plume migration control system.

In July 2023, GE met with the Santa Ana Water Board and agreed to prepare a summary report of all data. As of October 2024, the summary report has not been submitted to GeoTracker.

In January 2024, GE submitted the *On-Site Soil Vapor and Groundwater Investigation Report*, which concluded that the SVE activities were successful in mitigating TCE concentrations in soil beneath the site. [28] These results supported the conclusion that increased TCE concentrations upgradient of Well OW-06 cannot be attributed to the GE Test Cell Facility and that no further investigation of the soil is warranted.

[27] April 18, 2023 email transmittal of call between GE, WSP and the Santa Ana Water Board.

[28] WSP USA Environment & Infrastructure Inc. (2024). *On-Site Soil Vapor and Groundwater Investigation Report, Former General Electric Engine Services Test Cell Facility, 2264 East Avion Place, Ontario, California*. January 24, 2024.



Maximum Concentration (µgL)
July 2017 - June 2022

TCE
- 0.5 to ≤ 5
- > 5 to ≤ 10
- > 10 to ≤ 20
- > 20 to ≤ 50
- > 50 to ≤ 100
- > 100 to ≤ 200
- > 200 to ≤ 500
- > 500

MCL = 5 µgl

(Delineated by Watermaster in the 2022 State of the Basin Report)

Contours of TCE Concentration (µgl) in the shallow zone delineated by WSP Consultants in the 2024 Quarter 2 Groundwater Monitoring Report

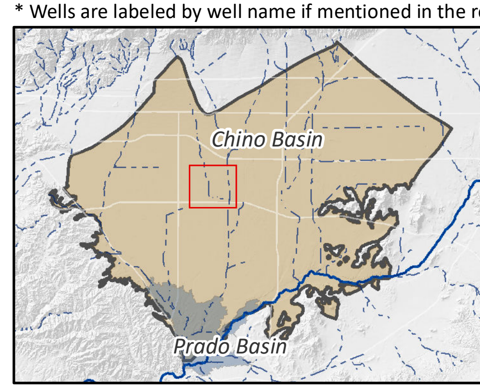
Former GE Test Cell Property Boundary

General Electric Active Monitoring Wells*
- Single Casing
- Multi-Depth Cluster
- Piezometers
- New Monitoring Well Drilled in 2024

Active/Inactive Potable Municipal Water Supply Wells

Streams & Flood Control Channels

* Wells are labeled by well name if mentioned in the report



Prepared by:

WEST YOST

N

0 0.5 Miles

0 0.5 1 Km

Prepared for:

Chino Basin Watermaster
Annual Plume Report

General Electric (GE) Test Cell
TCE Plume

Exhibit 1

WEST YOST
Water. Engineered.

23692 Birtcher Drive
Lake Forest CA 92630

949.420.3030 phone
530.756.5991 fax
westyost.com

Annual Plume Status Report

Former Kaiser Steel Mill Plume and
CCG Ontario Monitoring and Remediation
October 2024

CONTAMINANTS

From 1983 to 1993, the primary contaminants of concern (COCs) for the Former Kaiser Steel Mill site were total dissolved solids (TDS) and total organic carbon (TOC). In 2008, additional investigations commenced to identify other COCs. Currently, the COCs associated with the site include hexavalent chromium, carbon tetrachloride, and chloroform. The maximum concentrations of these COCs detected in groundwater samples collected from the Former Kaiser Steel Mill site from July 2019 through June 2024 compared to the maximum contaminant levels (MCLs) are shown in Table 1 below.

Table 1. Maximum Concentration of Contaminants of Concern between July 2019 and June 2024

Contaminant	MCL, µgl	Max Concentration, µgl	Sample Date	Well
Hexavalent Chromium	10[(a)]	289	February 2024	MW-14S
Carbon Tetrachloride	0.5	6.2	August, 2019	MW-25
Chloroform	70	16.6	February , 2023	SW-3

Notes:
µgl = micrograms per liter
(a) In April 2024, the State Water Resources Control Board Division of Drinking Water has adopted an MCL of 10 µgl for hexavalent chromium, effective October 1, 2024.

TDS and TOC are no longer considered COCs associated with Former Kaiser Steel Mill site.

LOCATION

The Former Kaiser Steel Mill site is a 1,200-acre parcel in an unincorporated area of the San Bernardino County between the Cities of Fontana and Ontario. The site is bounded by Whittram Avenue to the north, Interstate 10 to the south, and Etiwanda and Cherry Avenues to the west and east, respectively. Exhibit 1 shows the location of the Former Kaiser Steel Mill site.

SITE HISTORY

The Kaiser Steel Corporation operated the Kaiser Steel Mill from 1942 to 1983, and during peak production, the facility was the largest steel producer in the western United States. From 1942 through 1972, solid and liquid wastes produced from manufacturing processes were disposed of in waste pits and unlined surface impoundments for percolation and evaporation throughout the site. In the early 1970s, the surface impoundments were lined to eliminate percolation to groundwater. In 1987, the Kaiser Steel Corporation filed for bankruptcy and reorganized into Kaiser Resources, Inc., which became Kaiser Ventures, Inc. in 1995.

After the Kaiser Steel Corporation ceased steel operations in 1983, portions of the property were divided and leased or sold to the following organizations:

- Chemwest Industrial, Inc., a chemical manufacturing company, leased land in the southwest portion of the property (East Slag Pile Area in Exhibit 1) but no longer operates onsite.
- California Steel Industries (CSI) purchased and continues to operate 458 acres to manufacture rolled steel.
- The Auto Club Speedway (formerly California Speedway) was constructed by the Penske Corporation on 500 acres in the northern corner of the site in 1995.
- CCG Ontario, LLC (CCG)[1] purchased 592 acres along the western and southern portions of the property in 2000 and inherited responsibility for site contamination, remediation, and monitoring from Kaiser Ventures, Inc. (see Exhibit 1 for the property location).

REGULATORY ORDERS

There have been several regulatory orders issued to various tenants of the Former Kaiser Steel Mill site for the investigation and remediation of soil and groundwater contamination:

- Regional Water Quality Control Board Santa Ana Region (Santa Ana Water Board) Cleanup and Abatement Order (CAO) No. 87-121 (August 1987)—Required Kaiser Steel Corporation to initiate a Phase IV groundwater investigation and implement a remediation action alternative for groundwater contamination.
- California Department of Health Services (now Department of Toxic Substances Control (DTSC)) Consent Order with the Kaiser Steel Corporation (August 1988)—Required the Kaiser Steel Corporation to investigate any release of contamination to air, soil, surface water, and groundwater, and to ensure appropriate remedial measures were taken.
- Santa Ana Water Board CAO No. 91-40 (March 1991)—Required Kaiser Resources, Inc. perform a feasibility study for a salt-offset remediation alternative for groundwater contamination.
- California Department of Health Services (now DTSC) Consent Order with CSI (August 1995)—Required CSI to conduct a Site Investigation, perform health risk assessment at the CSI property, and develop and implement an action plan to remediate contaminations on site.
- DTSC Imminent and Substantial Endangerment Determination Consent Order with CCG (August 2000)—Transferred responsibility of investigation and remedial activities associated with the 592 acres purchased by CCG and the sale of the Coal Tar Pits Parcel from Kaiser Ventures, Inc. to CCG.

[1] CCG Ontario is a subsidiary of Prologis, a real-estate and supply chain logistics company.

REGULATORY AND MONITORING HISTORY

In July 1983, a phased investigation of potential groundwater contamination, resulting from the disposal of high-salinity wastewater to unlined ponds during its early years of operation, was performed at the Former Kaiser Steel Mill site. The Phase I and II investigations were completed in December 1983 and identified 28 waste sites and four likely point-sources that contributed to TDS and TOC groundwater contamination beneath the facility.[2] Groundwater samples were collected at existing onsite and offsite wells to determine the preliminary extent of groundwater contamination and to assess groundwater quality downgradient from the site. The Phase III investigation, completed in March 1986, resulted in the construction of monitoring wells at six additional locations (five single-nested and one quadruple-nested wells).[3] Based on these investigations, three separate TDS plumes were identified: one located onsite, extending to a depth of 770 feet below ground surface (ft-bgs), and two that migrated offsite. Additionally, one TOC plume was identified onsite extending to a depth of approximately 100 ft-bgs. The Phase III investigation determined that the TDS plumes were moving downgradient at a rate of 100 to 300 feet per year with the potential to impact downgradient municipal production wells.

In 1987, the Santa Ana Water Board issued CAO No. 87-121 to the Kaiser Steel Corporation in response to the findings of the phased investigations, which required a Phase IV groundwater investigation to further characterize the plume's extent and evaluate remediation strategies, such as groundwater extraction and treatment.[4]

On August 22, 1988, a Consent Order was signed between the Kaiser Steel Corporation and the California Department of Health Services, Toxic Substances Control Division (now known as the DTSC) to ensure that any release or threatened release of contamination to the air, soil, surface water, or groundwater at the site was thoroughly investigated, and that appropriate remedial actions were taken.[5] Two preliminary assessments/site investigations were completed in August 1988 and January 1989. The results of these investigations were published in the *Resource Conservation and Recovery Act* (*RCRA) Facility Assessment Report*, which identified twenty areas for remedial investigation.[6] The Phase I and II remedial investigations were completed in April and October of 1990, respectively.[7] The results of these investigations concluded that three areas of the Former Kaiser Steel Mill site required remediation and further investigation: the tar pits, the byproducts plant area, and the east slag pile. The phase II remedial investigation also found that the cooling tower sludge bed required minor material removal. Due to the limited remediation required, it was recommended that the cooling tower sludge bed be included in the remedial action plan for the east slag pile. The Phase II remedial investigation also concluded that material from the furnace dust/mill scale piles would require removal. Ultimately this material was recycled into the cement industry

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[2] James M. Montgomery and Associates. (1983). *Final Report, Kaiser Steel Corporation Groundwater Evaluations*. December 1983.

[3] James M. Montgomery and Associates. (1986). *Kaiser Steel Corporation Phase III Groundwater Investigation*. Prepared for Kaiser Steel Corporation. March 1986.

[4] Santa Ana Water Board. (1987). *Cleanup and Abatement Order No. 87-121 for Kaiser Steel Corporation Fontana, San Bernardino County*. August 26, 1987.

[5] DTSC Docket No. HAS 87/88-032CO. Consent Order (Health and Safety code sections 205,25355.1(a)(1)) August 22, 1988.

[6] JMM. (1989). *RCRA Facility Assessment Report*. Prepared for Kaiser Steel Resources, Inc. January 1989.

[7] https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=60001356

and didn't require further remediation. For each of the three areas, individual feasibility studies and remedial action plans were prepared and remediation for all three areas occurred between 1995 and 1999.

In 1990, Kaiser Resources, Inc. (formerly Kaiser Steel Corporation) initiated plans for a 'salt-offset' as an alternative to groundwater extraction and treatment of the TDS and TOC plumes. In March 1991, the Santa Ana Water Board rescinded CAO No. 87-121 and issued CAO No. 91-40, which allowed Kaiser Resources, Inc. to complete a feasibility study for a salt-offset program. The *Phase IV Groundwater Remediation Feasibility Study Draft Report* was published in 1991; it analyzed a salt-offset alternative and nine other groundwater remediation alternatives.[8] In 1993, CAO No. 91-40 was rescinded when Kaiser Resources, Inc. and the Santa Ana Water Board entered into a settlement agreement (known as the Salt Offset Agreement). Under the Salt Offset Agreement, Kaiser Resources, Inc. would contribute financial resources and dedicate its Chino Basin water rights to support the construction and operation of the Chino Basin Desalters in exchange for release from any future liability for TDS and TOC contamination. Kaiser Resources, Inc. made a one-time contribution of $1.5 million and 25,000 acre-feet of its water rights established under the Chino Basin Judgement.

Between 1986 and 1994, an interim groundwater-quality monitoring program was implemented to further characterize the extent of the TDS and TOC groundwater contamination. The monitoring program consisted of a sampling a network of 30 onsite and offsite monitoring and production wells, including newly constructed monitoring wells KOSF-1 and Kaiser-MP2. The maximum TDS and TOC concentrations detected in groundwater samples during this time were 1,600 milligrams per liter (mgl) and 70 mgl, respectively.

In 1995, the DTSC issued the Consent Order for CSI to develop and implement an Expedited Remedial Action Plan (ERAP) on its property that was purchased from the Former Kaiser Steel Mill Site.[9] Pursuant to the ERAP, a site investigation was performed at 28 areas on the CSI property which identified 31 Areas of Concern (AOCs). In 2004 and 2013, carcinogen risk assessments of onsite soil indicated that 26 AOCs do not require further remediation other than restrictions that land use can only be industrial uses. The selected mitigation measures for the remaining AOCs included the installation of a surface soil cover system (cap) and maintaining an existing surface cap.[10] Contaminant fate and transport analyses conducted as part of the site investigation indicated that there are no risks to the underlying groundwater at these areas. Annual cap inspections and five-year reviews are ongoing with supplemental characterization and remedial actions conducted intermittently.

In 2000, CCG purchased 592 acres of the Former Kaiser Steel Mill site and entered into a Consent Order with the DTSC, transferring responsibility for the remediation of site-related contamination from Kaiser Ventures, Inc. (formerly Kaiser Steel Corporation and Kaiser Resources Inc.) to CCG.[11] The 2000 Consent

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[8] Mark J. Wildermuth. (1991). *Phase IV Groundwater Remediation Feasibility Draft Report*. Prepared for Kaiser Steel Resources, Inc. November 1991.

[9] DTSC No. HAS 95/96-068 Expedited Remedial Action Voluntary Enforceable Agreement (Health and Safety Code Section 25398.2b). August 8, 1995.

[10] DTSC. (2015). *Approval of the Final Remedial Design and Implementation Plan for Area of Concern (AOC) 9 and AOC 22, California Steel Industries, Inc., Fontana, California*. September 15, 2015.

[11] DTSC Docket No. I&SE – CO 00/01-001. Imminent and Substantial Endangerment Determination and Consent Order (Health and Safety code sections 25355.5(a)(1)(B) and (C), 25358.3 (a), 58009 and 58010. August 10, 2000.

Order also required CCG to perform groundwater investigations and, if necessary, develop remediation alternatives for COCs other than TDS and TOC.

REMEDIAL ACTION

As previously noted, remediation activities associated with the TDS and TOC plumes ended with the adoption of the 1993 Salt Offset Agreement.

The 1988 Consent Order between the DTSC and Kaiser Ventures, Inc. required remediation and further investigation of several areas. Following initial investigations, remedial action plans were prepared for each of the main areas identified for remediation. Between 1995 and 1999, waste was removed from several areas, caps were constructed, and further investigations into some areas found that those areas did not require additional remedial work.

In 1995 the Consent Order between the DTSC and CSI required remediation that included the installation of a surface soil cover system (cap) and maintenance an existing surface cap. No remedial action was required for groundwater.

The 2000 Consent Order between the DTSC and CCG, who had acquired a portion of the property from Kaiser Ventures, Inc. overrode the 1988 Consent Order and divided the site into four ‘Operable Units’ (OUs) (see Exhibit 1 for OU boundaries) and required remediation of each OU. The following describes the Remedial Action Plans (RAPs) for OU-1 through OU-4:

- **OU-1 – Tar Pits.** The RAP included an in-situ solidification of the tar and surrounding soil and the construction of a cover system (cap) over the tar pits parcel.[12] The DTSC approved the final amended RAP in 2001.[13]
- **OU-2 – Auto Club Speedway/By-Products Area.** The RAP included the removal and treatment of contaminated sludge waste, construction of a two-foot protective soil layer and a 13-acre cap over the protective soil layer, and groundwater monitoring.[14] The DTSC approved the final RAP on May 1, 1995.[15]
- **OU-3 – East Slag Pile Landfill Area (ESPLA).** The RAP included the construction of a four-foot thick monolithic soil cover, a landfill gas collection and control system, landfill gas monitoring probes, pavement on the upper surface of east slag pile, a surface water drainage system,

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[12] Arcadis Geraghty & Miller, Inc. (2001). *Second Amendment to the Remedial Action Plan – Operable Unit No. 1 Tar Pits Parcel, Former Kaiser Steel Corporation, Fontana, California*. Prepared for Kaiser Ventures. December 10, 2001.

[13] DTSC. (2001). *Letter from Thomas M. Cota – Final Second Amendment to the Remedial Action Plan for the Kaiser Steel Site, Operable Unit Number 1, Tar Pits Area*. December 20, 2001.

[14] Iris Environmental. (2014). *Third Five-Year Review Report Auto Club Speedway Operable Unit No. 2, By-Products Area Former Kaiser Steel Mill Facility San Bernardino County, California*. Prepared for CCG-Ontario LLC. June 2014

[15] DTSC. (1995). *Letter – Remedial Action Plan for Kaiser Resources, Inc. Operable Unit No. 2 is Approved*. May 1, 1995.

groundwater monitoring, and long-term operations and maintenance of at least 30 years.[16] The DTSC approved the final RAP on October 31, 2007.[17]

- **OU-4 – Chemwest Upper Ponds/Consolidated Waste Cell/Aboveground Storage Tanks/Chrome Ponds and Adjacent Areas (CCAC)**. The RAP included the construction of a cap over the CCAC, groundwater monitoring, and long-term operations and maintenance. The DTSC approved the final RAP on February 13, 2009.[18]

The above remedial actions specified for OU-1 through OU-4 have been implemented. Site maintenance, inspection, and monitoring reports on the implemented remedial measures at the OUs are published quarterly, semi-annually, and annually to ensure the completed remedies are operating properly.

In 2008, an additional operable unit, OU-5 Sitewide Groundwater, was established to prescribe site-wide monitoring of groundwater in accordance with the 2000 Consent Order between the DTSC and CCG. The 2008 *Groundwater Remedial Investigation Work Plan* (2008 Work Plan) was prepared to address site-wide data gaps in characterizing groundwater contamination other than TDS and TOC and to develop a long-term, site-wide monitoring program.[19] The 2008 Work Plan was approved by the DTSC on November 3, 2008 and resulted in the creation of the site-wide groundwater monitoring program which included construction of new monitoring wells at 24 locations and eight quarterly sampling events from 2009 to 2011. Data collected from the sampling efforts were used to perform a health risk assessment by comparing contaminant concentrations detected in the offsite groundwater monitoring wells with Environmental Protection Agency regional screening levels (RSLs). Hexavalent chromium, carbon tetrachloride, and chloroform were detected at concentrations above the risk-based screening concentrations and were therefore determined to be site-wide constituents of concern, warranting continued monitoring.

On September 1, 2016, CCG completed the *Final Groundwater Remedial Investigation Report/Feasibility Study and Remedial Action Plan* (2016 Final RI/FS and RAP), which included the results of the 2009-2011 site-wide groundwater monitoring program and selected the RAP for OU-5 Sitewide Groundwater as monitored natural attenuation.[20] In September 2016, DTSC approved the RAP and requested CCG to submit a Remedial Design and Implementation Plan (RDIP) to implement the RAP for OU-5 Sitewide Groundwater.[21] A draft RDIP for OU-5, including a *Water Quality Sampling and Analysis Plan,* was

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[16] Shaw Environmental, Inc. (2007). *Remedial Action Plan – East Slag Pile Landfill, Former Kaiser Steel Mill Site, Fontana, California*. Prepared for CCG Ontario, LLC. August 2007.

[17] DTSC. (2007). *Letter from Rebecca Chou – Approval of the Final Remedial Action Plan for the East Slag Pile Landfill (ESPL) Area, Former Kaiser Steel Mill, Fontana, California*. October 31, 2007.

[18] Shaw Environmental, Inc. (2009). *Final Remedial Action Plan OU-4.* Prepared for CCG Ontario LLC. January 2009.

[19] Shaw Environmental, Inc. (2008). *Groundwater Remedial Investigation Work Plan; Former Kaiser Steel Mill.* Prepared for CCG Ontario LLC. October 2008.

[20] Iris Environmental, Inc. (2016). *Final Groundwater Remedial Investigation Report/Feasibility Study and Remedial Action Plan*. Prepared for CCG Ontario, LLC. September 2016.

[21] DTSC. (2016). *Letter from Eileen Mananian – Approval of the Final Groundwater Remedial Investigation/Feasibility Study and Remedial Action Plan, Former Kaiser Steel Mill, Fontana, California*. September 13, 2016

submitted to the DTSC for review in November 2016.[22] In subsequent correspondences, the DTSC provided comments of the draft RDIP due to the presence of carbon tetrachloride potentially migrating offsite, and asked for the following in a September 26, 2019 letter to support the completion of the RDIP: establishment of a Decision Tree in the RDIP that outlines specific procedures to be taken when action levels (one-half the MCL) are exceeded at downgradient monitoring points; sampling of the wells specified in the Draft RDIP; and update the conceptual site model and discussion of next steps. CCG completed the draft Decision Tree for OU-5 Sitewide Groundwater on December 21, 2020. After a round of DTSC comments and CCG edits, and final Decision Tree for OU-5 was approved on December 10, 2021.

MONITORING AND REPORTING

Current groundwater monitoring activities are performed pursuant to the long-term[23] operations and maintenance plans for OU-2,[24] OU-3,[25] and OU-4.[26] Exhibit 1 shows the locations of the current monitoring well sites monitored for OU-2 through OU-4; some wells sites have multiple wells at various depths.

Table 2 below summarizes the number of monitoring wells, sampling frequency, and duration of sampling for each monitored OU.

Table 2. Summary of Operable Units, Monitoring Wells, and Monitoring Frequency

Operable Unit	No. of Wells[(a)]	Sampling Frequency (Duration)
OU-2	5	Quarterly (2009-2014); Semi-annual (2015-present)
OU-3	9	Quarterly (2009-2014); Semi-annual (2015-present)
OU-4	12	Quarterly (2009-present)

Notes:
(a) Some wells are sampled as part of more than one OU monitoring program.

Per the 2000 Consent Order, CCG is required to prepare monitoring reports and five-year site-wide review reports that evaluate whether the remedial actions remain protective of human health and the environment. Groundwater monitoring reports for OU-2, OU-3, and OU-4 are prepared on a quarterly or semi-annual basis. The first *Sitewide Five-Year Review Report* was submitted to the DTSC on April 1, 2016.[27]

An initial proposed site-wide groundwater monitoring program for OU-5 was included in the draft 2016 RDIP for Sitewide Groundwater submitted to the DTSC for review in November 2016. There have been

[22] RPS Iris Environmental (2016). *Draft Remedial Design and Implementation Plan, Sitewide Groundwater, Former Kaiser Steel Mill Site, San Bernardino County, California*. November 3, 2016.

[23] Long-term includes at least 30 years of operations and maintenance for each OU.

[24] SCS Engineers. (1995). *Operation & Maintenance Agreement – Operable Unit No. 2*. Prepared for Kaiser Resources, Inc. September 1995.

[25] Shaw Environmental, Inc. (2010). *Operations and Maintenance Plan – East Slag Pile Landfill Area, Former Kaiser Steel Mill Facility, Fontana, California*. Prepared for CCG Ontario, LLC. June 2010.

[26] Shaw Environmental, Inc. (2010). *Operations and Maintenance Plan – Chemwest Upper Ponds/Consolidated Waste Cell, Above-Ground Storage Tanks, Chrome Ponds, and Adjacent Areas, Former Kaiser Steel Mill Facility, Fontana California*. Prepared for CCG Ontario, LLC. June 2010.

[27] RPS Iris Environmental (2016). *Final Sitewide Five-Year Review Report*. Prepared for CCG Ontario LLC. April 2016.

several subsequent correspondences with the DTSC, and actions taken by CCG in an effort to review and finalize the RDIP for OU-5. CCG is currently working with DTSC to finalize the RDIP for OU-5 Sitewide Groundwater and monitoring activities for OU-5 will initiate once the RDIP is finalized.

Watermaster samples eleven monitoring wells annually at four downgradient locations for the Key Well Groundwater Quality Monitoring Program (KWGWQMP) and provides monitoring results to CCG upon request. These key wells include five Former Kaiser Steel Mill site monitoring wells in two locations and six Chino Basin Management Zone 3 (MZ-3) monitoring wells in two locations shown in Exhibit 1. Table 3 below summarizes the contaminants with concentrations that exceeded the MCL at one or more monitoring wells in the KWGWQMP over the last five years from July 2019 to June 2024.

Table 3. Concentration of Contaminants Detected above the MCL at Key Wells Sampled by Watermaster between July 2019 to June 2024

Contaminant	MCL	Max Concentration	No. of Wells Exceeded MCL
1,1-Dichloroethene	6 µgl	17 µgl	1
1,2,3-Trichloropropane	0.005 µgl	0.009 µgl	1
Chromium	50 µgl	590 µgl	3
Hexavalent Chromium	10 µgl	14 µgl	4
Nitrate[(a)]	10 mgl	15 mgl	4
Perchlorate	6 µgl	10 µgl	2
TDS	500 mgl	770 mgl	2
Turbidity	5 NTU	78 NTU	5
Trihalomethanes	80 µgl	68 µgl	0

Notes:
Not all key wells were sampled in August and September 2021.
µgl = micrograms per liter
mgl = milligrams per liter
NTU = nephelometric turbidity unit
(a) Nitrate as nitrogen

Watermaster will conduct its 2024 annual KWGWQMP groundwater sampling by the end of 2024.

RECENT ACTIVITY

Following the approval of the Decision Tree for the OU-5 Sitewide Groundwater RDIP in December 2021, a revised RDIP was submitted to DTSC for review on June 17, 2022. DTSC provided comments on the revised RDIP, and updates are currently being prepared by CCG for submittal. Monitoring activities for the OU-5 will start once the RDIP is finalized.

Semi-annual groundwater monitoring events for OU-2 and OU-3, and quarterly groundwater monitoring events for OU-4 continued pursuant to their operations and maintenance plans. For the most recent monitoring event at OU-2 during the second half of 2023[28], hexavalent chromium exceeded its public health goal of 0.02 µgl at all wells. There were no exceedances of MCLs for any COCs at OU-2. For the

[28] Citadel EHS (2023). *Second Semi-Annual 2023 Groundwater Monitoring Report Auto Club Speedway. Operable Unit No. 2 Former Kaiser Steel Mill San Bernardino County, California. Prepared for CCG Ontario LLC.* December 30, 2023.

most recent monitoring event at OU-3, sampled alongside OU-4 during the second quarter 2024[29] monitoring event, there were detections of hexavalent chromium in exceedance of its public health goal (0.02 µgl) and exceedances of the public health goal of 0.4 µgl for chloroform. There were no exceedances of MCLs for any of the COCs at OU-3 monitoring wells, and there were detections of carbon tetrachloride and hexavalent chromium in exceedance of MCLs at OU-4 monitoring wells. Table 4 summarizes the concentrations of COCs for the second quarter monitoring event at OU-4 in May 2024.

Table 4. Maximum Concentration of Contaminants of Concern for Recent Monitoring at OU-4

Contaminant	Primary MCL, µgl	Max Concentration, µgl	Number of Wells Exceeded MCL
Carbon Tetrachloride	0.5	2.97	1
Hexavalent Chromium	10[(a)]	224	7
Chloroform	80	3.72	0

Notes:
µgl = micrograms per liter
(a) In April 2024, the State Water Resources Control Board Division of Drinking Water has adopted an MCL of 10 µgl for hexavalent chromium, effective October 1, 2024.

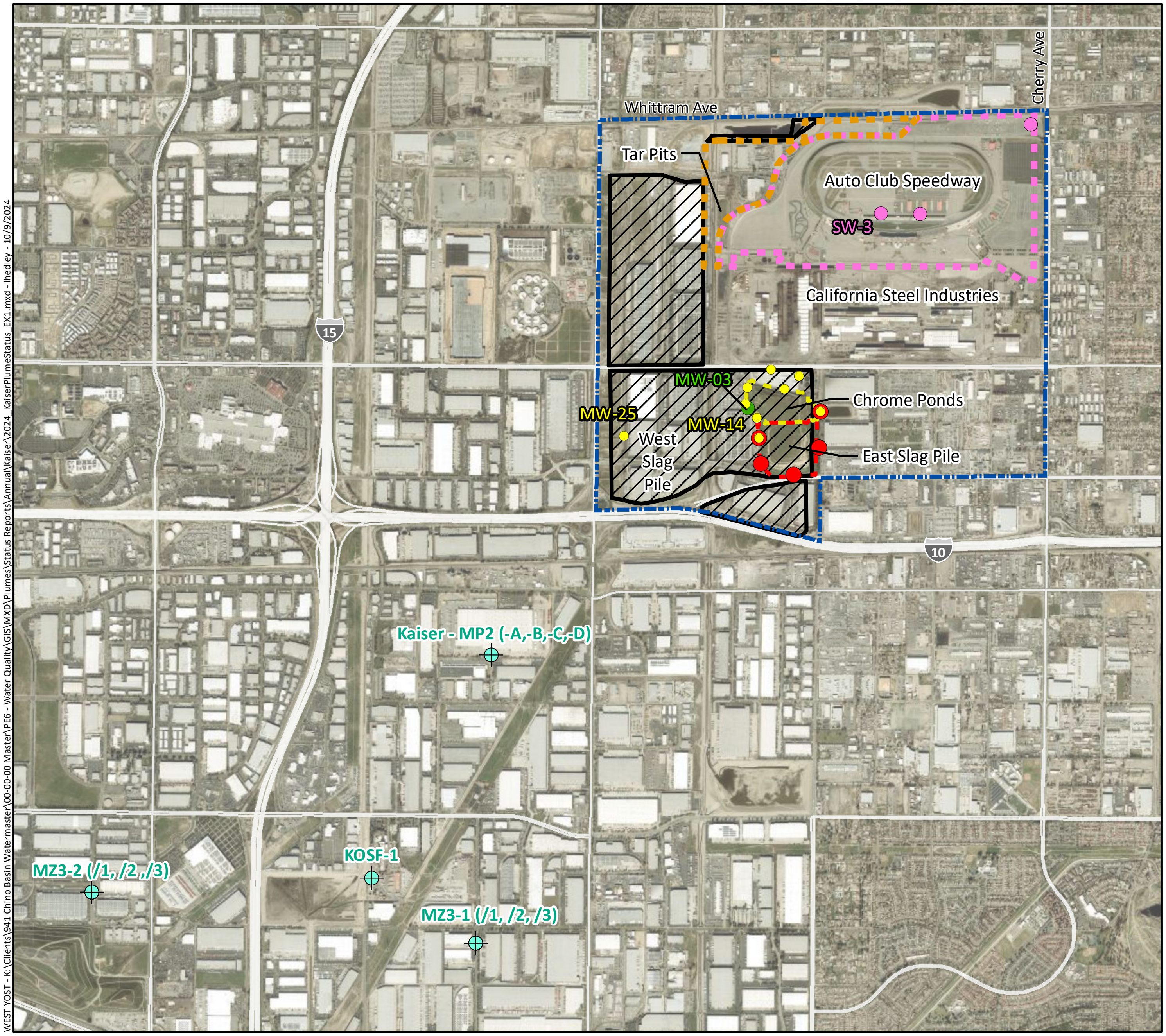
In response to the DTSC's comments on the "*Well MW-03 Alternatives Evaluation*" document for the destruction and replacement of well MW-03 in OU-4, CCG submitted a *Well MW-03 Destruction Work Plan and a Downgradient Well Installation Work Plan* in May 2023.[30,31] Based on discussions with DTSC, a permit modification and renewal is required prior to well destruction activities, however, because the replacement well location is currently accessible, installation will be scheduled upon DTSC approval of the work plan. In February 13, 2024, CCG submitted a *Revised Downgradient Well Installation Work Plan*.[32] The workplan is to destroy the existing MW-03 well which has been obstructed and unusable since 2016, and construct a replacement well MW-27 adjacent to the CCAC and well MW-03. The proposed screen interval for MW-27 is from 345-385 ft bgs, with a final construction depth of 385 ft bgs. On April 30, 2024, DTSC reviewed and approved the workplan to install MW-27.

[29] Citadel EHS (2024). *Groundwater Monitoring Report – First Quarter 2024 First Semi-Annual 2024 East Slag Pile Landfill (ESPLA) and Chemwest Upper Ponds/Consolidated Waste Cell, Above Ground Storage Tanks, Chrome Ponds, and Adjacent Areas (CCAC). Operable Unit No. 3 and 4 Former Kaiser Steel Mill San Bernardino County, California. Prepared for CCG Ontario LLC*. June 6, 2024.

[30] RMD Environmental Solutions. (2023). *Well MW-03 Destruction Work Plan, Operable Unit No. 4 – CCAC, Former Kaiser Steel Mill Site, San Bernardino County, California*. May 19, 2023.

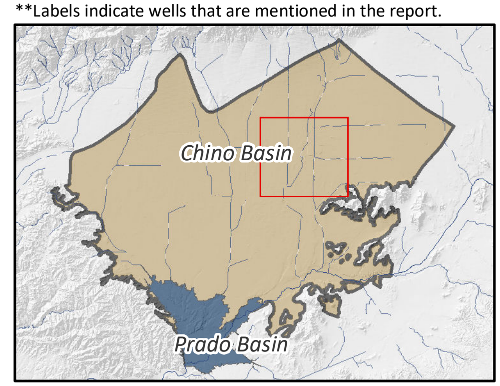
[31] RMD Environmental Solutions. (2023). *Downgradient Well Installation Work Plan, Operable Unit No. 4 – CCAC, Former Kaiser Steel Mill Site, San Bernardino County, California*. May 19, 2023.

[32] Citadel EHS. (2024). *Revised Downgradient Well Installation Work Plan.* Prepared for CCG Ontario, LLC. February 13, 2024.



*Multiple wells are part of more than one OU monitoring program and are shown as overlapping wells.

**Labels indicate wells that are mentioned in the report.



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Prepared by:

WEST YOST

0 1 Miles

0 1 Km

Prepared for:

Chino Basin Watermaster
Annual Plume Report

Former Kaiser Steel Mill and CCG Ontario Plume

Exhibit 1

WEST YOST
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Annual Plume Status Report

Milliken Landfill Plume
October 2024

CONTAMINANTS

The primary contaminant is trichloroethene (TCE). The California maximum contaminant level (MCL) for TCE is 5 micrograms per liter (µgl). The maximum TCE concentration detected in groundwater samples collected from wells within the plume area during the last five years (July 2019 to June 2024) is 9.2 µgl (measured at well M-8B in January 2020). The highest concentration of TCE ever measured on site is 178 µgl (measured at well M-2B in April 1997). Other contaminants of concern include the following volatile organic compounds (VOCs): tetrachloroethene (PCE), dichlorodifluoromethane, trichlorofluoromethane, 1,1-dichloroethane, and cis-1,2-dichloroethene.

LOCATION

The Milliken Sanitary Landfill (MSL) is located in the City of Ontario along the northwest intersection of Milliken Avenue and Mission Boulevard. The MSL occupies an area of approximately 196 acres, about one mile west of Interstate 15 and 1.2 miles southeast of Ontario International Airport. The MSL is owned and managed by the County of San Bernardino Solid Waste Management Division (County). The MSL TCE plume extends downgradient from the site in a southwestern direction. The Chino Basin Watermaster (Watermaster) last updated its delineation of the extent of the plume in the *2022 State of the Basin Report*.[1] This characterization is based on the five-year maximum TCE concentration measured over the period of July 2017 through June 2022. The extent of the plume is about 2,400 feet wide and 1,700 feet long. Exhibit 1 shows the location and extent of the TCE plume as delineated by Watermaster, compared to the County's most recent delineation of the extent of total VOCs.[2]

SITE HISTORY AND CLOSURE

The MSL was operated as a Class III Municipal Solid Waste Management Unit, accepting non-hazardous waste from 1958 to March 1999. On June 24, 1991, the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) issued Cleanup and Abatement Order (CAO) No. 91-92 to the County and other

[1] West Yost Associates. (2023). *Chino Basin Optimum Basin Management Program, 2022 State of the Basin Report.* Prepared for Chino Basin Watermaster. June 2023.

[2] Geo-Logic Associates. (2015). *County of San Bernardino Workplan: Investigation of Off-Site Impacts to Groundwater at the Milliken Sanitary Landfill*. Prepared for County of San Bernardino Solid Waste Management Division. July 2015.

landfill operators in the Santa Ana Region.[3] The order required the correction of drainage and erosion control deficiencies on the landfill property that could potentially cause the discharge of pollutants to groundwater. In 1994, the CAO was rescinded when the landfills achieved compliance, and concurrently, Order No. 94-17 was adopted to amend the Waste Discharge Requirements (WDRs) for all landfills in the Santa Ana Region and combine them under one WDR and Monitoring and Reporting Program (M&RP).[4] In 1996, the Santa Ana Water Board issued Cease and Desist Order No. 96-41 for the MSL for failure to maintain the drainage and erosion control systems.[5] In October 1999, the Santa Ana Water Board approved the *Final Closure and Post Closure Maintenance Plan* for the MSL.[6] The MSL began its multiphase closure process while still accepting waste. Phase one, termed the "East Mound Closure", was completed in March 1997, and was a pilot project to aid in the design of a soil cover for the rest of the landfill to prevent soil contaminants from leaching into the groundwater during precipitation events. Phase two, termed the "North and East Slope Closure", was completed in 1997 and included the construction of a six-foot-thick monolithic cover over 45 acres of the landfill. The final phase of the landfill closure was completed in March 2005 when the remaining 72 acres of the landfill were covered with a four-foot-thick monolithic cover.

Since its closure, the County maintains the MSL drainage and erosion control systems to ensure, to the greatest extent possible, that ponding, infiltration, inundation, erosion, slope failure, and washout are prevented during peak storm flows. The drainage control facilities consist of a network of earthen berms, benches, asphalt down drains and V-channels, concrete channels, reinforced concrete pipes, and sedimentation basins.

Since 2017, the County has leased a portion of the MSL property to PVN Milliken, LLC for a photovoltaic solar facility. The three-megawatt power generating solar facility consists of about 14.5 acres of solar panels located on the top and intermediate decks of the closed landfill. Exhibit 1 shows the footprint of this facility.

REGULATORY ORDERS

- Waste Discharge Requirements (WDR) and Monitoring and Reporting Program (M&RP) Order No. 81-3 and subsequent WDRs and M&RPs Order Nos. 93-57, 94-17, 96-40, 98-89, and R8-2015-0040 (current). Requirements for the design, construction, and maintenance of run-on runoff drainage control systems at the landfill and the supportive monitoring and reporting

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[3] Santa Ana Water Board. (1991). *Cleanup and Abatement Orders for County and City Landfills (CAO) No. 91-92*. Letter from Gerard J. Thibeault to the County of San Bernardino Solid Waste Management Department. June 24, 1991.

[4] Santa Ana Water Board. (1994). *Tentative Order No. 94-17, Amending Waste Discharge Requirement for Municipal Solid Waste Landfills Within the Santa Ana Region*. Letter from Kurt V. Berchtold to the County of San Bernardino Solid Waste Management Department. February 9, 1994.

[5] Santa Ana Water Board. (1996). *Tentative Cease and Desist Order No. 96-41, for Violations of WDRs (Order No. 81-3, as Amended by Order No. 93-57, Order No. 94-17, and Order No. 96-40) at the Milliken Sanitary Landfill, San Bernardino County*. April 5, 1996.

[6] Project Navigator, Ltd. (1999). *Final Postclosure Maintenance Plan, Milliken Sanitary Landfill*. Prepared for the County of San Bernardino Solid Waste System Division. September 1999.

requirements. Orders Nos. 93-57, 94-17, 96-40, and 98-89 are combined WDRs and M&RPs for all landfills in the Santa Ana Region.

- CAO Order No. 91-92. Requirement for the MSL to correct drainage and erosion control deficiencies that existed on the landfill property.
- Cease and Desist Order No. 96-41. Requirement for the MSL to submit a workplan with a schedule for the design and construction of a permanent and effective drainage and erosion control system and for the implementation of the workplan.
- WDRs R8-2002-0033, amended by R8-2002-0085 and R8-2013-0020. General WDRs for the re-injection/percolation of extracted and treated groundwater within the Santa Ana Region. Terminated in May 2019 because the pump-and-treat system is no longer operable.[7]
- Water Code Section 13267 Order No. R8-2020-0033 (For the Determination of the Presence of Per- and Polyfluoroalkyl Substances (PFAS) at Closed Municipal Solid Waste Landfills Within the Santa Ana Region, San Bernardino County). Requirement to prepare workplan, conduct sampling and analysis, and submit sampling results to determine the presence of PFAS.

REGULATORY AND MONITORING HISTORY

On February 26, 1981, the Santa Ana Water Board adopted WDR No. 81-3 for the discharge of municipal solid wastes to land at the MSL.[8] The WDR addressed the placement, monitoring, and reporting of waste at the landfill; however, it did not require groundwater monitoring. In 1987, groundwater monitoring began with the installation of five monitoring wells as part of the Solid Waste Assessment Test (SWAT) investigation.[9] The initial monitoring results indicated that there were multiple contaminants in the groundwater underlying and adjacent to the landfill at concentrations significantly above background levels. The contaminants included multiple VOCs: dichlorodifluoromethane, 1,1-dichloroethene, PCE, and TCE.

On May 1989, the Santa Ana Water Board requested that the County investigate the nature and extent of the VOC contamination. The County submitted a workplan to the Santa Ana Water Board in July 1989 to implement the Phase I Evaluation Monitoring Program (EMP) and began implementing the approved Phase I EMP in 1992.[10] During the implementation of the Phase I EMP, the County installed ten new

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[7] Santa Ana Water Board. (2019). *Termination of Regulatory Coverage Under Waste Discharge Requirements, Order No. R8-2002-0033, Groundwater Cleanup Project for Milliken Sanitary Landfill, San Bernardino County.* Letter from Cindy Li to the County. May 9, 2019.

[8] Santa Ana Water Board. (1981). *Order No. 81-3, Waste Discharge Requirements for the County of San Bernardino Solid Waste Management, Milliken Sanitary Landfill.* February 26, 1981.

[9] IT Corporation. (1989). *Final Report Solid Waste Assessment Test Milliken Sanitary Landfill, Project No. 240275*. Prepared for County of San Bernardino Environmental Public Works Agency Solid Waste Management Department. June 1898.

[10] IT Corporation. (1989). *Quarterly Report: Subchapter 15 Detection Monitoring Program for Cajon, Colton, Midvalley, Milliken, Plunge Creek, San Timoteo, and Yucaipa Landfills*. Prepared for County of San Bernardino Solid Waste Management Division. July 1989.

monitoring wells: eight wells downgradient from the facility and two wells upgradient from the facility.[11] Contaminants including TCE and PCE were detected in the new downgradient monitoring wells. After the implementation of the Phase I EMP, the County installed three additional monitoring wells along the southern boundary of the property, as well as one well upgradient and six wells downgradient of the property to further characterize the lateral and vertical extent of the TCE plume.

In January 1996, the County submitted a workplan for the Phase II EMP to install two additional monitoring wells along the southern boundary of the facility and two additional monitoring wells downgradient. The workplan was approved by the Santa Ana Water Board in February 1996.[12] Under the direction of the Santa Ana Water Board, the County completed the Phase II EMP and an Engineering Feasibility Study in 1998.[13,14] Groundwater flow modeling was performed to support the selection of an appropriate remediation strategy.[15]

The Santa Ana Water Board approved a remediation alternative that included: (1) a pump-and-treat system for onsite contaminated groundwater and (2) monitored natural attenuation for offsite contaminated groundwater. Construction of the Point of Compliance Corrective Action Program (CAP) pump-and-treat system was completed on March 4, 1999 and consisted of 13 groundwater extraction wells located at the downgradient edge of the MSL site. Offsite monitoring for natural attenuation began at four offsite wells in 1998.

In 2000, groundwater levels began to decline monotonically in the vicinity of the MSL and by 2007, the groundwater level dropped below the total depths of all 13 onsite extraction wells and five offsite monitoring wells. In response, the Santa Ana Water Board requested that the County complete an updated feasibility study to evaluate the effectiveness of the remediation strategy and the extent of the contaminant plume. In March 2013, the County finalized the Updated Engineering Feasibility Study for the MSL (2013 Feasibility Study).[16] The 2013 Feasibility Study evaluated several potential alternative treatments to mitigate the plume. The County concluded that monitored natural attenuation was the appropriate remediation alternative. This revised remediation alternative was approved by the Santa Ana Water Board on May 15, 2013.

The County and PVN Milliken, LLC submitted a revised Final Post-Closure Maintenance Plan in November 2016 and a land use plan in December 2016 to modify the MSL's end use plan to include the solar plant

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[11] Converse Consultants Inland Empire. (1994). *Groundwater Contamination Evaluation, Milliken Sanitary Landfill*. Prepared for the County of San Bernardino Solid Waste Management Division.

[12] Santa Ana Water Board. (1996). *Milliken Landfill – Addendum to Phase II Workplan, Contaminant Plume Investigation.* Letter from Dixie B. Lass. February 6, 1996.

[13] Geo-Logic Associates. (1998). *Phase II Evaluation Monitoring Report, Milliken Sanitary Landfill*. Prepared for the County of San Bernardino Solid Waste System Division. May 1998.

[14] Geo-Logic Associates. (1998). *Engineering Feasibility Study, Milliken Sanitary Landfill*. Prepared for the County of San Bernardino Solid Waste System Division. May 1998.

[15] Geo-Logic Associates. (1999). *Groundwater Flow Model, Milliken Sanitary Landfill*. Prepared for the County of San Bernardino Solid Waste System Division. February 1999.

[16] Geo-Logic Associates. (2013). *Updated Engineering Feasibility Study for Corrective Action, Milliken Sanitary Landfill County of San Bernardino, California*. Prepared for the County of San Bernardino Solid Waste System Division. March 2013.

on the landfill surface.[17,18] The Santa Ana Water Board approved the plans in January 2017.[19] The revised post-closure maintenance plan provides a basis for plan inspection, maintenance, and monitoring of the MSL during the post-closure maintenance period. The revised land use plan describes PVN Milliken's modification to the landfill, and its responsibility to maintain and monitor the land in a way that does not impact groundwater and surface water quality.

In 2018, the County performed an evaluation of offsite impacts to groundwater at the MSL in response to a June 17, 2015 letter from the Santa Ana Water Board.[20] The 2015 letter requested that the evaluation of offsite impacts include the following actions: (1) update the 1998 groundwater-flow model to incorporate the non-operating groundwater pump-and-treat system and use updated monitoring data; (2) collect gas samples from specified landfill gas probes; and (3) prepare a report and evaluate the need for corrective action based on the findings. Based on the results of the updated modeling and monitoring for the offsite evaluation, the County proposed the installation of a downgradient monitoring well (see Exhibit 1) and a soil-gas investigation to determine whether soil gas mitigation is necessary. The Santa Ana Water accepted the proposed actions on March 29, 2018.[21] Since then, the County has conducted two pilot studies on a Soil Vapor Extraction (SVE) system, the most recent of which was completed in late-2019.[22]

REMEDIAL ACTION

As previously noted, the original remedial action plan of a pump-and-treat system and monitored natural attenuation was revised due to declining water levels. All 13 onsite extraction wells and five of the eight offsite monitoring wells dried up as groundwater elevations declined below well depths, causing the pump-and-treat system to cease operations in 2007. The 2013 Feasibility Study identified monitored natural attenuation, coupled with the existing mitigation measures, as the best remedial alternative of downgradient groundwater impacts and included certain trigger points that would require mitigation measures to be initiated. These trigger points include:

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[17] Project Navigator, Ltd. (2016). *Final Postclosure Maintenance Plan Milliken Sanitary Landfill 36-AA-0054 Ontario, California. Prepared for the County of San Bernardino Department of Public Works – Solid Waste Management Division on behalf of PVN Milliken, LLC*. September 10, 1999. Revised June 2004. Revised 2014. Revised November 2016.

[18] Project Navigator, Ltd. (2016). *Land Use Plan for the Milliken Sanitary Landfill 36-AA-0054 Ontario, California, County of San Bernardino.* Prepared for the County of San Bernardino Department of Public Works – Solid Waste Management Division on behalf of PVN Milliken, LLC. December 2016.

[19] Santa Ana Water Board. (2017). *Approval of the Revised Final Post Closure Maintenance Plan and Land Use Plan for Milliken Landfill, Ontario, San Bernardino County*. January 19, 2017.

[20] Santa Ana Water Board. (2015) *Groundwater Impacts Evaluation for Milliken Sanitary Landfill, San Bernardino County*. June 17, 2015

[21] Santa Ana Water Board. (2018). *Evaluation of Off-Site Impacts to Groundwater at the Milliken Sanitary Landfill, San Bernardino County Global ID: L1000745844*. March 29, 2018. Letter from Keith Person on behalf of Cindy Li.

[22] Geo-Logic Associates in Association with Invirotreat Inc. (2020). *Pilot Test No. 2 Results Soil Vapor Extraction System Milliken Sanitary Landfill San Bernardino, California*. February 12, 2020.

- When the total VOC load[23] in samples from downgradient monitoring well M-8A or M-8B exceeds the model-predicted VOC concentrations for two consecutive quarters, this will trigger improvements to the existing landfill gas extraction system.
- Once improvements to the landfill gas extraction system are implemented and a statistically significant increasing VOC concentration trend is identified in monitoring well M-8A or M-8B over a one-year period, this will trigger a requirement for additional mitigation measures to be implemented.

The trigger points were approved by the Santa Ana Water Board in 2013.[24] If additional remedial action is deemed necessary based on these trigger points, the most appropriate and cost-effective remediation measure will be evaluated at that time. The 2013 Feasibility Study also specified that if VOC concentrations increase to one-half of the model-predicted VOC concentrations in wells at the center of the plume, an additional offsite monitoring well would be necessary near well M-19 to monitor the natural attenuation of the plume in the lower aquifer as the plume moves away from the site.

From October to December 2019 the County conducted a second SVE pilot test (Pilot Test No. 2) to evaluate the feasibility of using the now dry extraction wells for the pump-and-treat system to remove VOCs from the soil vapor in the vadose zone above the water table. The SVE pilot test involved using all the 13 dry groundwater extraction wells installed along the downgradient edge of the MSL (see Exhibit 1) that connect to a 4-inch conveyance header-line routing to a SVE treatment unit. The County submitted a report to the Santa Ana Water Board on February 12, 2020 describing the results of the pilot test, which concluded that full-scale operation of an SVE system at the MSL will be an effective means to minimize the potential for VOC impacts to groundwater without negatively impacting the operations of the landfill gas collection system at the site.[25] In May 2023, the South Coast Air Quality Management District issued a permit for the SVE extraction and treatment system using the 13 existing dry groundwater extraction wells for the removal of VOCs in soil to minimize potential VOC impacts to groundwater.

MONITORING AND REPORTING

The County conducts groundwater, surface water, and soil-pore gas monitoring at the MSL. The monitoring program consists of 17 groundwater monitoring wells, 11 piezometers, and three surface water monitoring stations. There are also five soil-pore gas monitoring probes, and one landfill gas condensate station for monitoring VOCs in soil and vapor. Groundwater quality and groundwater levels are collected quarterly at the monitoring wells that are not dry (more than half are typically dry). Surface-water quality sampling is conducted quarterly when there is water at the sites. Field soil-gas screening is performed semi-annually during the second and fourth quarters, and a measurement is collected for laboratory analysis when methane is detected at a concentration that is greater than five percent in volume. Landfill gas condensate sampling is conducted annually in the fourth quarter. Prior to being converted the SVE

[23] Statistically significant increasing or decreasing trends are determined using Sen's Slope/Mann Kendall trend test.

[24] Santa Ana Water Board. (2013). *Identification of Triggers for Additional Corrective Action System for the Milliken Landfill, San Bernardino County*. Letter dated May 15, 2013.

[25] Geo-Logic Associates in Association with Invirotreat Inc. (2020). *Pilot Test No. 2 Results Soil Vapor Extraction System Milliken Sanitary Landfill San Bernardino, California*. February 12, 2020.

wells, the extraction wells were checked quarterly but were consistently dry. Currently, air from the SVE wells is sampled monthly. Additionally, the County also submits monthly inspection reports of site maintenance to the Santa Ana Water Board. These reports and all data that have been collected since 2005 are posted on the State Water Resources Control Board GeoTracker website.[26]

The groundwater data collected during the quarterly sampling events is statistically analyzed to identify increasing or decreasing trends of VOCs and other constituents of concern. The quarterly groundwater monitoring data are also used to assess the natural attenuation of the offsite extent of the plume. VOC concentrations at monitoring wells M-8B and M-8A (if not dry) are used to determine if there are triggers that would necessitate further corrective actions. These triggers are based on model-predicted concentrations from the 1999 groundwater modeling preformed to evaluate the pump-and-treat system. Exhibit 1 shows the locations of wells M-8A and M-8B. The following table shows the model-predicted VOC concentrations over time:

Table 1. Model Predicted Total VOC Load to Trigger Remedial Action at the MSL

Year	Total VOC Load at M-8A or M-8B [(a)], µgl	Year	Total VOC Load at M-8A or M-8B[(a)], µgl	Year	Total VOC Load at M-8A or M-8B [(a)], µgl
2013	120	2027	123	2041	50
2014	123	2028	117	2042	45
2015	125	2029	112	2043	40
2016	128	2030	106	2044	35
2017	130	2031	101	2045	30
2018	130	2032	96	2046	25
2019	129	2033	90	2047	20
2020	128	2034	85	2048	18
2021	127	2035	80	2049	16
2022	126	2036	75	2050	14
2023	125	2037	70	2051	13
2024	124	2038	65	2052	12
2025	124	2039	60	2053	11
2026	123	2040	55	2054	10

Notes:
(a) Total VOC load (µgl) equals the sum of all detected VOC concentrations in a given sample.

In November 2020, the County conducted a one-time monitoring event for per- and polyfluoroalkyl substances (PFAS) pursuant to an Investigative Order by the Santa Ana Water Board pursuant to California Water Code Section 13267.[27] Sampling for PFAS occurred at four monitoring wells (M-5B, M-2D, M-6B, M-15B) and one landfill gas condensate location. The final report was submitted to the Santa Ana Water Board on December 30, 2020. Perfluoro-n-pentanoic acid (PFPeA) and 6:2 fluorotelomer sulfonate (6:2

[26] https://geotracker.waterboards.ca.gov/profile_report?global_id=L10007458441

[27] Santa Ana Water Board. (2020). *Water Code Section 13267 Order No. R8-2020-0033, For the Determination of the Presence of Per- and Polyfluoroalkyl Substances (PFAS) at Closed Municipal Solid Waste Landfills Within the Santa Ana Region, San Bernardino County*. July 21, 2020.

FTS) were detected at concentrations above the laboratory reporting limits at wells M-5B, M-6B, and M-15B, and perfluorohexane sulfonate (PFHxS) and perfluorooctanoic acid (PFOS) were detected above the laboratory reporting limits at well M-5B. The concentration of PFOS was 4.5 nanograms per liter (ngl), which was below the California (CA) notification level of 6.5 ngl at the time but is above the current federal MCL of 4 ngl.[28] The concentration of PFHxS is below the CA notification level of 10 ngl. All other PFAS constituents were non-detect.

RECENT ACTIVITY

In April 2024, the County submitted the *First Quarter 2024 and 2023 Annual Summary Water Quality Monitoring Program Corrective Action Program* report.[29]

The County's most recent monitoring events occurred in May of 2024 and the results were reported in the Second Quarter 2024 Monitoring Report submitted to the Santa Ana Water Board on July 30, 2024.[30] During the sampling event, groundwater levels were measured at nine monitoring wells and one piezometer, and groundwater-quality samples were collected at seven monitoring wells. The rest of the monitoring wells and piezometers were dry. During the second quarter sampling event two of the three surface water sites were also sampled and all constituent concentrations were below their respective MCLs. The third site was dry. Observed groundwater elevation changes were consistent with previous seasonal changes. VOCs (including TCE) were detected in four wells and TCE concentrations exceeded the MCL of 5 µgl in well M-8B; however, the concentration of TCE at M-8B was well below the level to trigger corrective action. Nitrate concentrations exceeded the MCL of 10 milligrams per liter (mgl) in well M-7B and has an increasing trend of chloride concentration. Field parameters, general chemistry parameters, and dissolved metals exceeded the applicable MCLs in one or more wells or piezometers, however, all were in historical ranges, and none had a statistically significant increasing trend. Overall, the concentrations of all VOCs appear to be either stable or decreasing and no corrective action was triggered in 2023 or the first half of 2024. No methane was detected in the soil-pore gas screening samples. Exhibit 1 shows the monitoring wells that were sampled during the second quarter of 2024, and the wells that were dry.

Ongoing source control and routine monitoring and reporting will continue with no additional action recommended.

In August 2023, an SVE system (SVE-1) was installed to utilize the 13 existing dry groundwater extraction wells for the removal of VOCs in soil to minimize potential VOC impacts to groundwater. The County also installed an additional SVE system (SVE-2) in the southern border of the MSL during the same month.

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[28] Geo-Logic Associates. (2020). *Results for Sampling and Analyses of Per – and Polyfluoroalkyl Substances at Select Santa Ana Region Closed Landfill Facilities.* December 30, 2020.

[29] Geo-Logic. (2024). *First Quarter 2024 and 2023 Annual Summary Water Quality Monitoring Program Corrective Action Program Milliken Sanitary Landfill Ontario, CA*. Prepared for San Bernardino County Solid Waste Management Division. April 30, 2024.

[30] Geo-Logic. (2024). *Second Quarter 2024 Monitoring Report Water Quality Monitoring Program Corrective Action Program Milliken Sanitary Landfill Ontario, California*. Prepared for San Bernardino County Solid Waste Management Division. July 30, 2024.

Groundwater quality is expected to improve, and VOC levels are expected to continue to decline. Since the SVE wells began operation, approximately 55 pounds of VOCs have been removed from the soil.[31]

In December 2023, the County submitted an application package for the five-year solid waste facility permit review.[32]

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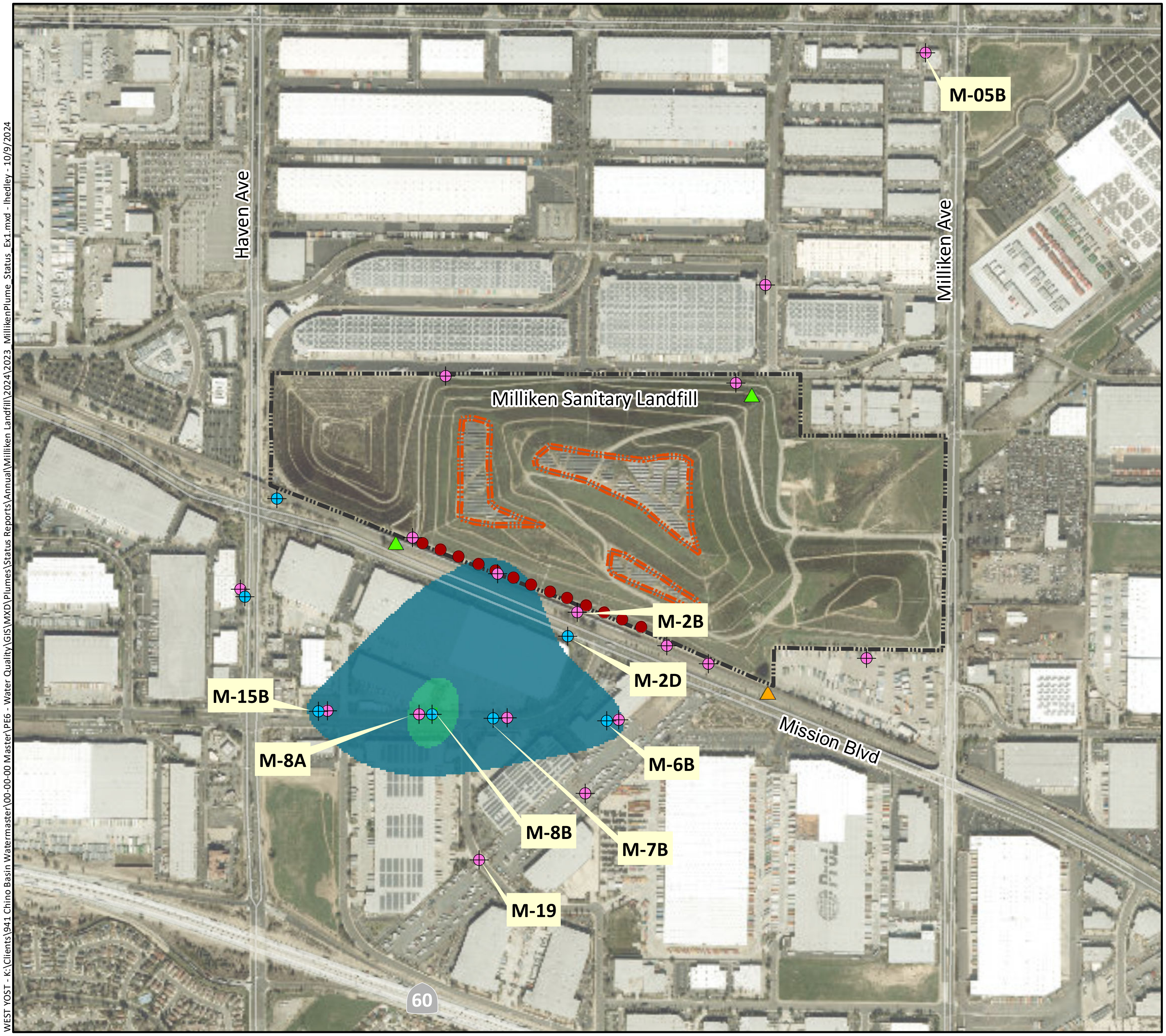
[31] San Bernardino County Department of Public Works – Solid Waste Management Division. (2024). *Second Quarter 2024 Monitoring Report Point-of-Compliance Corrective Action System, Milliken Sanitary Landfill, San Bernardino County, California.* July 11, 2024.

[32] San Bernardino County Department of Public Works – Solid Waste Management Division. (2023). *Milliken Sanitary Landfill Five-Year Solid Waste Facility Permit Review Application Package*. November 30, 2023.



Maximum Concentration (µgL)
June 2017 - June 2022

TCE
- 0.5 to ≤ 5
- > 5 to ≤ 10
- > 10 to ≤ 20
- > 20 to ≤ 50

MCL = 5 µgl

(Delineated by Watermaster in the 2022 State of the Basin Report)

County of San Bernardino Monitoring Wells*
- Sampled in 2024
- Dry in 2024

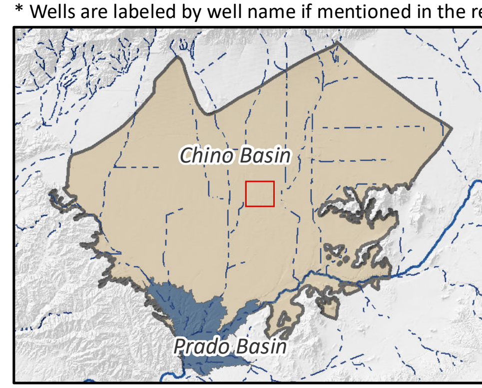
Surface Water Monitoring Station
- Sampled in 2024
- Dry in 2024

Former Groundwater Extraction Well and Current SVE Well

Extent of Solar Facility

Milliken Sanitary Landfill Boundary

* Wells are labeled by well name if mentioned in the report



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Prepared by:

WEST YOST

N

0 0.25 Miles

0 0.25 0.5 Km

Prepared for:

Chino Basin Watermaster
Annual Plume Report

Milliken Sanitary Landfill
TCE Plume

Exhibit 1

23692 Birtcher Drive
Lake Forest CA 92630

949.420.3030 phone
530.756.5991 fax
westyost.com

Annual Plume Status Report

Stringfellow Plume
October 2024

CONTAMINANTS

The primary contaminants at the Stringfellow site are perchlorate, trichloroethene (TCE), and chloroform. The California maximum contaminant levels (MCL) for perchlorate and TCE are 6 micrograms per liter (µgl) and 5 µgl, respectively. Chloroform does not have an MCL but is assessed to a cleanup level of 6 µgl for the Stringfellow site.[1] The maximum contaminant concentrations detected in groundwater for the recent five years within the various designated zones of the Stringfellow site are shown in Table 1 below.

Table 1. Five-Year Maximum Contaminant Concentrations in Stringfellow by Zone between July 2019 to June 2024

Contaminant	MCL or Cleanup Level, µgl	Five-Year Maximum Concentration – July 2019 – June 2024, µgl	
		Zones 1-3 (Within Pyrite Canyon)	Zone 4 (Downgradient of Pyrite Canyon)
Perchlorate	6	10,000	140
TCE	5	280,000	26.5
chloroform	6	11,000	29.5

Additional contaminants at the site include other volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, para-chlorobenzene sulfonic acid, n-nitrosodimethylamine, and various heavy metals. Furthermore, the groundwater beneath the former waste evaporation ponds has a pH of <4.

LOCATION

The Stringfellow plume is located in the City of Jurupa Valley in the eastern portion of the Chino Basin in Riverside County. The plume extends south-southwest from Pyrite Canyon in the Jurupa Mountains which is the location of the former Stringfellow hazardous waste facility (Stringfellow site). The plume is geographically divided into four groundwater zones in consideration of various operational and remediation activities: three in Pyrite Canyon, and one downgradient from the canyon. These zones shown in Exhibit 1, include:

- **Zone 1 (On-site/Upper Mid-Canyon Area)** is located in the northern most part of Pyrite Canyon and includes the original 17-acre disposal facility. It is divided into two areas (Zone 1A and Zone 1B) that are separated by a man-made clay barrier constructed downgradient of the evaporation ponds in 1980 to mitigate subsurface flow. Zone 1A is

[1] Cleanup levels were established for TCE (5 µgl and equal to the MCL) and chloroform (6 µgl) in the Interim Records of Decision 4 by the United States Environmental Protection Agency.

located upgradient of the clay barrier and includes the former evaporation ponds. Zone 1B extends 600 feet south of the barrier below the evaporation ponds and includes the Pyrite Canyon Treatment Facility.

- **Zone 2 (Mid-Canyon Area)** comprises the central portion of Pyrite Canyon and includes the Pre-Treatment Plant and a line of extraction wells.
- **Zone 3 (Lower Canyon Area)** extends from just south of the extraction wells in Zone 2 to just north of Highway 60 and includes the Lower Canyon Treatment Facility.
- **Zone 4** is the largest zone and extends from Highway 60 to immediately north of the Santa Ana River; it is a residential and light industrial area in the City of Jurupa Valley and includes the Community Well Head Treatment System.

In addition to these four zones, there are two areas defined by the United States Environmental Protection Agency (USEPA) in Pyrite Canyon (Area 1 and Area 2) where the USEPA conducts investigations to characterize potential additional sources of perchlorate that contribute to surface water runoff and groundwater contamination in Zones 1-4. These areas are also shown in Exhibit 1.

Exhibit 1 shows the general extent of the TCE plume originating from the former Stringfellow site with detectable concentrations of TCE greater than or equal to 0.5 µgl, as delineated by the Chino Basin Watermaster (Watermaster) for the *2022 State of the Basin Report*.[2] The plume is approximately 3.2 miles long and 0.3 miles wide and extends from Zone 1 to the midpoint of Zone 4 near the Community Wellhead Treatment System.

Exhibit 1 also shows the general extent of the perchlorate plume originating from the Stringfellow site with concentrations greater than or equal to 6 µgl, as delineated in the *2020 Annual Groundwater Monitoring and Remedy Effectiveness Evaluation Report*.[3] The perchlorate plume extends from Zone 1 approximately 0.94 miles south/southwest to Zone 3, and then extends again through Zone 4 approximately 3.6 miles to just north of the Santa Ana River. The width of the perchlorate plume varies between approximately 0.1 and 1 mile. There are also several smaller perchlorate plumes to the east and west of the main plume as shown in Exhibit 1. The source of these plumes is undetermined. Investigations by the USEPA in USEPA Areas 1 and 2 indicated that there are sources of perchlorate located upstream and lateral to the Stringfellow site that are contributing to the groundwater plume in addition to the perchlorate originating from the Stringfellow site.[4,5] In 2022, the DTSC submitted a technical memorandum titled *Sources of Perchlorate in Pyrite Canyon, Riverside County, California* to the USEPA which identifies additional sources of perchlorate and calculates the perchlorate mass being contributed to the plume by each source.[6] The technical memorandum concludes that the majority of perchlorate in

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[2] West Yost Associates. (2022). *Optimum Basin Management Program - 2022 State of the Basin Report*. Prepared for the Chino Basin Watermaster. June 2023.

[3] Kleinfelder. (2023). *2020 Annual Groundwater Monitoring and Remedy Effectiveness Evaluation Report, Stringfellow Superfund Site.* Prepared for California Department of Toxic Substances Control. June 23, 2023.

[4] CH2M. (2017). *Draft Final Remedial Investigation Report EPA Area 1, Stringfellow Superfund Site, Jurupa Valley, California*. Prepared for U.S. Environmental Protection Agency, Region 9. April 2017.

[5] Ramboll US Corporation. (2020). *EPA Area 2 Remedial Investigation Report, Stringfellow Superfund Site, Jurupa Valley, California*. Prepared for California Environmental Protection Agency, Department of Toxic Substances Control. April 6, 2020.

[6] California Department of Toxic Substances Control. (2022). *Sources of Perchlorate in Pyrite Canyon, Riverside County, California*. Technical Memorandum. December 22, 2022.

groundwater in the Pyrite Canyon was due to surface water releases from other areas that infiltrated the unlined sections of Pyrite Creek.

The 2023 *Final Zone 4 Data Gap Investigation Report* assessed perchlorate in groundwater based on chemical composition.[7] Based on the investigation, the DTSC updated its Conceptual Site Model to define two perchlorate plumes in Zone 4: (1) the Undifferentiated Perchlorate Plume that extends south towards the Santa Ana River and is attributed to releases from multiple sources in and near Pyrite canyon as well as perchlorate releases from sources in Jurupa Valley, including historical application of perchlorate-containing fertilizers; and (2) the Pyrite Canyon Synthetic Perchlorate Plume that extends to about 54th Street which is defined as the contiguous aquifer zone in which perchlorate concentrations exceed the MCL and the fraction of synthetic perchlorate is dominant (70% or greater). The Zone 4 remedy will target perchlorate contamination within the Pyrite Canyon Synthetic Perchlorate Plume. The extent of perchlorate in Zone 4 appears stable in the both the undifferentiated and synthetic plumes and concentrations are declining.

The extent of the chloroform plume, which is much smaller than the TCE and percolate plumes, is limited to Zones 1 and 2 and is not shown in Exhibit 1.

SITE HISTORY

Stringfellow Quarry Company Inc. operated the Stringfellow site as a Class I Hazardous Waste Disposal Facility from 1956 to 1972 pursuant to the issuance of a land use variance by the Riverside County Planning Commission in 1952. During this time, an estimated 34 million gallons of industrial liquid waste containing spent acids, caustics, solvents, pesticide byproducts, metals, and other organic and inorganic constituents—derived primarily from electroplating, metal finishing, and pesticide manufacturing—were deposited in as many as 20 evaporation ponds (located within Zone 1A on Exhibit 1).[8] Liquid wastes were also sprayed into the air to reduce the volume of wastes accumulating in the ponds. In 1969, heavy rainfall caused the disposal ponds at the facility to overflow resulting in the discharge of contaminated liquids to Pyrite Creek. In 1978, heavy rains again threatened to cause the ponds to overflow and the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) authorized an 800,000-gallon release from the ponds to prevent a larger uncontrolled release caused by the heavy rains.

Between 1975 and 1980, following closure of the site, approximately 6.5 million gallons of liquid wastes were removed from the facility. Following the removal activities, the USEPA and the United States Coast Guard (USCG) assisted the Santa Ana Water Board with the initiation of response actions and site investigation studies. In October 1981, the Stringfellow site was placed on the USEPA Interim Priorities List of Hazardous Waste Sites. On December 30, 1982, the Stringfellow site was proposed for the USEPA's final National Priorities List (NPL) as a Superfund site, and on September 8, 1983 it was placed on the final NPL. In 1993 the Department of Toxic Substances Control (DTSC) assumed responsibility for maintenance of the Stringfellow site on behalf of the State of California through a Cooperative Agreement with the USEPA. Since that time, over 45 phases of investigation, feasibility testing, and remedial actions have been

[7] Kleinfelder, Inc. (2023). *Final Zone 4 Data Gap Investigation Report Jurupa Valley California.* Prepared for California Department of Toxic Substances Control. August 30, 2023.
[8] U.S. Army Corps of Engineers. (2016). *Fifth Five-Year Review Report for Stringfellow Superfund Site Riverside County, California*. September 2016.

performed by various entities at the site. A record of these activities and associated reports can be found on the DTSC EnviroStor website.[9]

REGULATORY ORDERS

From 1983 to 1990, the USEPA adopted four interim Records of Decision (RODs) to guide remediation efforts at the Stringfellow site. The following summarizes the four RODs and major remedial actions set forth therein:

- **ROD 1** (USEPA 1983).[10] The first ROD directed completion of several initial abatement activities including: fencing the site, erosion control, hauling and disposal of contaminated liquids, and interim source control.
- **ROD 2** (USEPA 1984).[11] The second ROD included the construction of the Pre-Treatment Plant in the mid-canyon area located within Zone 2.
- **ROD 3** (USEPA 1987).[12] The third ROD included the installation of an upgradient surface water diversion north of the original contamination site within Zone 1A, and the installation of a groundwater barrier system in the lower canyon area located within Zone 3.
- **ROD 4** (USEPA 1990).[13] The fourth ROD delineated the site into four geographic zones (Zones 1-4, as described above), and directed the construction of the Community Wellhead Treatment Facility in Zone 4, the dewatering of the of the original disposal area in Zone 1, field testing of soil vapor extraction, and field testing of the reinjection of treated groundwater in the upper canyon area.

A fifth and final ROD (ROD 5), outlining the final remedial action objectives for Zones 1, 2, 3, and 4, is currently being prepared based on the *Interim Final Technical Impracticability Evaluation* (Interim Final TIE) report and the *Final Supplemental Feasibility Study Addendum for Zones 1 to 3* (2022 Feasibility Addendum). The Interim Final TIE report states that while current remedial actions are effective at containing the plume, there are no remedial actions that would be effective at restoring groundwater to regulatory levels, while the Feasibility Addendum provides: (1) recommendations to optimize existing remedies; (2) additional remedial action objectives for Zone 3; and (3) recommendations for three Remedy Optimization Alternatives to reduce migration of site-related contamination from Zone 3 to Zone

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[9] https://www.envirostor.dtsc.ca.gov/public/

[10] United States Environmental Protection Agency (USEPA). (1983). *EPA Superfund, Record of Decision: Stringfellow Acid Pits Site*. USEPA ID: CAT080012826, OU01, Mira Loma, California. July 1983.

[11] United States Environmental Protection Agency (USEPA). (1984). *Record of Decision, Stringfellow Acid Pits, Summary of Remedial Alternative Selection*. July 1984.

[12] United States Environmental Protection Agency (USEPA). (1987). *Record of Decision: Stringfellow Acid Pits, Summary of Remedial Alternative Selection (Early Implementation Action)*. June 1987.

[13] United States Environmental Protection Agency (USEPA). (1990). *Record of Decision: Stringfellow Hazardous Waste Site*. September 1990.

4.[14,15] Although more costly, the 2022 Feasibility Addendum identifies the installation of a horizontal well as the most effective alternative to reduce the migration of site-related contamination from Zone 3 to Zone 4.

REMEDIAL ACTION

In 1980, prior to the first ROD, the Santa Ana Water Board adopted an interim abatement program to contain the waste and minimize the risk of further contaminant migration. Several remedial solutions were implemented, including the removal of liquid waste from ponds, partial neutralization and capping of wastes, the construction of a subsurface clay barrier wall downgradient from the pond area, and drainage control features.

Following the completion of remedial measures required by ROD 1 and the issuance of ROD 2, a groundwater extraction and treatment system was developed and has become the primary remedial action implemented at the site. The groundwater extraction and treatment system, which has expanded over time, currently consists of a network of over 70 extraction wells throughout Zones 1-4 and two treatment plants operated by the DTSC on behalf of the State of California: the Pyrite Canyon Treatment Facility and the Community Wellhead Treatment System. The Pre-Treatment Plant and Lower Canyon Treatment Facility are no longer active. Exhibit 1 shows the locations of the four treatment plants; the following is a brief description of each:

- **Pyrite Canyon Treatment Facility.** This plant is located in Zone 1B and treats contaminated groundwater from extraction wells in Zones 1, 2, 3, and 4 (wells CTN-TW1 and CTS-TW1). The Pyrite Canyon Treatment Facility was constructed in 2017 to replace the aging infrastructure of Pre-Treatment Plant and began operating on April 4, 2017. The treatment facility uses granular activated carbon (GAC) to treat for low pH, pesticides, metals, perchlorate, and VOCs. Treated effluent is stored onsite and then released to the Inland Empire Brine Line and the Orange County Sanitation Districts wastewater collection, treatment, and disposal facilities under permit from the Santa Ana Watershed Project Authority. Some of the treated effluent is used for utility water at the treatment facility.
- **Community Wellhead Treatment System.** This plant is located in Zone 4 and treats contaminated groundwater pumped from two wells in Zone 4 for VOCs and perchlorate (Wells CTP-TW1 and CTP-TW2). Treated effluent is discharged to Pyrite Creek under an NPDES permit and can also be used for irrigation by local residents.
- **Pre-Treatment Plant.** This plant is located in Zone 2 and began operating in 1985 pursuant to the second ROD. It formerly treated VOCs in groundwater from extraction wells in Zones 3 and 4 and stored at the Lower Canyon Treatment Facility. The Pre-Treatment Plant was shut down on October 29, 2019 and since then groundwater from the Zone 3 and Zone 4 extraction wells has been redirected to the Pyrite Canyon Treatment Facility for treatment. As of October 2024, the decommission of the Pre-Treatment Plant facility remains on hold with no date to resume demolition.

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[14] Ramboll US Consulting, Inc. (2022). *Interim Final Technical Impracticability Evaluation Report, Stringfellow Superfund Site, Jurupa Valley, California*. Prepared for California Environmental Protection Agency Department of Toxic Substances Control. March 11, 2022.

[15] Ramboll US Consulting, Inc. (2022). *Final Supplemental Feasibility Study Addendum for Zones 1 to 3, Stringfellow Superfund Site, Jurupa Valley, California*. Prepared for California Environmental Protection Agency Department of Toxic Substances Control. March 11, 2022.

- **Lower Canyon Treatment Facility.** This facility is located in Zone 3 and formerly treated groundwater pumped from extraction wells in Zones 3 and 4 for VOCs. Treated effluent from the Lower Canyon Treatment Facility was piped to and stored at the Pre-Treatment Plant and subsequently released to the Inland Empire Brine Line. Currently, the facility is in a stand-by state. Since October 29, 2019, groundwater extracted from Zones 3 and 4 has been first stored at the Lower Canyon Treatment Facility and then pumped for treatment at the Pyrite Canyon Treatment Facility.

In 2021, the DTSC submitted a report to the USEPA on results of the Pyrite Canyon Groundwater Flow Model, to further assess the effectiveness of groundwater extraction systems at preventing site-related chemicals in groundwater from migrating further down canyon and into Zone 4.[16] The Pyrite Canyon Groundwater Flow Model demonstrates that groundwater flow is towards the center of Pyrite Canyon, consistent with the conceptual model and the observed extent of the perchlorate plume. It also confirmed that existing extraction systems are adequately capturing contaminants, except for areas located to the west of the extraction systems.

The USEPA has initiated groundwater and soil investigations to develop remedial actions for perchlorate for Areas 1 and 2 in Pyrite Canyon, potentially from sources on the west and east sides of Pyrite Canyon. A draft remedial investigation report for Area 1 (completed in 2017) and a remedial investigation report for Area 2 (completed in 2018) will inform feasibility studies to support the selection of a remedial action.[17, 18] A revised Remedial Investigation report was prepared by Ramboll to evaluate the results of the USEPA investigation for Area 2 (completed in April 2020).[19]

In July 2022, the DTSC submitted a *Revised Draft Zone 4 Feasibility study Report for Perchlorate in Groundwater, Stringfellow Superfund Site*.[20]

On June 15, 2023, the DTSC held a Stringfellow site briefing in which the findings of the May 2022 *Zone 4 Monitored Natural Attenuation Technical Memorandum* were presented. Overall, the perchlorate plume was found to be stable, with concentrations expected to drop below the MCL as a result of continued active remediation and natural attenuation by dilution and dispersion over the next 20 to 30 years.[21] Additionally, the natural attenuation processes occurring in sediments near the Santa Ana River area via biodegradation and dilution/dispersion due to the biochemical conditions in these sediments, are effective in decreasing perchlorate levels and the plume is not contributing to levels of perchlorate in the Santa Ana River.

On August 30, 2023, the DTSC submitted the *Final Zone 4 Data Gap Investigation Report* to the USEPA, which presents the Zone 4 Data Gap Investigation (DGI) field activities from 2015-2018 along with results

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[16] Ramboll US Corporation. (2021). *Pyrite Canyon Groundwater Flow Model.* Prepared for California Department of Toxic Substances Control. January 27, 2021.

[17] CH2M. (2017). *Draft Final Remedial Investigation Report EPA Area 1, Stringfellow Superfund Site, Jurupa Valley, California*. Prepared for U.S. Environmental Protection Agency, Region 9. April 2017

[18] Ramboll US Corporation. (2018). EPA Area 2 Remedial Investigation Report Stringfellow Superfund Site, Jurupa Valley California. October 19, 2018.

[19] Ramboll US Corporation. (2020). *EPA Area 2 Remedial Investigation Report, Stringfellow Superfund Site Riverside County, California*. Prepared for California Department of Toxic Substances Control. April 6, 2020.

[20] Kleinfelder. (2022). *Revised Draft Zone 4 Feasibility study Report for Perchlorate in Groundwater, Stringfellow Superfund Site*. Prepared for California Department of Toxic Substances Control. July 1, 2022.

[21] Kleinfelder. (2022). *Revised Final Zone 4 Monitored Natural Attenuation Technical Memorandum,* Jurupa Valley California. Prepared for California Department of Toxic Substances Control. May 26, 2022.

for the Santa Ana River and Monitored Natural Attenuation investigations conducted in Zone 4.[22] The objectives of the DGI were to: (1) provide data to better define the extents of site-related contaminants in the groundwater in Zone 4; (2) evaluate perchlorate, VOCs, and other contaminants of concern in soil and groundwater; and (3) evaluate how monitored natural attenuation can remedy perchlorate in Zone 4. Based on the DGI Report, a revised Draft Zone 4 Feasibility Study Report will be submitted to the USEPA, likely in November 2024.

MONITORING AND REPORTING

Currently there are approximately 568 wells that are actively monitored for groundwater elevations and/or groundwater quality at and downgradient of the Stringfellow site. Groundwater monitoring is performed in accordance with the *2016 Site-Wide Groundwater and Surface Water Monitoring Plan and Sampling and Analysis Plan*.[23] The DTSC performs routine monitoring either annually or quarterly to evaluate groundwater quality and reports its findings in quarterly and annual reports, as well as in annual groundwater remedy effectiveness evaluation reports. In general, new wells are sampled quarterly for two years and then incorporated into the annual sampling schedule. The number and type of wells monitored in each zone or area are summarized in Table 2 below. The DTSC also provides monthly reports to the Santa Ana Water Board, USEPA, and the Santa Ana Watershed Project Authority on the operation and effectiveness of the groundwater pump-and-treat system.

Table 2. Monitoring Well Schedule

Zone or Area	Number of Wells	Well Type				
		Monitoring Well	Extraction Well	Piezometer	Extraction Sump	Water Supply Well
1A	134	85	43	0	6	-
1B	75	52	10	13	-	-
2	35	27	8	0	-	-
3	132	120	12	0	-	-
4	161	127	5	29	-	-
USEPA Area 1/2	31	31	0	0	-	-
Total	**568**	**442**	**78**	**42**	**6**	-

In 2005, the DTSC initiated surface water sampling to evaluate perchlorate concentrations in storm water runoff in Pyrite Creek and its tributary channels. Currently, surface water sampling and reporting are executed pursuant to the *Final Surface Water Sampling and Analysis Plan* and are performed during qualifying storm events, which are classified using the following criteria: at least 72 hours of dry weather have elapsed since a previous storm event and a storm event produces sufficient runoff during daylight hours to perform sampling.[24] Watermaster collects all relevant groundwater and surface water data from the DTSC's Stringfellow LIMSstor Database on a bi-annual basis as part of its Chino Basin Data

[22] Kleinfelder, Inc. (2023). *Final Zone 4 Data Gap Investigation Report Jurupa Valley California.* Prepared for California Department of Toxic Substances Control. August 30, 2023.

[23] Kleinfelder. (2016). *Final Sitewide and Surface Water Monitoring Plan and Sampling and Analysis Plan Stringfellow Superfund Site, Jurupa Valley California*. Prepared for California Department of Toxic Substances Control. July 19, 2016.

[24] Geo-Logic Associates. (2016). *Final Surface Water Sampling and Analysis Plan; Stringfellow Superfund Site*. Prepared for California Department of Toxic Substances Control. July 2016.

Collection effort. These data are periodically used by Watermaster to support its basin management initiatives.

RECENT ACTIVITY

The most recent groundwater monitoring report, the 2023 *Annual Groundwater Sampling and Analysis Report* was submitted by the DTSC to the USEPA on May 10, 2024.[25] Groundwater levels and groundwater-quality samples were collected from 321 wells and piezometers. Groundwater quality samples and level measurements were unable to be collected at 66 of the other scheduled wells for various reasons such as access restrictions and insufficient water.

The most recent surface water monitoring report, the *2022-2023 Annual Surface Water Sampling and Analysis Report* was submitted by the DTSC to the USEPA on May 10, 2024.[26] The report provides a summary of the four stormwater monitoring events for the 2022-2023 rain year. The results for the 2023-2024 stormwater monitoring events are available on EnviroStor, however, the annual surface water monitoring report for 2023-2024 has not yet been submitted to the Santa Ana Water Board.

The Final 2020 *Annual Groundwater Monitoring and Remedy Effectiveness Evaluation Report* was submitted by the DTSC on June 29, 2023.[27] The report concludes that the remedial actions have been effective in reducing contaminants by removing a substantial mass of solutes. Between 2009 and 2020, 1,648 pounds of TCE, 310 pounds of chloroform, and 188 pounds of perchlorate were removed from groundwater at the site via the treatment systems. In general, contaminant concentrations in groundwater are decreasing across the site and the spatial extent of all contaminants of concern is similar to previous monitoring events. The Draft Final 2021 *Annual Groundwater Monitoring and Remedy Effectiveness Evaluation Report* is anticipated to be submitted in October 2024.

In 2023, a total of 42,823,846 gallons of water were treated at the Pyrite Canyon Treatment Facility and the Community Wellhead Treatment System.

The DTSC continues to inform the communities in the City of Jurupa Valley of updates on the remediation and monitoring of the Stringfellow Site through its annual Community Update Fact Sheet.[28]

On August 30, 2023, the DTSC submitted a response letter to address USEPA comments on the Interim Final TIE report. A Recommended Summary Checklist for a Superfund Groundwater Technical Impracticability Evaluation was included in the letter. The USEPA and DTSC are expected to release the Proposed Plan to present the preferred remediation alternatives for ROD 5. Following the selection of a remedy, the USEPA will prepare the Final ROD 5 to provide a rationale for the selected remedy and outline its goals. ROD 5 is expected to be issued in early 2025.

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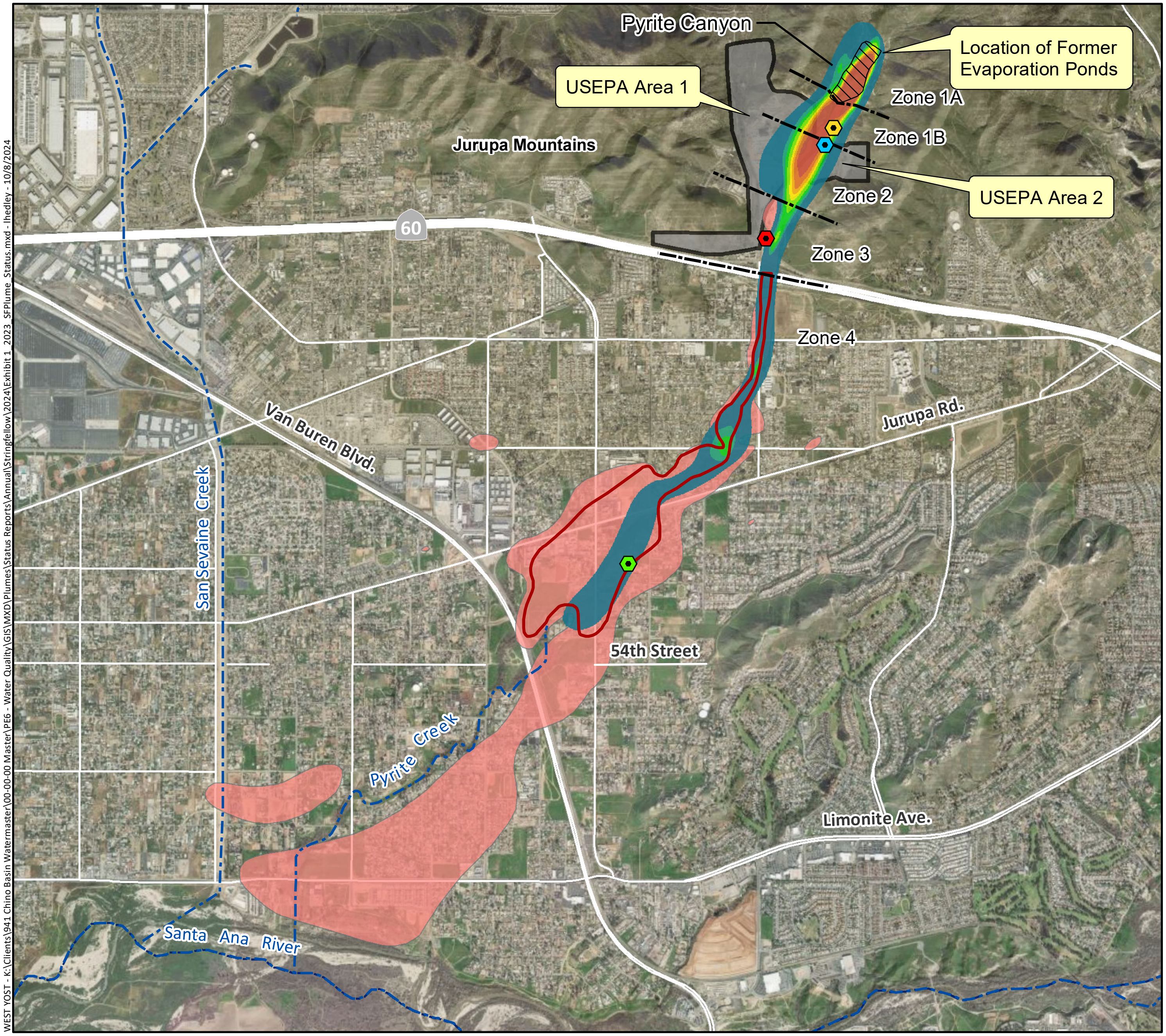
[25] Geo-Logic Associates. (2023). *2022 Annual Groundwater Sampling and Analysis Report*, *Jurupa Valley California*. Prepared for California Department of Toxic Substances Control. January 18, 2023.

[26] Geo-Logic Associates. (2024). *2022-2023 Annual Surface Water Sampling and Analysis Report, Stringfellow Superfund Site, Riverside County, California*. Prepared for California Department of Toxic Substances Control. May 10, 2024.

[27] Kleinfelder. (2023). *2020 Annual Groundwater Monitoring and Remedy Effectiveness Evaluation Report, Stringfellow Superfund Site.* Prepared for California Department of Toxic Substances Control. June 23, 2023.

[28] California Department of Toxic Substances Control. (2023). *Legacy Landfills Office Community Update: Stringfellow Superfund Site.* October 2023.



Maximum Concentration (µgL)
July 2017 - June 2022

TCE
- 0.5 to ≤ 5
- > 5 to ≤ 10
- > 10 to ≤ 20
- > 20 to ≤ 50
- > 50 to ≤ 100
- > 100 to ≤ 200
- > 200 to ≤ 500
- > 500

MCL = 5 µgl

(Delineated by Watermaster in the 2022 State of the Basin Report)

Extent of Perchlorate Plume (≥ 6 µgl)

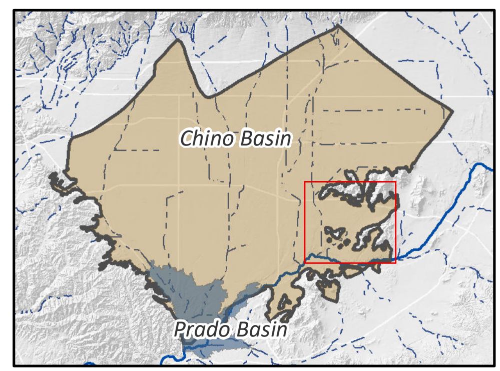
Undifferentiated Perchlorate Plume
Delineated by Kleinfelder in the 2020 Annual Groundwater Monitoring and Remedy Effectiveness Evaluation Report (2023)

Zone 4 Pyrite Canyon Synthetic Perchlorate Plume
Delineated by Kleinfelder in the Final Zone 4 Data Gap Investigation Report (2023)

Groundwater Treatment Facilities
- Pyrite Canyon Treatment Facility
- Pre-Treatment Plant
- Lower Canyon Treatment Facility
- Community Wellhead Treatment System

Boundary Between Remediation Zones

Streams & Flood Control Channels



Prepared by:

WEST YOST

0 1 Miles

0 1 2 Km

Prepared for:

Chino Basin Watermaster
Annual Plume Report

Chino Basin Watermaster — Partners in Basin Management

Stringfellow
TCE and Perchlorate Plumes
Exhibit 1

CHINO BASIN WATERMASTER
9641 San Bernardino Road, Rancho Cucamonga, CA 91730
909.484.3888 www.cbwm.org

STAFF REPORT

DATE: October 24, 2024

TO: Board Members

SUBJECT: Resolution 2024-04 to Increase the Chino Basin Safe Storage Capacity (Business Item II.C.)

Issue: Existing Court-ordered administration provisions govern storage of water up to a maximum of 700,000 acre-feet through 2030 and 620,000 acre-feet through 2035. The Draft Assessment Package projects that the total quantity of water in storage as of June 30, 2024 will exceed this quantity. The storage administration provisions must be revised or extended to cover volumes exceeding 700,000 acre-feet. [Within WM Duties and Powers]

Recommendation: Adopt Resolution 2024-04 finding that a proposed order be filed with and adopted by the Court regarding the management and administration of volumes of stored water exceeding 700,000 acre-feet up to a maximum of 900,000 acre-feet.

Financial Impact: None.

Future Consideration
Watermaster Board – October 24, 2024: Adopt Resolution 2024-04.

BACKGROUND

Storage of any water in the aquifer storage capacity of the Chino Basin is subject to the control of Watermaster under the continuing jurisdiction of the Court. (Judgment ¶ 11, 12, 14, 15, Exhibit “G” ¶ 7, Exhibit “H”, ¶ 12.). In June of 2000, with the consent of the parties to the Judgment and under the direction of the Court, the Peace Agreement established a plan for the administration of aquifer storage capacity and for the management, storage, recovery, and transfer of stored water, reserving discretion as provided therein (Peace Agreement Section 5.2.). For the past 24 years, Watermaster has administered storage in Chino Basin according to the storage management plan described in Program Element 8 of the 2000 Optimum Basin Management Program (OBMP) Implementation Plan, as authorized by the Peace Agreement and ordered by the Court.

The existing OBMP storage management plan consists of the administration of groundwater production, replenishment, recharge, and storage within the defined Safe Storage Capacity. As defined in the OBMP Implementation Plan, the Safe Storage Capacity (SSC) is the difference between safe storage and the operational storage requirement (OSR). The allocation and use of storage space in excess of the SSC would preemptively require mitigation; that is, mitigation must be defined, and resources committed to mitigation prior to its allocation and use (OBMP Implementation Plan at p. 38.). For the purposes of defining the SSC, the OSR was considered to be the storage or volume in the aquifer capacity of the Chino Basin that is necessary to maintain the Safe Yield.

At the time the OBMP Implementation Plan was drafted, the OSR was estimated in the development of the OBMP to be about 5.3 million acre-feet (ac-ft). This storage value was set as the estimated storage in the Chino Basin in 1997. The OBMP Implementation Plan defined “Safe Storage” as an estimate of the maximum amount of storage space in the basin that can be used and not cause significant water-quality and/or high-groundwater related problems. At the time of the OBMP Implementation Plan, Safe Storage within the Chino Basin was estimated to be about 5.8 million ac-ft. Consequently, the SSC was defined at 500,000 ac-ft.

Environmental impact analysis was undertaken for the entire OBMP Implementation Plan, inclusive of the storage management plan within Program Element 8 under the Final Programmatic Environmental Impact Report (PEIR) certified by IEUA in 2000. By its own resolution and by order of the Court, Watermaster agreed that any future actions under the OBMP Implementation Plan would be subject to “CEQA documentation.” (See Peace Agreement Attachment “A” § 5.) IEUA was designated to be the Lead Agency for the OBMP Implementation Plan (Peace Agreement § 2.4.) as well as by Court Order.

Subsequently, IEUA completed further action pertinent to the management of the SSC by making a “consistency finding” in connection with Watermaster’s approval of the Dry-Year Yield Agreement with the Metropolitan Water District in 2002. Again, in 2017 the IEUA Board of Directors prepared an Addendum to the PEIR finding that the SSC could be temporarily increased from 500,000 to 600,000 ac-ft through June 30, 2021 without causing Material Physical Injury or the need for advance mitigation of adverse impacts as otherwise required by the OBMP Implementation Plan. (Peace Agreement § 5.2(c)(iii); OBMP Implementation Plan Program Element 8 (c)vii; (c)viii and the California Environmental Quality Act (CEQA)).

In anticipation of approaching the defined Safe Storage Capacity limit, Watermaster initiated a series of stakeholder discussions beginning in December 2016 with the intention of developing an orderly process to increase the aquifer capacity available for stored water without the parties incurring an advance mitigation responsibility. Watermaster’s process included preparation of a report titled Chino Basin Storage Framework Investigation (SFI) in 2019, which documented the framework for evaluating the potential impacts of the storage of water in the Chino Basin, and 2020 Storage Management Plan (SMP) White Paper, which described technical issues related to storage management to be considered in development of a 2020 Storage Management Plan (2020 SMP).

The Watermaster Board approved the 2020 SMP in May 2020. The subjects described in 2020 SMP Section 2.1 - 2.6 will require formal documentation to become operative. This means that unless otherwise ordered by the Court, amendments to the Peace Agreement and to the OBMP Implementation Plan will require consideration and approval by the Parties to the Peace Agreement, the Advisory Committee's approval of uniform rules, and further order of the Court pursuant to its continuing jurisdiction. Finally, Watermaster is required to have received proof of CEQA documentation for actions that constitute a "project" under CEQA.

In March 2021, the IEUA Board of Directors adopted a second Addendum to the 2000 PEIR certifying that there would be no new significant impacts arising from storage of volumes up to 700,000 ac-ft through June 30, 2030 and up to 620,000 ac-ft through June 30, 2035.

To provide a failsafe measure to protect and preserve existing and presently projected additional quantities of water characterized as "local storage" before the June 30, 2021 deadline while Peace Agreement negotiations were ongoing, the Watermaster Board adopted Resolution No. 2021-03 to implement the Local Storage Limitation Solution (LSLS) to provide a basis to protect and preserve stored water in the event the discussions on potential Peace Agreement amendments have not been concluded in a manner reasonably likely to secure unanimous consent of the Peace Agreement signatories. On July 21, 2021, the Court ordered Watermaster to implement the LSLS and reserved the Court's jurisdiction to consider future proposals regarding storage management.

Since the implementation of the Local Storage Limitation Solution, Watermaster and the parties have worked to update the 2020 Subsequent Environmental Impact Report (SEIR) for the activities identified in the 2020 OBMP Update. The SEIR for the OBMP Update was recirculated with several revisions, including an updated analysis of use of up to 900,000 ac-ft of storage capacity by Chino Basin Parties and Storage and Recovery Programs based on the 2023 SFI prepared by Watermaster's Engineer. The recirculated SEIR identified no significant impacts from the Chino Basin Parties' and Metropolitan Water District's use, and conjunctive use by future Storage and Recovery Programs of up to 900,000 ac-ft. A The IEUA Board of Directors certified the final recirculated SEIR that included the aforementioned findings on February 8, 2024.

The increase of the Safe Storage Capacity will provide protection and preservation of the water in storage accounts and allow parties to initiate the negotiations for any potential Peace Agreement amendments they wish to engage in.

DISCUSSION

In the winters of 2022/23 and 2023/24, California saw two record-breaking storm years accompanied by a decrease in demands and implementation of mandatory conservation measures. Collectively and along with the continuous recharge of water into the Dry Year Yield program, resulted in the increase in storage of water in the Basin in unprecedented quantities. This increase in storage far exceeds those projected when the Local Storage Limitation Solution was developed.

With the preparation of the FY 2024/25 Assessment Package, Watermaster has identified an increase in storage accounts of about 82,232 ac-ft since June 30, 2023, an unprecedented growth. This increase has resulted in 708,984 ac-ft of water being stored in the basin, which exceeds the current court-ordered Safe Storage Capacity of 700,000 through 2030. Resolution 2024-04 serves to provide a basis to protect and preserve stored water while parties engage in the meet-and-confer process stipulated in the Peace Agreement next year.

Continued access to stored water may be important to the stakeholders in the years ahead. The existing court-ordered storage management regime does not address how quantities of stored water in excess of 700,000 ac-ft are to be managed. Thus, while the Peace Agreement provisions pertinent to the management and administration of quantities up to 700,000 could be logically extended to cover greater than 700,000, there is no requirement that the parties do so. Moreover, the Peace Agreement does not preclude or preempt the Court's jurisdiction or Watermaster's authority to address new subject matter.

The proposed order would enable the parties to the Peace Agreement to continue to negotiate further amendments without the pressure of the looming deadline or limit and does not compel them to agree. Thus, all rights and remedies of the parties are preserved.

Draft Resolution 2024-04 was prepared in response to requests by the Pools to increase the SSC cap to accommodate higher-than-projected storage. The Overlying Non-Agricultural and Agricultural Pool Committees formally requested that Watermaster seek the court's approval to increase the SSC to 900,000 ac-ft at their respective October 10, 2024 meetings. The Advisory Committee recommended adoption of Resolution 2024-04 (Attachment 1) in support of the increase of the Safe Storage Capacity by a vote of 75.775% in favor. The Appropriative Pool met in Confidential Session at a special meeting to discuss Basin Storage at 9:40 a.m. on October 17, 2024 and recommended the Watermaster Board to adopt resolution 2024-04 by a vote of 79.5% in favor.

ATTACHMENTS

1. Resolution 2024-04 (Draft)

RESOLUTION 2024-04
OF THE
CHINO BASIN WATERMASTER

REGARDING

REQUESTING THE INCREASE OF THE SAFE STORAGE CAPACITY

WHEREAS, the Chino Basin Watermaster ("Watermaster") was appointed pursuant to the Judgment in Chino Basin Municipal Water District v. City of Chino (San Bernardino Superior Court Case No. RCV RS51010) to administer and enforce the provisions of the Judgment and any subsequent instructions and orders of the Court;

WHEREAS, there are approximately 709,000 acre-feet ("AF") of water presently held in storage within the Basin that is subject to potential reduction in the absence of a further order of the Court authorizing the continued storage of groundwater under defined rules as it will exceed the quantities previously provided for under the Court's orders;

WHEREAS, the Inland Empire Utilities Agency's ("IEUA") completion of environmental review for the 2020 Update to the Optimum Basin Management Program ("OBMP") and adoption of the Final Recirculated Subsequent Environmental Impact Report ("FRSEIR") to the Programmatic Environmental Impact Report for the 2000 OBMP, which analyzed impacts attributable to the storage of up to 900,000 AF of water in the Chino Basin, concluded the environmental impacts are either not significant or can be reduced to a level of less than significant with mitigation or were addressed in the Statement of Overriding Considerations;

WHEREAS, all signatories to the Peace Agreement have not unanimously consented to any specific set of amendments to the Peace Agreement that would implement an increase in safe storage capacity to 900,000 AF;

WHEREAS, at their respective October 10, 2024 meetings, the Overlying (Agricultural) Pool and the Overlying (Non-Agricultural) Pool took action to request that Watermaster file a motion with the Court to increase the Safe Storage Capacity consistent with that analyzed in the FRSEIR;

WHEREAS, at its October 17, 2024 special meeting, the Appropriative Pool, by a vote of 79.5% in favor, took action to request that Watermaster approve Resolution 2024-04 and file a motion with the Court to increase the Safe Storage Capacity consistent with that analyzed in the FRSEIR;

WHEREAS, at its October 17, 2024 meeting, the Advisory Committee, by a vote of 75.775% in favor, took action to recommend the Watermaster Board adopt resolution 2024-04 and file a motion with the Court to increase the Safe Storage Capacity consistent with that analyzed in the FRSEIR;

WHEREAS, Watermaster's obligation to optimally manage the Basin in accordance with Restated Judgment Paragraph 41, establish uniform rules and processes that fulfill the requirements of Restated Judgment Paragraphs 11, 12, and 14 could be satisfied by the Court drawing upon its authority to review and act upon a recommendation by Watermaster under its continuing jurisdiction set forth in Restated Judgment Paragraph 15; and

WHEREAS, in its July 21, 2021 Order Regarding Implementation of the Local Storage Limitation Solution, the Court expressly reserved its jurisdiction to consider future proposals of Watermaster or the parties with regard to storage management.

NOW THEREFORE, BE IT RESOLVED, Watermaster recommends that the Court order that:

1. Watermaster manage all quantities of water held in storage in amounts from 700,001 AF up to a maximum of 900,000 AF through 2040, consistent with all provisions of the Peace Agreement and the Peace II Agreement applicable to the Local Storage of water within the Basin be extended, without limitation, subject to further order of this Court;

2. Watermaster conform the Watermaster Rules and Regulations consistent with such order;

3. Watermaster implement the OBMP in conformance with such Order, the IEUA FRSEIR certified February 21, 2024, and the Court's April 28, 2017, March 15, 2019, and July 31, 2020 orders establishing a Safe Yield Reset process;

4. All of the parties' rights and remedies, whatever they may be, are expressly reserved, preserved and protected and made applicable to the quantities of stored water greater than 700,001 AF; and

5. The Court reserves jurisdiction to consider future proposals of Watermaster or the parties with regard to storage management.

ADOPTED by the Watermaster Board on this 24th day of October 2024.

APPROVED:

By: ______________________________
Chair, Watermaster Board

ATTEST:

By: ______________________________
Board Secretary/Treasurer
Chino Basin Watermaster

STATE OF CALIFORNIA)
) ss
COUNTY OF SAN BERNARDINO)

I, Bob Bowcock, Secretary/Treasurer of the Chino Basin Watermaster, DO HEREBY CERTIFY that the foregoing Resolution being No. 2024-04, was adopted at a regular meeting of the Chino Basin Watermaster Board on October 24, 2024 by the following vote:

AYES: 0

NOES: 0

ABSENT: 0

ABSTAIN: 0

CHINO BASIN WATERMASTER

____
Watermaster Secretary/Treasurer

Date: ______________________

Project Status: Wineville/Jurupa/RP3 Basin Improvements
(Project 23a)

Budget:

- Authorized capital budget: $28,846,016

Available Funding:

- $15.4 M in SRF Loan at 0.55%
- $10.8 M is State and Federal Grants

Progress:

- Construction 85% completed

Pending Completion:

- Electrical wiring & SCE work
- Control Programming
- Rubber Dam
- Procuring and installation of Pumps

Current Activities:

- Pipes for Wineville Pumps to arrive in mid-Oct.
    - Planned completion mid-Nov.
- Electrical wiring & SCE work in progress
    - Planned completion October 31, 2024
- Control Programming awaiting electrical
    - Planned completion November 30, 2024
- Received 90% of Rubber Dam equipment
    - Planned Completion November 30, 2024
- Procuring and installation of Pumps
    - See schedule

Updates:

- Finalize the procurement documents for the pumps (see revised schedule)

Detailed Schedule for the Pumps

TASK	START	END
Prepare Solicitation Documents	**6-Jun-2024**	**15-Oct-2024**
Draft Documents	6-Jun-2024	22-Aug-2024
Review Documents	23-Aug-2024	28-Aug-2024
Finalize Documents	29-Aug-2024	15-Oct-2024
Request for Qualification of Suppliers	**23-Oct-2024**	**18-Dec-2024**
Enter into PlanetBids	23-Oct-2024	23-Oct-2024
Solicitation (Q&A Period)	24-Oct-2024	15-Nov-2024
Final Week of Solicitation	18-Nov-2024	26-Nov-2024
Close Solicitation	26-Nov-2024	26-Nov-2024
Review Responses to the RFQ	27-Nov-2024	3-Dec-2024
Notify Prequalified Suppliers	4-Dec-2024	17-Dec-2024
Begin Submittal Review for Prequalified Suppliers	18-Dec-2024	18-Dec-2024
Submittal Review	**1-Jan-2025**	**18-Mar-2025**
First Submittal	1-Jan-2025	15-Jan-2025
Review Initial Submittal	15-Jan-2025	29-Jan-2025
Second Submittal	29-Jan-2025	12-Feb-2025
Review Second Submittal	12-Feb-2025	26-Feb-2025
Final Submittal	26-Feb-2025	12-Mar-2025
Board of Directors' Authorization of PO	12-Mar-2025	18-Mar-2025
Pump Fabrication/Installation/Testing/Close-out	**1-Apr-2025**	**29-Dec-2025**
Fabrication (22 weeks)	1-Apr-2025	2-Sep-2025
Delivery	2-Sep-2025	16-Sep-2025
Installation	16-Sep-2025	14-Nov-2025
Testing	14-Nov-2025	15-Dec-2025
Close Out	15-Dec-2025	29-Dec-2025