Docket	:	A.23-01-001
Exhibit Number	:	Cal Adv - #
Commissioner	:	Genevieve Shiroma
Administrative Law Judge	:	Gerald F. Kelly
Public Advocates Office	:	Brian Yu
Witness(es)		

PUBLIC ADVOCATES OFFICE
CALIFORNIA PUBLIC UTILITIES COMMISSION

REPORT ON PLANT PROJECTS FOR WHITTIER-LA MIRADA SYSTEM

SUBURBAN WATER SYSTEMS
TEST YEAR 2024 GENERAL RATE CASE

San Francisco, California
August 14, 2023

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MEMORANDUM

The Public Advocates Office at the California Public Utilities Commission ("Cal Advocates") examined application material, data request responses, and other information presented by Suburban Water Systems ("Suburban") in Application ("A.") 23-01-001 to provide the California Public Utilities Commission ("Commission" or "CPUC") with recommendations in the interests of ratepayers for safe and reliable service at the lowest cost. Brian Yu prepared this report under the general supervision of Program Manager Richard Rauschmeier, Program & Project Supervisor Hani Moussa, and Project Lead Suliman Ibrahim. Shanna Foley is Cal Advocates legal counsel.

Although every effort was made to comprehensively review, analyze, and provide the Commission with recommendations on each ratemaking and policy aspect presented in the Application, the absence from Cal Advocates' testimony of any particular issue connotes neither agreement nor disagreement of the underlying request, methodology, or policy position related to that issue.

CHAPTER 1 Company-wide Plant Projects

I. INTRODUCTION

This chapter presents Cal Advocates' analysis and recommendations of select company-wide plant projects in annual projects and planned projects. Also presented is the Cal Advocates' position on certain cost adders found in Suburban's project cost estimates such as Engineering Services and Inspection (ES&I), General Administration, and Mobilization/Demobilization.

II. SUMMARY OF RECOMMENDATIONS

The Commission should adopt Cal Advocates' recommendations summarized in the table below:

Table 1-1: Cal Advocates Recommended Budget for the Select Company-wide Plant Projects

	2023		2024		2025	
Project	**Suburban**	**Cal Advocates**	**Suburban**	**Cal Advocates**	**Suburban**	**Cal Advocates**
Meter Purchase	$2,407,000	$ 787,957	$2,861,000	$ 787,957	$ 4,385,000	$ 787,957
Meter Installation	$550,000	$ 180,048	$ 526,000	$ 180,048	$ 700,000	$ 180,048
Meter Lids	$30,000	$ 9,821	$ 30,000	$ 9,821	$ 30,000	$ 9,821
Water Rights	$1,098,000	$ -	$1,006,500	$ -	$ 1,006,500	$ -
AMI Infra.					$ 1,797,008	$ -
Valve Replace Backlog					$ 1,323,000	$1,061,327
Well Redevelopment			$ 166,157	$ 151,052	$ 166,157	$ 151,052
Blowoff Replacement					$ 1,019,000	$ 827,457
Chemical Equipment			$ 116,000	$ 89,496	$ 111,000	$ 89,383
SCADA Upgrade					$ 1,107,000	$1,006,561
Total:	**$4,085,000**	**$ 977,826**	**$4,705,657**	**$1,218,374**	**$11,644,665**	**$4,113,605**

III. ANALYSIS

1. Engineering Services and Inspection (ES&I)

The Commission should deny the addition of Engineering Services & Inspection (ES&I) to project cost estimates because these costs are based on unknowns. Suburban includes a 12% add-on for ES&I in nearly all cost estimates for its planned projects. Suburban does not provide any specifics on how these funds will be spent and simply adds 12% to a project's cost for items that may be potentially required. This approach of adding a 12% ES&I cost to a project is unreasonable and unfair to ratepayers as it prevents the Commission from accurately assessing the need or reasonableness of the proposed costs.

The Commission has made it clear that "in a normal general rate case, the utility must demonstrate the reasonableness of every dollar in its revenue requirement." [1] As such, Suburban's ES&I estimation method is unreasonable since it is allocating funds to unknowns that may not happen and does not accurately predict the ES&I costs associated with each project. Suburban's own analysis, provided in support of its ES&I request, shows substantial variations in the recorded ES&I costs of projects. In response to discovery, Suburban provided an analysis of 39 capital improvement projects completed between 2016 and 2021. For these projects Suburban recorded as little as 3.91% in ES&I costs and as high as 31.20%.[2] This substantial variation between projects shows that Suburban's methodology is inaccurate.

If ES&I costs are needed for a project, Suburban should estimate them fairly and accurately based on the project's specific needs and requirements and present the estimate to the Commission for reasonableness review. For example, if outside vendors were to be contracted for ES&I, vendor quotes can be used as a basis to establish a reasonable cost. Following Suburban's current methodology, it is impossible to

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[1] D.96-12-066, p.5.

[2] Suburban's Response to Cal Advocates DR-BYU-04, Attachment DR BYU-04 Response #1.b & #2.b. – 2016-2021 ES&I and Contingency Analysis.xlsx.

determine the reasonableness of the proposed costs as Suburban based them not on a detailed project analysis but on an overarching project multiplier that is applied across the board. By using a one-size-fits-all approach and not actually quantifying or supporting specific costs on a project-by-project basis, Suburban unfairly seeks to charge ratepayers for costs that may not be reasonable or necessary. Should Suburban incur additional costs, it can always request the funding in future GRCs where the Commission can assess the reasonableness of the request.

The Commission should remove Suburban's proposed ES&I costs from rates.

2. General Administration

The Commission should adopt Cal Advocates' correction of general admission factor because Suburban inaccurately used a different factor for several projects.

Suburban adds a general administration factor to its projects to capture its general administration costs over the life of the project. These costs are then capitalized instead of being included in expenses. This multiplier differs from other multipliers such as contingency and ES&I in that it is simply used for ratemaking purposes. General administration costs are removed from overall company expenses and added to rate base.

Suburban uses a general administration factor of 13.972% in 2023 and 9% for 2024 and uses these factors in its capital budget estimate calculations.[3] However, Suburban inaccurately used a different general administration factor for several projects – for certain projects, Suburban used 10.6% and 10.8% without explanation.[4] Suburban also inaccurately used a 2023 general administration factor of 13.573% in its RO model instead of 13.972% as it explained in its response to Cal Advocates' data request.[5] Cal Advocates corrected these mistakes by updating the RO Model's 2023

[3] Suburban Response to Cal Advocates DR-BYU-04, 3.a.

[4] Suburban Response to Cal Advocates DR-BYU-04, 5 Attachment "DR BYU-04 Response #5_rev1.xlsx.".

[5] Workpapers Vol 1 CONFIDENTIAL (Final Application).xlsx, Tab "Model", cell "M2190".

factor to the correct 13.972%, and updating capital budget estimate's General Administration factors to 13.972% or 9% depending on project year.

3. Mobilization/Demobilization

The Commission should not allow Suburban to add 3% Mobilization and 2% Demobilization factors in certain project cost estimates because these costs are based on unknowns.[6].

Mobilization and Demobilization is typically a cost incurred when a project site is being prepared, materials and equipment are delivered on site, storage and mobile office is set up, and the site is cleared at the end of the construction. Suburban has local offices throughout its territory that its field operations crew use. There are also several mobile office spaces that Suburban's field operations crew use throughout its systems. If someone from Suburban has a task at one of the project sites, the local office or mobile field operations offices can be utilized. For the mobilization and demobilization of Suburban's contractors, the cost should have been included in the contractor bidding. For most of the plant projects that may require Mobilization/Demobilization, Suburban contracts those out to vendors or contractors. Suburban's project cost estimates show contractor quotes as "lump sum." Thus, there is no need to account for additional Mobilization and Demobilization cost.

A basic tenet of ratemaking is "the utility must demonstrate the reasonableness of every dollar in its revenue requirement."[7] A Mobilization and Demobilization percentage adder fails to meet this requirement just like Suburban's blanket contingency and ES&I factors. In response to discovery Suburban stated "mobilization and demobilization costs can vary greatly depending on the type of work, the price, and the logistics level required to complete the job." Suburban further stated that costs can range

[6] Direct Testimony of Jorge Lopez (Lopez Testimony), pp. 107, 113, 338, 340, 487, 489, 497, and 499.

[7] D.96-12-066, p.5.

"from 2% to 15%."[8] This significant variation depending on project specific circumstance illustrates why blanket multipliers have no place in equitable ratemaking. Instead of adding a blanket Mobilization/Demobilization percentage multiplier for projects, Suburban could have provided specific costs for each project, justification for why the costs is necessary, and support (for example vendor quotes) to justify the proposed costs. In that scenario, the proposed Mobilization/Demobilization costs could have been reviewed for reasonableness on a case-by-case basis. Such an approach would allow the Commission to assess the reasonableness and necessity of the costs instead of simply adding a 3% mobilization and 2% demobilization factor across a multitude of varying projects.

4. A-5, A-30, A-55: Meter Purchase, Meter Installations, and Meter Lids (2023, 2024, 2025)

The Commission should adopt Cal Advocates' recommendation for funding meter replacement program that is enough for Suburban to conform to a 15-year meter replacement cycle and comply with the Commission's General Order 103-A (GO 103-A).

Suburban requests to replace existing manual read meters with Automatic Meter Reading (AMR) meters.[9] Suburban plans to replace all manual read meters in a 11-year period that started in 2019. The requested budget for the AMR meter replacement in this GRC is as follows:

[8] Suburban response to Cal Advocates' data request BYU-04, Q.4.c.

[9] Lopez testimony, p.58.

Table 1-2: Suburban Requested Budget for Annual Meter Replacements[10]

Projects	2023	2024	2025
Meter Purchase	$ 2,407,000	$ 2,861,000	$ 4,385,000
Meter Installation	$ 550,000	$ 526,000	$ 700,000
Meter Lid and Box	$ 30,000	$ 30,000	$ 30,000
Total	**$ 2,987,000**	**$ 3,417,000**	**$ 5,115,000**

As Suburban states in the Direct Testimony of Jorge Lopez (Lopez testimony), meter replacement is required by GO 103-A.[11] GO 103-A requires the following:[12]

> **6. Periodic Tests of Water Meters**
>
> **A. Maximum Time Periods for Meters in Service**
>
> (1) No meter shall be allowed to remain in service without retesting for any more than the number of years indicated in the following tabulation:
>
> | Size of Meter | Maximum Period |
> |---|---|
> | Smaller than 1 – inch | 20 years |
> | 1 – inch | 15 years |
> | Larger than 1 – inch | 10 years |
>
> (2) Requests to extend the maximum period may be made by advice letter based on relevant economic factors and meter accuracy.

As the maximum service life varies per size of meters and most consumer meters for the utilities are one inch or below, California Class A water utilities have been using 15-year cycle as a proxy for the meter replacements. Suburban affirms that its annual meter

[10] GRC Workpaper, Volume I Workpapers (Final Application), Table 6-1C.

[11] Lopez testimony, p.58.

[12] CPUC General Order 103-A, 6.a.(1).

replacement program is based on 15-year cycle.[13] However, Suburban is deviating from this replacement cycle without providing adequate justification for the increased costs resulting from a shortened replacement cycle. Suburban should conform to the 15-year meter replacement cycle. Suburban claims that its 2019 rate case "adopted" the 11-year replacement cycle.[14] However, the Commission never adopted this expedited meter replacement cycle. Furthermore, Suburban did not provide any information on how it plans to treat the retirement cost of the prematurely replaced meters.

Suburban already started replacing its meters based on an 11-year replacement cycle in 2019. Suburban's Lopez testimony shows it had been replacing 4,963 meters annually in years from 2018 to 2020.[15] Suburban plans to replace almost double that number starting in year 2025.

Table 1-3: Suburban's Planned Meter Replacement[16]

			1st GRC After D.16-12-026			2nd GRC After D.16-12-026			3rd GRC D.16-12-026		
Size	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**Total**
5/8"	238	238	238	849	1650	716	716	954	954	954	7509
3/4"	2438	2438	2438	5561	4729	5699	5699	7599	7599	7599	51799
1	1846	1846	1846	907	1411	822	822	1097	1097	1097	12790
1.5	177	177	177	131	289	104	104	139	139	139	1575
2	194	194	194	121	228	102	102	137	137	137	1545
3	46	46	46	9	9	9	9	13	13	13	213
4	22	22	22	8	6	8	8	10	10	10	128
6	2	2	2	2	1	2	2	2	3	3	21
Total	**4963**	**4963**	**4963**	**7,588**	**8,323**	**7,462**	**7,462**	**9,951**	**9,952**	**9,952**	**75,584**

[13] Lopez Testimony, p.58.

[14] Lopez Testimony, p.152.

[15] Lopez Testimony, p. 267.

[16] Lopez Testimony, p. 267.

Suburban states it has 76,500 service connections in both its San Jose Hills and Whittier-La Mirada systems.[17] Assuming all service connection are metered, replacing all meters in 15 years would result in 5,100 replacements per year on average. This is in line with Suburban's historical annual replacements: 4,963 meters per year before 2021. With Suburban's proposed 11-year replacement cycle, from 2021 to 2025, it would replace 40,786 meters. If Suburban followed its historical replacement rate, 4,963 meters per year, it would replace 24,815 meters for the same period. This would result in 15,971 meters being replaced earlier than needed, which translate into approximately $7.3 million in unnecessary spending ratepayers would ultimately pay for.[18]

Table 1-4: Meter Replacement History and Forecast

	2021	2022	2023	2024	2025	Total
Meter Replacement	7588	8323	7462	7462	9951	40786
Regular Replacement	4963	4963	4963	4963	4963	24815
Replaced Early	2625	3360	2499	2499	4988	15971
(Regular Replacement 23-25)-(Replaced Early 21-23)						**6405**
6450 Meter Replacements @ $458 per meter						**$2,933,490**

For this GRC, following the 15-year replacement cycle, funding for 4,963 meters annually should be considered. However, Suburban already replaced, beyond the rate needed for 15-year cycle, an additional 2,625 meters in 2021, 3,360 in 2022, and would replace 2,499 meters in 2023 when the Commission's Proposed Decision for this GRC is estimated to be on December 31, 2023. Therefore, only funding for 6,405 meters should be considered for 2023 to 2025.[19] 6,405 meters times $458 per meter results in $2,933,480.

[17] SWS Urban Water Management Plan 2020, p. 28-29 (pdf page).

[18] Using 2024 replacement as a proxy, Suburban estimates $3.4 million (Table 1-2 above: $3,417,000) for replacing 7,362 meters (Table 1-3 above: Column 2024) which translates roughly to $458 per meter. Thus, the replacement cost for 15,971 meters would be roughly $7.3 million.

[19] (Regular Replacement 23-25: 14,889 meters) – (Replaced Early 21-23: 8,484 meters) = 6,405 meters

The Commission should only include in rates enough funding for Suburban to conform to a 15-year meter replacement cycle and comply with GO 103-A. Based on the Commission requirements outlined in GO 103-A, a 15-year replacement cycle is what is required to maintain safe reliable water service. Suburban has not provided support to substantiate an accelerated 11-year cycle. To conform Suburban's budget to the 15-year replacement cycle, the budget amount for 2023 to 2025 calculated above, $2,933,480, should be divided into three and allocated for each GRC year. Below is Cal Advocate's recommendation including meter purchase, meter installation, and meter lid and box costs. The Commission should adopt Cal Advocate's recommendation.

Table 1-5: Cal Advocates Recommended Budget for Annual Meter Replacements

Projects	3-years	**2023**	**2024**	**2025**
Meter Purchase	$ 2,363,872	$ 787,957	$ 787,957	$ 787,957
Meter Installation	$ 540,145	$ 180,048	$ 180,048	$ 180,048
Meter Lid and Box	$ 29,462	$ 9,821	$ 9,821	$ 9,821
Total	$ 2,933,480	**$ 977,827**	**$ 977,827**	**$ 977,827**

5. P-1, P-31, P-32: Water Rights Purchase (2023, 2024, 2025)

The Commission should not include $3,294,000 in rates ($1,098,000 for each year) for Suburban's request to purchase California Domestic Water Company (Cal Domestic) shares because it is not needed and not cost effective.

Suburban proposes to purchase Main San Gabriel Basin (Main Basin) water rights by acquiring the stock shares of Cal Domestic.[20] Cal Domestic's water supply comes from seven ground water wells from the Main San Gabriel Basin.[21] Thus, increasing water rights by acquiring Cal Domestic shares only increases Suburban's water rights in the Main Basin. The Commission should deny Suburban's request to place Main Basin

[20] Lopez Testimony, p.88.

[21] Cal Domestic website stating its water source. https://caldomestic.com/water/

water rights purchase into rate base because Suburban does not need to increase Main Basin water rights.

Suburban states that "the opportunity to obtain additional groundwater rights is limited."[22] However, Suburban was able to purchase water rights in almost every year in the past two GRCs. Suburban' workpaper shows the following historical water rights purchase costs captured in the past:

Table 1-6: Suburban's Historical Water Rights Purchase[23]

Year	2017	2018	2019	2020	2021	2022
Water Rights Purchase	$ -	$ 60,164	$ 1,976,475	$ 1,677,500	$ 15,400	$ 2,000,000

Thus, it is reasonable to assume the opportunity to purchase water rights is not limited. Water rights purchase requests should be reviewed based on Suburban's need for increasing its Main Basin water rights.

According to the Main San Gabriel Basin Watermaster 2021-2022 Annual Report, Suburban extracted a yearly total of 20,260 acre-feet in 2021-2022 (July 2021 to June 2022).[24] In the same Main Basin Watermaster annual report, Suburban has production rights of 22,393 acre-feet per year (AFY) and has a carryover production rights balance of 2,133 AFY to 2022-2023.[25] Since Suburban's production is less than its production rights, there is no need for Suburban to increase its water rights in the Main Basin. Suburban also claims it will face penalties if it pumps more than its production rights. The Main Basin Watermaster annual reports for the past 5 years indicate that Suburban never pumped more than its production rights and Suburban was not charged with a penalty. If Suburban had over-pumped against its water rights, the Main Basin

[22] Lopez Testimony, p.88.

[23] GRC Workpaper, Volume I Workpapers (Final Application), Table 6-1C.

[24] Main San Gabriel Basin Water Master Annual Report 2021-2022, p. H3 of 3 (pdf page 86).

[25] Main San Gabriel Basin Water Master Annual Report 2021-2022, p. I3 of 5 (pdf page 92).

Watermaster would have required Suburban to pay for "replacement water." The replacement water required for Suburban for each of the past five years was zero. Thus, Suburban's claim on the chance of facing penalties for over pumping is contrary to its current situation. Below is the compilation of Suburban's production rights and actual production for the past 5 years.[26]

Table 1-7: Main Basin Watermaster Record on Suburban's Pumping Rights

(Units: AFY)	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Production	29,047	25,012	23,088	26,519	20,260
Replacement Water Required	0	0	0	0	0

In support of its water rights purchase, Suburban provides a cost benefit analysis, that it claims, shows that ratepayers will benefit from the water rights purchase.[27] In its cost benefit analysis, Suburban compares the cost of purchased water to the cost of paying for replacement water (over-pump costs) in the Main San Gabriel Basin. In its model, Suburban determines the annual savings by multiplying the proposed 104.4 acre-feet of Cal Domestic water rights with the cost of Main San Gabriel Basin over-pumping per acre-foot.[28] Suburban projects the over-pumping cost to increase annually.

There are two major flaws with this approach. As previously mentioned, historically Suburban has not paid over-pumping fees and as such, it makes no sense to base a cost benefit analysis on avoiding fees Suburban does not normally pay. Moreover, Cal Domestic water rights have a cost attached to pumping that Suburban does not take into account. According to Suburban's RO model, in 2022 Cal Domestic water rights

[26] Main San Gabriel Basin Water Master Annual Reports from 2017-2018 to 2021-2022, Appendix I. https://www.watermaster.org/reports

[27] Lopez Testimony, p.90.

[28] Suburban Response to Cal Advocates DR-SIB-001, 1.c., Attachment DR SIB-001 #1c – Planned Projects 2023-2025 Excel Files Rev1 Tab P-1 2023 Water Rights cell K18 through K77.

cost between $340 and $385 depending on the type of owned rights.[29] The model also shows that these prices are increasing with time, going up to $345 and $391, depending on the type, in test year 2024.[30] These costs are not considered in the cost benefit analysis despite the fact they will substantially reduce the actual savings resulting from the purchase.

Even with these flaws, Suburban's own cost benefit analysis show the investment in new water rights would not break even until 11 years after the water rights purchase.[31] This 11-year breakeven point is predicated on the idea that Suburban will be subjected to over-pump fees despite the fact that Suburban has not paid over-pump fees in at least the last five years.

The Commission should deny the proposed water rights purchases from rates. Even with Suburban's flawed cost benefit analysis, ratepayers will not benefit for at least 11 years. Correctly updating the cost benefit analysis is likely to shift the breakeven point significantly later. In either case the proposed water rights purchase will not benefit ratepayers any time soon and as such the request should be excluded from rates.

6. P-6: AMI Infrastructure (2025)

The Commission should not include $1,797,008[32] in rates for implementing Advanced Metering Infrastructure (AMI) in this GRC because Suburban did not present the feasibility and the ratepayer benefits of the AMI implementation through AMI Pilot Study results which Suburban was funded to complete in the previous GRC.

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[29] GRC Workpaper (RO Model), Workpapers Vol I CONFIDENTIAL (Final Application).xlsx, Tab "Model", cells "K3134" and "K3135".

[30] GRC Workpaper (RO Model), Workpapers Vol I CONFIDENTIAL (Final Application).xlsx, Tab "Model", cells "O3134" and "O3135".

[31] Suburban Response to Cal Advocates DR-SIB-001, 1.c., Attachment DR SIB-001 #1c – Planned Projects 2023-2025 Excel Files Rev1 Tab P-1 2023 Water Rights cell K18 through O28.

[32] Lopez Testimony, p.316.

This request is related to the AMR meter replacement project discussed above. AMR meters are smart meters that are compatible with AMI and can be easily programmed into AMI.[33] Suburban estimates that all meters will be replaced with AMR meters by 2027 and completing AMI projects in 2025 would enable Suburban to have full AMI implementation by 2027.[34] However, as discussed above in the Meter Replacement section, Suburban's meter replacement rate has been overly aggressive compared to G.O 103A's requirements, which provides for a 15-year replacement cycle over Suburban's 11-year cycle. Cal Advocates' recommendation would push the AMR meter replacement completion beyond 2027, thus full AMI implementation should also be scheduled to match the time when all meters have been converted to AMR if Suburban's AMI Pilot Study shows the AMI implementation is beneficial to its ratepayers.

In the previous GRC, Suburban was authorized to conduct an AMI Pilot Study for $187,000.[35] In this GRC, Suburban simply claims "the pilot project provided positive outcomes that support the installation of a system wide AMI" without providing the "outcome", such as a pilot study report that presents the data collected and the analysis of ratepayer benefits.[36] When a pilot study for a project is authorized, it is imperative that a report presenting the results and data from the pilot study demonstrates the feasibility of project be made available. Instead, Suburban only provided scattered information in the Lopez testimony and its Workpaper Volume III-D. Suburban's response to Cal Advocates data request asking for the pilot study results[37] only led to sections of its testimony and workpaper where Suburban claims the pilot study results support AMI implementation. In the most recent AMI implementation request from a Class A Water

[33] Lopez Testimony, p.317.

[34] Lopez Testimony, p.319.

[35] D.21-10-024, p. 22.

[36] Lopez Testimony, p. 316.

[37] Suburban response to Cal Advocates' data request DR BYU-01 (AMI Pilot).

Utility, San Jose Water Company (SJWC) conducted a pilot study and submitted a detailed report when it filed the SJWC AMI Application in 2019. The Commission should also require Suburban, in the next GRC, to analyze the pilot study data and submit a detailed report demonstrating the feasibility of the full AMI implementation. The report should at least include the following:

- Net project cost analysis including the cost of the smart meter purchase and installation focusing on the cost savings from AMI implementation for the ratepayers.
- Detailed data showing the safety benefits of the AMI including work safety, backflow prevention, and electromagnetic harms that Suburban's customers may have concerns with.
- Detailed analysis of the AMI performance focusing on customer adoption rate, customer participation rate, leak detection rate, mechanism to prevent water loss to leaks, savings on customer bill adjustments, and field operations cost savings.
- Detailed results showing customer opt out rate and mechanism to prevent cyber security concerns.

7. P-11: Valve Replacement Backlog (2025)

The Commission should reduce the project budget to $1,061,327 in 2025 using 5-year historical average cost.

Suburban requests $1,323,000 in 2025 to replace 126 inoperable isolation valves that Suburban claims its current annual valve replacement program cannot address.[38] Suburban proposes replacing 126 valves per year (over a 4-year period totaling 505 valves) and estimates this cost using a linear extrapolation of historical costs that assumes constantly increasing prices. However, this method doesn't account for the actual fluctuation in cost per valve that has occurred over the most recent five years. Using a five-year average of the actual cost per valve produces a budget approximately $262,000 less than Suburban's requested $1,323,000. The following table shows the valves

[38] Lopez Testimony, pp. 354-355.

replaced, total cost, cost per valve, and a reasonable budget of $1,061,327 that the Commission should adopt.

Table 1-8: Historical Valve Replacement and Cal Advocates' Unit Cost

	Valve Replaced	Actual Cost	Cost per Valve
2017	126	$974,007	$7,730
2018	113	$942,108	$8,337
2019	69	$561,873	$8,143
2020	129	$1,091,077	$8,458
2021	92	$869,182	$9,448
		5-yr Avg.	**$8,423**
		5-yr avg times 126 valves	**$1,061,327**

8. P-12: Well Redevelopment (2024, 2025)

The Commission should reduce the requested budget by removing the 10% Contingency Suburban included in the cost estimate.[39]

Suburban requests $166,157 each year for 2024 and 2025 to inspect and redevelop wells. Suburban estimates this program will extend to 2028 with the same budget of $166,157 per year. Suburban plans to rehabilitate about two wells per year.[40]

Table 1-9: Cal Advocates' Recommendation for Well Redevelopments

Year	Suburban	Cal Advocates
2024	$ 166,157	$ 151,052
2025	$ 166,157	$ 151,052

[39] Cal Advocates' discussion on removing Contingency is in Anthony Andrade's Testimony: Report on Plant for San Jose Hills, Chapter 1.

[40] GRC Workpapers, Volume III-D Planned Projects, pdf page 1240.

9. P-13: Blowoff Replacement (2025)

The Commission should reduce the requested budget by removing the 12% ES&I and the 10% Contingency Suburban included in the cost estimate.[41]

Suburban requests $1,019,000 in 2025 to replace or install new blow-offs for flushing its dead-end main pipelines.[42]

Table 1-10: Cal Advocates Recommendation for Blowoff Replacements

Year	Suburban	Cal Advocates
2025	$ 1,019,000	$ 827,457

10. P-14: Chemical Equipment (2024, 2025)

The Commission should reduce the requested budget by removing the 12% ES&I and the 10% Contingency Suburban included in the cost estimate.[43]

Suburban requests $116,000 in 2024 and $111,000 in 2025 to replace chlorine analyzers and pumps.

Table 1-11-: Cal Advocates' Recommendation for Chemical Equipment

Year	Suburban	Cal Advocates
2024	$ 116,000	$ 89,496
2025	$ 111,000	$ 89,383

[41] Cal Advocates' discussion on removing Contingency is in Anthony Andrade's Testimony: Report on Plant for San Jose Hills, Chapter 1.

[42] Lopez Testimony, pp. 367-368.

[43] Cal Advocates' discussion on removing Contingency is in Anthony Andrade's Testimony: Report on Plant for San Jose Hills, Chapter 1.

11. P-17: SCADA Upgrade (2025)

The Commission should reduce the requested budget by removing the 10% Contingency Suburban included in the cost estimate.[44]

Suburban requests $1,107,000 in 2025 to rollout a new SCADA application system wide.

Table 1-12-: Cal Advocates' Recommendation for SCADA

Year	Suburban	Cal Advocates
2025	$ 1,107,000	$ 1,006,561

IV. CONCLUSION

The Commission should adopt Cal Advocate's recommended budget for the select company-wide plant projects because Suburban's estimated budget is unreasonable, and the need for the projects were not justified.

[44] Cal Advocates' discussion on removing Contingency is in Anthony Andrade's Testimony: Report on Plant for San Jose Hills, Chapter 1.

CHAPTER 2 Whittier-La Mirada System Plant Projects

I. INTRODUCTION

This chapter presents Cal Advocates' analysis and recommendations of Suburban's proposed plant project in its Whittier-La Mirada System.

II. SUMMARY OF RECOMMENDATIONS

The Commission should adopt Cal Advocates' recommendations presented below:

Table 2-1: Cal Advocates Recommended Budget for Whittier-La Mirada System – Whittier La Mirada Projects

	2023		2024		2025	
Project	**Suburban**	**Cal Advocates**	**Suburban**	**Cal Advocates**	**Suburban**	**Cal Advocates**
Stage Road New Well - Land			$ 439,488	$ -		
Stage Road New Well - Drill Well	$ 4,213,683	$ -				
Stage Road New Well - Equip Well			$ 1,112,735	$ -		
Stage Road New Well - Pipeline			$ 1,154,650	$ -		
Plant 224 - Solar Panel			$ 1,240,273	$ -		
Plant 216 - Test Well					$ 1,049,721	$ -
Plant 216 - Drill New Well					$ 4,096,483	$ -
Plant 201 - PFAS Treatment					$ 21,171,852	$ -
Plant 410 Mn Treatment					$ 1,903,000	$ -
Plant 217 - Slope Stability					$ 857,000	$ -
Plant 409 - Well Rehab					$ 321,980	$ 76,150
Plant 409 - R1 Recoating					$ 754,000	$ 597,064
Plant 408 - R3 Recoating					$ 399,000	$ 322,538
Total:	**$ 4,213,683**	**$ -**	**$ 3,947,146**	**$ -**	**$ 30,553,036**	**$ 995,752**

III. ANALYSIS

1. P-3: Drill Central Basin Well at Stage Road (2023, 2024)

The Commission should not fund the new well on the Stage Road site until the water quality results from the test well are finalized, proper water treatment method is established and designed, and more reasonable project costs have been established.

Suburban requests $4,213,683 in 2023 for drilling a new well at the City of La Mirada maintenance yard adjacent to Stage Road, in La Mirada. Suburban also requests $439,488 in 2024 for land acquisition from the City of La Mirada; $1,122,735 in 2024 for

well pumping equipment; and $1,154,650 in 2024 for installing a new pipeline from the new well to Suburban's Plant 409 for treatment. Additionally, Suburban drilled a test well on this site and is taking water samples. Suburban estimates the completion cost in the amount of $1,071,000. Accounting for all costs, the total scope of this project is $8,000,310.[45]

It is premature to determine the feasibility of the new well construction in this GRC. Suburban's land acquisition contract with the City of La Mirada has not been finalized as Suburban could only provide a very preliminary email correspondence with the City of La Mirada dated April 28, 2022 as the latest status of the contract.[46] The testimony of Jorge Lopez discusses acquisition through a long-term land use contract.[47] However, Suburban's cost estimate for the land lease in 2024 shows a unit price of $439,488.[48] Suburban responded to Cal Advocates data request stating that the unit price was based on the "present value of the appraisal plus Engineering Services and General Administration."[49] It is unreasonable to include the land value in the project budget when Suburban is planning to lease the land from the City of La Mirada. Also, it is not clear when the lease contract will be finalized, what the cost will be to lease the land, and what, if any, progress has been made. Suburban's response to Cal Advocate's data request indicates that there is no further development on the lease terms other than the City of La Mirada's willingness to discuss a lease deal.[50] The land acquisition cost of $439,488 Suburban requests to be included in rates, therefore, is unreasonable. When the

[45] Lopez Testimony, p.136.

[46] Suburban response to Cal Advocates DR BYU-07, Q.1.c., Attachment DR BYU-07 Response #1.c.pdf.

[47] Lopez Testimony, pp. 122-123.

[48] Lopez Testimony, p. 136.

[49] Suburban response to Cal Advocates DR BYU-07, Q.1.d.

[50] Suburban response to Cal Advocates DR BYU-07, Q.1.c., Attachment DR BYU-07 Response #1.c.pdf.

City of La Mirada is only willing to discuss leasing the land, it is unreasonable to estimate the land acquisition cost based on land value.

Suburban has not provided the final water quality results from the test well drilling. Although Suburban provided preliminary water quality testing results in response to Cal Advocates' data request,[51] the same data request response states "additional costs for water sampling are not included that were delayed and scheduled in late April."[52] Suburban assumes water quality needs treatment for Color, Iron, Manganese and total organic compound (TOC) removal, before the test well water quality results were finalized, and proposed a new pipeline from the Stage Road Well to Plant 409 for treatment.[53] Also, Suburban's Plant 409 does not have iron and manganese treatment, which invalidates Suburban's request for installing pipeline from the proposed new well to Plant 409 to treat iron and manganese.

Suburban installed an arsenic treatment system at Plant 409 as "plant improvements built but not authorized" in the amount of $633,000.[54] Suburban estimates the cost of the pipeline to Plant 409 to be $1,154,650.[55] Should the new well need treatment for arsenic, installing arsenic treatment ($633,000) on the new well site is less costly than installing a pipeline ($1,154,650). Suburban provided a preliminary water quality report prepared by Weck Laboratories, Inc. which shows 1.8 parts per billion (ppb) of arsenic and 48 ppb of manganese.[56] The MCL for arsenic and manganese are 10 ppb and 50 ppb, respectively. Based on the preliminary results available, the water does not need to be treated for arsenic. Plant 409 has treatment for arsenic, but the water from

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[51] Suburban response to Cal Advocates DR BYU-07, 2.c., Attachment DR BYU-07 Response #2.c.pdf.

[52] Suburban response to Cal Advocates DR BYU-07, 5.a.

[53] Lopez Testimony, p. 123.

[54] GRC Minimum Data Requirements Response, MDR SWS (Final Application).pdf., p. 13.

[55] Lopez Testimony, p. 136.

[56] Suburban response to Cal Advocates DR BYU-07, 2.c., Attachment DR BYU-07 Response #2.c.pdf.

the proposed well does not need treatment, Suburban's request for a new pipeline to Plant 409 is unreasonable.

The production well drilling cost of $4 million without equipment (and $5.3 million with equipment) is too high compared to other Suburban well projects and other Class A water utility's well projects in the vicinity of Suburban's territory. When Suburban constructed Well 3 in 2005 at Plant 409, the total cost of construction - drilling and equipping and new well - was $1.4 million.[57] According to DDW, Plant 409 Well 3 production capacity is 2,500 gpm[58] which is more than double that of the proposed new well at Stage Road which is expected to be 1,000 gpm.[59] In this GRC, Suburban requests $4.2 million for drilling the production well, and equipping the well for additional $1.1 million, totaling $5.3 million. By using an online inflation calculator using the average consumer price index data, $1.4 million in 2005 is the equivalent of $2.2 million in 2023, factoring in inflation.[60] Please see Figure 2-1 below for calculation. Suburban's request for $5.3 million to drill and equip a new well is unreasonable.

[57] A.08-01-004 Suburban GRC, Workpaper Table 6-1, Line 32.

[58] 2023 GRC – MDR – Attachment No. 11 (G.6) (Final Application).pdf., p.63 (pdf page).

[59] Lopez Testimony, p. 123.

[60] Calculator.net online inflation calculator used. https://www.calculator.net/inflation-calculator.html?cstartingamount1=1%2C400%2C000&cinmonth1=13&cinyear1=2005&coutmonth1=6&coutyear1=2023&calctype=1&x=Calculate#uscpi

Figure 2-1: Inflation Calculation with US CPI Data

Inflation Calculator with U.S. CPI Data

Calculates the equivalent value of the U.S. dollar in any month from 1913 to 2023. Calculations are based on the average Consumer Price Index (CPI) data for all urban consumers in the U.S..

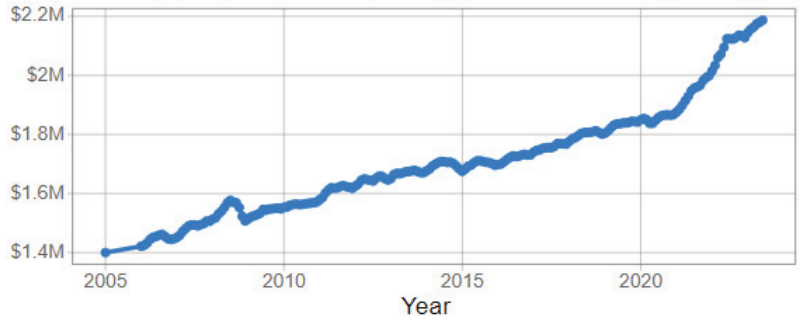
Result

$2,187,161.29 in Jun. 2023 equals $1,400,000 of buying power in 2005 (Average).

The total inflation rate from 2005 (Average) to Jun. 2023 is **56.23%**. The average inflation rate is **2.52%** per year.

The CPI of 2005 (Average) is 195.3 and the CPI of Jun. 2023 is 305.109.

Purchasing power of $1,400,000 in 2005 (Average) over time: 2005 (Average)–Jun. 2023



Additionally, Suburban's neighbor utility, Golden State Water Company requested the following well replacement projects in 2020 General Rate Case (A.20-07-012) which is similar to Suburban's request at the new well site on Stage Road: Drilling and Equipping a new well.

Table 2-2: Golden State Water Company Well Projects in A.20-07-012[61]

Customer Service Area	Year	PROJECT NAME	Project Total	Note
Central Basin-East	2021	Well Replacement, Massinger Well 1	$ 3,828,300	Drill and Equip new well.
Central Basin-East	2023	Well Replacement, Roseton Well 1	$ 4,104,500	Drill and Equip new well.
Central Basin-West	2022	Well Replacement, Gage Well 2	$ 3,881,600	Drill and Equip new well/Elec. Upgrade/Chem. Upgrade
Central Basin-West	2022	Well Replacement, Miramonte Well 1	$ 6,036,600	Drill and Equip new well/Treatment/Elec. Upgrade/MCC/SCADA/destroy existing well
Central Basin-West	2022	Well Replacement, Willowbrook Well 1	$ 4,109,100	Drill and Equip new well/Elec. Upgrade/Chem. Upgrade/VFD/destroy existing well
Placentia	2022	Well Replacement, Bradford Well 3	$ 3,752,200	Drill and Equip new well
San Dimas	2022	Well Replacement, Columbia Plant	$ 3,541,500	Drill, Develop and Equip new well.
San Dimas	2021	Well Replacement, Baseline Well 3	$ 3,527,300	Drill and Equip new well
San Gabriel	2022	Well Replacement, Saxon Well 3	$ 3,112,600	Drill and Equip new well
		Average:	$ 3,988,189	
		Drill and Equip only Project. Cost Average:	**$ 3,644,400**	

Golden State Water Company's requested budget numbers include all applicable company overhead, contingency, and escalation. Some of the projects on the list have more construction items such as treatment, electrical upgrades, motor control center, SCADA, chemical storage upgrade, and destroying existing wells. Removing these outlier projects with extra items, the average cost of drilling and equipping is only$3.6 million. Suburban's $5.3 million request for drilling and equipping a new well is over estimated and unreasonable.

[61] Compiled from the information presented in A.20-07-012 Hanford and Insco Operating District Capital Testimony APP, pp. 143, 145-146, 161, 166, 171, 228-229, 254-256, 267 (pdf pages).

2. P-4: Plant 224 Solar Panels (2024)

The Commission should deny this project because the proposed costs significantly outweigh the potential benefits.

Suburban requests $1,240,273 in 2024 to install an array of solar panels on the roof of concrete reservoirs at its Plant 224. According to Suburban's analysis, the solar panels will only reduce the energy demand by 19% and Suburban still needs to purchase energy from Southern California Edison.[62] Plant 224 will use reduced electricity while the solar panel supplements electricity usage, but Suburban's ratepayers would not immediately realize any benefits from it unless the cost savings is reflected in rates. Suburban states "the financial benefit of $118,953 for year 2025 is not reflected in Suburban's current RO Model."[63] When the financial benefit from the proposed solar project via energy savings is not reflected in the GRC RO Model, the benefit becomes superficial and there is no benefit for its ratepayers. Should the Commission decide to authorize this project, at least the financial benefits should be accounted for in GRC RO Models going forward.

Another aspect of Suburban's ratepayers not being able to realize the financial benefits is that Suburban's analysis shows its ratepayers would begin realizing the financial benefit only after 21 years where Suburban estimates the useful life of the solar panel to be 25 years.[64] Suburban provided a cost benefit analysis comparing energy costs with and without solar panels.[65] In year 2025 for example, Suburban estimates annual revenue requirement for the project to be $216,978 whereas the energy cost savings is estimated to be $118,953. Since the cost saving is less than the revenue requirement, the

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[62] Lopez Testimony, p. 195.

[63] Suburban response to Cal Advocates DR BYU-08, 4.a.

[64] Suburban response to Cal Advocates DR BYU-08, 4.b.iv., Attachment DR BYU-08 Response #4.b.i.xlsx.

[65] Suburban response to Cal Advocates DR BYU-08, 4.b.i., Attachment DR BYU-08 Response #4.b.i.xlsx.

ratepayers would still have to pay $98,025 for that year. The amount Suburban's ratepayers have to pay for this project increases to $186,959 in 2026, $266,700 in 2027, and continues to increase up to $560,407 in 2035.[66] The analysis estimated energy cost savings will outweigh the revenue requirement starting in the year 2045 in the amount of $5,902. The analysis was done for the net present value of the project, not accounting for any maintenance expenses during the life of the solar panel. Accounting for the necessary maintenance expense, Suburban ratepayers' burden to continue funding for this project would only increase.

3. P-5: Plant 217 Slope Stability (2025)

The Commission should deny this project because the project was already funded in the previous GRC.

Suburban requests $857,000 in 2025 to stabilize slopes around the Plant 217 reservoir R-1.[67] Suburban was authorized in the previous GRC to complete this project in 2020, however, Suburban claims increasing construction costs due to inflation caused it to defer this project and construct another similar project with a higher cost.[68] Suburban now plans to build this project in 2025. If this was such a high priority project that needed to be constructed in 2020, Suburban should have completed this project according to its planned schedule albeit at a higher cost. The fact that Suburban is pushing the project completion to 2025 shows that it is not a high priority project and can be substituted for another project as Suburban has done before.

Moreover, this project has already been funded by the ratepayers and Suburban chose not to complete the project. The budget for this project had been accounted for in the previous GRC's rates, so including this budget as requested is not fair for the ratepayers. Also, Suburban was authorized to complete the project for $317,000 in 2020,

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[66] Suburban response to Cal Advocates DR BYU-08, 4.b.i., Attachment DR BYU-08 Response #4.b.i.xlsx.

[67] Lopez Testimony, pp. 305-306.

[68] Lopez Testimony, p. 306.

but it requests $857,000 in 2025 blaming the inflation as the cause of the construction cost increase.[69]

The Commission should deny Suburban's request for $857,000 in rates, because $317,000 was authorized for 2020 to complete the project. If and when Suburban actually completes this project, it can include all reasonable and prudent costs in rates. Customers should not be asked to fund projects twice without receiving any actual benefits once.

4. P-15: Plant 216 Well (2025)

The Commission should deny this project because the request is unreasonable and does not provide ratepayer benefits in this GRC.

Suburban requests $1,049,721 in 2025 for drilling a test well, and $4,096,483 in 2025 for drilling a production well, both on its Plant 216 site. Suburban also plans to install treatment on site in the future that will bring the total scope of the project to an estimated $8,362,498.[70]

It is unreasonable to fund a test well and a production well in the same year. A test well is needed to check the water quality and production capacity. Absent any water quality or production capacity data it is impossible to tell if the proposed production well is viable. Once the test well data becomes available and is analyzed, Suburban can then plan for a production well by further reviewing whether treatment is needed, and the final design of the new well is cost beneficial. Suburban refers to Plant 211 Exploratory Well test drilling as an example of how Suburban estimates the production capacity of the new well at Plant 216.[71] Plant 211 is not in the immediate vicinity of Plant 216. Also, Plant 211 Exploratory Well project is a good example of drilling a test well first. After Suburban test drilled at Plant 211, it decided not to build a production well due to

[69] Cal Advocates' discussion on why previously authorized but incomplete project should not be funded again is presented in Anthony Andrade's Testimony: Report on Plant for San Jose Hills, Chapter 1.

[70] Lopez Testimony, p.374.

[71] Lopez Testimony, p.378.

untreatable water quality. Suburban claims the groundwater in this area is known to have high concentrations of TDS and Manganese.[72] Production capacity for the proposed new well is only an assumption made by Suburban without any verification.

Also, a test well and the water quality data from it can only be used as a basis for a new production well. Since a test well would not deliver water to Suburban's customers, the ratepayers are forced to fund a project that does not produce any benefits in this GRC. The Commission should deny Suburban's request to build a test well and a production well at Plant 216.

5. P-16: Plant 201 Treatment (2025)

The Commission should deny this project because Suburban is in compliance with water quality regulations and the proposed budget is unreasonable.

Suburban estimates a total of $42,343,703 for installing a consolidated per- and polyfluoroalkyl substances (PFAS) treatment at Plant 201.[73] Suburban requests $21,171,852 (50% of $42 million) in 2025[74] for starting the project and plans to complete the project in 2026.[75]

The Commission should not include funding for this project in this GRC's budget. Currently, Suburban meets California's standard for PFAS in the water delivered to its customers and Suburban's estimated start date of the treatment is in 2026. On April 12, 2023, California State Water Resources Control Board Division of Drinking Water (DDW) issued a Permit Amendment for Plant 201 approving Suburban's blending of Plant 201 pumped water with Cal Domestic Water and the City of Whittier's water at

[72] Lopez Testimony, p.378.

[73] Lopez Testimony, p.427.

[74] $21 million in 2025 is captured in the RO Model for this GRC; however, the remaining $21 will eventually be captured in 2026, attrition year, in the next GRC.

[75] GRC Workpaper, Volume I Workpapers (Final Application), Table 6-1B, and Lopez Testimony, p.433.

Plant 224's reservoir.[76] Suburban argues that when the United States Environmental Protection Agency (EPA) promulgates the new PFAS Maximum Contaminant Level (MCL) in December 2023, Suburban will be in violation of the new MCL and will face enforcement that might suspend Plant 201 from operating.[77] According to the EPA, the current anticipated effective date of the PFAS National Primary Drinking Water Regulation (NPDWR) is December 2026.[78]

The promulgation of the EPA's new MCL does not change the situation that Suburban has for this rate case. Suburban estimates the start date of the Plant 201 treatment in 2026, after Suburban constructs, tests, and acquires DDW's operational permit. From 2024 to 2026 until the Plant 201 PFAS treatment may become operational, according to Suburban's logic, promulgations of the PFAS MCL in 2023 will require Suburban to comply with the EPA's new PFAS MCL. On the contrary, EPA is clear that the new PFAS standards anticipated effective date is December 2026, three years after the anticipated NPDWR promulgation date of December 2023.[79] EPA used the word "anticipated" leaving a chance that if the promulgation of NPDWR does not occur in December 2023, the effective date will be deferred beyond December 2026. EPA also states that its proposed action for the PFAS NPDWR is not final and does not require any

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[76] DDW Permit Amendment titled SYSTEM NO. 1910174 – SUBURBAN WATER SYSTEMS – WHITTIER AMENDED PERMIT 1910174PA-007 – BLENDING WELLS 201-W7, W8, W9, W10, AND CAL DOMESTIC WATER COMPANY AND THE CITY OF WHITTIER CONNECTIONS AT THE PLANT 224 RESERVOIRS TO MITIGATE HIGH PFOA LEVELS

[77] Suburban response to Cal Advocates DR BYU-06, 1.a, and 1.b.

[78] March 29, 2023 Technical Overview of the Proposed PFAS NPDWR by EPA, Presentation Slide 40 of 41. https://www.epa.gov/system/files/documents/2023-04/PFAS%20NPDWR%20Public%20Presentation_Full%20Technical%20Presentation_3.29.23_Final.pdf

[79] March 29, 2023 Technical Overview of the Proposed PFAS NPDWR by EPA, Presentation Slide 40 of 41. https://www.epa.gov/system/files/documents/2023-04/PFAS%20NPDWR%20Public%20Presentation_Full%20Technical%20Presentation_3.29.23_Final.pdf

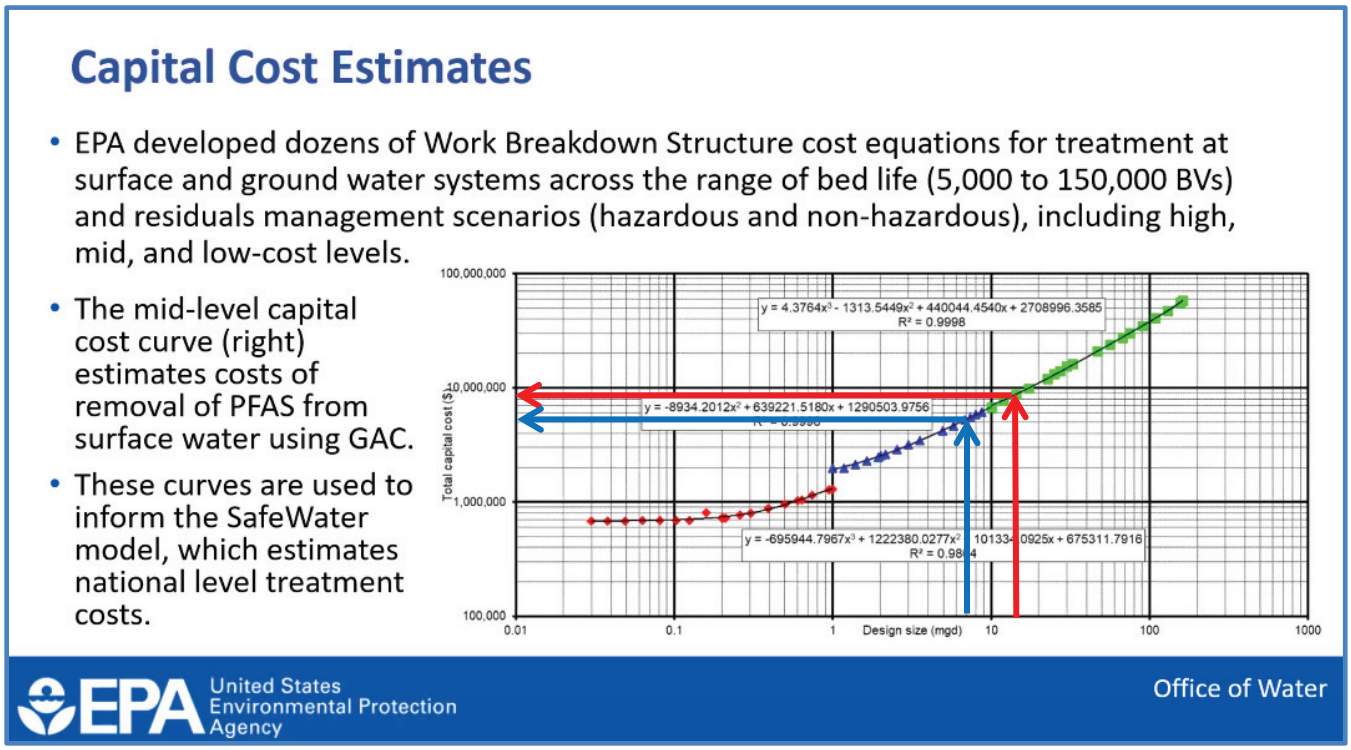
actions until after EPA considers public input and finalizes the regulation.[80] EPA is also clear that the new PFAS standards, that is no less strict than the NPDWR, will be adopted by each state,[81] but until then, the current state requirements, which Suburban is in compliance with, are in effect. Given the uncertainty of the final PFAS MCL that may be delayed into 2027, and EPA clearly states no actions are required at this time, it is unreasonable for the Commission to consider funding for a project that will not be required during this GRC cycle.

Also, Suburban's project cost estimate of $42 million is unreasonable. One of the aspects of EPA's development in the new PFAS MCL was the cost of treatment. The below chart presented by EPA compares the design size of a treatment in million gallons per day (mgd) and the treatment capital cost.

[80] March 29, 2023 Technical Overview of the Proposed PFAS NPDWR by EPA, Presentation Slide 18 of 41. https://www.epa.gov/system/files/documents/2023-04/PFAS%20NPDWR%20Public%20Presentation_Full%20Technical%20Presentation_3.29.23_Final.pdf

[81] March 29, 2023 Technical Overview of the Proposed PFAS NPDWR by EPA, Presentation Slide 34 of 41. https://www.epa.gov/system/files/documents/2023-04/PFAS%20NPDWR%20Public%20Presentation_Full%20Technical%20Presentation_3.29.23_Final.pdf

Figure 2-2: EPA Construction Cost Estimate for PFAS Treatment[82]



Suburban's estimated maximum capacity is 10,000 gallons per minute (gpm).[83] 10,000 gpm translates into 14.4 mgd. On the EPA's chart, the reasonable capital cost of a treatment should be about $9 million (red arrow). This is assuming the treatment will run at its full capacity of 10,000 gpm for 24 hours which is highly unlikely. Treated water from the proposed treatment facility at Plant 201 will be exclusively delivered to Suburban's Plant 224 which has two concrete reservoirs with 7.1 million gallons (MG) combined capacity.[84] Thus, it is reasonable to assume that the realistic run time of the proposed treatment should be less than 24 hours because 14.4 million gallons per day water from the wells would be too much for the 7.1 million gallon reservoirs. Suburban

[82] March 29, 2023 Technical Overview of the Proposed PFAS NPDWR by EPA, Presentation Slide 31 of 41. https://www.epa.gov/system/files/documents/2023-04/PFAS%20NPDWR%20Public%20Presentation_Full%20Technical%20Presentation_3.29.23_Final.pdf

[83] Suburban response to Cal Advocates DR BYU-06, 3.a.

[84] Results of Operations (Final Application).pdf, p. 3-16 (pdf page 25). 2,370,000 gallons (224R-1) + 4,690,000 gallons (224R-2) = 7,060,000 gallons (combined).

estimates its system demand is greatest in the morning between 6 am and 12 pm, and after 6 pm.[85] Considering this, the design size for the treatment in mgd should be based on 12 hours of treatment run time instead of 24 hours. The more realistic calculated design size of the treatment would be 7.2 mgd (50% of 14.4 mgd). Using the 7.2 mgd and following the graph on the EPA's chart, reasonable capital cost for treatment should be $5 million (blue arrow). Suburban's estimated project cost of $42 million is out of scale compared to EPA's estimate.

Water systems in Southern California have been built or are planning for PFAS treatment with far less costs. For example, Yorba Linda Water District, a member utility of the Orange County Water District, is building a centralized PFAS treatment system that consists of 11 two-vessel (22 vessels in total) Ion Exchange system with 25 million gallons per day capacity for its 10 wells and the estimated construction cost is $27.6 million.[86] Comparing this estimate to Suburban's 14.4 million gallons per day and 16 total vessels[87] for $42 million, Suburban's cost estimate is too high.

Additionally, the site identified for the consolidated treatment requires $3 million in new pipeline installation that can be avoided if treatment were to be built at the Plant 216 site. Suburban argues that if a treatment is built at its Plant 216 site, customers between Plant 201 and Plant 216 (which is directly adjacent to Plant 224) will not receive water directly, making this plan operationally inefficient.[88] However, Suburban is delivering all water from Plant 201 to Plant 224 to be blended with purchased water from Cal Domestic to comply with the current California PFAS Response Level.[89] The customer connections between Plant 201 and Plant 224 are not currently being served

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[85] GRC Workpaper, Volume III-D Planned Projects (Final Application), pdf page 441.

[86] https://www.awwa.org/AWWA-Articles/california-utilities-battle-pfas-with-new-ion-treatment-plant

[87] GRC Workpaper, Volume III-D Planned Projects (Final Application) (PUBLIC).pdf, p.1351 (pdf page).

[88] Suburban response to Cal Advocates data request DR BYU-06 (Plant 201), Q.3.c.

[89] Lopez Testimony, p. 397.

with water from Plant 201. Installing treatment at Plant 216 does not change Suburban's current operational setup to deliver water to those customers. Moreover, Plant 216, an abandoned reservoir site, was the main reservoir in Suburban's Whittier service area before being replaced by the two reservoirs at Plant 224.[90] During Cal Advocates site visit, the Plant 216 site still has the pump station that used to pump water from the Plant 216 reservoir to the Whittier system distribution. Suburban did not even consider this site for the new treatment as an alternative location.[91]

Figure 2-3: Suburban's Plant 216 has space currently not being used.

The EPA has stated that there are $9 billion in grant opportunities for PFAS treatment made available under President Biden's Bipartisan Infrastructure Law.[92] Suburban only applied for one grant from a local source.[93] For the one grant Suburban applied, it secured $1 million whereas California Water Service, Suburban's neighboring Class A water utility, received $4.23 million grant from the Water Replenishment District for its East Los Angeles PFAS treatment and has filed a lawsuit to hold the manufacturers

[90] Lopez Testimony, p. 374.

[91] Suburban response to Cal Advocate's data request DR BYU-06 (Plant 201), Q.3.c.

[92] March 29, 2023 Technical Overview of the Proposed PFAS NPDWR by EPA, Presentation Slide 33 of 41. https://www.epa.gov/system/files/documents/2023-04/PFAS%20NPDWR%20Public%20Presentation_Full%20Technical%20Presentation_3.29.23_Final.pdf

[93] From San Gabriel Basin Water Quality Authority in the amount of $1 million. Suburban response to Cal Advocates' data request DR BYU-06 (Plant 201), Attachment DR BYU-06 Response #5.xlsx.

of PFAS responsible and prevent customers from bearing the costs of treatment.[94] Additionally, on June 22, 2023, 3M, one of the leading manufacturer of PFAS, agreed to a settlement up to $10.3 billion payable over 13 years to public water suppliers nationwide that have detected PFAS in drinking water.[95] Suburban did not go through the due diligence of seeking PFAS grants from all available sources. Now, Suburban's ratepayers may unfairly bear the cost of those lost opportunities.

For these reasons, the Commission should not include funding for the PFAS treatment project at Suburban's Plant 201 site. In summary, Suburban is in compliance with all State and Federal regulations related to PFAS currently, the project will not be used and useful in this GRC time frame, and Suburban's cost estimate is too high. Suburban should consider more reasonable treatment alternatives that are more in line with the costs being proposed by neighboring systems. The Commission should also require Suburban to demonstrate good-faith efforts to secure grant funding from all sources prior to having ratepayers made solely responsible for costs. Finally, as a capital project Suburban has the opportunity to build whatever treatments is actually necessary and all reasonable and prudent costs will be recovered in a future GRC.

6. P-22: Plant 410 W-1 Treatment Plant (2025)

The Commission should deny this manganese treatment project because the proposed plant site already has a manganese treatment in place and Suburban inappropriately framed this project would benefit disadvantaged community.

Suburban requests $1,903,000 in 2025 to construct a manganese treatment plant at Plant 410. Suburban makes it appear as if all of the manganese found in the well head goes into the distribution system.[96] However, Suburban's testimony only lists the manganese concentration levels detected at the Well-1 source at Plant 410 and fails to

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[94] https://www.calwater.com/latest-news/2022-0802-4-million-in-funding-for-ela-pfos-pfoa-removal/

[95] https://d1io3yog0oux5.cloudfront.net/_d473721a170d2a67914e34b2483ad17b/3m/news/2023-06-22_3M_Resolves_Claims_by_Public_Water_Suppliers_1784.pdf

[96] Lopez Testimony, p.458.

mention that there is manganese treatment available at the Plant 410 itself. DDW's 2021 Sanitary Survey Report on the La Mirada system states "Plant 410 has one active well. SWS-La Mirada treats Well 410-W1 by using phosphate to sequester manganese in the distribution system."[97] The level of manganese at the well head source is not as informative as the level of manganese in water following treatment that exits the plant. The DDW sanitary report is silent about any manganese level violation and Suburban's testimony also states "no violations have been issued…"[98] The Commission should deny Suburban's request to install a manganese treatment system at Plant 410 because Suburban has treatment available at Plant 410 and has not had any manganese level violations in the past at Plant 410-W1.

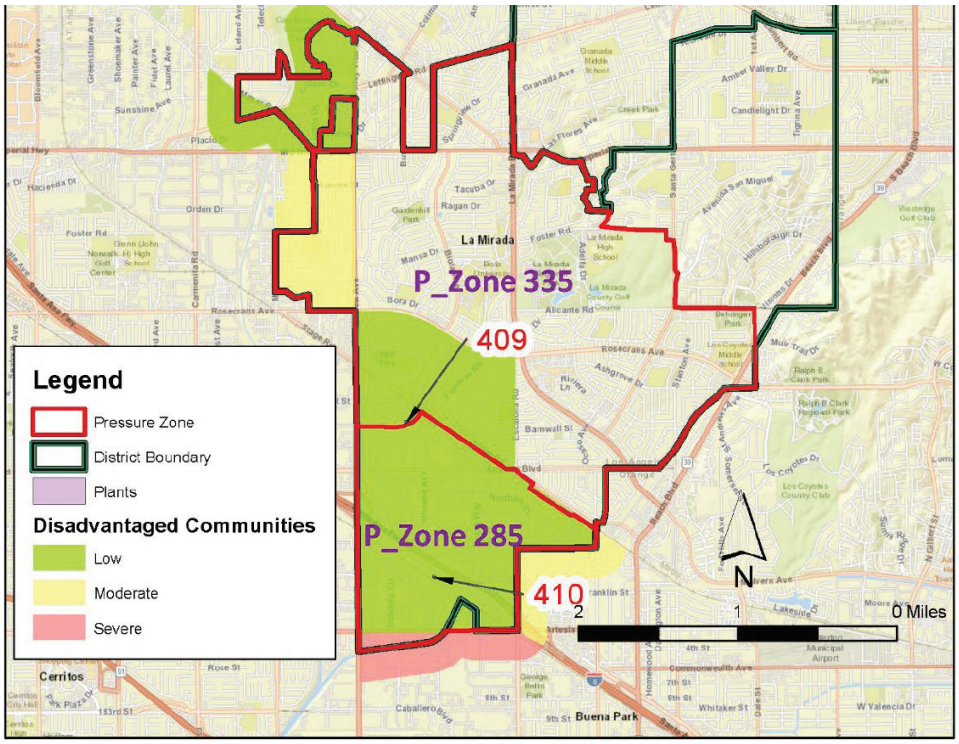
Additionally, Suburban introduces a map of disadvantaged communities in its La Mirada system and states "a portion of the customers served by Plant 410 W-1 in the Zone 285 and Zone 335 are in disadvantaged communities…"[99] See Figure 2-4 below which is from Suburban's project justification: Volume III-D Planned Projects.

[97] 2023 GRC MDR – Attachment No. 11 (G.6), p. 60 (pdf page).

[98] Lopez Testimony, p. 458.

[99] GRC Workpaper, Volume III-D Planned Projects (Final Application) (Public), p. 2163 (pdf page).

Figure 2-4: Disadvantaged Communities in Zone 285 and 335[100]



This is misleading because DDW's Sanitary Survey Report states that Plant 410-W-1 is not a major source to Zone 335 but that it mainly supplies Zone 285 and only the extra water from pressure Zone 285 flows into a reservoir at Plant 409.[101] DDW's report also states that Zone 285 is located in a mostly industrial area of the City of La Mirada. Suburban also states there are 601 commercial connections in the 285 zone and did not mention whether it has any residential connections in Zone 285.[102] Suburban's response to Cal Advocates' data request confirms DDW's assessment on Plant 410 and Zone 285.[103] A Google Maps search shows there in no residential housing in Zone 285.[104]

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[100] Excerpt from Volume III-D Planned Projects (Final Application) (Public), Figure 1 – WLM System Disadvantage Community Map, p. 2164 (pdf page).

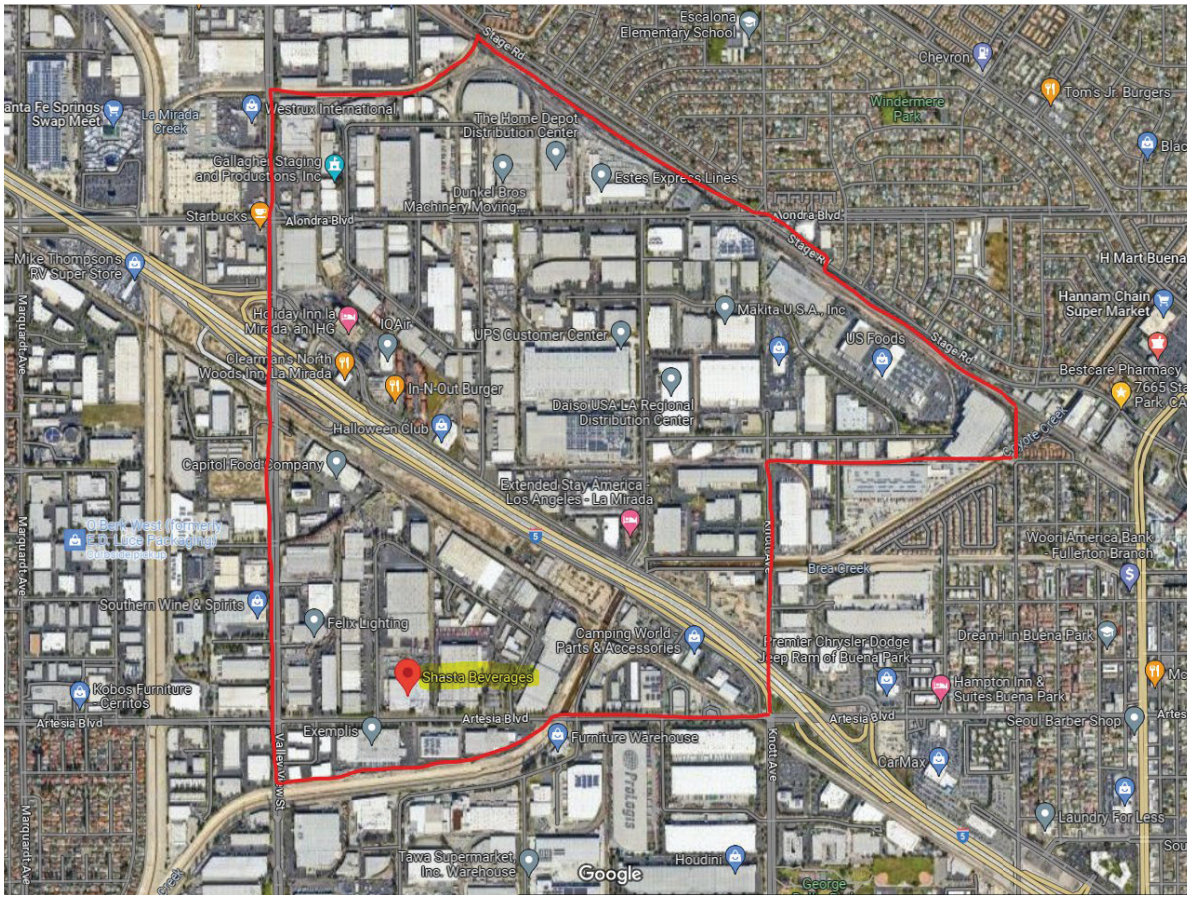
[101] 2023 GRC – MDR – Attachment No. 11 (G.6), p. 64 (pdf page).

[102] Lopez Testimony, p. 457.

[103] Suburban response to Cal Advocates' data request DR BYU-10 (Plant 409), Q.2.e.

[104] https://www.google.com/maps/@33.8808403,-118.0152912,2935m/data=!3m1!1e3?entry=ttu

Figure 2-5: Zone 285 Google Maps Search



Using the context of a disadvantaged communities in the justification for a project that does not actually serve any disadvantage residences is inappropriate and detracts from the urgency and necessity to address real problems in disadvantaged communities. During Cal Advocates' system tour of the La Mirada system, Suburban explained that Shasta Beverages is its biggest customer in the Zone 285 area. Shasta Beverages is located near Plant 410, within Zone 285. If improving the water quality for Plant 410 W-1 heavily benefits the water quality delivered to Shasta Beverages, there is a chance that Suburban's La Mirada residential ratepayers would pay for a project that only benefits one of Suburban's industrial customers.

7. P-23: Plant 409 W-3 Redevelopment (2025)

The Commission should adjust project budget to $76,150 for redeveloping Well 3 at Plant 409 based on Cal Advocates' recommended budget for Well Redevelop Program.

Suburban requests $321,980 in 2025 to redevelop Well 3 at Plant 409. Suburban states that the well's production had been reduced due to organic growth at the well screen that resulted in frequent well redevelopments in the past.[105] Suburban is requesting to redevelop the well every 2 to 3 years to maximize production capacity.

The Commission should allow ratepayer funding of $76,150 for redeveloping Well 3. Chapter 1 of this report discusses Suburban's Well Redevelopment Program, in which Suburban plans to redevelop two wells per year for 2024 and 2025. The recommended budget for this project, $76,150 for one well, is consistent with Cal Advocate's recommendations for the Well Redevelopment Program.

Including over $300,000 in rate base for the same project in each rate case is not appropriate. This spending will be repeated every 2 to 3 years, so it is almost like a direct expense since the life of this project will be 2 to 3 years. Suburban is planning for two new wells in the Central Basin area of its Whittier-La Mirada System: New Well at Stage Road and Plant 216. Thus, Suburban's claim of not fully utilizing its Central Basin water rights due to the lost capacity at Plant 409 Well 3 is being addressed or will be addressed if the two proposed wells are built in the future. Redeveloping Well 3 at Plant 409 should be a one-time project. If Well 3 still requires constant rehabilitation in the future, Suburban should consider not using Well 3.

8. P-24: Plant 409 R-1 Recoating (2025)

The Commission should reduce the budget from $754,000 to $597,064 after removing ES&I, Contingency, and Mobilization/Demobilization costs.[106]

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[105] Lopez Testimony, p. 472.

[106] Refer to Chapter 1 of this report for ES&I and Mobilization/Demobilization discussion, and discussion on removing Contingency is in Chapter 1 of Anthony Andrade's Testimony: Report on Plant for San Jose Hills.

9. P-25: Plant 408 R-3 Recoating (2025)

The Commission should reduce the budget from $399,000 to $322,538 after removing ES&I, Contingency, and Mobilization/Demobilization costs.[107]

IV. CONCLUSION

The Commission should adopt Cal Advocates' recommendations for the projects discussed, because Suburban's requests were ill-founded, and the costs were overly inflated.

[107] Refer to Chapter 1 of this report for ES&I and Mobilization/Demobilization discussion, and discussion on removing Contingency is in Chapter 1 of Anthony Andrade's Testimony: Report on Plant for San Jose Hills.

CHAPTER 3 Sativa System Plant Projects

I. INTRODUCTION

This chapter presents Cal Advocates' analysis and recommendations of Suburban's proposed plant project in its Sativa System.

II. SUMMARY OF RECOMMENDATIONS

The Commission should adopt Cal Advocates' recommendations presented below:

Table 3-1: Cal Advocates Recommended Budget for Sativa Projects

	2023		2024		2025	
Project	**Suburban**	**Cal Advocates**	**Suburban**	**Cal Advocates**	**Suburban**	**Cal Advocates**
Well 5 - Mn Treatment			$ 2,152,205	$ -		
Well 4 Site - New Reservoir			$ 974,000	$ -		
Well 4 Site - New Pump Station					$,307,000	$ -
Well 3 - Manual Transfer Switch					$ 307,000	$ -
Total:	**$ -**	**$ -**	**$3,126,205**	**$ -**	**$,614,000**	**$ -**

III. ANALYSIS

1. Well-5 Manganese Treatment Plant (2024)

The Commission should deny Suburban's request for ratepayer funding of an unnecessarily speculative project cost for the Sativa manganese treatment in this GRC.

Suburban requests $2,152,205 in 2024 to pay for manganese treatment at Sativa Well-5.[108] The estimated project cost is $3,430,000 and is being managed by the Los Angeles County Public Works (LACPW) with a projected completion in 2024. LACPW

[108] Lopez Testimony, p.253.

secured $2.25 million of state grant funds and Suburban is to pay the remaining balance at the completion.[109]

During Suburban's acquisition of the Sativa Water System from the LACPW, this project had been separated from the acquisition contract and Suburban agreed to have LACPW retain ownership until the completion of the project. This was due to the grant funding terms that required LACPW as the recipient.[110]

Suburban's estimated project balance of $2,152,205 is uncertain at the time of this report. According to Suburban, LACPW initially budgeted the project to be $2.25 million in 2018, hence the grant funding amount of $2.25 million, but revised the budget to be $3.43 million in 2022 blaming the global supply chain restriction, national inflation, and lack of local contractor availability.[111] Additionally, according to LACPW, out of the $2.25 million grant, only $1.86 million was for construction.[112] Suburban calculated the project balance based on $1.86 million grant applied to construction. Please see below Table 3-2 which is an excerpt from Suburban's project justification.[113]

[109] GRC Workpapers, Volume III-D Sativa Projects, pp.5-7 (pdf pages).

[110] GRC Workpapers, Volume III-D Sativa Projects, p.6 (pdf page).

[111] Ibid.

[112] GRC Workpapers, Volume III-D Sativa Projects, p. 309 (pdf page).

[113] GRC Workpapers, Volume III-D Sativa Projects, p. 7 (pdf page).

Table 3-2: Suburban's Cost Estimate for Well-5 Mn Treatment

Description		Amount
2/17/2022 EOPCC		$3,430,000
Grant Amount		$2,250,000
Grant Amount for Construction		($1,860,000)
Balance		$1,570,000
Construction Management		$225,000
Subtotal		$1,795,000
Contingency	10%	$179,500
Subtotal		$1,974,500
General Administration	9%	$177,705
Suburban's Cost		**$2,152,205**

Currently, LACPW has not yet closed the bidding process for construction.[114] Without contractor bid information, and the fact that Suburban is not managing the project, Suburban's project balance estimate is highly speculative. Suburban is also adding 10% contingency and 9% General Administration to the project cost.

Currently, the Sativa system has two purchased water connections, Liberty Utilities and the City of Compton, each has enough capacity to supply the Sativa system independently. Suburban should wait until the LACPW completes the project, receives the appropriate operational permit from the State Water Resources Control Board's Division of Drinking Water (DDW), and includes the actual balance of all reasonable costs in rate base during the next GRC.

2. Well-4 Site Steel Reservoir (2024)

The Commission should deny this project because Suburban does not need water storage for the Sativa system.

[114] Suburban response to Cal Advocates data request DR BYU-02, Q2.f.iv.

Suburban requests $974,000 in 2024 to install a 300,000-gallon steel tank at Well-4 site.[115] Suburban claims that this tank will provide emergency and fire protection supply and simplify pressure management by matching supply demand.[116]

The Commission should not approve this project cost in rate base. Suburban does not need storage for the Sativa system. Suburban states "Suburban would also work with the City of Compton and Liberty Utilities Park Water to establish interconnection agreements to provide water supply if all other measures fail."[117] Suburban has already established two independent purchase water connections with Liberty Utility and the City of Compton, and either one can supply all of Sativa system demand including the fire flow. On April 23, 2023, DDW issued a Permit Amendment reclassifying the City of Compton interconnection to Sativa from an emergency connection to an active connection.[118] Also, when the Well-5 manganese treatment project is completed by LACPW and Suburban takes ownership, there will be a 48,000-gallon storage tank available on Well-5 site, which can be used in times of emergency.

Moreover, there is no regulation requiring Suburban to have water storage in a system especially when it has multiple regular connections to purchased water sources. California Code of Regulations Title 22 requires public water systems with 1,000 or more service connections to be able to meet four hours of peak hourly demand with source capacity, storage capacity, and/or emergency source connections.[119] While the Sativa system does not have any water storage, it can easily meet the standards using source capacity and source connections (purchased water connections).

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[115] GRC Workpapers, Volume III-D Sativa Projects, pp.19-20 (pdf pages).

[116] GRC Workpapers, Volume III-D Sativa Projects, p.20 (pdf page).

[117] GRC Workpapers, Volume III-D Sativa Projects, p. 24 (pdf page).

[118] DDW Permit Amendment titled SYSTEM NO. 1910147: SUBURBAN WATER SYSTEMS - SATIVA, PERMIT AMENDMENT NO. 1910147PA-001 TO CHANGE THE STATUS OF THE CITY OF COMPTON INTERCONNECTION FROM EMERGENCY TO ACTIVE

[119] California Code of Regulations Title 22 §64554 (a) (1).

3. Well-4 Site Pump Station Construction and Generator (2025)

This Commission should not allow Suburban to include this project cost in the rate base because the pump station and the generator is not needed at Well-4 site. The purpose of constructing a pump station at this site is to move water to and from the requested new reservoir discussed above. Suburban requests $1,307,000 in 2025 to construct a pump station, backup generator, and piping at Well-4 site.[120] Given that there is no need for Suburban to construct a new reservoir, a new pump station, backup generator, and piping are not needed.

4. Well 3 Manual Transfer Switch (2025)

The Commission should deny including the cost for this project in the rate base because the Well-3 site already has a transfer switch. Suburban requests $307,000 in 2025 to install a manual transfer switch at Sativa Well-3 site. Suburban states that the switch is needed to connect a mobile generator when a backup power is needed.[121]

During Cal Advocates' site visit to Sativa Well-3, Cal Advocates found that Well-3 already has an Automatic Transfer Switch that can also operate as a manual transfer switch.[122] Please see Figure 3-1 below.

[120] GRC Workpapers, Volume III-D Sativa Projects, pp.21-22 (pdf pages).

[121] GRC Workpapers, Volume III-D Sativa Projects, p. 23 (pdf page).

[122] ABB Zenith ZTX Series Operation, Maintenance, and Installation Guide, pp.27-36. https://library.e.abb.com/public/00d5befd57ae4d1ca00a0d2d4699877f/1SCC303022M0201.pdf

Figure 3-1: Sativa Well-3 Existing Automatic Transfer Switch

It is unreasonable to fund a manual transfer switch at Sativa Well-3 when it already has such equipment in place.

IV. CONCLUSION

The Commission should adopt Cal Advocates' recommendations for the Sativa projects because they are just and reasonable.

- Well-5 Manganese treatment should be denied because the construction schedule and costs are uncertain.
- Well-4 new reservoir, pump station, generator, and station piping should be denied because the reservoir and pump station are not required for the system.
- Well-3 manual transfer switch should be denied because such equipment is already in place.

Attachment A: Qualifications of Witness

Statement of Qualifications – Brian Yu

Q1. Please state your name, business address, and position with the California Public Utilities Commission ("Commission").

A1. My name is Brian Yu and my business address is 320 W. 4th Street, Suite 500, Los Angeles, CA 90013. I am a Senior Utilities Engineer in the Water Branch of the Public Advocates Office.

Q2. Please summarize your education background and professional experience.

A2. I graduated from the California State Polytechnic University, Pomona, with a Bachelor of Science degree in Mechanical Engineering.

I have been employed by the Public Advocates Office – Water Branch since 2007 and participated in many GRCs including Great Oaks Water, Golden State Water, Valencia Water, Suburban Water, San Gabriel Water, and California Water Services cases. More recently, I served as a project lead in the last Cal Water GRC A.18-07-001.

Q3. What is your responsibility in this proceeding?

A3. I am responsible for the preparation of Report on Plant Projects for Whittier-La Mirada System which includes capital projects in Suburban's Whittier system, La Mirada system and Sativa system. Also included in the report are certain companywide projects: Project Cost Adders (Engineering Services and Inspection, General Administration, and Mobilization/Demobilization), Meter Purchase, Meter Installations, and Meter Lids (2023, 2024, 2025), Water Rights Purchase (2023, 2024, 2025), AMI Infrastructure (2025), Valve Replacement Backlog (2025), Well Redevelopment (2024, 2025), Blowoff Replacement (2025), Chemical Equipment (2024, 2025), and SCADA Upgrade (2025).

Q4. Does this conclude your prepared direct testimony?

A4. Yes, it does.

Attachment B: Chapter 1 Attachments

Chapter Attachment 1-1
Suburban Response to DR BYU-04

Suburban Water Systems
1325 N. Grand Ave. Ste. 100, Covina, CA 91724-4044
Phone: 626.543.2500, Fax: 626.331.4848
www.swwc.com

March 7, 2023

To: Suliman Ibrahim
Project Coordinator

Brian Yu
Utilities Engineer/Regulatory Analyst

Shanna Foley
Attorney for Public Advocates Office

Re.: Response to A.23-01-001, Public Advocates Office DR BYU-01 (AMI Pilot)

Dear Mr. Ibrahim et al.,

Attached is the information you requested in writing for Suburban's Total Company General Rate Case.

Sincerely,

/s/Carmelitha Bordelon

Carmelitha Bordelon
Director of Regulatory Affairs

Responses to A.23-01-001, Public Advocates Office

DR BYU-04 (Plant Estimate Adders)

Regarding various projects throughout the Lopez Testimony, project cost estimates provided under the sections "Basis for Budgeted Cost" includes General Administration, Contingency, Engineering Service and Inspection, and Mobilization/Demobilization.

1. For Contingency, many of Suburban's proposed plant project budget estimates include 10% Contingency as an added line item.

   a. Explain how Suburban determined its 10% Contingency factor.

      Response:

      Suburban has used 10% contingency factor over several rate cases to forecast unexpected project costs. Before the last rate case period, this adequately covered unforeseen costs. However, during and following the COVID-19 global pandemic, there has been limited contractor availability due to labor shortages and increased demand for their services, material availability challenges from the global supply chain delays, and well-documented inflation in the US economy. These factors have caused prices for goods, services, and equipment to increase substantially and caused project costs to exceed the 10% contingency forecast. An analysis of 39 capital improvement projects between 2016 and 2021 demonstrates that, on average, the Contingency costs for projects exceeded 10%.

      Suburban has obtained up-to-date estimates to mitigate the risk of exceeding the 10% contingency amount in this rate case period. Contingency is necessary in this rate case period to accommodate unexpected project costs; however, Suburban does not anticipate the recent excessive project cost inflation risks to continue into the next rate case period.

   b. Provide substantiation on the need for 10% Contingency for most plant projects.

      Response:

      Please see the excel file entitled "DR BYU-04 Response #1b&#2b - 2016 - 2021 ES&I and Contingency Analysis.xlsx".

2. For Engineering Services and Inspection, many of Suburban's proposed plant project budget estimates includes 12% Engineering Services and Inspection.

   a. Explain how Suburban determined 12% of the project cost (without the adders) is appropriate for the Engineering Services and Inspection.

      Response:

      Suburban has used 12% ES&I for several rate cases and found that it adequately estimates engineering and inspection costs. An analysis of 39 capital improvement

projects between 2016 and 2021 demonstrated on average, Suburban's ES&I exceeded 12%, suggesting that 12% is a reasonable estimate of ES&I and might be aggressively low.

b. Provide a detailed breakdown of the Engineering Services and Inspection showing what makes up the 12%.

Response:

Please see the excel file entitled "DR BYU-04 Response #1b&#2b - 2016 - 2021 ES&I and Contingency Analysis.xlsx".

c. Is Suburban responsible for the Engineering Services and Inspection? If not, provide three sample vendor quotes/invoices for past projects. – Various, invoices

Response:

Suburban performs some ES&I services in house, and contracts out others services.

See the PDF files for the vendor invoices for Engineering Services and Inspection. They are entitled as below:

- "DR BYU-04 Response #2c -S&I Invoices - 408 Pump Station – Cannon.pdf"
- "DR BYU-04 Response #2c -S&I Invoices - 408 Pump Station – CivilTec.pdf"
- "DR BYU-04 Response #2c -S&I Invoices - Nantes Pipeline - Tetra Tech.pdf"

d. If Suburban is responsible for Engineering Services and Inspection, please explain how these internal labor costs are removed from payroll expense.

Response:

Hours of internal labor, such as Inspection and designers, are charged directly to Suburban's project. The relative labor cost will credit payroll expense and debit to the Suburban project. Payroll loading and Equipment loading are also added to the project.

e. Provide three samples from projects completed in 2022 that substantiate Engineering Service and Inspection was near 12% of the project budget with verifiable data showing labor hours, materials, etc.

Response:

See the excel files for projects completed in 2022 that have Engineering Services and Inspection averaging 12.31%. These files are entitled.

- "DR BYU-04 Response #2e_1 - 21-4126 Summary.xlsx". (16.41%)
- "DR BYU-04 Response #2e_2 - 22-1126 Summary.xlsx". (11.22%)
- "DR BYU-04 Response #2e_3 - 22-4122 Summary.xlsx". (9.30%)

3. For General Administration, many of Suburban's proposed plant project budget estimates include a 9% to 14% General Administration line item.

   a. Explain what this line item is for.

      Response:

      The general administration is a factor of Suburban's internal general administration costs over the entire project. The 9% applies to proposed test year 2024 and attrition years 2025 and 2026. Please see Workpapers Vol. II pages 87 – 88 for the supporting calculation.

      The 14%, precisely of 13.972% General Administration factor is applied to attrition years 2022 and 2023, which is based on adopted percentage for 2022 adjusted for the incremental impact on labor escalation of additional Accountant and Assistant Engineer.

   b. Provide substantiation showing that Suburban's General Administration actually incurred up to 14% of the project budget estimate.

      Response:

      The factor of 13.972% was based on adopted 13.573% plus the incremental impact on labor escalation of additional Accountant and Assistant Engineer totaling $141,556. The 13.972% General Administration overhead applies for years 2022 and 2023. Please see the calculation below for the 13.972% basis:

Line No.			
1	Labor Escalation per 2022 Step Filing	104.30%	(x)
2	GENERAL AND ADMINISTRATIVE OVERHEAD	TY 2022	
3	Total Capital Expenditures	35,076,159	
4	Less Direct Purchases & add New Business	(2,874,774)	
5	Total Construction Expenditures	32,201,385	
6	Cost of Removal	2,433,800	
7	Total Capital Expenditures Subject to Administrative Expense Capitalized	34,635,185	(a)
8	Percent of Administrative Expense Capitalization	13.573%	(b)
9	Total Administrative Expenses Transferred	4,139,218	(c) = a-(a/(1+b))
10	Capital Expenditures excluding Administrative Expenses Transferred	30,495,967	(d) = (a) - (c)
11	Incremental Impact On Labor Escalation of Additional 1 Accountant and 1 Assistant Engineer	141,556	(e) = $135,720* (x)
12	Updated Capital Expenditures with 2 additional capitalized labor	30,637,523	(f) = (d) + (e)
13	Updated Administrative Expenses Transferred	4,280,774	(g) = (c) + (e)
14	Updated Administrative Expense Capitalization	**13.972%**	(h) = (g) / (f)

Please see D.21-10-024, page 12 of Attachment 1, Revised Settlement Agreement between Suburban Water Systems and the Public Advocates Office for the 13.573% G&A capitalized percentage for 2022.

c. Provide an explanation on how Suburban determined 14% of the project budget would be appropriate for the General Administration.

Response:

Please see response 3.b.

4. For Mobilization/Demobilization, some of Suburban's proposed plant project budget estimates include 2% to 3% Mobilization/Demobilization.

a. Explain what this line item is for.

Response:

Mobilization includes activities and associated costs for transporting the contractor's personnel, equipment, and operating supplies to the site, other necessary general facilities for the contractor's operations, and prices for performance and payment bonds.

Demobilization includes activities and costs for transportation of personnel, equipment, and supplies for the disassembly, removal, and site cleanup and other facilities assembled on the site.

b. Explain why Mobilization/Demobilization has been separated out of the project cost estimate/quotes.

Response:

Suburban's pipeline projects have increased in scale and cost. Contractor's costs for bonds and insurance have increased accordingly.

With the increased size of these contracts, Suburban's contractors requested mobilization/demobilization line items for large-scale projects exceeding $2M to facilitate timely invoicing to recover upfront costs such as payment bonds, performance bonds, and insurance. Mobilization/demobilization was previously included in the pipeline bid item. Mobilization/demobilization does not increase the project cost.

c. Provide an explanation on how Suburban determined 3% of project budget to be the cost of mobilization and 3% to be the cost of demobilization.

Response:

Mobilization and demobilization costs can vary greatly depending on the type of work, the price, and the logistics level required to complete the job. Mobilization and demobilization can range from 2% to 15%. Suburban adopted 3% for mobilization and

2% for demobilization cost based on common industry practices determined from consultation with consultants and contractors.

5. Please provide, in Microsoft Excel Format, a list of all capital projects including all planned, annual, and pipeline projects that Suburban is proposing in A.23-01-001 with the following columns of information in the excel worksheet included for each project:

    - Project Name and a brief description.
    - The date the project is scheduled to be completed.
    - The total project cost in dollars.
    - The total project contingency in dollars.
    - The contingency factor in percent.
    - The total project engineering services and inspection cost in dollars.
    - The engineering services and inspection factor in percent.
    - The total project general administration cost in dollars.
    - The project general administration factor in percent.
    - The total project mobilization cost in dollars.
    - The project mobilization factor in percent.
    - The total project demobilization cost in dollars.
    - The project demobilization factor in percent.

    Response:

    The budgets for reactive work annual line items (service replacement, etc.) are forecasted using a 5-year average or a 5-year linear regression. These recorded amounts include all costs, so budgets are not marked up for general administration, ES&I, and Contingency. These annual projects are not included in the attached file because they do not use these markups.

    For the summary of Pipeline Projects, please see the excel file entitled "DR BYU-04 Response #5 - Pipeline Projects_rev1.xlsx."

    For the summary of other Planned projects, see the excel file entitled “DR BYU-04 Response #5_rev1.xlsx.”

Chapter Attachment 1-2

DR BYU-04 Response #1.b & 2.b – 2016-2021 ES&I and Contingency Analysis.xlsx

SUBURBAN WATER SYSTEMS
2016-2021 Capital Improvement Projects

Description	WO #	Authorized	Closing Cost	G & A	ES&I - Internal	ES&I - External	Total ES&I	ES&I %	Contractor Cost	Contingency	Comments
Plant 129 - Reservoir Replacement	16-1122	$3,200,000	$2,847,636	$184,498	$50,891	$453,657	$504,549	17.72%	2,158,589	-2%	
Plant 408 Facility Construction - Site Grading and Walls	16-4125	$5,627,167	$7,569,679	$510,650	$178,073	$1,304,823	$1,482,895	19.59%	5,576,134	48%	Consultant Design & Inspection
Oakbury and La Fonda	17-4118	$1,146,000	$1,205,866	$84,468	$40,330	$6,764	$47,095	3.91%	1,074,303	16%	SWS Design & Inspection
Stanton & Rosalita (Steel Pipe) Pipeline	17-4120	$1,342,000	$1,567,936	$109,191	$25,406	$88,676	$114,082	7.28%	1,344,662	29%	SWS Design; Consultant Inspection
Loukelton between Del Valle and	18-1124	$1,406,000	$1,695,509	$132,242	$47,394	$118,938	$166,332	9.81%	1,396,935	33%	SWS Design; Consultant Inspection
Lawnwood and Aileron Pipeline	18-1125	$256,000	$454,216	$33,481	$8,375	$20,692	$29,067	6.40%	391,668	95%	SWS Design; Consultant Inspection
Plant 209 Pump Station	18-4122	$1,861,000	$3,484,911	$241,379	$32,403	$723,674	$756,077	21.70%	2,487,455	106%	Consultant Design & Inspection
600 Zone Reliability (La Serna) - Install 4,080L.F. of PVC pipe	18-4126	$840,000	$874,888	$66,637	$21,703	$57,280	$78,983	9.03%	729,268	15%	SWS Design; Consultant Inspection
La Sierra & Via Sierra (Steel Pipe) Pipeline	18-4129	$216,000	$229,646	$16,538	$3,465	$17,978	$21,443	9.34%	191,665	17%	SWS Design
Melissa and Marcella Service Replacement	19-1119	$505,000	$467,374	$39,661	$18,897	$1,177	$20,074	4.29%	407,640	2%	SWS Design & Inspection
Plant 507 R-2 - Reservoir Rehabilitation	19-1120	$358,000	$695,810	$55,417	$20,552	$70,683	$91,236	13.11%	549,158	114%	SWS Design; Consultant Inspection
WLM Valve Station Replacement - L&W	19-4122	$100,000	$213,212	$19,954	$13,602	$3,413	$17,014	7.98%	176,244	135%	SWS Design & Inspection
Plant 211 Exploratory Well	16-4123	$261,000	$477,378	$27,269	$545	$80,758	$81,303	17.03%	368,807	101%	Consultant Design & Inspection
Leffingwell and La Mirada Valve Station	16-4121	$105,000	$179,523	$17,306	$17,794	$3,520	$21,314	11.87%	140,903	88%	SWS Design
Larimore Ave. & Lanny Ave. (AC)	19-1124	$310,000	$423,857	$32,583	$10,096	$38,933	$49,029	11.57%	342,245	50%	Consultant Design & Inspection
Grayling Ave. & Maybrook at N/O Woodbrier Dr. (AC)	19-4125	$670,000	$792,095	$57,945	$12,741	$50,280	$63,020	7.96%	671,129	30%	Consultant Design & Inspection
Elmbrock and Cobblestone	19-4124	$653,000	$845,471	$63,525	$17,086	$68,703	$85,789	10.15%	696,156	42%	Consultant Design & Inspection
Montbrook and Glenhope	19-1123	$510,000	$589,755	$51,882	$27,665	$60,957	$88,622	15.03%	449,251	27%	SWS Design
Hambledon Ave. (AC)	19-1125	$199,000	$343,477	$27,909	$11,312	$45,008	$56,319	16.40%	259,249	90%	Consultant Design & Inspection
Circle Hill and Bolar Valve Station Replacement	19-1127	$64,000	$185,726	$20,273	$17,083	$3,770	$20,852	11.23%	144,600	219%	SWS Design & Inspection
City of Whittier Connection	18-4127	$271,000	$675,128	$59,245	$29,133	$11,065	$40,198	5.95%	575,685	174%	Consultant Design & Inspection
Plant 505 RCS	19-1111.A	$204,000	$884,008	$80,478	$42,274	$115,621	$157,895	17.86%	645,635	377%	Consultant Design & Inspection
Pt 161 Pump Station Relocation & Replacement	19-1121	$826,000	$574,889	$56,880	$35,686	$51,167	$86,853	15.11%	431,156	-23%	Consultant Design & Inspection
Valencia Heights Interconnection	19-1122	$110,000	$381,475	$35,741	$19,971	$14,617	$34,588	9.07%	311,146	281%	SWS design and inspection
Plant 408 Reservoir 5	19-4119	$1,865,000	$2,841,029	$187,281	$2,628	$223,679	$226,306	7.97%	2,427,442	68%	Consultant Design & Inspection
Elmrock & Cobbleston Pipeline	19-4124	$653,000	$853,037	$64,678	$16,428	$75,775	$92,203	10.81%	696,156	44%	Consultant Design & Inspection
Grayling & Maybrook Pipeline	19-4125	$670,000	$818,051	$60,133	$12,251	$74,538	$86,789	10.61%	671,129	34%	Consultant Design & Inspection
Nantes Pipeline	20-1119	$1,376,000	$1,276,904	$101,216	$32,742	$104,403	$137,145	10.74%	1,038,543	2%	Consultant Design & Inspection
Plant 162 Slope Stability	20-1120	$354,000	$869,889	$94,840	$13,701	$257,713	$271,414	31.20%	503,635	170%	Consultant Design & Inspection
507-R1 Recoating	20-1121	$685,000	$680,574	$58,791	$26,421	$35,568	$61,989	9.11%	559,793	9%	Consultant Design & Inspection
Plant 110 RCS	20-1123	$668,000	$776,504	$96,984	$38,602	$20,213	$58,815	7.57%	620,706	28%	Consultant Design & Inspection
Russell & Pounds Pipeline	20-4120	$3,326,000	$2,211,984	$162,659	$33,241	$129,273	$162,514	7.35%	1,886,811	-27%	Consultant Design & Inspection
Plant 408 Pump Station	20-4122	$3,016,000	$4,483,314	$386,861	$56,926	$450,983	$507,909	11.33%	3,588,543	64%	Consultant Design & Inspection
Plant 238 Pump Station Improvement	20-4123	$649,000	$1,716,746	$153,034	$57,120	$140,288	$197,408	11.50%	1,366,304	191%	Consultant Design & Inspection
Solejar & Janison Valve Station	20-4125	$302,000	$252,294	$22,599	$11,285	$7,003	$18,288	7.25%	211,406	-8%	SWS Inspection
Syracuse Pipeline	20-4127	$310,000	$346,608	$34,280	$21,490	$12,915	$34,405	9.93%	277,923	23%	SWS Inspection
121-R2 Recoating	21-1122	$736,000	$288,538	$36,538	$4,889	$23,962	$28,851	10.00%	223,150	-57%	Consultant Design & Inspection
Mulvane & Vanderwell Pipeline	21-1129	$4,205,000	$3,969,944	$478,194	$35,267	$301,010	$336,277	8.47%	3,155,473	4%	Consultant Design & Inspection
Mar Vista Pipeline	21-4122	$628,000	$899,651	$114,819	$20,587	$121,615	$142,202	15.81%	642,630	58%	Consultant Design & Inspection
Total		**40,483,167**	**49,944,531**				**6,477,147**	**16.44%**	**39,389,326**	**23%**	

Chapter Attachment 1-
DR BYU-04 Response #5_rev1.xlsx

Number	Project Name	Description	Anticipated Completion Date	Total Cost	Contingency ($)	Contingency (%)	ES&I ($)	ES&I (%)	General Administration ($)	General Administration (%)	Mobilization ($)	Mobilization (%)	Demobilization ($)	Demobilization (%)
P-1	2023 Water Rights	Purchase of 72 Cal Domestic Shares	Q2 - 2023	1,098,000										
P-2	Plant 128 Reservoir Replacement (2023)	Replace reservoir that is nearly 100 years old and does not meet seismic standards	Q4 - 2024	937,813	79,076	10%	84,725	12%	121,517	13.97%	199,300	3%		
P-2	Plant 128 Reservoir Replacement (2024)	Replace reservoir that is nearly 100 years old and does not meet seismic standards	Q4 - 2024	5,055,289	445,698	10%	477,534	12%	441,241	9.00%			132,800	2%
P-2	Plant 128 Electrical Replacement (2024)	Replace electrical equipment that is in poor condition and unsafe.		2,292,188	202,090	10%	216,525	12%	200,069	9.00%				
P-3	Central Basin Well Drilling	Drill well in Central Basin well	Q4 - 2023	4,213,683	336,108	10%	360,116	12%	516,497	13.97%	Mobilization and demobilization are combined at 11.6%			
P-4	2023 Plant 224 Solar Panel	Install solar panels at Plant 224 to reduce energy costs	Q4 - 2024	1,240,273	103,442	10%			102,408	9%				
P-5	Plant 217 Slope Stability	Install concrete gutters and plant to mitigate risks of landslide	Q4 - 2025	857,000	71,435	10%		0%	70,721	9%				
P-6	Automated Meter Infrastructure	Install AMI infrastructure to improve customer service and reduce water loss	Q4 - 2025	1,797,008	149,876	10%	160,581	12%	148,377	9%				
P-7	Plant 162 Reservoir Refurbishement	Replace corroded rafters that affected structural integrity of reservoir	Q4 - 2025	200,200	16,699	10%	17,892	12%	15,532	9%	4,260	3%	2,840	2%
P-8 (Plant 235)	Generator Purchase	Generator purchase for backup power supply	Q4 - 2024	496,704	41,427	10%	44,386	12%	41,012	9%				
P-8 (Plant 118)	Generator Purchase	Generator purchase for backup power supply	Q4 - 2024	379,068	31,615	10%	33,874	12%	31,299	9%				
P-8 (Plant 506)	Generator Purchase	Generator purchase for backup power supply	Q4 - 2024	545,535	45,499	10%	48,749	12%	45,044	9%				
P-8 (Plant 165)	Generator Purchase	Generator purchase for backup power supply	Q1 -2024	496,704	41,427	10%	44,386	12%	41,012	9%				
P-8 (Plant 119)	Generator Purchase	Generator purchase for backup power supply	Q4 - 2025	529,202	44,137	10%	47,290	12%	43,696	9%				
P-8 (Plant 504)	Generator Purchase	Generator purchase for backup power supply	Q4 - 2025	496,704	41,427	10%	44,386	12%	41,012	9%				
P-8 (Plant 121)	Generator Purchase	Generator purchase for backup power supply	Q4 - 2025	852,702	71,118	10%	76,198	12%	70,407	9%				
P-8 (Plant 201)	Generator Purchase	Generator purchase for backup power supply	Q4 - 2025	832,827	69,460	10%	74,422	12%	68,766	9%				
P-9	Plant 118 Electrical Upgrades	Replace electrical equipment that is in poor condition and unsafe.	Q4 - 2024	1,161,527	95,473	10%	102,293	12%	111,322	10.6%				
P-10	Plant 140 Electrical Upgrades	Replace electrical equipment that is in poor condition and unsafe.	Q4 - 2025	817,662	68,195	10%	73,066	12%	67,513	9.0%				
P-11	Valve Backlog Replace	Replace backlog of system valves.	Q4 - 2025											
P-12	2024 Well Rehabilitation	Well rehabilitation to maximize production	Q4 - 2024	166,157	13,858	10%			13,719	9%				
P-12	2025 Well Rehabilitation	Well rehabilitation to maximize production	Q4 - 2025	166,157	13,858	10%			13,719	9%				
P-13	Blow Off Replacements	Installation of blows off to ensure safe water supply	Q4 - 2025	1,019,000	85,023	10%	91,096	12%	84,173	9%				
P-14	Water Quality Equipment (2024)	Installation of chemical equipment to ensure water is safe and meets regulatory requirements.	Q4 - 2024	116,000	11,071	10%	11,862	12%	10,961	9%				
P-14	Water Quality Equipment (2025)	Installation of chemical equipment to ensure water is safe and meets regulatory requirements.	Q4 - 2025	111,000	9,472	10%	10,147	12%	9,378	9%				
P-15	Plant 216 Test Well	Drilling and test well to confirm water quality and water capacity.	Q1 - 2025	1,049,721	86,127	10%	92,279	12%	102,319	10.80%	39,000	5.50%	24,500	3.20%
P-15	Plant 216 Production Well	Drill well in Central Basin well	Q4 - 2025	4,096,483	336,108	10%	360,116	12%	399,296	10.80%	Mobilization and demobilization are combined at 11.6%			
P-16	Plant 201 Treatment	PFAS treatment plant	Q4 - 2026	21,171,852	3,062,000	10%	2,928,434	8.15%	3,496,269	9.00%				
P-17	SCADA System Masterplan	Replace SCADA to improve reliability	Q4 - 2025	1,107,000	92,345	10%	0		91,422	9%				
P-18	N/A													
P-19	N/A													
P-20	N/A													
P-21	Plant 158 Electrical Upgrades	Replace electrical equipment that is in poor condition and unsafe.	Q4 - 2025	796,284	66,412	10%	71,156	12%	65,748	9.00%				
P-22	Plant 410 Treatment	Replace electrical equipment that is in poor condition and unsafe.	Q4 -2025	1,903,000	156,068	10%	167,216	12%	185,409	10.80%				
P-23	Plant 409 W-3 Rehab	Well rehabilitation to maximize production	Q2 - 2025	321,980	295,394	10%	268,540	12%	321,980	9%				
P-24	409 R1 Coating	Replace coating and avoid catastrophic failure of critical infrastructure.	Q4 - 2025	754,000	62,892	10%	67,385	12%	62,264	9%				
P-25	Tank 408-R3 Recoating	Replace coating and avoid catastrophic failure of critical infrastructure.	Q4 -2025	399,037	33,281	10%	35,658	12%	32,948	9%				

P-26	N/A													
P-27	Larimore & Cadwell	Replace services that are in poor condition.	Q4 -2025	83,062	7,000	10%	7,000	12%	7,000	9%				
P-28	N/A													
P-29	Beckner & Tonopath	Replace services that are in poor condition.	Q4 - 2025	99,992	8,000	10%	9,000	12%	8,000	9%				
P-30	Kimberly & Jacqueline	Replace services that are in poor condition.	Q4 - 2025	350,732	29,252	10%	31,341	12%	28,959	9%				
P-31	2024 Water Rights	Purchase Cal Domestic Shares	Q4 - 2024											
P-32	2025 Water Rights	Purchase Cal Domestic Shares	Q4 - 2025											
P-33	Paulsen Pipeline	Replace pipeline to meet fire flow requirements	Q1 - 2023											
A-5	2023 Meter Purchase	Annual meter purchase program	Q4 -2023	2,407,000					295,099	13.97%				
A-30	2024 Meter Purchase	Annual meter purchase program	Q4 - 2024	2,861,000					236,250	9%				
A-55	2025 Meter Purchase	Annual meter purchase program	Q4 - 2025	4,385,000					362,069	9%				
A-6	2023 Security Upgrades	Annual security upgrades	Q4 - 2023	190,000	15,195	10%			23,266	14%				
A-31	2024 Security Upgrades	Annual security upgrades	Q4 - 2024	220,000	18,011	10%			17,831	9%				
A-56	2025 Security Upgrades	Annual security upgrades	Q4 - 2025	210,000	17,792	10%			17,614	9%				
A-16	2023 Meter Installation	Annual Meter replacemen program	Q4 - 2023	550,000	43,833	10%			67,359	13.97%				
A-41	2024 Meter Installation	Annual Meter replacemen program	Q4 -2024	526,000	43,833	10%			43,395	9%				
A-66	2025 Meter Installation	Annual Meter replacemen program	Q4 - 2025	700,000	58,394	10%			57,810	9%				
A-22	2023 GIS Updgrades	Annual GIS Upgrades	Q4 - 2023	236,406	21,491	10%			214,915	13.97%				
A-47	2024 GIS Updgrades	Annual GIS Upgrades	Q4 -2024	392,912	21,491	10%			357,193	9%				
A-72	2025 GIS Updgrades	Annual GIS Upgrades	Q4 - 2025	359,101	32,646	10%			326,455	9%				
A-25	2023 Vehicle Replacement	Vehicle replacement	Q4 - 2023	286,394										
A-50	2024 Vehicle Replacement	Vehicle replacement	Q4 -2024	729,818										
A-75	2025 Vehicle Replacement	Vehicle replacement	Q4 - 2025	925,251										
S-1	Sativa Tank	Construction of 300,000 gallon tank	Q4- 2024	974,000	81,200	10%	87,000	12%	80,388	9%	21,000	3%	14,000	2%
S-1	(1) Stockwell Pipeline	Replace pipeline to meet fire flow requirements	Q3 - 2024	757,000	63,133	10%	67,643	12%	62,502	9%	16,105	3%	10,737	2%
S-1	Vesta Pipeline	Replace pipeline to meet fire flow requirements	Q3 - 2024	756,969	60,528	10%	64,852	12%	62,502	9%	15,441	3%	10,294	2%
S-1	E. Willowbrook	Replace pipeline to meet fire flow requirements	Q3 - 2024	769,000	64,146	10%	68,728	12%	63,504	9%	16,364	3%	10,909	2%
S-1	Willmongton Pipeline	Replace pipeline to meet fire flow requirements	Q3 - 2024	193,000	16,064	10%	17,211	12%	15,903	9%	4,098	3%	2,732	2%
S-1	West Willowbrook	Replace pipeline to meet fire flow requirements	Q3 - 2024	526,000	43,833	10%	46,964	12%	43,394	9%	11,182	3%	7,455	2%
S-1	Willowbrook Alley	Replace pipeline to meet fire flow requirements	Q3 - 2024	557,000	46,424	10%	49,740	12%	45,959	9%	11,843	3%	7,895	2%
S-1	Manganese Treatment Plant	Manganese Treatmetn Plant	Q4 - 2024	2,152,205	179,500	10%	225,000		177,705	9%				
S-1	Well 3 MTS	MTS for backup generator for power supply	Q4- 2025	307,000	25,576	10%	27,403	12%	25,321	9%				
S-1	Pump Station	Pump station to improve reliability and meet fire flow requirements	Q4- 2025	1,307,000	109,008	10%	121,981	12%	107,918	9%	29,043	Lump Sum	19,362	Lump Sum
S-1	Generator Purchase	Generator purchase for backup power supply	Q4- 2025	460,000	41,801	10%	41,040	12%	34,972	9%				
S-1	Jack & Bore	Replace pipeline to meet fire flow requirements	Q4- 2025	556,000	45,934	10%	49,712	12%	0	9%	11,836	3%	7,891	2%
S-1	Wayside Pipeline	Replace pipeline to meet fire flow requirements	Q3- 2025	356,000	46,398	10%	31,802	12%	29,385	9%	7,572	3%	5,048	2%
S-1	Vesta Pipeline	Replace pipeline to meet fire flow requirements	Q3- 2025	446,000	37,221	10%	39,880	12%	36,849	9%	9,495	3%	6,330	2%
S-1	Lucien Pipeline	Replace pipeline to meet fire flow requirements	Q3- 2025	293,000	24,403	10%	26,146	12%	24,159	9%	6,225	3%	4,150	2%
S-1	Stockwell Pipeline	Replace pipeline to meet fire flow requirements	Q3- 2025	500,000	41,737	10%	44,718	12%	41,320	9%	10,647	3%	7,098	2%

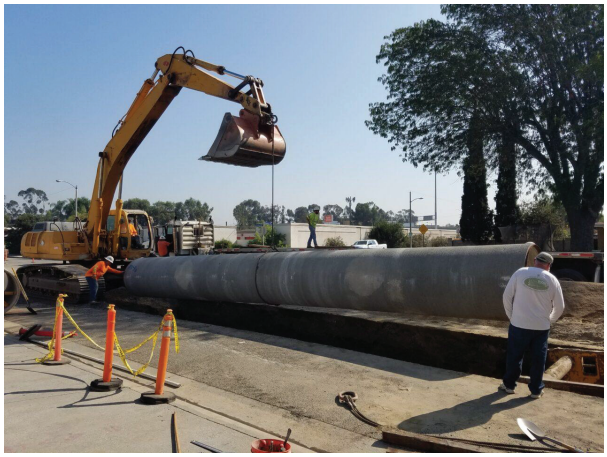
Chapter Attachment 1-
Cal Domestic Company's Water Supply

Our Water Supply

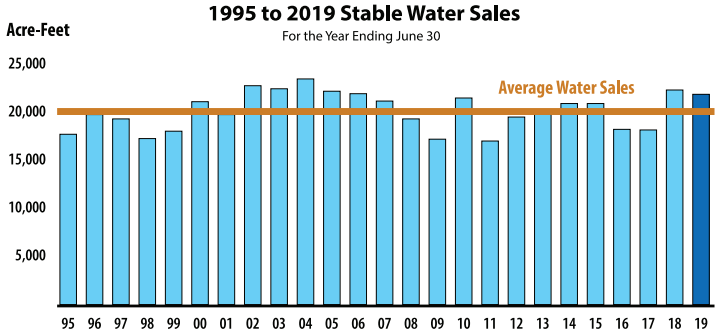
Reliable Local Water

Cal Domestic is a wholesale water supplier for its shareholders, Suburban Water Systems and the Cities of La Habra and Brea. Shareholders rely mostly on Cal Domestic to meet their local water demands, and may combine those supplies with water from their own local groundwater sources or other wholesale suppliers such as the Metropolitan Water District of Southern California.

Cal Domestic operates seven active groundwater wells that supply water from the Main San Gabriel Basin. After water is pumped from the groundwater basin, it is conveyed through a series of treatment facilities to ensure it meets or exceeds all water quality regulations and standards. Following treatment and quality assurance, the water is delivered to shareholders through approximately 30 miles of pipeline beginning in Los Angeles County and ending in north Orange County, crossing the Cities of El Monte, Industry, Whittier, La Habra, La Habra Heights, and Brea. Each year, Cal Domestic supplies shareholders with approximately 20,000 acre-feet of water. That's more than six billion gallons!



Installing the 48-inch M-Line, the main delivery pipeline that provides water for all Company shareholders.



Water sales have remained remarkably stable over the past quarter century. Cal Domestic has been able to meet shareholder demands even during droughts, and to increase deliveries to meet spikes in demand.

Water Quality

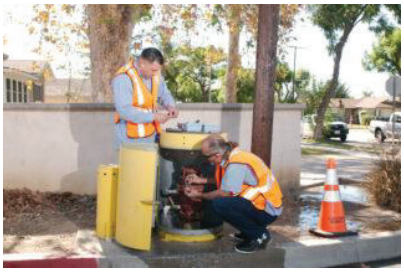
Delivering Quality Water Is Our Top Priority

Extensive Sampling and Testing for Quality Assurance

Cal Domestic operates and maintains advanced water treatment systems and conducts extensive sampling and testing for quality assurance. Cal Domestic annually schedules regular collection of over 2,000 samples for a number of constituents as required by state and federal regulations to ensure that high-quality water is consistently delivered to shareholders.

Proactive Management for Optimum Water Operations

With virtually the entire water system rebuilt or replaced in recent years, Cal Domestic focuses its operations on proactive management of water distribution and treatment facilities to lower long-term costs and improve supply reliability.



Our state certified water quality experts test water throughout the water delivery pipelines.

Highly Skilled, Certified Operators

The State of California mandates various levels of training, experience, and certification for operators of differing water facilities. Cal Domestic's system is rated at the highest level of complexity, requiring Grade 5 certification for the treatment system and Grade 4 certification for the distribution system. Che Venegas, the Director of Water Operations, is certified as a Grade 5

Chapter Attachment 1-

MSGBWM Annual Report 2021-2022, p.H3 of 3

Producer Name	2017-18	2018-19	2019-20	2020-21	2021-22
Hanson Aggregates West, Inc.	220.73	167.30	196.68	176.97	176.08
Hemlock Mutual Water Co.	71.82	68.62	63.73	66.28	68.18
Hermetic Seal Corporation	53.21	51.55	50.68	44.95	44.70
IBY Property Owner, LLC	--	--	--	0.50	30.25
Industry Waterworks System, City of	1,314.89	1,158.60	1,344.59	1,328.23	1,254.64
La Puente Valley County Water District	1,535.86	1,645.57	1,491.63	1,636.48	1,651.13
Los Angeles, County of	4,143.69	4,314.41	4,206.72	4,063.95	3,160.73
Molson Coors USA, LLC	429.44	488.24	781.95	75.81	--
Monrovia, City of	7,200.05	6,825.43	6,894.52	7,313.51	6,777.25
Monterey Park, City of	7,453.81	7,320.96	7,461.00	7,594.45	7,087.06
Moon Valley Nursery of California, Inc.	29.84	72.72	93.94	86.68	38.08
Munoz, Ralph	2.42	2.13	1.36	1.14	1.20
Progressive Buddhist Association	--	0.99	0.54	1.08	0.56
Puente Basin Water Agency	1,803.95	1,481.04	1,111.64	1,104.88	594.48
Rowland Water District	30.72	17.54	0.00	0.00	0.00
Rurban Homes Mutual Water Co.	184.14	75.24	--	--	--
San Gabriel Country Club	257.26	232.07	235.19	282.17	218.83
San Gabriel County Water District	5,451.14	4,386.27	4,264.89	4,503.65	4,261.71
San Gabriel Valley Water Co.	31,036.73	29,377.73	30,516.44	32,606.65	28,959.32
Sierra La Verne Country Club	0.00	0.00	0.00	0.00	0.00
Sierra Madre, City of	0.00	0.00	0.00	0.00	0.00
S. L. S. & N. Inc.	28.48	26.75	24.88	29.34	29.11
SOL Long Term LLC	0.00	0.00	0.00	0.00	0.00
Sonoco Products Co.	71.56	83.49	73.63	73.36	66.34
Southern California Edison Co.	0.27	0.02	0.16	0.46	30.68
South Pasadena, City of	2,620.36	1,949.73	3,358.46	3,582.71	3,178.90
Sterling Mutual Water Co.	105.48	80.66	89.11	104.28	97.79
Suburban Water Systems	29,046.97	25,012.44	23,087.96	26,518.96	20,260.03
Sunny Slope Water Co.	2,251.03	2,436.96	2,375.30	2,611.14	2,290.68
Tran, Hieu	4.56	3.76	4.99	3.21	4.99
United Rock Products Corp.	451.85	500.72	500.25	471.09	567.52
Valencia Heights Water Co.	583.71	647.86	538.26	930.04	771.96
Valley County Water District	7,162.02	6,723.61	6,845.24	7,144.05	6,418.46
Valley View Mutual Water Co.	590.50	500.94	552.23	606.71	561.50
Vulcan Materials Co.	716.61	588.68	496.12	605.74	1,050.71
Whittier, City of	3,656.01	2,156.28	1,233.76	821.39	1,143.56
Workman Mill Investment Co.	0.00	0.00	0.00	0.00	0.00
TOTALS	209,499.70	190,156.12	192,583.66	207,821.52	186,148.03

1/ The City of Alhambra's production is computed in accordance with the Cooperative Water Exchange Agreement. See Page I-4.

2/ Formerly East Pasadena's Wells 9 and 11. East Pasadena sold to California American Water Company - San Marino on 9/21/21.

21-22 First quarter production for California American San Marino reflects East Pasadena production through 9/21/21.

Chapter Attachment 1-6

MSGBWM Annual Reports from 2017-2018 to 2021-2022, Appendix I

(Pages showing Suburban information)

Producer Name	Carryover To 2017-18	Fiscal Year 2017-18 Production Right	Production	Replacement Water Required	Lost Carry-Over	Carryover To 2018-19
Gould Electronics Inc. and Johnson Controls Inc.	0.00	0.00	919.03	0.00 5/	0.00	0.00
Green, Walter	0.00	0.00 2/	0.00	0.00	0.00	0.00
Hansen, Alice	0.00	0.57	0.00 4/	0.00	0.57	0.00
Hanson Aggregates West, Inc.	35.43	283.22	220.73	0.00	0.00	62.49
Heinrich, Carolyn	0.00	0.00 2/	0.00	0.00	0.00	0.00
Hemlock Mutual Water Co.	0.00	60.99	71.82	10.83	0.00	0.00
Hermetic Seal Corporation	0.00	0.00	53.21	0.00 6/	0.00	0.00
Industry Waterworks System, City of	718.79	2,005.94	1,314.89	0.00	0.00	691.05
Irwindale, City of	0.00	0.00 2/	0.00	0.00	0.00	0.00
JUH#1	32.00	0.00 2/	0.00	0.00	0.00	0.00
Kirklen, Jeffrey B.	0.00	0.00 2/	0.00	0.00	0.00	0.00
Landeros, John	0.00	0.57 4/	0.00	0.00	0.57	0.00
La Puente Valley County Water District	260.43	1,647.67	1,535.86	0.00	0.00	111.81
Los Angeles, County of	537.58	2,271.96	4,143.69 7/	0.00	0.00	32.46
Loucks, David	0.00	2.28 4/	0.00	0.00	2.28	0.00
Maggiore Family Trust, The	0.00	0.00 2/	0.00	0.00	0.00	0.00
Martinez, Frances Mercy	0.00	0.57 4/	0.00	0.00	0.57	0.00
McIntyre, William	22.01	22.01	0.00	0.00	0.00	22.01
Metropolitan Water District	0.00	0.00 2/	0.00	0.00	0.00	0.00
Miller Coors LLC	1,589.23	2,168.94	429.44	0.00	0.00	1,739.50
Monrovia, City of	0.00	6,740.08	7,200.05	0.00 3/	0.00	0.00
Monterey Park, City of	0.00	5,088.24	7,453.81	2,365.57	0.00	0.00
Moon Valley Nursery of California, Inc.	0.00	0.00	29.84	29.84	0.00	0.00
Munoz, Ralph	0.00	0.00	2.42 4/	0.00	0.00	0.00
NCL Co, LLC	0.00	0.75	0.00	0.00	0.00	0.75
Nicholson Family Trust, The	0.00	0.00 2/	0.00	0.00	0.00	0.00
Nicholson Trust, The	0.00	0.00 2/	0.00	0.00	0.00	0.00
Nick Tomovich and Sons	0.00	0.02 4/	0.00	0.00	0.02	0.00
Pellissier Irrevocable QTIP Trust, et al., Co-tenancy of Laurence R.	0.00	0.00 2/	0.00	0.00	0.00	0.00 0.00
Phillips, Alice B., et al.	0.88	1.76	0.00	0.00	0.88	0.88
Pico County Water District	0.00	0.57 2/	0.00	0.00	0.57	0.00
Polopolus, et al.	0.00	0.00 2/	0.00	0.00	0.00	0.00
Puente Basin Water Agency	0.00	0.00	1,803.95	0.00 3/	0.00	0.00
Rados Brothers	0.00	0.00 2/	0.00	0.00	0.00	0.00
Rosedale, Lucy. A & Harry Edwin III, Trustees of the Harry E. Rosedale Trust	168.00	0.00 2/	0.00	0.00	0.00	0.00
Rosemead Development, Ltd.	0.00	0.77 4/	0.00	0.00	0.77	0.00
Rowland Water District	0.00	0.00	30.72	30.72	0.00	0.00
Rurban Homes Mutual Water Co.	85.16	250.43	184.14	0.00	0.00	66.29
Ruth, Roy	0.00	0.57 4/	0.00	0.00	0.57	0.00
San Gabriel Country Club	0.00	217.14	257.26	40.12	0.00	0.00
San Gabriel County Water District	0.00	4,345.29	5,451.14	0.00 3/	0.00	0.00
San Gabriel Valley Water Co.	0.00	19,598.31	31,036.73	0.00 3/	0.00	0.00
Sierra La Verne Country Club	0.00	0.00	0.00	0.00	0.00	0.00
Sierra Madre, City of	0.00	0.00	0.00	0.00	0.00	0.00
S.L.S. & N. Inc.	0.00	0.00	28.48	4.27 8/	0.00	0.00
Sonoco Products Company	15.46	76.95	71.56	0.00	0.00	5.39
Southern California Edison Co.	130.35	260.70	0.27	0.00	130.08	130.35
South Pasadena, City of	3,357.38	5,365.18	2,620.36	0.00	0.00	2,744.82
Southwest Water Company	0.00	0.00 2/	0.00	0.00	0.00	0.00
Sterling Mutual Water Co.	4.31	95.39	105.48	10.09	0.00	0.00
Suburban Water Systems	4,869.60	37,627.19	29,046.97	0.00	0.00	8,580.22
Sunny Slope Water Co.	0.00	1,691.55	2,251.03	0.00 3/	0.00	0.00

Producer Name	Carryover To 2018-19	Fiscal Year 2018-19 Production Right	Production	Replacement Water Required	Lost Carry-Over	Carryover To 2019-20
Gould Electronics Inc. and Johnson Controls Inc.	0.00	0.00	528.37	0.00 6/	0.00	0.00
Green, Walter	0.00	0.00 2/	0.00	0.00	0.00	0.00
Hansen, Alice	0.00	0.57	0.00 5/	0.00	0.57	0.00
Hanson Aggregates West, Inc.	62.49	238.90	167.30	0.00	0.00	71.60
Heinrich, Carolyn	0.00	0.00 2/	0.00	0.00	0.00	0.00
Hemlock Mutual Water Co.	0.00	58.63 4/	68.62	9.99	0.00	0.00
Hermetic Seal Corporation	0.00	0.00	51.55	0.00 7/	0.00	0.00
Industry Waterworks System, City of	691.05	2,028.20	1,158.60	0.00	0.00	869.60
Irwindale, City of	0.00	0.00 2/	0.00	0.00	0.00	0.00
JUH#1	0.00	0.00 2/	0.00	0.00	0.00	0.00
Kirklen, Jeffrey B.	0.00	0.00 2/	0.00	0.00	0.00	0.00
Landeros, John	0.00	0.57 5/	0.00	0.00	0.57	0.00
La Puente Valley County Water District	111.81	1,599.05	1,645.57	0.00 3/	0.00	0.00
Los Angeles, County of	32.46	3,166.84	4,314.41 8/	0.00	0.00	510.40
Loucks, David	0.00	2.28 5/	0.00	0.00	2.28	0.00
Maggiore Family Trust, The	0.00	0.00 2/	0.00	0.00	0.00	0.00
Martinez, Frances Mercy	0.00	0.57 5/	0.00	0.00	0.57	0.00
McIntyre, William	22.01	22.01	0.00	0.00	0.00	22.01
Metropolitan Water District	0.00	0.00 2/	0.00	0.00	0.00	0.00
Miller Coors LLC	1,739.50	2,443.21	488.24	0.00	154.26	1,800.71
Monrovia, City of	0.00	6,740.08	6,825.43	0.00 3/	0.00	0.00
Monterey Park, City of	0.00	5,088.24	7,320.96	2,232.72	0.00	0.00
Moon Valley Nursery of California, Inc.	0.00	3.58 4/	72.72	69.14	0.00	0.00
Munoz, Ralph	0.00	0.00	2.13 5/	0.00	0.00	0.00
NCL Co, LLC	0.75	0.00 2/	0.00	0.00	0.00	0.00
Nicholson Family Trust, The	0.00	0.00 2/	0.00	0.00	0.00	0.00
Nicholson Trust, The	0.00	0.00 2/	0.00	0.00	0.00	0.00
Nick Tomovich and Sons	0.00	0.02 5/	0.00	0.00	0.02	0.00
Pellissier Irrevocable QTIP Trust, et al., Co-tenancy of Laurence R.	0.00	0.00 2/	0.00	0.00	0.00	0.00 0.00
Phillips, Alice B., et al.	0.88	1.76	0.00	0.00	0.88	0.88
Pico County Water District	0.00	0.00 2/	0.00	0.00	0.00	0.00
Polopolus, et al.	0.00	0.00 2/	0.00	0.00	0.00	0.00
Progressive Buddhist Association	0.00	0.00 5/	0.99	0.99	0.00	0.00
Puente Basin Water Agency	0.00	0.00	1,481.04	0.00 3/	0.00	0.00
Rados Brothers	0.00	0.00 2/	0.00	0.00	0.00	0.00
Rana, Jeanne, Living Trust	0.00	0.00	0.00	0.00	0.00	0.00
Rosedale, Lucy. A & Harry Edwin III, Trustees of the Harry E. Rosedale Trust	0.00	0.00 2/	0.00	0.00	0.00	0.00
Rosemead Development, Ltd.	0.00	0.77 5/	0.00	0.00	0.77	0.00
Rowland Water District	0.00	0.00	17.54	17.54	0.00	0.00
Rurban Homes Mutual Water Co.	66.29	75.24	75.24	0.00	0.00	0.00
Ruth, Roy	0.00	0.57 5/	0.00	0.00	0.57	0.00
San Gabriel Country Club	0.00	225.77 4/	232.07	6.30	0.00	0.00
San Gabriel County Water District	0.00	5,095.29	4,386.27	0.00	0.00	709.02
San Gabriel Valley Water Co.	0.00	17,926.77	29,377.73	0.00 3/	0.00	0.00
Sierra La Verne Country Club	0.00	0.00	0.00	0.00	0.00	0.00
Sierra Madre, City of	0.00	0.00	0.00	0.00	0.00	0.00
S.L.S. & N. Inc.	0.00	0.98 4/	26.75	3.03 9/	0.00	0.00
Sonoco Products Company	5.39	91.88	83.49	0.00	0.00	8.39
Southern California Edison Co.	130.35	260.70	0.02	0.00	130.33	130.35
South Pasadena, City of	2,744.82	4,657.62	1,949.73	0.00	0.09	2,707.80
Southwest Water Company	0.00	0.00 2/	0.00	0.00	0.00	0.00
Sterling Mutual Water Co.	0.00	92.29 4/	80.66	0.00	0.00	11.63
Suburban Water Systems	8,580.22	36,222.38	25,012.44	0.00	0.00	11,209.94
Sunny Slope Water Co.	0.00	1,691.55	2,436.96	0.00 3/	0.00	0.00

Producer Name	Carryover To 2019-20	Fiscal Year 2019-20				
		Production Right	Production	Replacement Water Required	Lost Carry-Over	Carryover To 2020-21
San Gabriel Country Club	0.00	217.90 [1/]	235.19	17.29	0.00	0.00
San Gabriel County Water District	709.02	5,404.31	4,264.89	0.00	0.00	1,139.42
San Gabriel Valley Water Co.	0.00	19,128.40	30,516.44	0.00 [4/]	0.00	0.00
Sierra La Verne Country Club	0.00	0.00	0.00	0.00	0.00	0.00
Sierra Madre, City of	0.00	0.00	0.00	0.00	0.00	0.00
S.L.S. & N. Inc.	0.00	0.00	24.88	3.73 [9/]	0.00	0.00
Sonoco Products Company	8.39	79.88	73.63	0.00	0.00	6.25
Southern California Edison Co.	130.35	260.70	0.16	0.00	130.19	130.35
South Pasadena, City of	2,707.80	5,415.60	3,358.46	0.00	0.00	2,057.14
Southwest Water Company	0.00	0.00 [3/]	0.00	0.00	0.00	0.00
Sterling Mutual Water Co.	11.63	102.71	89.11	0.00	0.00	13.60
Suburban Water Systems	11,209.94	34,199.85	23,087.96	0.00	0.00	11,111.89
Sunny Slope Water Co.	0.00	1,691.55	2,375.30	0.00 [4/]	0.00	0.00
Tate, Phillip G. & Sieglinde A.	0.00	0.00 [3/]	0.00	0.00	0.00	0.00
Tran, Hieu	0.00	0.00	4.99 [5/]	0.00	0.00	0.00
Tyler Nursery	0.00	2.43 [5/]	0.00	0.00	2.43	0.00
United Rock Products Corp.	0.00	348.80	500.25	0.00 [4/]	0.00	0.00
Valencia Heights Water Co.	0.00	255.28	538.26	0.00 [4/]	0.00	0.00
Valley County Water District	0.00	6,348.01	6,845.24	0.00 [4/]	0.00	0.00
Valley View Mutual Water Co.	76.51	544.05	552.23	8.18	0.00	0.00
Vulcan Materials Co.	169.67	854.22	496.12	0.00	0.00	358.10
Whittier, City of	6,277.48	6,955.27	1,233.76	0.00	0.00	5,721.51
Wilmott, Erma	0.00	0.57 [5/]	0.00	0.00	0.57	0.00
Workman Mill Investment Co.	138.24	105.83	0.00	0.00	0.00	105.83
TOTAL:	34,603.48	194,608.18	192,583.66	12,911.67	640.76	36,743.32

[1/] Includes prior years' Replacement Water credit.
[2/] Computed in accordance with the Cooperative Water Exchange Agreement. See I-4.
[3/] Transferred all production rights.
[4/] Includes Producer Cyclic Storage Water.
[5/] Minimal producer.
[6/] 34.48 AF not subject to assessment.
[7/] 50.68 AF not subject to assessment.
[8/] 1,959.86 AF not subject to assessment.
[9/] Overlying Right. Replacement Water is 15 percent of total production.

Producer Name	Carryover To 2020-21	Fiscal Year 2020-21				
		Production Right	Production	Replacement Water Required	Lost Carry-Over	Carryover To 2021-22
San Gabriel Country Club	0.00	219.16 [1/]	282.17	63.01	0.00	0.00
San Gabriel County Water District	1,139.42	5,234.71	4,503.65	0.00	0.00	731.06
San Gabriel Valley Water Co.	0.00	23,671.43	32,606.65	0.00 [4/]	0.00	0.00
Sierra La Verne Country Club	0.00	0.00	0.00	0.00	0.00	0.00
Sierra Madre, City of	0.00	0.00	0.00	0.00	0.00	0.00
S.L.S. & N. Inc.	0.00	0.00	29.34	4.40 [9/]	0.00	0.00
SOL Long Term LLC	0.00	0.00	0.00	0.00	0.00	0.00
Sonoco Products Company	6.25	82.74	73.36	0.00	0.00	9.38
Southern California Edison Co.	130.35	260.70	0.46	0.00	129.89	130.35
South Pasadena, City of	2,057.14	4,764.94	3,582.71	0.00	0.00	1,182.23
Sterling Mutual Water Co.	13.60	104.68	104.28	0.00	0.00	0.40
Suburban Water Systems	11,111.89	30,011.86	26,518.96	0.00	0.00	3,492.90
Sunny Slope Water Co.	0.00	1,691.55	2,611.14	0.00 [4/]	0.00	0.00
Tate, Phillip G. & Sieglinde A.	0.00	0.00 [3/]	0.00	0.00	0.00	0.00
Tran, Hieu	0.00	0.00	3.21 [5/]	0.00	0.00	0.00
Tyler Nursery	0.00	2.43 [5/]	0.00	0.00	2.43	0.00
United Rock Products Corp.	0.00	348.80	471.09	0.00 [4/]	0.00	0.00
Valencia Heights Water Co.	0.00	706.97	930.04	0.00 [4/]	0.00	0.00
Valley County Water District	0.00	6,491.65	7,144.05	0.00 [4/]	0.00	0.00
Valley View Mutual Water Co.	0.00	468.49 [1/]	606.71	138.22	0.00	0.00
Vulcan Materials Co.	358.10	690.27	605.74	0.00	0.00	84.53
Whittier, City of	5,721.51	6,999.30	821.39	0.00	0.00	6,177.91
Wilmott, Erma	0.00	0.57 [5/]	0.00	0.00	0.57	0.00
Workman Mill Investment Co.	105.83	73.42	0.00	0.00	0.00	73.42
TOTAL:	36,743.32	197,339.52	207,821.52	10,776.45	176.41	25,117.46

[1/] Includes prior years' Replacement Water credit.

[2/] Computed in accordance with the Cooperative Water Exchange Agreement. See I-4.

[3/] Transferred all production rights.

[4/] Includes Producer Cyclic Storage Water.

[5/] Minimal producer.

[6/] 75.05 AF not subject to assessment.

[7/] 44.95 AF not subject to assessment.

[8/] 1,713.17 AF not subject to assessment.

[9/] Overlying Right. Replacement Water is 15 percent of total production.

Producer Name	Carryover To 2021-22	Fiscal Year 2021-22				
		Production Right	Production	Replacement Water Required	Lost Carry-Over	Carryover To 2022-23
San Gabriel Country Club	0.00	224.30 1/	218.83	0.00	0.00	5.47
San Gabriel County Water District	731.06	4,826.35	4,261.71	0.00	0.00	564.64
San Gabriel Valley Water Co.	0.00	21,022.77	28,959.32	0.00 4/	0.00	0.00
Sierra Madre, City of	0.00	0.00	0.00	0.00	0.00	0.00
S.L.S. & N. Inc.	0.00	0.00	29.11	4.37 9/	0.00	0.00
SOL Long Term LLC	0.00	0.00	0.00	0.00	0.00	0.00
Sonoco Products Company	9.38	75.87	66.34	0.00	0.00	9.53
Southern California Edison Co.	130.35	260.70	30.68	0.00	99.67	130.35
South Pasadena, City of	1,182.23	3,890.03	3,178.90	0.00	0.00	711.13
Sterling Mutual Water Co.	0.40	91.48	97.79	6.31	0.00	0.00
Suburban Water Systems	3,492.90	22,393.44	20,260.03	0.00	0.00	2,133.41
Sunny Slope Water Co.	0.00	1,691.55	2,290.68	0.00 4/	0.00	0.00
Tate, Phillip G. & Sieglinde A.	0.00	0.00 3/	0.00	0.00	0.00	0.00
Tran, Hieu	0.00	0.00	4.99 5/	0.00	0.00	0.00
Tyler Nursery	0.00	2.43 5/	0.00	0.00	2.43	0.00
United Rock Products Corp.	0.00	348.80	567.52	171.01 4/	0.00	0.00
Valencia Heights Water Co.	0.00	755.28	771.96	0.00 4/	0.00	0.00
Valley County Water District	0.00	6,522.76	6,418.46	0.00	0.00	104.30
Valley View Mutual Water Co.	0.00	467.54 1/	561.50	0.00 4/	0.00	0.00
Vulcan Materials Co.	84.53	704.39	1,050.71	231.82 4/	0.00	0.00
Whittier, City of	6,177.91	7,455.70	1,143.56	0.00	34.35	6,277.79
Wilmott, Erma	0.00	0.57 5/	0.00	0.00	0.57	
Workman Mill Investment Co.	73.42	91.01	0.00	0.00	0.00	91.01
TOTAL:	25,117.46	185,717.47	186,148.03	9,177.33	147.97	26,324.07

1/ Includes prior years' Replacement Water credit.
2/ Computed in accordance with the Cooperative Water Exchange Agreement. See I-4.
3/ Transferred all production rights.
4/ Includes Producer Cyclic Storage Water.
5/ Minimal producer.
6/ 54.33 AF not subject to assessment.
7/ 44.70 AF not subject to assessment.
8/ 880.69 AF not subject to assessment.
9/ Overlying Right. Replacement Water is 15 percent of total production.

Chapter Attachment 1-

DR SIB-001 Response #1c – Planned Projects 2023-2025.xlsx

Date	Year	Actual Pumped (acre-feet)	Operating Safe Yield OSY (acre-feet)	Pumper Share	Pumping Rights	Over pump (acre-feet)	Net Gross Multiplier	Main Basin Over Pump Cost ($/AF)	Water Rights (acre-feet)	Total Savings ($)	Annual Revenue Requirement	Year after water rights purchase	Benefit (Cost) To Customers (annual)	Benefit (Cost) To Customers (cumulative)	NPV Benefit (Cost) To Customers (annual)	NPV Benefit to Customer (Cumulative)	Description of Capital Improvement		2023
7/1/2007	2006/2007	30,223	240,000	12.57888%	30,189.31	33.44	1.00	246.65											
																	Water Rights acquisition cost		
7/1/2008	2007/2008	33,557	210,000	12.57888%	26,415.65	7,141.30	1.00	251.90					Discount Rate	**19.309%**			(2023)		1,098,000
7/1/2009	2008/2009	36,208	180,000	12.57888%	22,641.98	13,565.54	1.00	251.90					NPV Of Future						
7/1/2010	2009/2010	33,839	170,000	12.57888%	21,384.10	12,455.01	1.00	587.00					Benefits (Costs)						
7/1/2011	2010/2011	37,618	170,000	12.57888%	21,384.10	16,234.07	1.00	512.00					To Customers	(0)					
7/1/2012	2011/2012	37,085	210,000	12.57888%	26,415.65	10,669.52	1.00	640.00											
7/1/2013	2012/2013	37,170	200,000	12.57888%	25,157.76	12,012.65	1.00	673.00									Total		1,098,000.00
7/1/2014	2013/2014	34,135	180,000	12.57888%	22,641.98	11,493.33	1.00	773.00											
																	purchase cost of water rights	$ 1,098,000	
7/1/2015	2014/2015	24,965	150,000	12.57888%	18,868.32	6,096.86	1.00	773.00									Cost of Water Right ($/acre-feet)	$ 15,250	
7/1/2016	2015/2016	24,828	150,000	12.57888%	18,868.32	5,959.62	1.00	773.00									Water Right (Shares)	72	
7/1/2017	2016/2017	28,526	150,000	12.57888%	18,868.32	9,658.15	1.00	869.00										104.4	
7/1/2018	2017/2018	29,047	150,000	12.57888%	18,868.32	10,178.65	1.00	898.00											
																	CD ($15,250/share) : 1 share = 1.45 AFY		
7/1/2019	2018/2019	25,012	150,000	12.59998%	18,899.97	6,112.47	1.00	934.00											
7/1/2020	2019/2020	23,088	150,000	12.59998%	18,899.97	4,187.99	1.00	958.00											
7/1/2021	2020/2021	26,519	150,000	12.59998%	18,899.97	7,618.99	1.00	980.00										Annual Reveue Requirement	
7/1/2022	2021/2022	25,998	150,000	12.59998%	18,899.97	7,098.02	1.00	1,002.00						-	-	-		-	-
7/1/2023	2022/2023						1.00	1,058.00	104.40	110,455	143,073	1	(32,618)	(32,618)	(27,339)	(27,339)		-	-
7/1/2024	2023/2024						1.00	1,175.80	104.40	122,754	143,073	2	(20,319)	(52,937)	(14,275)	(41,614)		-	143,073
7/1/2025	2024/2025						1.00	1,226.79	104.40	128,077	143,073	3	(14,996)	(67,933)	(8,830)	(50,443)		-	143,073
7/1/2026	2025/2026						1.00	1,277.79	104.40	133,401	143,073	4	(9,672)	(77,605)	(4,773)	(55,217)		-	143,073
7/1/2027	2026/2027						1.00	1,328.78	104.40	138,725	143,073	5	(4,349)	(81,954)	(1,799)	(57,015)		-	143,073
7/1/2028	2027/2028						1.00	1,379.91	104.40	144,063	143,073	6	990	(80,964)	343	(56,672)		-	143,073
7/1/2029	2028/2029						1.00	1,430.91	104.40	149,387	143,073	7	6,313	(74,651)	1,835	(54,838)		-	143,073
7/1/2030	2029/2030						1.00	1,481.90	104.40	154,710	143,073	8	11,637	(63,014)	2,834	(52,003)		-	143,073
7/1/2031	2030/2031						1.00	1,532.89	104.40	160,034	143,073	9	16,961	(46,053)	3,462	(48,541)		-	143,073
7/1/2032	2031/2032						1.00	1,584.02	104.40	165,372	143,073	10	22,299	(23,754)	3,815	(44,726)		-	143,073
7/1/2033	2032/2033						1.00	1,635.02	104.40	170,696	143,073	11	27,623	3,868	3,961	(40,764)		-	143,073
7/1/2034	2033/2034						1.00	1,686.01	104.40	176,019	143,073	12	32,946	36,814	3,960	(36,804)		-	143,073
7/1/2035	2034/2035						1.00	1,737.00	104.40	181,343	143,073	13	38,270	75,084	3,856	(32,949)		-	143,073
7/1/2036	2035/2036						1.00	1,788.13	104.40	186,681	143,073	14	43,608	118,692	3,682	(29,266)		-	143,073
7/1/2037	2036/2037						1.00	1,839.13	104.40	192,005	143,073	15	48,932	167,624	3,463	(25,803)		-	143,073
7/1/2038	2037/2038						1.00	1,890.12	104.40	197,329	143,073	16	54,255	221,879	3,218	(22,585)		-	143,073
7/1/2039	2038/2039						1.00	1,941.11	104.40	202,652	143,073	17	59,579	281,458	2,962	(19,622)		-	143,073
7/1/2040	2039/2040						1.00	1,992.25	104.40	207,990	143,073	18	64,917	346,375	2,705	(16,917)		-	143,073
7/1/2041	2040/2041						1.00	2,043.24	104.40	213,314	143,073	19	70,241	416,616	2,453	(14,464)		-	143,073
7/1/2042	2041/2042						1.00	2,094.23	104.40	218,638	143,073	20	75,565	492,181	2,212	(12,251)		-	143,073
7/1/2043	2042/2043						1.00	2,145.22	104.40	223,961	143,073	21	80,888	573,069	1,985	(10,267)		-	143,073

Date	Year	Actual Pumped (acre-feet)	Operating Safe Yield OSY (acre-feet)	Pumper Share	Pumping Rights	Over pump (acre-feet)	Net Gross Multiplier	Main Basin Over Pump Cost ($/AF)	Water Rights (acre-feet)	Total Savings ($)	Annual Revenue Requirement	Year after water rights purchase	Benefit (Cost) To Customers (annual)	Benefit (Cost) To Customers (cumulative)	NPV Benefit (Cost) To Customers (annual)	NPV Benefit to Customer (Cumulative)	Description of Capital Improvement			2023
7/1/2044	2043/2044						1.00	2,196.36	104.40	229,300	143,073	22	86,226	659,295	1,773	(8,493)		-	-	143,073
7/1/2045	2044/2045						1.00	2,247.35	104.40	234,623	143,073	23	91,550	750,845	1,578	(6,915)		-	-	143,073
7/1/2046	2045/2046						1.00	2,298.34	104.40	239,947	143,073	24	96,874	847,719	1,400	(5,515)		-	-	143,073
7/1/2047	2046/2047						1.00	2,349.33	104.40	245,270	143,073	25	102,197	949,916	1,238	(4,278)		-	-	143,073
7/1/2048	2047/2048						1.00	2,400.47	104.40	250,609	143,073	26	107,536	1,057,452	1,091	(3,186)		-	-	143,073
7/1/2049	2048/2049						1.00	2,451.46	104.40	255,932	143,073	27	112,859	1,170,311	960	(2,226)		-	-	143,073
7/1/2050	2049/2050						1.00	2,502.45	104.40	261,256	143,073	28	118,183	1,288,494	843	(1,384)		-	-	143,073
7/1/2051	2050/2051						1.00	2,553.45	104.40	266,580	143,073	29	123,506	1,412,000	738	(645)		-	-	143,073
7/1/2052	2051/2052						1.00	2,604.58	104.40	271,918	143,073	30	128,845	1,540,845	645	0		-	-	143,073
7/1/2053	2052/2053						1.00	2,655.57	104.40	277,242	143,073	31	134,168	1,675,013	563	563		-	-	143,073
7/1/2054	2053/2054						1.00	2,706.56	104.40	282,565	143,073	32	139,492	1,814,505	491	1,054		-	-	143,073
7/1/2055	2054/2055						1.00	2,757.56	104.40	287,889	143,073	33	144,816	1,959,321	427	1,481		-	-	143,073
7/1/2056	2055/2056						1.00	2,808.69	104.40	293,227	143,073	34	150,154	2,109,475	371	1,852		-	-	143,073
7/1/2057	2056/2057						1.00	2,859.68	104.40	298,551	143,073	35	155,478	2,264,953	322	2,175		-	-	143,073
7/1/2058	2057/2058						1.00	2,910.67	104.40	303,874	143,073	36	160,801	2,425,754	279	2,454		-	-	143,073
7/1/2059							1.00	2,961.67	104.40	309,198	143,073	37	166,125	2,591,879	242	2,696				143,073
7/1/2060							1.00	3,012.80	104.40	314,536	143,073	38	171,463	2,763,342	209	2,905				143,073
7/1/2061							1.00	3,063.79	104.40	319,860	143,073	39	176,787	2,940,128	181	3,086				143,073
7/1/2062							1.00	3,114.78	104.40	325,184	143,073	40	182,110	3,122,239	156	3,242				143,073
7/1/2063							1.00	3,165.78	104.40	330,507	143,073	41	187,434	3,309,673	135	3,376				143,073
7/1/2064							1.00	3,216.91	104.40	335,845	143,073	42	192,772	3,502,445	116	3,492				143,073
7/1/2065							1.00	3,267.90	104.40	341,169	143,073	43	198,096	3,700,541	100	3,592				143,073
7/1/2066							1.00	3,318.90	104.40	346,493	143,073	44	203,420	3,903,960	86	3,678				143,073
7/1/2067							1.00	3,369.89	104.40	351,816	143,073	45	208,743	4,112,703	74	3,752				143,073
7/1/2068							1.00	3,421.02	104.40	357,155	143,073	46	214,081	4,326,785	64	3,816				143,073
7/1/2069							1.00	3,472.01	104.40	362,478	143,073	47	219,405	4,546,190	55	3,871				143,073
7/1/2070							1.00	3,523.01	104.40	367,802	143,073	48	224,729	4,770,918	47	3,918				143,073
7/1/2071							1.00	3,574.00	104.40	373,126	143,073	49	230,052	5,000,971	40	3,958				143,073
7/1/2072							1.00	3,625.13	104.40	378,464	143,073	50	235,391	5,236,361	35	3,992				143,073
7/1/2073							2.00	3,676.12	104.40	767,575	143,073	51	624,502	5,860,863	77	4,069				143,073
7/1/2074							3.00	3,727.12	104.40	1,167,333	143,073	52	1,024,260	6,885,123	106	4,175				143,073
7/1/2075							4.00	3,778.11	104.40	1,577,739	143,073	53	1,434,666	8,319,788	124	4,299				143,073
7/1/2076							5.00	3,829.24	104.40	1,998,865	143,073	54	1,855,791	10,175,580	134	4,433				143,073
7/1/2077							6.00	3,880.24	104.40	2,430,579	143,073	55	2,287,506	12,463,086	139	4,572				143,073
7/1/2078							7.00	3,931.23	104.40	2,872,941	143,073	56	2,729,868	15,192,954	139	4,710				143,073
7/1/2079							8.00	3,982.22	104.40	3,325,951	143,073	57	3,182,878	18,375,832	136	4,846				143,073
7/1/2080							9.00	4,033.35	104.40	3,789,739	143,073	58	3,646,666	22,022,497	130	4,976				143,073
7/1/2081							10.00	4,084.35	104.40	4,264,057	143,073	59	4,120,984	26,143,481	123	5,100				143,073
7/1/2082							11.00	4,135.34	104.40	4,749,023	-	60	4,749,023	30,892,504	119	5,219				143,073

Chapter Attachment 1-

Suburban Response to DR BYU-01 (AMI Pilot)

Suburban Water Systems
1325 N. Grand Ave. Ste. 100, Covina, CA 91724-4044
Phone: 626.543.2500, Fax: 626.331.4848
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February 7, 2023

To: Jeffrey Roberts
Project Coordinator

Brian Yu
Utilities Engineer/Regulatory Analyst

Shanna Foley
Attorney for Public Advocates Office

Re.: Responses to A.23-01-001, Public Advocates Office DR BYU-01 (AMI Pilot)

Dear Mr. Roberts et al.,

Attached is the information you requested in writing for Suburban's Total Company General Rate Case.

Sincerely,

/s/Carmelitha Bordelon

Carmelitha Bordelon
Director of Regulatory Affairs

Responses to A.23-01-001, Public Advocates Office

DR BYU-01 (AMI Pilot)

1. Please refer to the Commission Decision D.21-10-024, ordering paragraph 2, and Appendix A of the decision and provide the following:

   a. Provide the "Proposal of the AMI Pilot Study as specified in D.16-12-026, ordering paragraph 6."

      Response:

      Starting on Page 316, line 14 of Jorge Lopez's Testimony, and workpaper Volume III-D, P-6 is the proposal requested in D.21-10-024, ordering paragraph 2. The testimony identifies the benefits of AMI and justifies implementing system wide AMI. The information requested was included in the testimony and workpaper instead of providing a duplicative report.

      i. In addition to the proposal, provide a separate explanation as to how the deployment of Advanced Metering Infrastructure promotes conservation, rate recovery, cost-based rates, and equity, providing analysis and a showing to allow the Commission to evaluate the likely effectiveness of proposal.

         Response:

         The customer benefits including conservation, rate recovery, cost-based rates and equity are described in detail starting on Page 319, line 13 of Jorge Lopez's testimony.

   b. Provide a copy of the "Report about that AMI Pilot Study as specified in D.16-12-026," ordering paragraph 8, which should have been submitted to the Commission's Water Division.

      Response:

      See the attached report, previously submitted to the Commission on June 11, 2018, titled "DR BYU-01 #1.b Response – Compliance Report on AMI for Suburban Water Systems 06-11-18.pdf"

   c. Provide the "Deployment of AMI proposal that meets all AMI requirements as specified in D.16-12-026, ordering paragraphs 7, and 9."

      i. In addition to the AMI deployment proposal, provide explanation that Suburban's AMI deployment proposal shows AMI is substantially more cost-effective than AMR.

         Response:

Ordering paragraphs 7 and 9 of D.16-12-026 state that "proposals may identify districts or areas where the existing or anticipated communications infrastructure and other factors indicate that Advanced Meter Reading (AMR) would be substantially more cost effective than AMI, and deploy AMR if comparable leak detection and data communication benefits can be achieved."

Page 320, line 20 of Jorge Lopez's testimony discusses the reasons that installing AMI system is not substantialy more cost effective. Suburban will not eliminate positions due to the reduced workload rather it will improve customer service for customers by reallocating staff.

ii. In addition to the AMI deployment proposal, provide a comparison analysis of leak detection and data communication benefits between AMI and AMR

Response:

The following paragraphs demonstrate examples of the superior customer service that AMI can provide versus AMR: .

Figure 1 of Workpaper III-D, P-6 describes an example of a customer account where an estimated leak of 2,418 gallons per day (GPD) was detected by the AMI system, the customer was alerted immediately. The customer was able to quickly make repairs. Alternatively, had the AMR system would have created the leak alert during the schedule monthly meter read, significanly delaying the alert to the customer, and delaying their subsequent repair wasting more water and unnecessarily increasing the customer's bill.

Specifically, if this leak occurred 3 weeks before the scheduled read date approximately 51,000 gallons or 68 CCF would have been wasted resulting in a bill impact of several hundred dollars.
Starting on line 10, Page 325, Jorge Lopez's testimony describes the customer alert process Suburban developed to address alerts generated by the AMI system. Subsequently, at the end of 2022 Suburban implemented the WaterSmart Vertex One customer portal that has automated customer alerts and allows customers to view their consumption to date online.

iii. In addition to the AMI deployment proposal, provide detailed plans for Suburban customers' ability to opt out of AMI meter installations.

Response:

Workpaper Volume III-D, P-6, provides a copy of notification letter customers receive providing the opportunity to opt out. Customer's that chose to opt out have their meter replaced with a direct read meter and placed in a direct meter read cycle.

d. Provide a report showing that the "AMI Pilot in the Hacienda Heights area" had addressed each of the issues listed in Appendix G-1 to the Cal Advocates August 10, 2020 report. Below are the Appendix G-1 requirements:

Appendix G-1: AMI Pilot Study Additional Information Requirements.

Suburban should address the following on its AMI pilot execution in the Hacienda Heights area:[1]

a. *Customer Notification and Feedback*

i. Suburban will notify affected customers in advance that it plans to switch existing AMR meter reading method with "AMI device or meter," method and provide 30 days for customers to contact Suburban with any questions and concerns.

Response:

Workpaper Volume III-D, P-6, provides a copy of the notification letter customers receive notifying them of the impending change to an AMI metering device. Letters are mailed to customer well in advance (no less than 30 days) before meters are switched and read with the AMI tower. The letter includes the office phone number if there are questions or concerns.

ii. Suburban will notify customers with an "AMI device or meter" that it switched an AMR meter reading method with an "AMI meter" reading method.

Response:

Workpaper Volume III-D, P-6, provides a copy of the notification letter customers receive notifying them of the impending change to an AMI metering device. Letters are mailed to customer well in advance (no less than 30 days) before meters are switched and read with the AMI tower. The letter includes the office phone number if there are questions or concerns.

iii. Suburban will track all customer complaints (letters, phone calls, emails, in person) related to AMI installation and operation and provide such information when requested by Cal Advocates or the Commission. Information should include description of the complaints (misreads, security concerns, etc.) and the disposition.

[1] Based on D.16-12-042, *Decision Granting Joint Motion to Adopt the Proposed Settlement Agreement Authorizing California Water Service Company's General Rate Increases for 2017 2018 and 2019, and Resolving Contested Issues and Related Special Requests*, Appendix A (Dec. 20, 2016) at pp. 124 -125.

Response:

Please see attached file titled "DR BYU-01 #1.d.a.iii Response.pdf" for the correspondence for issues related to AMI.

b. AMI Information

Suburban will provide information regarding the AMI usage and billing information that was provided to customers, including how and when it was provided.

Response:

Suburban's process for providing usage and billing information is the same for AMI customers as other customers that have direct read or AMR devices. Usage is shown on their monthly bill and mailed to the address on record.

AMI customers have the enhanced ability of reviewing real time usage. Starting on Page 319, line 13 of Jorge Lopez testimony, it describes the available enhancements provided by WaterSmart, the recently implemented online customer interface. Furthermore, at the end of 2022 Suburban automated the notification process where customers have the ability to receive alert notifications via email, and text messages.

c. Leak detectors and water loss reduction

Suburban will report the following information on leak detector installations:

i. The installed leak detector ratio that is appropriate and cost effective for Hacienda Heights area.

Response:

It is not clear from the question what specific leak detector Cal PA is referring to. Suburban does not install leak detectors.

ii. Number of leaks that were detected using AMI data, including the number on mains, company service lines, and the customer-side of the meter.

Response:

The AMI system identified 7,085 leak alerts since implementing WaterSmart Vertex One, on the customer side of the installed 5,653

AMI meters between 9/30/2022 and 2/1/2023. No leaks on Suburban's distribution system were detected using AMI.

iii. How leak detector information is used in the Hacienda Heights area's operations.
Response:
Suburban does not use leak detectors.

iv. Estimated water savings from leaks repaired using AMI data and leak detectors.
Response:

Without leak detectors, Suburban is unable to estimate water savings from leaks repairs using leak detectors.

Water savings from customers cannot be estimated due to limited time using AMI. Over a longer period of time and increased customer use, estimates can be developed.

d. *AMI Operations*

Suburban will report the following information related to meter reading operations:

i. Increase/savings in meter reading costs in terms of number of employees (or labor hours), vehicles (or vehicle miles), and truck rolls.
Response:

Labor hours and vehicle use will remain the same. Refer to, Page 320, line 20 of Jorge Lopez testimony explaining reasons that there will be no changes.

ii. Increase/reduction in meter mis-reads.
Response:

From January 2022 to October 2022, there was (1) mis-read occurrence for AMI device customers. Non AMI device customers had 232 mis-reads.

iii. Increase/reduction in courtesy adjustments (for high bills).
Response:

Suburban was unable to determine an increase or reduction of courtesy adjustment for high bills resulting from the installation of AMI due to data distortion caused by COVID19's impact on the economy and associated disconnection moratoriums, and drought restrictions and surcharges resulting from the Governors Executive Order.

e. *Cyber Security*

Suburban will provide the following information regarding the security of AMI-generated data:

i. Incidents of security breach/inappropriate disclosures and disposition.
Response:
There have been no cyber security breaches with AMI.

ii. Written procedures for the management, processing, storage, and disclosure of AMI-generated customer usage data.
Response:
Starting on line 5, Page 329, Jorge Lopez's testimony discusses cybersecurity for AMI.

Employee cyber security training related to AMI deployment.
Response:
Suburban's employees are required to complete annual cyber security training refresher courses to ensure they are aware of cyber security risks and threats.

Attachment C: Chapter 2 Attachments

Chapter Attachment 2-1
Suburban Response to DR BYU-07

Suburban Water Systems
1325 N. Grand Ave. Ste. 100, Covina, CA 91724-4044
Phone: 626.543.2500, Fax: 626.331.4848
www.swwc.com

April 13, 2023

To: Suliman Ibrahim
Project Coordinator

Brian Yu
Utilities Engineer/Regulatory Analyst

Shanna Foley
Attorney for Public Advocates Office

Re.: Response to A.23-01-001, Public Advocates Office DR BYU-07 (Drill a New Central Basin Well at Stage Rd.)

Dear Mr. Ibrahim et al.,

Attached is the information you requested in writing for Suburban's Total Company General Rate Case.

Sincerely,

/s/Carmelitha Bordelon

Carmelitha Bordelon
Director of Regulatory Affairs

Response to A.23-01-001, Public Advocates Office

DR BYU-05 (Drill a New Central Basin Well at Stage Rd.)

1. The Lopez testimony, pp. 122-123, states "The City has agreed to a long-term land-use lease agreement for Suburban to construct a production well." Workpaper Table 6-1A shows "land purchase on Stage Rd." for $439,488 in 2024.

   a. Clarify whether the land will be leased or purchased.

      Response:

      The land will be leased from City of La Mirada.

   b. If the land will be leased from the City of La Mirada, provide the lease agreement.

      Response:

      A lease agreement has not been executed. A lease agreement will be executed after water sampling is completed.

   c. If the lease agreement has not been made with the City, provide other documentation that the City is willing to have the agreement and also provide preliminary terms of the lease agreement that Suburban is in communication with the City.

      Response:

      See the enclosed correspondence with City of La Mirada agreeing to a land lease agreement "DR BYU-07 Response #1.c.pdf"

   d. Provide the reference to Suburban's workpaper to show how the cost of the lease is captured: expense going forward, or rate base.

      Response:

      Workpaper Volume III-D, P-3 page 299 of 2708 shows the land's appraisal. The present value of the appraisal plus Engineering Services and General Administration are included in rate base.

Appendix 1 - Colliers International Market Rent Analysis (see Workpaper Volume III-D, P-3)

Description	Quantity	Unit	Unit Cost	Total
Land Acquisition	1	Lump Sum	$360,000	$360,000
Subtotal				$360,000
Engineering Services & Inspection			12%	$43,200
Subtotal				$403,200
Contingency			0%	$0
Subtotal				$403,200
General Administration			9.00%	$36,288
Total				$439,488

e. Provide documents that substantiate the 2024 cost of $439,488.

Response:

The testimony Workpaper Volume III-D, P-3 page 299 of 2708 shows the land appraisal.

2. The Lopez testimony, p. 123, states "In 2022, an eight-inch diameter 1,500 feet deep test well was drilled at this site to profile the source water in the aquifer. The results show that a well with a capacity of 1,000 GPM (1,613 AFY) can be drilled, and Color, Iron, Manganese, and TOC removal is required. This removal can be addressed with the treatment facility at Plant 409 which has available treatment capacity."

a. Provide a report that shows the result of the test well drilled.

Response:

Intera's preliminary report is included in Workpaper Volume III-D, P-3, page 426 shows the preliminary results of the test well.

b. Explain how Suburban determined that a 1,000 gpm capacity production well can be drilled.

Response:
Refer to Workpaper III-D, P-3 page 432 of 2708 from Intera's report indicating "it is expected that the design of the proposed production well will support a sustainable yield greater than 1,000 gpm." The dynamic profiling result using a 200 gpm pump was extrapolated for a full sized production well to determine the anticipated flow.

c. Provide substantiation for each of the contaminants listed, Color, Iron, Manganese and TOC, with the respective level of each contaminant.

Response:

Enclosed are the full suites of California Title 22 water quality samples. Please see the enclosed file entitled "DR BYU-07 Response #2.c.pdf" for title 22 lab results.

d. Provide the description and capacity of the existing treatment facilities at Plant 409. Explain what type of treatment is available at Plant 409 for each contaminant.

Response:

The Plant 409 Treatment plant is equipped with two rapid mix vessels and two filtration vessels, a 70,000 gallon backwash tank and has a capacity to treat 2,500 gpm.

Well W-3 water is dosed with sodium hypochlorite prior to the reaction vessels to oxidize As(III) to As(V), oxidize color and iron, remove natural ammonia, provide oxidant for the Filtronics Electromedia to remove manganese, and provide a disinfectant residual. Water is then enters the distribution system.

3. The Lopez testimony, p. 128, states "Suburban's APA (Allowed Pumping Allocation) is 3,721.00 Acre-feet." And "Suburban's existing limited production capacity results in 1,112 AF of Central Basin that is available annually." And "A 1,000 GPM well at the proposed location on Stage Rd. in La Mirada would allow Suburban to produce all of its rights…"

a. What is Suburban's anticipated annual production from the Stage Road well in AF?

Response:

Suburban anticipates an annual production of 1,612 AFY as noted on Workpaper Volume III-D, P-3, page 282.

b. Provide substantiation to verify the statement that the new well at Stage Road would allow Suburban to "produce all of its rights."

Response:

Suburban's Central Basin water rights are 3,721 AFY. The table in page 130 of Jorge Lopez's testimony shows that Suburban has an average deficit of 1,112 AFY. Assuming that the aging wells 410 and 409 continue to produce at the forecasted capacity with added production of 1,161 AFY, Suburban will have the ability to maximize its rights. Any capacity above Suburban's owned rights can be used to produced leased central basin rights.

4. The Lopez testimony, p. 132, states "The cost for Non-Interruptible Treated (Tier 1) in 2019 was $1,185/AF, which has since increased to $1,379/AF. By comparison, Suburban's cost to produce Central Basin rights is $603/AF, which is 56% less than CBMWD."

a. Provide the most recent cost of purchased water from CBMWD.

Response:

The current CBMWD rate of $1,379 as shown on page 291 of Workpaper Volume III-D, P-3. Included with this response is rate sheet titled, "DR BYU-07 Response #4.a.pdf" for CBMWD rate.

b. Provide a detailed calculation to show how Suburban estimated the cost to produce Central Basin rights is $603/AF.

Response:

The Water Replenishment District assessment cost is $411/AF. Plant 409 W-3's energy cost per AF for the last three years is $192/AF and is estimated to be the same at the proposed well. Summing WRD's assessment cost, and Plant 409 W-3's energy cost the total production cost is $603/AF. The enclosed file titled, "DR BYU-07 Response #4.b.pdf" shows WRD's assessment cost.

c. Provide a detailed calculation for the Stage Road new well project's estimated cost to produce, in $/AF, including the design, test well drilling, new well drilling, new well equipping, piping to Plant 409, and treatment cost.

Response:

The detailed cost estimates for each phase, including the test well, production well, well equipping, land lease, and piping are shown starting on page 138 of Jorge Lopez's testimony.

5. Workpaper Table 6-1A shows recorded amount of $1,071,000 in 2022 for La Mirada Yard Test Well.

a. Provide documentation to verify the recorded cost of $1,071,000 including but not limited to vendor invoices, internal labor hours, etc.

Response:

Workpaper Table 6-1A showed estimates, not recorded, costs in 2022. "DR BYU-07 Response #5.a.pdf" shows the invoices and "DR BYU-07 Response #5.a.xlsx" is the summary of costs to date for $1,059,944.42 for the La Mirada Yard Test Well. Additional costs for water sampling are not included that were delayed and scheduled in late April.

Chapter Attachment 2-2

DR BYU-07 Response Attachment - #1.c.pdf

From: Mark Stowell
To: Jorge Lopez
Cc: Marlin Munoz; Nathan Au; Alison Moore
Subject: RE: Test Well Drilling Update
Date: Thursday, April 28, 2022 8:17:05 AM
Attachments: image001.png

Jorge,

Glad to see this project is moving forward. We would be considering a long-term lease for this site. We haven't used a property assessment consultant in quite a while so we can't offer you anyone in particular.

Just to clarify, the rectangular area shown in your current exhibit is just for access for drilling. The previous area indicated for the well site was smaller. We still utilize the area near the bunkers and will need area to store containers and maneuver trucks.

Please coordinate with Marlin for field issues and work through Alison Moore for land lease issues. Alison can be reached at 562 902 2304.

Sincerely,

Mark L. Stowell, P.E.
Director of Public Works/City Engineer
Public Works Department
15515 Phoebe Avenue
La Mirada, CA 90638
(562) 902-2385
www.cityoflamirada.org

From: Jorge Lopez <jlopez@swwc.com>
Sent: Thursday, April 28, 2022 5:51 AM
To: Mark Stowell <mstowell@cityoflamirada.org>
Cc: Marlin Munoz <mmunoz@cityoflamirada.org>; Nathan Au <nau@swwc.com>
Subject: Test Well Drilling Update

Good Morning Mark,

Hope you are doing well.

We have made a lot of progress on drilling a test since we last spoke. We completed a Drinking Water Source Assessment to identify risks and feel very confident that the risks are very low. We are working on executing an agreement to drill a test well to obtain water production and water quality information and after we obtain those results we will be able to determine if this is viable site for a production well.

We are targeting mobilizing the first week of June 2022 to begin drilling the test well.

There are two items that I would like to discuss

1. Debris removal from yard
    a. An area was identified for the contractor needed for the drilling operation. There is debris that will need to be removed but there are also concrete tables that need to know whether they can be disposed or relocated.
    b. Please let me if you or someone on your team would like to meet to review the items or if everything can be removed.
    c. Suburban will remove all items within the area.
2. Land Purchase
    a. Is the City open to selling the property?
    b. What vendor do you use for land assessments?

Please let me know if you have any questions.

Jorge Lopez, P.E.
Vice President, Engineering | Suburban Water Systems
1325 N. Grand Avenue, Suite 100 | Covina, CA 91724-4044
Phone 626.543.2518 | Fax 626.331.4848 | E-mail jlopez@swwc.com
Visit us at www.swwc.com/suburban/

Chapter Attachment 2-3

DR BYU-07 Response Attachment - #2.c.pdf

(Extracted pages showing arsenic and manganese only)

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 2I23091

Project: Stage Rd Plant 429 Test Well

Attn: Sandy Nimat

Client: Suburban Water Systems - La Mirada
15088 Rosecrans Ave
La Mirada, CA 90638

Report Date: 10/27/2022
Received Date: 9/23/2022
Turnaround Time: Normal
Phones: (626) 543-2648
Fax: (626) 543-2692
P.O. #:
Billing Code:

Dear Sandy Nimat,

Enclosed are the results of analyses for samples received 9/23/22 with the Chain-of-Custody document. The samples were received in good condition, at 2.2 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Well 429 — Sampled: 09/22/22 14:50 by Adam Morris, Miles Koehler

2I23091-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: _Various			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 09/27/22 11:19				**Analyst:** jan
Total Anions	**13**		0.13	meq/l	1	09/28/22	
Total Cations	**12**		0.12	meq/l	1	09/28/22	
Total hardness as CaCO3	**266**		3.31	mg/l	1	09/28/22	
Method: AWWA			**Instr:** ICPMS04				
Batch ID: W2I2231 **Preparation:** _NONE (METALS)			**Prepared:** 09/29/22 16:13				**Analyst:** jol
Aggressive Index	**12.5**			AGI	1	09/29/22	
Method: Calculation			**Instr:** [CALC]				
Batch ID: [CALC] **Preparation:** [CALC]			**Prepared:** 09/27/22 11:19				**Analyst:** kvm
Hardness as CaCO3, Total	**266**		3.31	mg/l	1	09/28/22	
Method: EPA 140.1			**Instr:** _ANALYST				
Batch ID: W2I1797 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/23/22 17:56				**Analyst:** cer
Threshold Odor Number	ND		1.0	T.O.N.	1	09/23/22 18:13	O-15
Method: EPA 1613B			**Instr:** GCMS15				
Batch ID: W2J1486 **Preparation:** EPA 3510C			**Prepared:** 10/20/22 10:46				**Analyst:** mld
2,3,7,8-TCDD (Dioxin)	ND		5.00	pg/l	1	10/23/22	
Method: EPA 180.1			**Instr:** TURB01				
Batch ID: W2I1798 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/23/22 18:15				**Analyst:** VAT
Turbidity	**0.80**		0.10	NTU	1	09/23/22 18:25	
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W2I1976 **Preparation:** EPA 200.2			**Prepared:** 09/27/22 11:19				**Analyst:** kvm

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Sample Results

(Continued)

Sample: Well 429

Sampled: 09/22/22 14:50 by Adam Morris, Miles Koehler

2I23091-01 (Water)

(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 200.7			**Instr:** ICP03				
Batch ID: W2I1976 **Preparation:** EPA 200.2			**Prepared:** 09/27/22 11:19				**Analyst:** kvm
Calcium, Total	**58.1**		0.500	mg/l	1	09/28/22	
Iron, Total	**490**		30	ug/l	1	09/28/22	
Magnesium, Total	**29.3**		0.500	mg/l	1	09/28/22	
Potassium, Total	**4.8**		0.50	mg/l	1	09/28/22	
Sodium, Total	**150**		1.0	mg/l	1	09/28/22	
Method: EPA 200.8			**Instr:** ICPMS04				
Batch ID: W2I1977 **Preparation:** EPA 200.2			**Prepared:** 09/27/22 13:00				**Analyst:** ntl
Aluminum, Total	ND		20	ug/l	1	09/29/22	
Antimony, Total	ND		0.50	ug/l	1	09/29/22	
Arsenic, Total	**1.8**		0.50	ug/l	1	09/29/22	
Barium, Total	**120**		1.0	ug/l	1	09/29/22	
Beryllium, Total	ND		0.10	ug/l	1	09/29/22	
Cadmium, Total	ND		0.50	ug/l	1	09/29/22	
Chromium, Total	ND		2.0	ug/l	1	09/29/22	
Copper, Total	ND		1.0	ug/l	1	09/29/22	
Lead, Total	ND		0.20	ug/l	1	09/29/22	
Manganese, Total	**48**		1.0	ug/l	1	09/29/22	
Nickel, Total	ND		2.0	ug/l	1	09/29/22	
Selenium, Total	ND		0.50	ug/l	1	09/29/22	
Silver, Total	ND		0.20	ug/l	1	09/29/22	
Thallium, Total	ND		0.20	ug/l	1	09/29/22	
Uranium Rad	**0.50**		0.13	pCi/ L	1	09/29/22	
Zinc, Total	ND		10	ug/l	1	09/29/22	
Method: EPA 218.6			**Instr:** LC13				
Batch ID: W2I2041 **Preparation:** _NONE (LC)			**Prepared:** 09/27/22 17:04				**Analyst:** cam
Chromium 6+	ND		0.020	ug/l	1	09/28/22	
Method: EPA 245.1			**Instr:** HG03				
Batch ID: W2I2140 **Preparation:** EPA 245.1			**Prepared:** 09/28/22 12:54				**Analyst:** KVM
Mercury, Total	ND		0.050	ug/l	1	09/30/22	
Method: EPA 300.0			**Instr:** LC12				
Batch ID: W2I2105 **Preparation:** _NONE (LC)			**Prepared:** 09/28/22 10:35				**Analyst:** jan
Chloride, Total	**110**		0.50	mg/l	1	09/28/22	
Fluoride, Total	**0.44**		0.10	mg/l	1	09/28/22	
Sulfate as SO4	**200**		0.50	mg/l	1	09/28/22	
Method: EPA 314.0			**Instr:** LC08_Channel1				
Batch ID: W2I1957 **Preparation:** _NONE (LC)			**Prepared:** 09/27/22 10:38				**Analyst:** JAN
Perchlorate	ND		2.0	ug/l	1	09/29/22	
Method: EPA 335.4			**Instr:** AA01				
Batch ID: W2I1988 **Preparation:** _NONE (WETCHEM)			**Prepared:** 09/27/22 12:27				**Analyst:** ISM
Cyanide, Total	ND		5.0	ug/l	1	09/30/22	

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Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2I1976 - EPA 200.2										
Blank (W2I1976-BLK1)				**Prepared: 09/27/22**	**Analyzed: 09/28/22**					
Calcium, Total	ND	0.500	mg/l							
Iron, Total	ND	30	ug/l							
Magnesium, Total	ND	0.500	mg/l							
Potassium, Total	ND	0.50	mg/l							
Sodium, Total	ND	1.0	mg/l							
LCS (W2I1976-BS1)				**Prepared: 09/27/22**	**Analyzed: 09/28/22**					
Calcium, Total	48.0	0.500	mg/l	50.2		96	85-115			
Iron, Total	208	30	ug/l	200		104	85-115			
Magnesium, Total	48.7	0.500	mg/l	50.2		97	85-115			
Potassium, Total	57.3	0.50	mg/l	52.1		110	85-115			
Sodium, Total	48.0	1.0	mg/l	50.2		96	85-115			
Matrix Spike (W2I1976-MS1)	**Source: 2I22078-01**			**Prepared: 09/27/22**	**Analyzed: 09/28/22**					
Calcium, Total	84.2	0.500	mg/l	50.2	*37.2*	94	70-130			
Iron, Total	254	30	ug/l	200	*18.4*	118	70-130			
Magnesium, Total	51.8	0.500	mg/l	50.2	*3.60*	96	70-130			
Potassium, Total	61.6	0.50	mg/l	52.1	*2.27*	114	70-130			
Sodium, Total	108	1.0	mg/l	50.2	*58.5*	99	70-130			
Matrix Spike (W2I1976-MS2)	**Source: 2I23091-01**			**Prepared: 09/27/22**	**Analyzed: 09/28/22**					
Calcium, Total	104	0.500	mg/l	50.2	*58.1*	92	70-130			
Iron, Total	676	30	ug/l	200	*492*	92	70-130			
Magnesium, Total	77.9	0.500	mg/l	50.2	*29.3*	97	70-130			
Potassium, Total	67.0	0.50	mg/l	52.1	*4.84*	119	70-130			
Sodium, Total	196	1.0	mg/l	50.2	*148*	95	70-130			
Matrix Spike Dup (W2I1976-MSD1)	**Source: 2I22078-01**			**Prepared: 09/27/22**	**Analyzed: 09/28/22**					
Calcium, Total	84.7	0.500	mg/l	50.2	*37.2*	95	70-130	0.6	30	
Iron, Total	225	30	ug/l	200	*18.4*	103	70-130	12	30	
Magnesium, Total	52.1	0.500	mg/l	50.2	*3.60*	97	70-130	0.6	30	
Potassium, Total	61.9	0.50	mg/l	52.1	*2.27*	114	70-130	0.6	30	
Sodium, Total	109	1.0	mg/l	50.2	*58.5*	100	70-130	0.7	30	
Matrix Spike Dup (W2I1976-MSD2)	**Source: 2I23091-01**			**Prepared: 09/27/22**	**Analyzed: 09/28/22**					
Calcium, Total	103	0.500	mg/l	50.2	*58.1*	90	70-130	0.5	30	
Iron, Total	673	30	ug/l	200	*492*	90	70-130	0.5	30	
Magnesium, Total	77.5	0.500	mg/l	50.2	*29.3*	96	70-130	0.5	30	
Potassium, Total	66.8	0.50	mg/l	52.1	*4.84*	119	70-130	0.2	30	
Sodium, Total	194	1.0	mg/l	50.2	*148*	92	70-130	0.7	30	
Batch: W2I1977 - EPA 200.2										
Blank (W2I1977-BLK1)				**Prepared: 09/27/22**	**Analyzed: 09/29/22**					
Aluminum, Total	ND	20	ug/l							
Antimony, Total	ND	0.50	ug/l							
Arsenic, Total	ND	0.50	ug/l							
Barium, Total	ND	1.0	ug/l							
Beryllium, Total	ND	0.10	ug/l							

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Quality Control Results

(Continued)

Metals by EPA 200 Series Methods (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2I1977 - EPA 200.2 (Continued)										
Blank (W2I1977-BLK1)				**Prepared: 09/27/22 Analyzed: 09/29/22**						
Cadmium, Total	ND	0.50	ug/l							
Chromium, Total	ND	2.0	ug/l							
Copper, Total	ND	1.0	ug/l							
Lead, Total	ND	0.20	ug/l							
Manganese, Total	ND	1.0	ug/l							
Nickel, Total	ND	2.0	ug/l							
Selenium, Total	ND	0.50	ug/l							
Silver, Total	ND	0.20	ug/l							
Thallium, Total	ND	0.20	ug/l							
Zinc, Total	ND	10	ug/l							
LCS (W2I1977-BS1)				**Prepared: 09/27/22 Analyzed: 09/29/22**						
Aluminum, Total	52.3	20	ug/l	50.0		105	85-115			
Antimony, Total	49.7	0.50	ug/l	50.0		99	85-115			
Arsenic, Total	52.0	0.50	ug/l	50.0		104	85-115			
Barium, Total	49.2	1.0	ug/l	50.0		98	85-115			
Beryllium, Total	48.7	0.10	ug/l	50.0		97	85-115			
Cadmium, Total	50.2	0.50	ug/l	50.0		100	85-115			
Chromium, Total	51.1	2.0	ug/l	50.0		102	85-115			
Copper, Total	53.1	1.0	ug/l	50.0		106	85-115			
Lead, Total	50.1	0.20	ug/l	50.0		100	85-115			
Manganese, Total	52.5	1.0	ug/l	50.0		105	85-115			
Nickel, Total	51.9	2.0	ug/l	50.0		104	85-115			
Selenium, Total	50.5	0.50	ug/l	50.0		101	85-115			
Silver, Total	49.7	0.20	ug/l	50.0		99	85-115			
Thallium, Total	49.8	0.20	ug/l	50.0		100	85-115			
Zinc, Total	51.0	10	ug/l	50.0		102	85-115			
Matrix Spike (W2I1977-MS1)	**Source: 2I23062-01**			**Prepared: 09/27/22 Analyzed: 09/29/22**						
Aluminum, Total	57.5	20	ug/l	50.0	*9.15*	97	70-130			
Antimony, Total	51.0	0.50	ug/l	50.0	*ND*	102	70-130			
Arsenic, Total	53.2	0.50	ug/l	50.0	*2.01*	102	70-130			
Barium, Total	74.3	1.0	ug/l	50.0	*27.1*	94	70-130			
Beryllium, Total	50.0	0.10	ug/l	50.0	*ND*	100	70-130			
Cadmium, Total	49.7	0.50	ug/l	50.0	*ND*	99	70-130			
Chromium, Total	48.7	2.0	ug/l	50.0	*1.00*	95	70-130			
Copper, Total	78.0	1.0	ug/l	50.0	*29.3*	97	70-130			
Lead, Total	49.6	0.20	ug/l	50.0	*0.435*	98	70-130			
Manganese, Total	50.3	1.0	ug/l	50.0	*1.07*	98	70-130			
Nickel, Total	48.3	2.0	ug/l	50.0	*0.511*	95	70-130			
Selenium, Total	49.9	0.50	ug/l	50.0	*0.584*	99	70-130			
Silver, Total	46.4	0.20	ug/l	50.0	*ND*	93	70-130			
Thallium, Total	49.0	0.20	ug/l	50.0	*ND*	98	70-130			
Zinc, Total	51.3	10	ug/l	50.0	*1.50*	100	70-130			

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Quality Control Results

(Continued)

Metals by EPA 200 Series Methods (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2I1977 - EPA 200.2 (Continued)										
Matrix Spike Dup (W2I1977-MSD1)	**Source: 2I23062-01**			**Prepared: 09/27/22**	**Analyzed: 09/29/22**					
Aluminum, Total	57.3	20	ug/l	50.0	*9.15*	96	70-130	0.2	30	
Antimony, Total	51.3	0.50	ug/l	50.0	*ND*	103	70-130	0.7	30	
Arsenic, Total	53.5	0.50	ug/l	50.0	*2.01*	103	70-130	0.5	30	
Barium, Total	74.7	1.0	ug/l	50.0	*27.1*	95	70-130	0.5	30	
Beryllium, Total	50.2	0.10	ug/l	50.0	*ND*	100	70-130	0.4	30	
Cadmium, Total	50.0	0.50	ug/l	50.0	*ND*	100	70-130	0.6	30	
Chromium, Total	48.7	2.0	ug/l	50.0	*1.00*	95	70-130	0.04	30	
Copper, Total	77.8	1.0	ug/l	50.0	*29.3*	97	70-130	0.3	30	
Lead, Total	49.9	0.20	ug/l	50.0	*0.435*	99	70-130	0.7	30	
Manganese, Total	50.9	1.0	ug/l	50.0	*1.07*	100	70-130	1	30	
Nickel, Total	48.4	2.0	ug/l	50.0	*0.511*	96	70-130	0.4	30	
Selenium, Total	50.4	0.50	ug/l	50.0	*0.584*	100	70-130	1	30	
Silver, Total	47.2	0.20	ug/l	50.0	*ND*	94	70-130	2	30	
Thallium, Total	49.2	0.20	ug/l	50.0	*ND*	98	70-130	0.4	30	
Zinc, Total	50.9	10	ug/l	50.0	*1.50*	99	70-130	0.7	30	
Batch: W2I2140 - EPA 245.1										
Blank (W2I2140-BLK1)				**Prepared: 09/28/22**	**Analyzed: 09/30/22**					
Mercury, Total	ND	0.050	ug/l							
LCS (W2I2140-BS1)				**Prepared: 09/28/22**	**Analyzed: 09/30/22**					
Mercury, Total	1.00	0.050	ug/l	1.00		100	85-115			
Matrix Spike (W2I2140-MS1)	**Source: 2I23091-01**			**Prepared: 09/28/22**	**Analyzed: 09/30/22**					
Mercury, Total	1.00	0.050	ug/l	1.00	*ND*	100	70-130			
Matrix Spike Dup (W2I2140-MSD1)	**Source: 2I23091-01**			**Prepared: 09/28/22**	**Analyzed: 09/30/22**					
Mercury, Total	1.07	0.050	ug/l	1.00	*ND*	107	70-130	7	20	

Perchlorate by EPA 314.0

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2I1957 - _NONE (LC)										
Blank (W2I1957-BLK1)				**Prepared: 09/27/22**	**Analyzed: 09/28/22**					
Perchlorate	ND	2.0	ug/l							
LCS (W2I1957-BS1)				**Prepared: 09/27/22**	**Analyzed: 09/28/22**					
Perchlorate	9.43	2.0	ug/l	10.0		94	85-115			
Matrix Spike (W2I1957-MS1)	**Source: 2I26104-01**			**Prepared: 09/27/22**	**Analyzed: 09/28/22**					
Perchlorate	13.4	2.0	ug/l	10.0	*0.572*	128	80-120			MS-05
Matrix Spike Dup (W2I1957-MSD1)	**Source: 2I26104-01**			**Prepared: 09/27/22**	**Analyzed: 09/28/22**					
Perchlorate	11.0	2.0	ug/l	10.0	*0.572*	104	80-120	20	15	MS-05

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Notes and Definitions

Item	Definition
*	The recommended holding time for this analysis is only 15 minutes. The sample was analyzed as soon as it was possible but it was received and analyzed past holding time.
I	Internal Standard outside of acceptance limit due to possible matrix effects
MS-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
MS-03	Multiple analyses indicate the percent recovery is out of acceptance limits due to a possible matrix effect.
MS-05	The spike recovery and/or RPD were outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
O-15	The sample was received with the recommended holding time nearly expired. It was analyzed as soon as possible but the maximum holding time was slightly exceeded.
Q-08	High bias in the QC sample does not affect sample result since analyte was not detected or below the reporting limit.
QC-2	This QC sample was reanalyzed to complement samples that require re-analysis on different date. See analysis date.
Q-ME	Acceptable QC with marginal exceedance
R-03	The RPD is not applicable for result below the reporting limit (either ND or J value).
S-BS	Surrogate recovery outside of control limits for LCS. The data was accepted based on valid recovery of the target analytes.
U-01	The sample was received without the proper preservation.
%REC	Percent Recovery
Dil	Dilution
MDA	Minimum Detectable Activity
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	A result of ND for odor corresponds to No Odor Observed
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139 | Fax: (626) 336-2634

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WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 2I19022

Project: Stage Rd Plant 429 Test Well

Attn: Sandy Nimat

Client: Suburban Water Systems - La Mirada
15088 Rosecrans Ave
La Mirada, CA 90638

Report Date: 10/20/2022
Received Date: 9/19/2022
Turnaround Time: Normal
Phones: (626) 543-2648
Fax: (626) 543-2692
P.O. #:
Billing Code:

Dear Sandy Nimat,

Enclosed are the results of analyses for samples received 9/19/22 with the Chain-of-Custody document. The samples were received in good condition, at 1.5 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

) VS mpt l-- (tpp
2I30922193-(Vdter

) VS mpt: l-9043d422-3/l5b-yA-Mqpti-s, tKpte4hW_-VW:, u7

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: [CVe, Li			**Instr:**]j n6j P				
Batch ID:]j n6j P	**Preparation:**]j n6j P		**Prepared:** 904234 22-39I5/				**Analyst:** NV
Total Anions	**13**		0.14	meq/l	2	09/22/22	
Total Cations	**12**		0.12	meq/l	1	09/22/22	
Total hardness as CaCO3	**282**		3.31	mg/l	1	09/22/22	
Method: n((n			**Instr:** lj TM) 95				
Batch ID: (2I2959	**Preparation:** [c k c v- Mv. n6) r		**Prepared:** 9042O422-3O19E				**Analyst:** Np
Aggressive Index	**12.7**			AGI	1	09/28/22	
Method: j Vp L pVe, _			**Instr:**]j n6j P				
Batch ID:]j n6j P	**Preparation:**]j n6j P		**Prepared:** 904234 22-39I5/				**Analyst:** 7YS
Hardness as CaCO3, Total	**282**		3.31	mg/l	1	09/22/22	
Method: vTn-359H3			**Instr:** [nc n6B) .				
Batch ID: (2I32b9	**Preparation:** [c k c v- (v. j VvMr		**Prepared:** 9043O422-90l2d				**Analyst:** ute
Threshold Odor Number	ND		1.0	T.O.N.	1	09/17/22 10:48	
Method: vTn-3d3EG			**Instr:** J j M) 3b				
Batch ID: (2I3E00	**Preparation:** vTn-Eb39j		**Prepared:** 904294 22-9/IE/				**Analyst:** v8j
2,3,7,8-TCDD (Dioxin)	ND		5.00	pg/l	1	10/05/22	
Method: vTn-3/9H3			**Instr:** . URG93				
Batch ID: (2I325E	**Preparation:** [c k c v- (v. j VvMr		**Prepared:** 9043O422-9/l35				**Analyst:** YVd
Turbidity	**3.3**		0.10	NTU	1	09/17/22 12:19	
Method: vTn-299H0			**Instr:** lj T9E				
Batch ID: (2I3b53	**Preparation:** vTn-299Ha		**Prepared:** 904234 22-39I5/				**Analyst:** 7YS

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Sample Results

(Continued)

) W8 mpt l-- (t pp

2I30922193-(Water

) W8 mpt: l-9043d422-3/l5b-yA-Mqpti-s, tKpte4hW_-VW:, u7

(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: vTn-299H0			**Instr:** Ij T9E				
Batch ID: (2I3b53 **Preparation:** vTn-299h2			**Prepared:** 90423422-39I5/				**Analyst:** 7YS
Calcium, Total	**59.8**		0.500	mg/l	1	09/22/22	
Iron, Total	**950**		30	ug/l	1	09/22/22	
Magnesium, Total	**32.2**		0.500	mg/l	1	09/22/22	
Potassium, Total	**4.9**		0.50	mg/l	1	09/22/22	
Sodium, Total	**150**		1.0	mg/l	1	09/22/22	
Method: vTn-299Hl			**Instr:** Ij TM) 95				
Batch ID: (2I3b52 **Preparation:** vTn-299h2			**Prepared:** 90423422-32I39				**Analyst:** _ap
Aluminum, Total	**93**		20	ug/l	1	09/22/22	
Antimony, Total	ND		0.50	ug/l	1	09/22/22	
Arsenic, Total	ND		0.50	ug/l	1	09/23/22	
Barium, Total	**99**		1.0	ug/l	1	09/23/22	
Beryllium, Total	ND		0.10	ug/l	1	09/23/22	
Cadmium, Total	ND		0.50	ug/l	1	09/22/22	
Chromium, Total	ND		2.0	ug/l	1	09/22/22	
Copper, Total	ND		1.0	ug/l	1	09/22/22	
Lead, Total	ND		0.20	ug/l	1	09/22/22	
Manganese, Total	**44**		1.0	ug/l	1	09/22/22	
Nickel, Total	ND		2.0	ug/l	1	09/22/22	
Selenium, Total	ND		0.50	ug/l	1	09/22/22	
Silver, Total	ND		0.20	ug/l	1	09/22/22	
Thallium, Total	ND		0.20	ug/l	1	09/22/22	
Uranium Rad	**0.58**		0.13	pCi/ L	1	09/22/22	
Zinc, Total	ND		10	ug/l	1	09/22/22	
Method: vTn-23/kd			**Instr:** 6j 3E				
Batch ID: (2I3bE5 **Preparation:** [c k c v-6j r			**Prepared:** 90423422-39I55				**Analyst:** Jnc
Chromium 6+	ND		0.020	ug/l	1	09/21/22	
Method: vTn-25bH3			**Instr:** VJ 9E				
Batch ID: (2I3C5E **Preparation:** vTn-25bH3			**Prepared:** 9042E422-90I2d				**Analyst:** sCM
Mercury, Total	ND		0.050	ug/l	1	09/29/22	
Method: vTn-E99H9			**Instr:** 6j 32				
Batch ID: (2I3bE2 **Preparation:** [c k c v-6j r			**Prepared:** 90423422-39IE/				**Analyst:** NW
Chloride, Total	**100**		0.50	mg/l	1	09/21/22	
Fluoride, Total	**0.36**		0.10	mg/l	1	09/21/22	
Method: vTn-E35H9			**Instr:** 6j 9/[j KW_tp3				
Batch ID: (2I3553 **Preparation:** [c k c v-6j r			**Prepared:** 90429422-33IE/				**Analyst:** Jnc
Perchlorate	ND		2.0	ug/l	1	09/21/22	
Method: vTn-EEbH5			**Instr:** nn93				
Batch ID: (2I3b32 **Preparation:** [c k c v-(v.j VvMr			**Prepared:** 90423422-90I23				**Analyst:** ǿS
Cyanide, Total	ND		5.0	ug/l	1	09/23/22	

35/b0-j pWe7-nYt_Ltljqa-, f-l_: LiaeA-j n|-03C5b--F-TK, _tI-d2dr-EEd123E0--F-8Wkl-d2dr-EEd12dE5

wwwhwtu7pWyihd, S

Quality Control Results

(Continued)

Mt aWp -y A-vTn -299-) t ed i -Mt aK, : i

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2I1541 - EPA 200.2										
Blank (W2I1541-BLK1)				**Prepared: 09/21/22 Analyzed: 09/22/22**						
Calcium, Total	ND	0.500	mg/l							
Iron, Total	ND	30	ug/l							
Magnesium, Total	ND	0.500	mg/l							
Potassium, Total	ND	0.50	mg/l							
Sodium, Total	ND	1.0	mg/l							
LCS (W2I1541-BS1)				**Prepared: 09/21/22 Analyzed: 09/22/22**						
Calcium, Total	48.7	0.500	mg/l	50.2		97	85-115			
Iron, Total	216	30	ug/l	200		108	85-115			
Magnesium, Total	48.3	0.500	mg/l	50.2		96	85-115			
Potassium, Total	56.3	0.50	mg/l	52.1		108	85-115			
Sodium, Total	50.0	1.0	mg/l	50.2		100	85-115			
Matrix Spike (W2I1541-MS1)	**Source: 2I19022-01**			**Prepared: 09/21/22 Analyzed: 09/22/22**						
Calcium, Total	107	0.500	mg/l	50.2	*5. .8*	95	70-130			
Iron, Total	1180	30	ug/l	200	*. 68*	115	70-130			
Magnesium, Total	81.1	0.500	mg/l	50.2	*32.2*	97	70-130			
Potassium, Total	65.8	0.50	mg/l	52.1	*6.. 0*	117	70-130			
Sodium, Total	203	1.0	mg/l	50.2	*151*	103	70-130			
Matrix Spike (W2I1541-MS2)	**Source: 2I19054-01**			**Prepared: 09/21/22 Analyzed: 09/22/22**						
Calcium, Total	98.0	0.500	mg/l	50.2	*6. ..*	96	70-130			
Iron, Total	206	30	ug/l	200	*10.5*	98	70-130			
Magnesium, Total	55.2	0.500	mg/l	50.2	*5.. .*	96	70-130			
Potassium, Total	59.3	0.50	mg/l	52.1	*1.82*	110	70-130			
Sodium, Total	76.4	1.0	mg/l	50.2	*25.0*	103	70-130			
Matrix Spike Dup (W2I1541-MSD1)	**Source: 2I19022-01**			**Prepared: 09/21/22 Analyzed: 09/22/22**						
Calcium, Total	107	0.500	mg/l	50.2	*5. .8*	95	70-130	0.07	30	
Iron, Total	1170	30	ug/l	200	*. 68*	113	70-130	0.4	30	
Magnesium, Total	81.0	0.500	mg/l	50.2	*32.2*	97	70-130	0.1	30	
Potassium, Total	65.7	0.50	mg/l	52.1	*6.. 0*	117	70-130	0.1	30	
Sodium, Total	202	1.0	mg/l	50.2	*151*	102	70-130	0.07	30	
Matrix Spike Dup (W2I1541-MSD2)	**Source: 2I19054-01**			**Prepared: 09/21/22 Analyzed: 09/22/22**						
Calcium, Total	97.6	0.500	mg/l	50.2	*6. ..*	95	70-130	0.4	30	
Iron, Total	206	30	ug/l	200	*10.5*	98	70-130	0.05	30	
Magnesium, Total	55.1	0.500	mg/l	50.2	*5.. .*	96	70-130	0.05	30	
Potassium, Total	59.4	0.50	mg/l	52.1	*1.82*	110	70-130	0.05	30	
Sodium, Total	76.3	1.0	mg/l	50.2	*25.0*	102	70-130	0.2	30	
Batch: W2I1542 - EPA 200.2										
Blank (W2I1542-BLK1)				**Prepared: 09/21/22 Analyzed: 09/22/22**						
Aluminum, Total	ND	20	ug/l							
Antimony, Total	ND	0.50	ug/l							
Arsenic, Total	ND	0.50	ug/l							
Barium, Total	ND	1.0	ug/l							
Beryllium, Total	ND	0.10	ug/l							

Quality Control Results

(Continued)

MtaWp-yA-vTn-299-) ted i-MtaK, : i-j , _aQ Lt: r

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2I1542 - EPA 200.2 (Continued)										
Blank (W2I1542-BLK1)				**Prepared: 09/21/22 Analyzed: 09/22/22**						
Cadmium, Total	ND	0.50	ug/l							
Chromium, Total	ND	2.0	ug/l							
Copper, Total	ND	1.0	ug/l							
Lead, Total	ND	0.20	ug/l							
Manganese, Total	ND	1.0	ug/l							
Nickel, Total	ND	2.0	ug/l							
Selenium, Total	ND	0.50	ug/l							
Silver, Total	ND	0.20	ug/l							
Thallium, Total	ND	0.20	ug/l							
Zinc, Total	ND	10	ug/l							
LCS (W2I1542-BS1)				**Prepared: 09/21/22 Analyzed: 09/22/22**						
Aluminum, Total	50.1	20	ug/l	50.0		100	85-115			
Antimony, Total	50.6	0.50	ug/l	50.0		101	85-115			
Arsenic, Total	49.3	0.50	ug/l	50.0		99	85-115			
Barium, Total	47.1	1.0	ug/l	50.0		94	85-115			
Beryllium, Total	47.0	0.10	ug/l	50.0		94	85-115			
Cadmium, Total	49.8	0.50	ug/l	50.0		100	85-115			
Chromium, Total	49.4	2.0	ug/l	50.0		99	85-115			
Copper, Total	51.0	1.0	ug/l	50.0		102	85-115			
Lead, Total	48.9	0.20	ug/l	50.0		98	85-115			
Manganese, Total	50.4	1.0	ug/l	50.0		101	85-115			
Nickel, Total	49.9	2.0	ug/l	50.0		100	85-115			
Selenium, Total	48.3	0.50	ug/l	50.0		97	85-115			
Silver, Total	50.7	0.20	ug/l	50.0		101	85-115			
Thallium, Total	48.5	0.20	ug/l	50.0		97	85-115			
Zinc, Total	50.7	10	ug/l	50.0		101	85-115			
Matrix Spike (W2I1542-MS1)	**Source: 2I19043-02**			**Prepared: 09/21/22 Analyzed: 09/22/22**						
Aluminum, Total	92.9	20	ug/l	50.0	*37.6*	111	70-130			
Antimony, Total	52.3	0.50	ug/l	50.0	*ND*	105	70-130			
Arsenic, Total	53.9	0.50	ug/l	50.0	*0.2. 6*	107	70-130			
Barium, Total	157	1.0	ug/l	50.0	*107*	100	70-130			
Beryllium, Total	53.1	0.10	ug/l	50.0	*ND*	106	70-130			
Cadmium, Total	48.4	0.50	ug/l	50.0	*ND*	97	70-130			
Chromium, Total	48.2	2.0	ug/l	50.0	*ND*	96	70-130			
Copper, Total	47.5	1.0	ug/l	50.0	*0.515*	94	70-130			
Lead, Total	48.7	0.20	ug/l	50.0	*0.0355*	97	70-130			
Manganese, Total	86.2	1.0	ug/l	50.0	*3. .1*	94	70-130			
Nickel, Total	47.3	2.0	ug/l	50.0	*0.556*	93	70-130			
Selenium, Total	47.4	0.50	ug/l	50.0	*0.202*	94	70-130			
Silver, Total	48.1	0.20	ug/l	50.0	*ND*	96	70-130			
Thallium, Total	48.7	0.20	ug/l	50.0	*ND*	97	70-130			
Zinc, Total	49.3	10	ug/l	50.0	*2.37*	94	70-130			

Quality Control Results

(Continued)

MtaWp-yA-vTn-299-) t edi-MtaK, : i-j , _aQ Lt: r

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2I1542 - EPA 200.2 (Continued)										
Matrix Spike (W2I1542-MS2)	**Source: 2I19055-01**			**Prepared: 09/21/22**	**Analyzed: 09/22/22**					
Aluminum, Total	49.3	20	ug/l	50.0	*ND*	99	70-130			
Antimony, Total	53.9	0.50	ug/l	50.0	*ND*	108	70-130			
Arsenic, Total	51.7	0.50	ug/l	50.0	*0.536*	102	70-130			
Barium, Total	92.3	1.0	ug/l	50.0	*66.5*	96	70-130			
Beryllium, Total	49.5	0.10	ug/l	50.0	*ND*	99	70-130			
Cadmium, Total	50.0	0.50	ug/l	50.0	*ND*	100	70-130			
Chromium, Total	52.0	2.0	ug/l	50.0	*3.21*	97	70-130			
Copper, Total	49.0	1.0	ug/l	50.0	*0.671*	97	70-130			
Lead, Total	48.2	0.20	ug/l	50.0	*0.032.*	96	70-130			
Manganese, Total	47.9	1.0	ug/l	50.0	*0.251*	95	70-130			
Nickel, Total	48.0	2.0	ug/l	50.0	*0.350*	95	70-130			
Selenium, Total	49.4	0.50	ug/l	50.0	*0.586*	98	70-130			
Silver, Total	50.9	0.20	ug/l	50.0	*ND*	102	70-130			
Thallium, Total	48.6	0.20	ug/l	50.0	*ND*	97	70-130			
Zinc, Total	52.9	10	ug/l	50.0	*2.05*	102	70-130			
Matrix Spike Dup (W2I1542-MSD1)	**Source: 2I19043-02**			**Prepared: 09/21/22**	**Analyzed: 09/22/22**					
Aluminum, Total	95.5	20	ug/l	50.0	*37.6*	116	70-130	3	30	
Antimony, Total	54.1	0.50	ug/l	50.0	*ND*	108	70-130	3	30	
Arsenic, Total	53.7	0.50	ug/l	50.0	*0.2. 6*	107	70-130	0.2	30	
Barium, Total	156	1.0	ug/l	50.0	*107*	98	70-130	0.8	30	
Beryllium, Total	53.1	0.10	ug/l	50.0	*ND*	106	70-130	0.08	30	
Cadmium, Total	50.0	0.50	ug/l	50.0	*ND*	100	70-130	3	30	
Chromium, Total	49.9	2.0	ug/l	50.0	*ND*	100	70-130	3	30	
Copper, Total	48.7	1.0	ug/l	50.0	*0.515*	96	70-130	2	30	
Lead, Total	49.8	0.20	ug/l	50.0	*0.0355*	100	70-130	2	30	
Manganese, Total	88.7	1.0	ug/l	50.0	*3. .1*	99	70-130	3	30	
Nickel, Total	48.5	2.0	ug/l	50.0	*0.556*	96	70-130	3	30	
Selenium, Total	48.6	0.50	ug/l	50.0	*0.202*	97	70-130	2	30	
Silver, Total	49.4	0.20	ug/l	50.0	*ND*	99	70-130	3	30	
Thallium, Total	49.9	0.20	ug/l	50.0	*ND*	100	70-130	2	30	
Zinc, Total	50.7	10	ug/l	50.0	*2.37*	97	70-130	3	30	
Matrix Spike Dup (W2I1542-MSD2)	**Source: 2I19055-01**			**Prepared: 09/21/22**	**Analyzed: 09/22/22**					
Aluminum, Total	49.3	20	ug/l	50.0	*ND*	99	70-130	0.2	30	
Antimony, Total	53.5	0.50	ug/l	50.0	*ND*	107	70-130	0.7	30	
Arsenic, Total	53.2	0.50	ug/l	50.0	*0.536*	105	70-130	3	30	
Barium, Total	95.8	1.0	ug/l	50.0	*66.5*	103	70-130	4	30	
Beryllium, Total	51.1	0.10	ug/l	50.0	*ND*	102	70-130	3	30	
Cadmium, Total	50.2	0.50	ug/l	50.0	*ND*	100	70-130	0.4	30	
Chromium, Total	51.3	2.0	ug/l	50.0	*3.21*	96	70-130	1	30	
Copper, Total	48.8	1.0	ug/l	50.0	*0.671*	97	70-130	0.3	30	
Lead, Total	47.8	0.20	ug/l	50.0	*0.032.*	96	70-130	0.7	30	
Manganese, Total	47.6	1.0	ug/l	50.0	*0.251*	95	70-130	0.7	30	

35/b0-j pWe7-nYt_Ltljqa A-, f-l_: LiaeA-j n|-03C5b–F–TK, _tI-d2dr-EEd123E0–F–8Wl-d2dr-EEd12dE5

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Chapter Attachment 2-4

A.08-01-004 Suburban GRC, Workpaper Table 6-1

SUBURBAN WATER SYSTEMS
TOTAL COMPANY
CAPITAL EXPENDITURES, DOLLARS

TABLE 6-1

Line Number	P.U.C. Acct. #	Description	Recorded Year 2002	2003	2004	2005	2006	Estimated Year 2007	2008	Test Year 2009	2010
1.		C.W.I.P. Balance, Beginning of Year	3,452,426	9,384,879	11,431,229	6,249,718	5,063,051	4,579,026	4,579,026	4,579,026	4,579,026
2.		Average C.W.I.P for Rate Base	6,418,653	10,408,054	8,840,474	5,656,385	4,821,039	4,579,026	4,579,026	4,579,026	4,579,026
		CONSTRUCTION EXPENDITURES									
		Company Funded Construction Projects									
3.	315	Miscellaneous - Wells	364,515	24,821							
4.	321	Plant 235 - Booster Pump Station	74,948								
5.	321	Plant 238 Piping, Sm Tank and Site Work	272,967								
6.	321	WLM Plant 231- Installed chain link fence on West end of property	4,183								
7.	324	Miscellaneous - Pumping Equipment	5,530	129,580	76,089						
8.	332	SJH Plant 147 GAC Treatment facilities	10,544								
9.	342	Plant 121 - Construct New 0.8 MG Tank	162,701	517,280							
10.	342	Construct Plant 428 Tank (2 MG)	5,141	498,928	244,359						
11.	342	WLM Plant 408 - Paint (2) 3 M.B. Tanks	212,600								
12.	343	Miscellaneous - Transmission and Distribution Mains	1,358,829	485,604	813,654	105,844	268,216				
13.	343	Install 2,000 LF 8" PVC in Pass and Covina btwn Maplegrove & Lark Ellen	229,049								
14.	343	Install 3,300 LF of 12" PVC in Painter (255 Zone) btwn Carmenita & Laurel	555,919								
15.	343	Replace 1,500 LF of 12" PVC in Lambert btwn Greenleaf & Painter (340 Zone)	266,156								
16.	343	Replace 800 LF of 8" PVC in Pershing btwn Washington & Santa FeSprings Rd	94,619								
17.	343	Replace 1,100 LF of 8" PVC in Parise Dr. btwn Lambert & Danbrook	108,000								
18.	343	Replace 1,100 LF of 8" PVC in Formost at Motley	149,700								
19.	371	WLM Plant 209 construct Sidewalk, Landscaping & Irrigation	42,146								
20.	315	Plant 201 W-7 Well			157,684						
21.	321	Plant Improvements (various locations)		114,720	118,731	106,870	98,753				
22.	324	Replace Old Pumps		105,966	113,270						
23.	324	Plant 209 - Silt Control and Material Bins		246,599							
24.	342	Plant 115 R-1 - Paint and Coat with Piping & Site Work (0.5 MG)			304,077						
25.	343	Construct 2,100 LF of 12" PVC in Azusa & Laura (547 Zone)		227,390							
26.	343	Construct 1,500 LF of 16" DIP in Stimpson from Sigman to Kellerton			306,357						
27.	343	Miscellaneous Water Main Replacement - San Jose Hills Service Area		138,779	212,856						
28.	343	Miscellaneous Water Main Replacement - Whittier/La Mirada Service Area		328,698	380,442						
29.	343	Install 4,300 L.F. of 12" PVC in Las Cumbres & Arbella			594,380						
30.	371	Removal of Chlorine Buildings At Plants 168 & 114		2,184							
31.	371	Office Relocation		163,277	54,892						
32.	315	Construct New Central Basin Well - Plant 409 W-3				1,400,000					
33.	315	Plant 201 W-7 well				1,400,780					
34.	315	Plant 201 W-8 Well					1,471,084				
35.	315	Plant 201 W-9 Well					2,287				
36.	324	Pump Replacements at Plants 162 & 506				113,319	51,701				
37.	324	Plant 129 replace pump station				1,748,176	473,530				
38.	324	Pump Replacements at Various Locations				95,754	185,360				
39.	324	Plant 217- replace pump station					88,382				
40.	342	Plant 128 - replace tank (0.5 MG) and pump station				109					
41.	342	Plant 238 R-1 - paint & coat (3 MG)					555,409				
42.	342	Plant 167 R-1 - paint and coat with piping & site work (1.5 MG)				4,341					
43.	343	Construct 4,000 LF of 24" DIP in Lark Ellen & Fairgrove				1,359,422	337,207				
44.	343	Construct Connection with City of Fullerton				6,356	78,579				
45.	343	Miscellaneous pipeline replacements				116,478	191,923				
46.	342	San Jose Hills RASF Complete Block Wall and Gates				17,071					
47.	342	Plant 505				3,752					
48.	371	Whittier La Mirada New Office Tenant Improvements				24,623	160,059				
49.	342	Recycled Water System					122,285				
50.	342	Plant 507 Curb Replacement					24,956				

Chapter Attachment 2-5

Suburban Response to DR BYU-08 (Plant 224 Solar)

Suburban Water Systems
1325 N. Grand Ave. Ste. 100, Covina, CA 91724-4044
Phone: 626.543.2500, Fax: 626.331.4848
www.swwc.com

April 25, 2023

To: Suliman Ibrahim
Project Coordinator

Brian Yu
Utilities Engineer/Regulatory Analyst

Shanna Foley
Attorney for Public Advocates Office

Re.: Response to A.23-01-001, Public Advocates Office DR BYU-08 (Plant 224 Solar)

Dear Mr. Ibrahim et al.,

Attached is the information you requested in writing for Suburban's Total Company General Rate Case.

Sincerely,

/s/Carmelitha Bordelon

Carmelitha Bordelon
Director of Regulatory Affairs

Response to A.23-01-001, Public Advocates Office

DR BYU-08 (Plant 224 Solar)

1. The Lopez testimony, p. 194 states "Investing in solar panels directly supports CPUC's ESJ Goal #2 to invest in clean energy resources that benefit ESJ communities by improving air quality and public health."

   a. Please identify the "ESJ Communities" Suburban refers to that will be directly benefited by the proposed solar panel project.

      Response:

      Using electric solar panels reduces carbon emissions required to generate power. The reduction of carbon emissions improves the local air quality and decreases the effects of climate change in Southern California communities including disadvantaged communities within and outside of Suburban's service area.

   b. Please also provide more detailed information specific to the proposed solar panel project at Plant 224 explaining how the project will directly benefit the ESJ communities.
      Response:
      The solar panel project will reduce greenhouse gas emissions attributable to Suburban's water distribution system by 32,395,808-lb as shown on page 5 of 30 of Revel's proposal attachment "DR BYU-08 Response #4.c.pdf"

2. The Lopez testimony, p. 194, also states "the solar panels will also reduce disadvantaged community's dependency on the electrical grid increasing climate resiliency and aligning with CPUC ESJ Plan Goal #4…"

   a. Explain and provide Suburban's data showing the solar panels will reduce disadvantaged community's dependency on the electrical grid.

      Response:

      Starting on page 193, line 20, Jorge Lopez's testimony notes that solar panels reduce Suburban's demand on the power grid. Reducing Suburban's demand reduces Suburban's dependency on the grid to reliably serve water to its customers, including disadvantaged customers located in Suburban's service area.

   b. Please confirm whether the power generated by the solar panels will be made available to the nearby neighborhood.

      Response:

      Power from solar panels will not be supplied to the nearby neighborhood. The power generated by these solar panels will be entirely consumed by Plant 224. The panels have insufficient capacity to produce excess power to be returned to the grid.

c. Please identify the disadvantaged community Suburban referred to in its testimony and explain how that community will benefit from the solar panel project requested.
Response:
Solar panels will reduce Plant 224's power demand on SCE's system reducing greenhouse gas emissions in our Southern California communities. This includes the disadvantaged communities in Suburban's service area described on attachment "DR BYU-08 Response #2.d.pdf"

3. The Lopez testimony, p. 194, states "the installation and operation of solar panels provides an opportunity for Suburban to train and promote employees sourced from disadvantaged communities with opportunities for high road career paths and economic opportunity in solar panel technology aligning with ESJ Plan Goal #7."

a. Please explain whether the installation of the solar panel will be done by an outside contractor or by Suburban's in-house labor.
Response:
The installation of solar panels will be performed by an outside contractor. Suburban will oversee the work when the panels are installed.

b. Explain Suburban's plan to carry out its claim:

i. Please provide a specific plan on how many employees Suburban plans to train and promote.
Response:
Page 191, Line 18 of Jorge Lopez testimony incorrectly notes that solar panels provide Suburban the opportunity to train and promote employees sourced from disadvantaged communities. Suburban plans to use a contractor to install solar power equipment creating the opportunity for the contractor to train and promote employees sourced from disadvantaged communities.

ii. Provide information on how the installation and operation of solar panels would promote employees.
Response:
Suburban's solar panel contractor requires employees to install panels. These employees are required to perform roles with varying levels of experience and technical sophistication. The contractor's work on Suburban's project creates a demand for both entry level and higher-level employees promoting both recruiting and advancement.

iii. Explain whether the training and promotion opportunities are exclusive to the employees sourced from disadvantaged communities, or available in general.
Response:
Suburban's contractor provides training and promotion opportunities for its employees.

c. Provide a list of Suburban's employees sourced from disadvantaged communities.

Response:
Solar installation employees will work for the contractor. Final contractor selection or project scheduling has not yet been executed so employees have not yet been identified. Further, contractor's employee home address information is private and Suburban will not collect it.

d. Explain how installation and operation of solar panels provide opportunities for high road career paths and economic opportunity.

Response:

The renewable energy industry requires solar equipment installation jobs. Page 21 of the CPUC Environmental Social Justice Plan indicates that renewable energy workforce development is one of three immediate priority areas described in the 2020 Memorandum of Understanding (MOU) with the California Workforce Development Board (CWDB). This project creates a demand for solar system installers which contributes to achievement of the CPUC's ESJ goals for high road career paths and economic equity.

4. The Lopez testimony, p. 202, concludes that Suburban chose to install solar panels without battery storage. Also on page 200, Suburban states that "...customers receive the benefit of a project Internal Rate of Requirement (IRR) of 4.17%" which Suburban state the customers will receive "financial benefit."

a. How are these financial benefits reflected in Suburban's current RO model? Please reference specific cells.

Response:

The financial benefit of $118,953 for year 2025 is not reflected in Suburban's current RO Model.

b. Provide the following analysis in Excel format:

i. Calculation of energy cost savings based on the estimated power supply from the proposed solar panels and reduced usage of electricity from SCE.
Response:
Refer to excel file "DR BYU-08 Response #4.b.i.xlsx," column F shows the energy cost savings by subtracting the proposed power savings from the energy costs without panels.

ii. Calculation of IRR of 4.17% in detail listing all assumptions and estimates.
Response:
Refer to excel file "DR BYU-08 Response #4.b.i.xlsx," cell K6. As noted on page 199 starting on line 8 of Jorge Lopez's testimony "IRR is a metric used in financial analysis to estimate the benefit of potential investments. IRR is the discount rate that makes the net present value (NPV) of all cash flows equal to

zero in a discounted cash flow analysis. A positive IRR means that a project or investment is expected to return value to the customers. The higher the IRR, the more desirable an investment is to make."

iii. Comparison of the revenue requirement resulting from the project budget against the energy cost savings.

Response:

Refer to excel file "DR BYU-08 Response #4.b.i.xlsx," column G shows the annual revenue requirements and column F shows the energy savings. The annual difference is shown on column I.

iv. Calculation of detailed financial benefit Suburban's customers would realize from this project.

Response:

Refer to excel file "DR BYU-08 Response #4.b.i.xlsx," column J shows the cumulative benefit that customers will realize from the project.

c. Provide a copy of the Revel Proposal that shows the proposed project cost with detailed line items. Lopez testimony page 200 only shows it as "lump sum."

Response:

Enclosed with this data request is Revel's cost proposal "DR BYU-08 Response #4.c.pdf," page 8 includes proposed project cost.

Chapter Attachment 2-6

DR BYU-08 Response Attachment #4.b.i.xlsx

Date	Year	Without Solar (annual energy costs)	With Solar (annual energy costs)	Difference between Current and Alternate	Total Savings ($)	Annual Revenue Requirement	Years after use of solar panels	Benefit to Customer (annual)	Benefit to Customer (cummulative)	NPV of Benefits to customer			2024
											Description of Capital Improvement		
											Install Solar Panels		1,240,273
										Discount Rate	4.17%		
										NPV Of Future Benefit to Customers (Cost)	0		
												Annual Reveue Requirement	
									-		-	-	-
									-		-	-	-
7/1/2025	2024/2025	790,330	671,377	118,953	118,953	216,978	1	-98,025	(98,025)	(94,102)		-	-	216,978
7/1/2026	2025/2026	817,992	695,491	122,501	122,501	211,435	2	-88,934	(186,959)	(81,959)		-	-	211,435
7/1/2027	2026/2027	846,622	720,470	126,152	126,152	205,893	3	-79,741	(266,700)	(70,546)		-	-	205,893
7/1/2028	2027/2028	876,254	746,346	129,908	129,908	200,351	4	-70,443	(337,143)	(59,826)		-	-	200,351
7/1/2029	2028/2029	906,923	773,151	133,772	133,772	194,808	5	-61,036	(398,179)	(49,763)		-	-	194,808
7/1/2030	2029/2030	938,665	800,918	137,747	137,747	189,266	6	-51,519	(449,698)	(40,323)		-	-	189,266
7/1/2031	2030/2031	971,518	829,681	141,837	141,837	183,724	7	-41,887	(491,585)	(31,472)		-	-	183,724
7/1/2032	2031/2032	1,005,521	859,476	146,045	146,045	178,181	8	-32,136	(523,721)	(23,180)		-	-	178,181
7/1/2033	2032/2033	1,040,714	890,341	150,373	150,373	172,639	9	-22,266	(545,988)	(15,418)		-	-	172,639
7/1/2034	2033/2034	1,077,139	922,313	154,826	154,826	167,097	10	-12,271	(558,258)	(8,157)		-	-	167,097
7/1/2035	2034/2035	1,114,839	955,433	159,406	159,406	161,555	11	-2,149	(560,407)	(1,371)		-	-	161,555
7/1/2036	2035/2036	1,153,858	989,741	164,117	164,117	156,012	12	8,105	(552,302)	4,965		-	-	156,012
7/1/2037	2036/2037	1,194,243	1,025,281	168,962	168,962	150,470	13	18,492	(533,810)	10,875		-	-	150,470
7/1/2038	2037/2038	1,236,042	1,062,097	173,945	173,945	144,928	14	29,017	(504,793)	16,382		-	-	144,928
7/1/2039	2038/2039	1,279,303	1,100,232	179,071	179,071	139,385	15	39,686	(465,107)	21,508		-	-	139,385
7/1/2040	2039/2040	1,324,079	1,139,737	184,342	184,342	133,843	16	50,499	(414,608)	26,273		-	-	133,843
7/1/2041	2040/2041	1,370,422	1,180,659	189,763	189,763	128,301	17	61,462	(353,146)	30,697		-	-	128,301
7/1/2042	2041/2042	1,418,387	1,222,614	195,773	195,773	122,758	18	73,015	(280,131)	35,008		-	-	122,758
7/1/2043	2042/2043	1,468,031	1,266,962	201,069	201,069	117,216	19	83,853	(196,279)	38,596		-	-	117,216
7/1/2044	2043/2044	1,519,412	1,312,449	206,963	206,963	111,674	20	95,289	(100,989)	42,105		-	-	111,674
7/1/2045	2044/2045	1,572,591	1,359,568	213,023	213,023	106,132	21	106,891	5,902	45,341		-	-	106,132
7/1/2046	2045/2046	1,627,632	1,408,378	219,254	219,254	100,589	22	118,665	124,567	48,321		-	-	100,589
7/1/2047	2046/2047	1,684,599	1,458,939	225,660	225,660	95,047	23	130,613	255,180	51,058		-	-	95,047
7/1/2048	2047/2048	1,743,560	1,511,314	232,246	232,246	92,822	24	139,424	394,604	52,322		-	-	92,822
7/2/2048	2047/2049	1,804,585	1,565,568	239,017	239,017	92,822	25	146,195	540,799	52,667		-	-	92,822

Authorized Rate of Return by asset

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
Well - Equipment	0	0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Long Term Debt	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%	2.21%
Preferred Stock	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
Common Equity	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%	5.55%
Gross Return on Rate Base	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**	**7.85%**
Depreciation Adjustment	0.00%	0.00%	0.00%	-0.35%	-0.70%	-1.05%	-1.40%	-1.75%	-2.10%	-2.45%	-2.80%	-3.16%	-3.51%	-3.86%	-4.21%	-4.56%	-4.91%	-5.26%	-5.61%	-5.96%	-6.31%	-6.66%	-7.01%	-7.36%	-7.71%	0.00%	0.00%
Net Return on Rate Base	**7.85%**	**7.85%**	**7.85%**	**7.50%**	**7.15%**	**6.80%**	**6.45%**	**6.10%**	**5.75%**	**5.40%**	**5.05%**	**4.70%**	**4.35%**	**4.00%**	**3.65%**	**3.30%**	**2.95%**	**2.59%**	**2.24%**	**1.89%**	**1.54%**	**1.19%**	**0.84%**	**0.49%**	**0.14%**	**0.00%**	**0.00%**
Income Tax	2.16%	2.16%	2.16%	2.06%	1.96%	1.87%	1.77%	1.68%	1.58%	1.48%	1.39%	1.29%	1.19%	1.10%	1.00%	0.91%	0.81%	0.71%	0.62%	0.52%	0.42%	0.33%	0.23%	0.13%	0.04%	0.00%	0.00%
Depreciation Rate	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%
2019 UF Surcharge	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%	1.43%
Uncollectibles	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%	0.45%
Franchise Fee	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%	1.14%
Authorized Rate of Return	**17.49%**	**17.49%**	**17.49%**	**17.05%**	**16.60%**	**16.15%**	**15.71%**	**15.26%**	**14.81%**	**14.37%**	**13.92%**	**13.47%**	**13.03%**	**12.58%**	**12.13%**	**11.69%**	**11.24%**	**10.79%**	**10.34%**	**9.90%**	**9.45%**	**9.00%**	**8.56%**	**8.11%**	**7.66%**	**7.48%**	**7.48%**

Chapter Attachment 2-7

DDW Permit Amendment for System No. 1910174 (Whittier System)

Whittier Amended Permit 1910174PA-007 – Blending Wells 201-W7, W8, W9, W10, and Cal Domestic Water Company and the City of Whittier Connections at the Plant 224 Reservoirs to Mitigate High PFOA Levels.

April 12, 2023

Sandy Nimat
Water Quality Manager
Suburban Water Systems
1325 N. Grand Avenue, #100
Covina, CA 91724

Dear Ms. Nimat,

SYSTEM NO. 1910174 – SUBURBAN WATER SYSTEMS – WHITTIER
AMENDED PERMIT 1910174PA-007 – BLENDING WELLS 201-W7, W8, W9, W10, AND CAL DOMESTIC WATER COMPANY AND THE CITY OF WHITTIER CONNECTIONS AT THE PLANT 224 RESERVOIRS TO MITIGATE HIGH PFOA LEVELS

We are pleased to inform you that the California State Water Resources Control Board, Division of Drinking Water (hereafter, Division) has granted Suburban Water Systems-Whittier (SWS-Whittier) a permit amendment to operate a group of Wells 201-W7, 201-W8, 201-W9, 201-W10, and Cal Domestic Water Company (CD) and the City of Whittier connections under a blending operation plan at the Plant 224 reservoirs. Enclosed are the permit amendment and a copy of our engineering report.

Please acknowledge receipt of this permit and your willingness to comply with the permit conditions, in writing, within 60 days. If you have any questions, please contact Mr. James Ko, P.E. at (818) 551-2054 or me at (818) 551-2022.

Sincerely,

Dmitriy Ginzburg, P.E.
District Engineer
Hollywood District

Enclosure

Cc: Greg Galindo, Operation Vice President
Suburban Water Systems

Bruce DeBerry
California Public Utilities Commission

James Boothe
California Public Utilities Commission

Moises Chavez
California Public Utilities Commission

Richard Rauschmeier
Division of Ratepayer Advocates

California State Water Resources Control Board
Division of Drinking Water
Drinking Water Field Operations Branch

PERMIT AMENDMENT 1910174PA-007

SUBURBAN WATER SYSTEMS
WHITTIER DISTRICT

Los Angeles County

System No. 1910174

April 2023

STATE OF CALIFORNIA

AMENDMENT TO THE

DOMESTIC WATER SUPPLY PERMIT ISSUED TO

Suburban Water Systems – Whittier District

Public Water System – 1910174

ORIGINAL FULL PERMIT: ***unassigned*** DATE OF ISSUE: ***10/25/1962***

PERMIT AMENDMENT: ***1910174PA-001***	EFFECTIVE DATE: ***08/18/05***
PERMIT AMENDMENT: ***1910174PA-002***	EFFECTIVE DATE: ***07/14/06***
PERMIT AMENDMENT: ***1910174PA-003***	EFFECTIVE DATE: ***03/24/08***
PERMIT AMENDMENT: ***1910174PA-004***	EFFECTIVE DATE: ***06/10/09***
PERMIT AMENDMENT: ***1910174PA-005***	EFFECTIVE DATE: ***12/09/14***
PERMIT AMENDMENT: ***1910174PA-006***	EFFECTIVE DATE: ***10/12/21***
PERMIT AMENDMENT: ***1910174PA-006***	EFFECTIVE DATE: ***04/12/23***

WHEREAS:

I. The ***Suburban Water Systems, Whittier District*** (hereinafter, SWS–Whittier) submitted an application to the California State Water Resources Control Board, Division of Drinking Water on January 10, 2023 for an amendment to the Domestic Water Supply Permit issued to ***SWS–Whittier*** *on* ***October 25, 1962.***

II. The purpose of the amendment, as stated in the application, is to allow ***SWS–Whittier*** to make the following modifications to the public water system:

To upgrade its existing blending operation of a group of Wells 201-W7, 201-W8, 201-W9, 201-W10 and Cal Domestic Water Company (CD) connection under an approved blending operation plan in the Plant 224 reservoirs to add an existing interconnection with the City of Whittier purchased water to be used as an additional PFAS blending water source to lower perfluorooctanoic acid (PFOA) concentration to below the current response level (RL) of 10 ppt.

III. ***SWS–Whittier*** has submitted all of the supporting information required to evaluate the application.

IV. The California State Water Resources Control Board, Division of Drinking Water (hereinafter, Division) has evaluated the application and the supporting material and has determined that the proposed modifications comply with all applicable State drinking water requirements.

THEREFORE:

I. The Division hereby approves the application submitted by ***SWS–Whittier*** for a permit amendment. The Domestic Water Supply Permit issued to ***SWS–Whittier*** on ***October 25, 1962*** is hereby amended as follows:

Allow operation of blending treatment to lower perfluorooctanoic acid (PFOA) concentration from Wells 201-W7, 201-W8, 201-W9, and 201-W10 below the response level (RL) of 10 ppt by blending with water from Cal Domestic Water Company connection and the City of Whittier connection under a blending operation plan in the existing Plant 224 reservoirs.

II. This permit amendment is subject to the following conditions:

GENERAL

1. The only approved sources of domestic water supply are listed in Tables 1 - 8.

Table 1: Approved Groundwater Wells

Well Name	PS Code	Status	Capacity (gpm)
Well 201-W4	CA1910174_003_003	Standby	2,550
Well 201-W7	CA1910174_020_020	Active	3,500
Well 201-W8	CA1910174_031_031	Active	3,500
Well 201-W9	CA1910174_033_033	Active	4,500
Well 201-W10	CA1910174_035_035	Active	5,133

Table 2: California Domestic Water Company interconnections

Location of Connection	Pressure Zone	Status	Flow Direction From	Flow Direction To
Workman Mill Rd. & Pioneer Blvd.	Suburban Bartolo Main	Emergency	BTM	California Domestic
Whittier Blvd. & Painter Ave.	340	Active	California Domestic	to 340 Zone through Plant 207
Walnut St. & Pickering Ave.	340	Active	California Domestic	to 340 Zone through Plant 208
South Side of Whittier Blvd. at Plant 205	400	Emergency	California Domestic	Plant 205
S/E Corner of Cole Rd. & Whittier Blvd.	400	Active	California Domestic	Plant 209
Plant 224	400	Active	California Domestic	400 & 520
Russell St. & Bogardus Ave.	520	Emergency	California Domestic	520

Table 3: City of La Habra interconnections

Location of Connection	Pressure Zone	Status	Flow Direction From	Flow Direction To
Valley Home Ave. & Foxdale	520	Emergency	City of La Habra	520

Table 4: City of Whittier interconnections

Location of Connection	Pressure Zone	Status	Flow Direction From	Flow Direction To
Workman Mill Road and Strong Avenue	Suburban Bartolo Main	Active	City of Whittier	Suburban Bartolo Main
Painter Ave. & Cullen St.	340	Emergency	340	City of Whittier

Washington Blvd between Byron Rd. & Lambert Rd.	340	Emergency	City of Whittier	340

Table 5: La Habra Heights County Water District interconnections

Location of Connection	Pressure Zone	Status	Flow Direction From	Flow Direction To
Santa Gertrudes Ave. & Whittier Blvd.	520	Emergency	La Habra Heights	520
Solejar Dr. & Corella Ave.	600E	Emergency	La Habra Heights	600E
Las Cumbres Dr. & Campo Nueva Dr.	800	Emergency	La Habra Heights	800

Table 6: Metropolitan Water District of Southern California (MWD) interconnections

Location of Connection	Pressure Zone	Status	Flow Direction From	Flow Direction To
Imperial HWY. & La Mirada Blvd., Plant 416, CB-29	400	Emergency	MWD	400 & 355

Table 7: Orchard Dale Water District interconnections

Location of Connection	Pressure Zone	Status	Flow Direction From	Flow Direction To
Trumball & Lanett	265	Emergency	Orchard Dale	265
La Mirada Blvd. & Fernview St.	400	Emergency	400	Orchard Dale

Table 8: San Gabriel Valley Water Company interconnection

Location of Connection	Pressure Zone	Status	Flow Direction From	Flow Direction To
Rose Hills & Shepherd	Suburban Bartolo Main	Emergency	SGVWC	Suburban Bartolo Main

2. The only approved treatment facility is listed in Table 9.

Table 9: Approved Treatment Facility

Facility	PS Code	Treatment	Classification
Plant 201 Blending Point	CA1910174_030_030	Blending	T2
Plant 224 Blending Point	CA1910174_038_038	PFAS Blending	T3

3. No sources or treatment facilities other than those specified in Conditions 1 and 2 shall be used by this system without prior receipt of an amended domestic water supply permit from the Division. Also, no changes, additions, or modifications shall be made to the approved sources or treatment facilities without obtaining the approval of the Division.

4. Each well used as a source of potable drinking water shall be sampled, at a minimum, in accordance with the most recent edition of the Vulnerability Assessment and Monitoring Frequency Guidelines issued by the Division.

5. Water samples for operational control purposes may be analyzed by field test kits, continuous monitors or bench top units. All water samples for compliance determination shall be performed by a laboratory certified by the Division's Environmental Laboratory Accreditation Program (ELAP) for each analytical technique. SWS-Whittier shall require the laboratory to transmit the compliance sample results to the Division via electronic data transfer (EDT) using the PS Codes listed in Tables 1, 9, and 10 of this permit amendment.

PLANT 224 PER-AND POLYFLUOROALKYL SUBSTANCES (PFAS) BLENDING

6. Wells 201-W7, 201-W8, 201-W9, and 201-W10 have perfluorooctanoic acid (PFOA) concentrations higher than the response level (RL). SWS-Whittier must blend water from these wells with water from California Domestic Water Company (CD) and the City of Whittier connections to lower PFOA concentrations below the RL.

7. The Plant 224 blending program compliance point is the Plant 224 Blending Booster Outflow. PFOA concentrations at the compliance point must not

exceed the RL. If Plant 224 Booster Outflow effluent water exceeds the RL for PFOA, SWS-Whittier must notify their customers of the confirmed response level exceedance.

8. SWS-Whittier may not alter its blending treatment or install a new type of treatment facility. Only sources described in this permit shall be used at the blending facility. A new treatment facility will require a permit amendment from the Division.

9. SWS-Whittier shall operate its Wells 201-W7, 201-W8, 201-W9, 201-W10, and the utilized for blending California Domestic Water Company (CD) and the City of Whittier connections according to the most recently approved blending operations plan, except as directed by or clarified in this permit. If SWS-Whittier intends to modify the approved blending plans, all modifications must be submitted to the Division for review and approval before implementation. At any time, the Division can require a plan to be modified due to changing conditions, changes in laws or regulations, or concerns of the public.

10. SWS-Whittier shall follow the monitoring requirements for PFOA blending at Plant 224 as described in the most recently approved blending operation plan whenever Wells 201-W7, 201-W8, 201-W9, and 201-W10 are in service.

11. PFAS samples collected must be analyzed using a laboratory accredited by the California Environmental Laboratory Accreditation Program (ELAP) for analysis of PFAS using EPA Method 533 or other methods as directed by the Division. The laboratory must conduct and report a complete analysis for all PFAS analytes under EPA Method 533. Any proposed alternative analytical method to EPA Method 533 must be approved by the Division before that method is used.

12. Only sources listed below shall be used at the Plant 224 PFAS blending facility. All PFAS samples analyzed by the laboratory shall be reported to the Division via EDT using the PS Codes listed in Table 10 below:

Table 10: Plant 224 PFOA Blending Facility Monitoring Requirements

Sample Location	PS Code	Type	Frequency	Analysis
Well 201 W-7	CA1910174_020_020	Grab	Monthly	All PFAS compounds listed in EPA Method 533 or other methods as directed by the Division
Well 201 W-8	CA1910174_031_031	Grab	Monthly	All PFAS compounds listed in EPA Method 533 or other methods as directed by the Division

Well 201 W-9	CA1910174_033_033	Grab	Monthly	All PFAS compounds listed in EPA Method 533 or other methods as directed by the Division
Well 201 W-10	CA1910174_035_035	Grab	Monthly	All PFAS compounds listed in EPA Method 533 or other methods as directed by the Division
California Domestic Water Company (CD) Connection	CA1910174_039_039	Grab	Quarterly	All PFAS compounds listed in EPA Method 533 or other methods as directed by the Division
Plant 224 Booster Outflow Blending Effluent	CA1910174_038_038	Grab	Monthly	All PFAS compounds listed in EPA Method 533 or other methods as directed by the Division
City of Whittier Connection (Whittier Pumping Plant No. 2)	CA1910174_040_040	Grab	Bi-weekly	All PFAS compounds listed in EPA Method 533 or other methods as directed by the Division

13. The monitoring frequencies listed in Provision No. 12 may be increased if PFAS results indicate an upward trend.

14. SWS-Whittier must instruct its laboratory to immediately notify SWS-Whittier's water quality contact person if the compliance point sample result exceeds the RL for PFOA. SWS-Whittier has the option to conduct a confirmation sample to confirm the RL exceedance. The laboratory must contact the Division if SWS-Whittier personnel cannot be reached.

15. SWS-Whittier must notify the Division within 24 hours of receiving notice from the laboratory of a confirmed RL exceedance of PFOA at the compliance point.

16. All confirmed PFAS detections in the blended water compliance sample point must be reported in the SWS-Whittier's annual Consumer Confidence Report.

17. SWS-Whittier shall submit a monthly PFOA blending compliance report, including daily theoretical blend calculations and PFOA monitoring results from the previous month to the Division by the 10th day of the following month. As a minimum, the report shall include:

    - Daily production numbers from each source and daily theoretical blended water calculations for PFOA concentrations

- Monthly PFOA analysis, performed by a certified lab, of the blended water supplied to the consumers
- Monthly PFOA analyses, performed by certified lab, from Wells 201-W7, 201-W8, 201-W9, and 201-W10
- Quarterly PFOA analyses, performed by certified lab, from California Domestic Connection at Plant 224 Blending Facility
- Bi-weekly PFOA analyses, performed by certified lab, from the City of Whittier Connection at the Bartolo line
- Summary of any alarms triggered, and any special investigations conducted

18. All operators and supervisory personnel involved with the operation or oversight of the blending process shall have a copy and be familiar with the blending operations plan, as described in the engineering report and the conditions of this permit amendment.

19. All treatment facilities shall be operated by personnel who have been certified in accordance with the regulations relating to certification of water treatment facility operation, Title 22 of California Code of Regulations (CCR). Based on these regulations, the Plant 224 PFOA blending facility for Wells 201-W7, 201-W8, 201-W9, 201-W10, CD, and the City of Whittier connections are classified as T3 treatment facility. A T3 treatment facility requires T3 certified chief operators and T2 certified shift operators. If changes to the blending plan occur, the treatment plant classifications will be re-evaluated.

20. Each well, CD, the City of Whittier connection, and Plant 224 Booster Outflow in the SWS-Whittier's blending program shall be equipped with a flow meter. All flow meters shall be calibrated at frequencies and by the methods recommended by their respective manufacturers. Records for all calibrations shall be maintained by SWS-Whittier for at least five years and made available to the Division when requested.

21. All treatment facilities and monitoring equipment shall be maintained in accordance with the manufacturer's specifications.

22. At the conclusion of the first year of the permitted blending operation and annually thereafter, SWS-Whittier shall prepare and submit the Plant 224 Blending Facility evaluation report to the Division. This report shall discuss compliance with the permit provisions, the blending facility's performance, and any operational problems encountered.

CROSS CONNECTION CONTROL PROGRAM

23. SWS-Whittier shall comply with Title 17, CCR, to prevent the water system and treatment facility from being contaminated by possible cross-connections. SWS-Whittier shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow preventers shall be tested at least annually.

DIRECT ADDITIVES

24. SWS-Whittier shall only use additives that have been tested and certified as meeting the specifications of NSF International/American National Standard Institute (hereinafter, NSF/ANSI) Standard 60. This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by ANSI.

INDIRECT ADDITIVES

25. SWS-Whittier shall only use chemicals, materials, lubricants, or products that have been tested and certified as meeting the specifications of NSF/ANSI Standard 61 in the production, treatment or distribution of drinking water that will result in its contact with the drinking water, including process media, protection materials (i.e. coating, linings, liners), joining and sealing materials, pipe and related products, and mechanical devices used in treatment/transmission/distribution system, unless conditions listed in Section 64593, Title 22, CCR are met. This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by ANSI.

ELECTRONIC ANNUAL REPORTS

26. SWS-Whittier shall submit to the Division an Electronic Annual Report (EAR) on the status and condition of the water system, as directed by the Division. The EAR shall be submitted by SWS-Whittier in the format that has been specified by the Division.

27. In accordance with Section 64561, Title 22, CCR – monthly water production records shall be maintained for each active potable water source and reported annually to the Division in the EAR.

CONSUMER CONFIDENCE REPORT

28. SWS-Whittier shall prepare a Consumer Confidence Report (CCR) annually and make it available to its customers by July 1.

RECORDS

29. SWS-Whittier shall keep complete records of any emergency and scheduled interruptions in the water service. These records should include:
    - Location of the problem
    - Cause of the interruption
    - Date and approximate time of the problem
    - Precautions taken to minimize contamination of the water supply and notification of affected users.

This amendment shall be appended to and shall be considered to be an integral part of the existing full water supply permit previously granted to the Suburban Water Systems, Whittier District, on October 25, 1962.

FOR THE CALIFORNIA DIVISION OF DRINKING WATER

04/12/2023
_____
Date

_____
Dmitriy Ginzburg, P.E.
District Engineer
Hollywood District

Chapter Attachment 2-

Suburban Response to DR BYU-06 (Plant 201)

Suburban Water Systems
1325 N. Grand Ave. Ste. 100, Covina, CA 91724-4044
Phone: 626.543.2500, Fax: 626.331.4848
www.swwc.com

April 13, 2023

To: Suliman Ibrahim
Project Coordinator

Brian Yu
Utilities Engineer/Regulatory Analyst

Shanna Foley
Attorney for Public Advocates Office

Re.: Response to A.23-01-001, Public Advocates Office DR BYU-06 (Plant 201)

Dear Mr. Ibrahim et al.,

Attached is the information you requested in writing for Suburban's Total Company General Rate Case.

Sincerely,

/s/Carmelitha Bordelon

Carmelitha Bordelon
Director of Regulatory Affairs

Response to A.23-01-001, Public Advocates Office

DR BYU-06 (Plant 201)

1. The Lopez testimony, p. 395, states "Consequently, blending would no longer be a reliable solution for complying with future PFAS Maximum Contaminant Levels (MCL) and Suburban will be forced to cease operation of Plant 201 sources unless treatment is installed."

    a. Provide verifiable information that shows Suburban will be "forced to" cease operation unless treatment is installed.

    Response:

    There is a broad array of enforcement tools available to multiple state and federal agencies to coerce Suburban into compliance with an enforceable National Primary Drinking Water Standard should Suburban serve to its customers water containing PFAS in concentrations exceeding a National Primary Drinking Water Standard, including but not limited to:

    - Compliance orders and fines imposed by the California Public Utilities Commission for violations of Section II.2.A.(2) of General Order 103-A.
    - Liability for personal injury to customers for serving water with known deleterious health effects because the protections available under *Hartwell v. Superior Court* are not available if the utility is out of compliance with enforceable drinking water standards.
    - Administrative citations and compliance orders with specific actions and deadlines, and might include financial penalties. See California Health and Safety Code section 116650, et seq.
    - The State Water Resources Control Board has the authority to suspend Suburban's permit to operate. See California Health and Safety Code section 116625.
    - Civil lawsuits to enjoin Suburban's operations or have a receiver appointed to operate the system. See California Health and Safety Code sections 116655, 116660, and 116665.
    - Suburban's operation in violation of a drinking water standard would be deemed a public nuisance subject to summary abatement. See California Health and Safety Code section 116670.
    - Suburban's operation in violation of a drinking water standards is subject to civil penalties and possible criminal liability. See California Health and Safety Code sections 116725 and 116725.
    - Suburban is also subject to direct enforcement of a federal standard by U.S. EPA, including an administrative order or a civil lawsuit in federal court. See 42 U.S.C. § 300g-3.

- Because the standard at issue is a federal standard, Suburban would also be subject to a civil enforcement proceeding in federal court – a so-called "citizen suit" – if Suburban served water in violation of a National Primary Drinking Water Standard. See 42 U.S.C. § 300j-87.

b. What is the anticipated effective date of the "future PFAS MCL"?

Response:

The EPA anticipates the PFAS MCL promulgation date of December 2023.

c. What is the anticipated effective operational date of Suburban's proposed treatment?

Response:

The anticipated effective operational date of Suburban's proposed treatment plant is 2026. To ensure construction is completed before the MCL, Suburban must procure equipment and material in 2024 to start construction in 2025 and complete construction of the treatment plant by 2026. The estimated procurement time for Ion Exchange vessels is 12 months. See workpaper Volume III-D, P-16, page 12-4 of Carollo Engineers, Inc., indicating the 12-month lead time.

d. Is one occurrence of PFAS MCL exceedance enough for Suburban to be "forced to" cease operation? Or, does the water quality need to be monitored over time and an average value is used? Please explain the future PFAS MCL compliance and provide reference to EPA's rules.

Response:

Since 2019, the average concentration of PFAS at Plant 224 has been 7.30 ppt for PFOA, 14.05 ppt for PFOS, 0.00 ppt for HFPO-DA, 3.87 ppt for PFBS, 1.76 ppt for PFNA, 3.09 ppt for PFHxS See the table, below:

Historical Averages (2019-2023)

Compound	Amount (ppt)
PFOS	14.05
PFOA	7.30
HFPO-DA (GenX)	0.00
PFBS	3.87
PFNA	1.76
PFHxS	3.09

Based on those concentrations, it would be mathematically impossible for Suburban to meet the RAA of 4.0 ppt for PFOS and PFOA if the results from the first and second quarterly compliance samples collected after the effective date of the MCL remain consistent with this historical average.

2. The Lopez testimony, p. 396, states "Planning and Design of the treatment began in 2020 and was completed in 2021 to expedite the resumption of normal operations of this critical source of supply."

    a. According to Workpaper Table 6-1B, Suburban recorded $347,286 in 2020, $1,030,064 in 2021, and $5,124 in 2022. Provide verifiable documents to show the details of the recorded cost including but not limited to vendor invoice, internal labor hours for each class, etc.

    Response:

    The attached document "DR BYU-06 Response #2.a.xls" includes a summary of the costs including labor hours. Please note that $12,177 was understated in 2020 and $12,177 was overstated in 2021. An additional $10,860 was invoiced from 2022's estimate. DR BYU-06 Response #2.a.pdf includes a copy of the invoices.

3. During Cal Advocates' site visit to Plant 201, Suburban explained that the planned treatment would be constructed upstream of the existing four wells. Pumped water from the four wells will be transported to the planned treatment plant via a series of new pipelines, and the treated water will then be transported to the Bartolo Main Pipeline, which terminates at Plant 224, via a new pipeline.

    a. Is this description of Suburban's planned treatment for Plant 201 accurate? If not, explain which aspects of the description above is not accurate and provide the accurate details of the planned treatment.

    Response:

    The description of the location of Suburban's Plant 201 treatment is inaccurate. The treatment plant facility will be constructed north of the existing four wells and downstream of the wells. The water treatment influent requires the construction of a new pipeline because the existing pipeline is undersized for the treatment plant's full capacity of 10,000 gpm on the property's north side. The treatment plant effluent also requires the addition of pipe and will be connected downstream of well 4 to the Bartolo Transmission Main. See attached document "DR BYU-06 Response #3.a.pdf" for the proposed treatment plant yard piping.

    Constructing the plant further south, closer to the dam would require a higher elevated pad to mitigate flooding as noted on page 430 of Jorge Lopez's testimony.

    Constructing the treatment plant north of the wells avoids the riparian habitat areas. Riparian habitats are an environmentally sensitive area and requires significant time and expense to obtain permits as noted on page 431 of Jorge Lopez's testimony.

    The attached document "DR BYU-06 Response #3.b.pdf" shows the Plant 201 riparian habitat areas.

b. Why did Suburban decided to build the planned treatment upstream, not downstream of the wells, which requires additional pipelines costing over $3.8 million?

Response:

Suburban is not building the treatment plant upstream of the wells. Suburban is building the treatment plant north of W-10, downstream of the wells. The existing Bartolo Main is restricted from W-10 to W-8 where it is 16 inches in diameter, with the size increasing as each subsequent well connects to the Bartolo Main, reaching 30-inches between W-9 & W-8. The headloss through a 16" flowing 10,000 GPM is 40-feet of head and velocity is 16 ft/s, nearly triple AWWA's Manual M-32 recommended 5 ft/s. A 30-inch pipeline is required from the treatment plant to Plant 201 W-9 to meet the treatment plant's 10,000 GPM capacity and reduce the headloss that will require more costly pumping.

c. Also, why did Suburban not consider planned treatment to be constructed at the end of the Bartolo Main at Plant 224 or, Plant 216, which is immediately adjacent to Plant 224? As part of this explanation, confirm that the Bartolo Main used to have a connection to Plant 216 before Plant 224 was constructed.

Response:

Suburban did not consider constructing the treatment plant at the end of the Bartolo Main at Plant 224 or Plant 216 because there are multiple turn outs from the Bartolo line before reaching Plant 224. If treatment were installed at Plant 224 instead of at Plant 201, the locations served by the turn outs would not receive treated water before reaching their distribution areas unless a 3-mile-long pipeline was installed to Washington Blvd. along Whittier Blvd.

Plant 216 had a connection to the Bartolo Main prior to Plant 224's construction.

d. Please provide, in Microsoft Excel Format, a cost benefit analysis that compares Suburban's proposed treatment plant location to the downstream treatment at Plant 224 or Plant 216.

Response:

No cost benefit analysis was prepared for a treatment at Plant 224 or Plant 216. See response to question #3c for why this was not considered.

e. Please provide support to substantiate Suburban's cost benefit analysis.

Response:

See response to question #3.d.

4. The Lopez testimony, p. 396, states "The Plant 201 well field produces a maximum of approximately 10,000 gallons per minute (gpm) from the Main San Gabriel Basin, and provides 67% (13,500AF) of the supply to Suburban's Whittier / La Mirada service area."

    a. Provide the exact value of the maximum pumping capacity of the Plant 201 well field.

    Response:

    The maximum pumping capacity of Plant 201 is 10,000 GPM. Increasing the flow in the existing pipe will increase the velocity and pressure. The velocity and would exceed AWWA's recommendation and increased pressure and lead to more frequent leaks and early pipeline failure.

    b. Provide the following information from 2018 to 2022 in Excel format:

- Plant 201 monthly production data and sum it up for the annual production. In doing so, also provide a breakdown of Plant 201 wells' individual monthly production data.

    Response:

    See attached excel "DR BYU-06 Response #4.b.xls" for the requested production data at Plant 201. Data is shown in Acre-foot (AF).

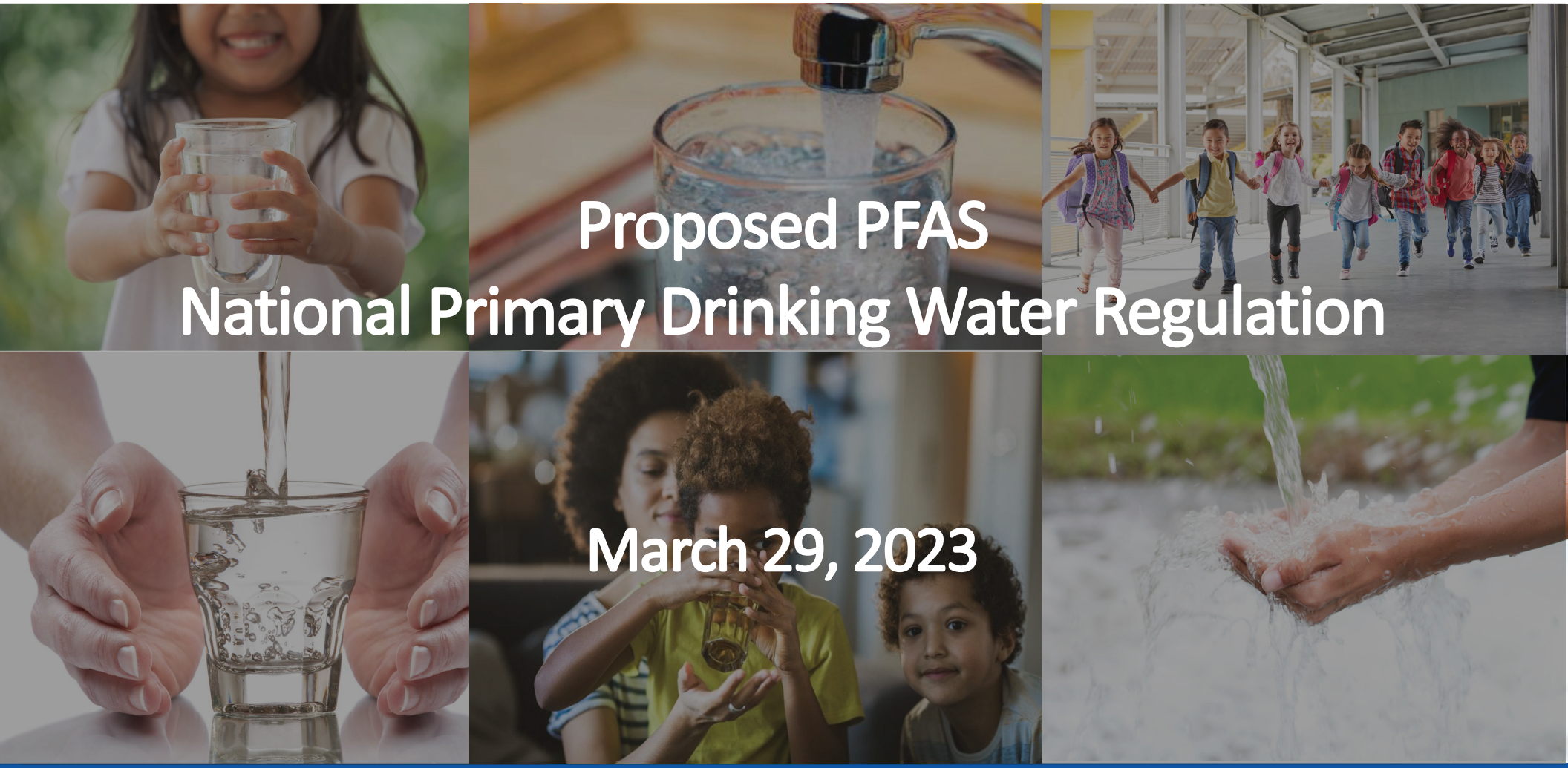
5. Has Suburban applied for any grants or other funding to help with the installation of Plant 201 PFAS treatment? Please list all funding Suburban has applied for, in Microsoft Excel Format, and include the agency Suburban applied to, the total amount Suburban applied for, the application date, and the result. If Suburban has not applied, please explain why not.

    Response:

    Yes, Suburban did apply for a grant. See attached excel "DR BYU-06 Response #5.xlsx" for the list of funding Suburban has applied for. Suburban received a grant from WQA for $1,000,000 on March 31, 2023. Please see file entitled "DR BYU-06 Response #5.pdf"

Chapter Attachment 2-

EPA's PFAS NPDWR Technical Presentation, March 23, 2023



Proposed PFAS National Primary Drinking Water Regulation

March 29, 2023

United States Environmental Protection Agency

Office of Water

PFAS Background

- PFAS are a category of manufactured chemicals that have been used in industry and consumer products since the 1940s.
- PFAS have characteristics that make them useful in a variety of products, including nonstick cookware, waterproof clothing, and firefighting foam, as well as in certain manufacturing processes.
- PFAS tend to break down extremely slowly in the environment and can build up in people, animals, and the environment over time.
- Even though some specific PFAS have been largely phased out due to health and environmental concerns, they may still be found in the environment and in drinking water.

PFAS Background

- We now know that over a long time PFAS may:
  - Lead to negative health effects on pregnant people and in developing babies
  - Weaken a body's ability to fight disease
  - An increased risk for some cancers, liver damage
  - Elevated cholesterol levels (which can increase the risk for heart attack or stroke)
- PFAS can enter drinking water in many ways, including discharges to rivers and lakes from manufacturing and processing facilities, as well as during industrial and commercial use. Areas can also be exposed due to proximity to industrial sites, airports, military installations, and other sites where PFAS have been produced or used.
- Drinking water is one of several ways people may be exposed to PFAS.
- Different PFAS are often found together and in combinations (or mixtures) in drinking water and the environment.
- EPA is acting to protect people's drinking water and reducing our exposure to PFAS, can lower our risk for these health effects.

What is a National Primary Drinking Water Regulation?

- An NPDWR establishes enforceable standards, such as Maximum Contaminant Levels (MCLs), which apply to public water systems.
- EPA must promulgate an NPDWR if the Agency determines after considering public comment that a contaminant:
  - May have adverse health effects;
  - Occurs or is substantially likely to occur in public water systems frequently at levels of concern; and
  - There is a meaningful opportunity for health risk reduction for persons served by public water systems.
- A public water system provides water for human consumption to at least 15 connections or serves an average of at least 25 people for at least 60 days a year.
  - EPA is proposing that the PFAS NPDWR will not apply to transient systems.

EPA's Regulatory Determinations for PFAS

- EPA issued final regulatory determinations for PFOA and PFOS in March 2021. As a part of that action, EPA stated it would continue to evaluate additional PFAS to consider regulatory actions for other PFAS as supported by the best available science.
- EPA is requesting comment on preliminary determinations to regulate PFHxS, PFNA, PFBS, HFPO-DA (commonly referred to as GenX Chemicals), and mixtures of these four PFAS.
- Concurrent with these preliminary regulatory determinations, EPA is proposing an NPDWR for these four PFAS as well as for PFOA and PFOS.

Overview of NPDWR Development Process

Evaluate Data Availability

What are the best available, peer-reviewed science and supporting studies?

Establish MCLG

What is the level at which no known or anticipated adverse effects on the health of persons occur and which allows for an adequate margin of safety?

Develop Rule Analyses

Develop a health risk reduction and cost analysis and determine what are the impacts of policy alternatives?

Set Standard as Close as Feasible to MCLG

What is the regulatory standard that may be achieved with the use of best available technologies taking cost into consideration?

Benefit-Cost Determination

Are the benefits justified by the costs?

Stakeholder Input During Development of Proposed PFAS NPDWR

- To inform the proposed NPDWR, EPA gathered input from several stakeholder groups and public meetings including:
  - Local, state, and tribal governments and officials
  - Public drinking water systems,
    - Small system representatives to the Small Business Advocacy Review Panel
  - Science Advisory Board
  - National Drinking Water Advisory Council
  - Public meetings on environmental justice considerations

EPA's Proposed Action for the PFAS NPDWR

- EPA is proposing health-based, non-enforceable Maximum Contaminant Level Goals (MCLGs) for six PFAS.
  - PFOA and PFOS as individual contaminants, and
  - PFHxS, PFNA, GenX Chemicals, and PFBS as a PFAS mixture
  - MCLGs are the maximum level of a contaminant in drinking water where there are no known or anticipated negative health effects allowing for a margin of safety.
- EPA is proposing an NPDWR to establish legally enforceable MCLs for these six PFAS in drinking water.

Proposed PFOA and PFOS MCLGs Considerations

- To establish the MCLGs for PFOA and PFOS, EPA assessed the peer reviewed science examining cancer and noncancer health effects associated with oral exposure.
- Consistent with SDWA statutory definition of an MCLG, EPA establishes MCLGs of zero for carcinogens classified as *Carcinogenic to Humans* or *Likely to be Carcinogenic to Humans* where there is insufficient information to determine that a carcinogen has a threshold dose below which no carcinogenic effects have been observed.
- Under the EPA Guidelines for Carcinogen Risk Assessment, EPA reviewed the weight of the evidence and determined that PFOA and PFOS are *Likely to Be Carcinogenic to Humans*.
  - For PFOA, this determination is based on the statistically significant evidence of kidney cancer in humans and Leydig cell tumors, pancreatic acinar cell tumors, and hepatocellular adenomas in rats.
  - For PFOS, this determination is based on the statistically significant evidence of potentially human relevant tumors, including hepatocellular tumors in male and female rats and pancreatic islet cell carcinomas in male rats.

Proposed Hazard Index PFAS Considerations

- To establish the proposed Health Based Water Concentrations (HBWCs) for PFHxS, PFNA, GenX Chemicals, and PFBS, which is the level below which no health effects are expected for that PFAS, EPA assessed the best available peer reviewed science with final toxicity values for noncancer health effects associated with oral exposure.
  - PFHxS HBWC is derived from a chronic reference value of 2E-06 mg/kg/d based on the Agency for Toxic Substances and Disease Registry (ATSDR) intermediate-duration oral Minimal Risk Level (MRL) of 2E-055 mg/kg/day for thyroid effects in male rats, with additional uncertainty factor of 10 to adjust for subchronic-to-chronic duration per agency guidance.
  - PFNA HBWC is derived from an ATSDR Intermediate-Duration Oral MRL 3E-06 mg/kg/d, which was based on development effects in mice.
  - GenX Chemicals HBWC is from an EPA 2021 human health toxicity assessment and derived from a reference dose (RfD) of 3E-06 mg/kg/d that is based on liver effects of mice following oral exposure.
  - PFBS HBWC is from an EPA 2021 human health toxicity assessment and derived from an RfD of 3E-04 mg/kg/d based on thyroid effects of newborn mice from mothers orally exposed to PFAS during gestation.

Highlights: Advice from the EPA Science Advisory Board

- EPA is committed to using the best available science to tackle PFAS pollution, protect public health, and harmonize policies that strengthen public health protections.
- EPA asked the Science Advisory Board (SAB) for advice and review of key scientific and technical information used to support the development of the proposed MCLGs and NPDWR.
  - Proposed Approaches to the Derivation of a Draft MCLGs for PFOA and PFOS in Drinking Water
  - EPA's Draft Framework for Estimating Noncancer Health Risks Associated with Mixtures of PFAS
  - EPA's Analysis of Cardiovascular Disease Risk Reduction as a Result of Reduced PFOA and PFOS Exposure in Drinking Water
- The SAB PFAS Review Panel convened and deliberated on the agency's charge question. Oral and written public comments were considered throughout the advisory process. The final SAB consensus report provided recommendations to EPA which the Agency considered for the proposed NPDWR (see EPA-SAB-22-008, August 22nd, 2022).

Highlights: Changes to Respond to SAB Recommendations

- PFOA and PFOS MCLG Approaches:
  - EPA improved transparency and completeness by adding further details about the methods, including a protocol; quantitative approaches (e.g., modeling); and rationales for decisions that all support the development of toxicity values.
  - EPA consistently implemented the evidence integration framework provided in the Integrated Risk Information System (IRIS) Handbook (EPA, 2022), including incorporation of mechanistic data.
  - EPA added a Weight of Evidence for Carcinogenicity section, based on the EPA Cancer Guidelines (EPA, 2005) to both assessments and tables outlining the evidence and rationale to support the cancer designations selected for PFOA and PFOS.
  - EPA considered other human toxicokinetic (TK) models and deriving internal dose points-of-departure (PODs) and provided detailed rationale on the selected TK approach.
- Hazard Index (HI) Approach:
  - SAB supported dose additivity as a health protective default assumption to assess potential health risks associated with exposure to PFAS mixtures. EPA added information to describe uncertainties associated with dose additivity, and deviations such as synergy or antagonism.

Proposed MCLs Considerations

- EPA is proposing MCLs as close as feasible to the MCLGs.
- For the feasibility determination, EPA considers factors including:
  - Availability of analytical methods: There are multiple methods available (EPA Methods 533 and 537.1) to reliably measure and quantify the six PFAS at or below their proposed MCLs.
  - Identification of treatment technologies: There are several treatment technologies available and currently in use to treat and remove the six PFAS to levels at or below their proposed MCLs.

EPA's Proposed Action for the PFAS NPDWR

Compound	Proposed MCLG	Proposed MCL (enforceable levels)
PFOA	0 ppt*	4.0 ppt*
PFOS	0 ppt*	4.0 ppt*
PFNA	1.0 (unitless) Hazard Index	1.0 (unitless) Hazard Index
PFHxS		
PFBS		
HFPO-DA (commonly referred to as GenX Chemicals)		

The Hazard Index is a tool used to evaluate potential health risks from exposure to chemical mixtures.

*ppt = parts per trillion (also expressed as ng/L)

What is a Hazard Index?

- The HI is a tool used to evaluate potential health risks from exposure to chemical mixtures, based on an assumption of dose additivity.
- EPA is proposing that water systems use this approach to limit any mixture containing one or more of PFHxS, PFNA, PFBS, and GenX Chemicals. The HI does not include PFOA and PFOS which are proposed for regulation as individual contaminants due to their likely carcinogenicity.
- To determine the HI, water systems would monitor and compare the amount of each of the four PFAS in drinking water to its associated HBWC, which is the level below which no health effects are expected for that PFAS. The proposed HBWCs are:

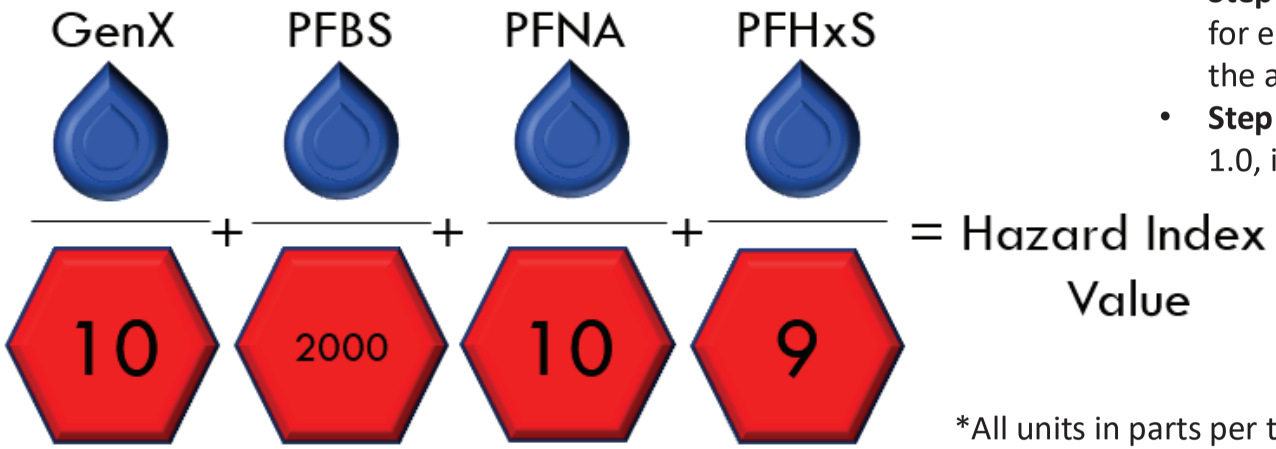
Compound	Proposed HBWC (ppt)
PFHxS	9.0
PFNA	10
PFBS	2000
HFPO-DA (commonly referred to as GenX Chemicals)	10

How do I calculate the Hazard Index?

The HI is used to understand health risks. For the PFAS NPDWR proposal, the HI considers the combined toxicity of PFNA, GenX Chemicals, PFHxS, and PFBS in drinking water.

What is a Hazard Index?

The HI is made up of a sum of fractions. Each fraction compares the level of each PFAS measured in the water to the level determined not to cause health effects (i.e., HBWC).



Steps:

- **Step 1:** Divide the measured concentration of **GenX** by the health-based value of **10 ppt***
- **Step 2:** Divide the measured concentration of **PFBS** by the health-based value of **2000 ppt**
- **Step 3:** Divide the measured concentration of **PFNA** by the health-based value of **10 ppt**
- **Step 4:** Divide the measured concentration of **PFHxS** by the health-based value of **9.0 ppt**
- **Step 5:** Add the ratios from steps 1, 2, 3, and 4 together
- **Step 6:** To determine HI compliance, repeat steps 1-5 for each sample collected in the past year and calculate the average HI for all the samples taken in the past year
- **Step 7:** If the running annual average HI greater than 1.0, it is a violation of the proposed HI MCL

*All units in parts per trillion (ppt)

Hazard Index MCL Calculation Examples

GenX Chemicals	PFBS	PFNA	PFHxS	HI

- **Example 1** – Exceedance of proposed Hazard Index MCL

$$\left(\frac{[5\ \text{ppt}]}{[10\ \text{ppt}]}\right) + \left(\frac{[200\ \text{ppt}]}{[2000\ \text{ppt}]}\right) + \left(\frac{[5\ \text{ppt}]}{[10\ \text{ppt}]}\right) + \left(\frac{[9\ \text{ppt}]}{[9.0\ \text{ppt}]}\right) = \mathbf{2.1}$$

- **Example 2** – Exceedance of proposed Hazard Index MCL

$$\left(\frac{[0\ \text{ppt}]}{[10\ \text{ppt}]}\right) + \left(\frac{[200\ \text{ppt}]}{[2000\ \text{ppt}]}\right) + \left(\frac{[2\ \text{ppt}]}{[10\ \text{ppt}]}\right) + \left(\frac{[7\ \text{ppt}]}{[9.0\ \text{ppt}]}\right) = \mathbf{1.1}$$

- **Example 3** – Exceedance of proposed Hazard Index MCL

$$\left(\frac{[12\ \text{ppt}]}{[10\ \text{ppt}]}\right) + \left(\frac{[0\ \text{ppt}]}{[2000\ \text{ppt}]}\right) + \left(\frac{[0\ \text{ppt}]}{[10\ \text{ppt}]}\right) + \left(\frac{[0\ \text{ppt}]}{[9.0\ \text{ppt}]}\right) = \mathbf{1.2}$$

- **Example 4** – Meets proposed Hazard Index MCL

$$\left(\frac{[0\ \text{ppt}]}{[10\ \text{ppt}]}\right) + \left(\frac{[100\ \text{ppt}]}{[2000\ \text{ppt}]}\right) + \left(\frac{[4\ \text{ppt}]}{[10\ \text{ppt}]}\right) + \left(\frac{[3\ \text{ppt}]}{[9.0\ \text{ppt}]}\right) = \mathbf{0.8}$$

EPA's Proposed Action for the PFAS NPDWR

- The proposed rule would require public water systems to:
  - Monitor for these PFAS;
  - Notify the public of the levels of these PFAS; and
  - Reduce the levels of these PFAS in drinking water if they exceed the proposed standards.
- EPA is requesting comment on the proposed rule.
- EPA is also requesting comment on its preliminary determinations to regulate PFHxS, PFNA, PFBS, GenX Chemicals, as well as mixtures of these four PFAS.
- This action is not final and does not require any actions until after EPA considers public input and finalizes the regulation.
- EPA anticipates that if fully implemented the rule will prevent tens of thousands of serious PFAS-attributable illnesses or deaths.

Proposed NPDWR Monitoring Requirements

- EPA's proposed requirements are based on EPA's Standardized Monitoring Framework for both initial and ongoing compliance monitoring of regulated PFAS to ensure that drinking water is not above MCLs.
- Initial monitoring must be completed in the three years between the rule promulgation date (anticipated end of 2023) and the rule effective date (anticipated end of 2026). Proposed initial monitoring requirements to establish baseline PFAS levels include any combination of:
  - Two or four samples collected at public water systems over one year, dependent on system population size and system type
  - Use of recent, previously acquired PFAS drinking water data from the fifth Unregulated Contaminant Monitoring Rule (UCMR 5), state-level drinking water occurrence monitoring, or other appropriate data collection program
- Initial monitoring results will determine the ongoing compliance monitoring requirements. Proposed ongoing compliance monitoring requirements include:
  - Quarterly monitoring as the normal frequency for all sampling locations
  - Reduced monitoring flexibility to once or twice every three years for sampling locations where the result is below 1/3 of the MCLs (i.e., rule trigger level)
- A system is in violation if monitoring results (based on running annual averages) exceed one of the MCLs.

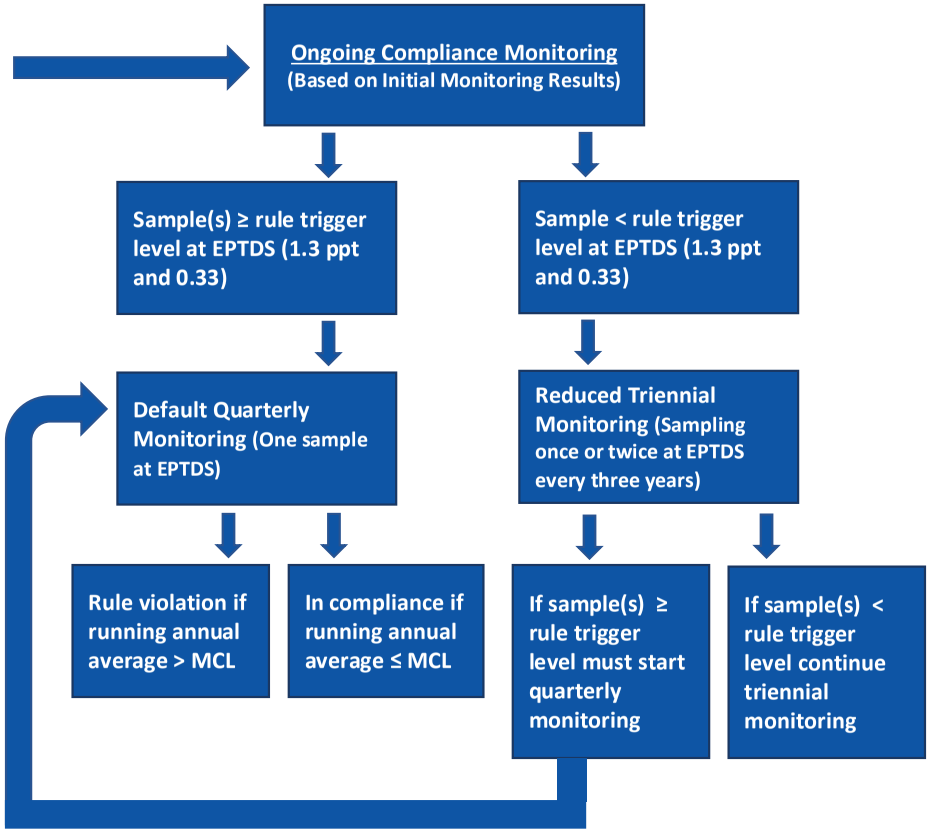
Proposed NPDWR Monitoring Requirements

Initial Monitoring

- Four quarterly samples within a 12-month period for ground water systems serving greater than 10,000 and all surface water systems
- Two semi-annual samples within a 12-month period for ground water systems serving 10,000 or fewer

AND/OR

- Use of recent, existing PFAS drinking water occurrence data



Rule Trigger Levels (1/3 Proposed MCLs)

- **PFOA and PFOS = 1.3 ppt**
- **Hazard Index PFAS = 0.33**

*** EPTDS = Entry point to the distribution system**

Proposed NPDWR Monitoring Requirements

- EPA used Practical Quantitation Levels (PQLs) for the six PFAS proposed for regulation in determining the proposed MCLs. PQLs are the lowest concentration of a contaminant that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.
- The proposed rule trigger levels are set at levels that are useful in determining whether the contaminant is present in a sample rather than to determine its specific concentration.
- EPA is requesting comment on establishing the proposed rule trigger levels at 1/3 of the proposed MCLs and on alternative trigger levels such as 1/2 of the proposed MCLs.

Proposed NPDWR Public Notification Requirements

- EPA is proposing that public water systems be required to issue public notification to customers if the levels of regulated PFAS exceed the proposed PFAS NPDWR.
- Under the Public Notification Rule, EPA is proposing the PFAS NPDWR as a "Tier 2" notification.
  - This would require notice as soon as possible, but within 30 days of the violation.
- EPA is proposing that community water systems be required to include PFAS information in the Consumer Confidence Report distribution to customers including:
  - The level of the regulated PFAS that is measured in their drinking water.
  - The potential health effects of the regulated PFAS detected in violation of the PFAS NPDWR.

PFAS Drinking Water Treatment Technologies

- Water systems with regulated PFAS above their proposed MCLs will be required to install treatment or take other action to reduce regulated PFAS levels in their drinking water and meet MCLs.
- As proposed, the rule would allow water systems the flexibility to determine the best actions and approaches to their specific situation.
- EPA evaluated technologies and has studies that demonstrate effective removal of all regulated PFAS. EPA has identified the following as best available technologies:
  - Granular activated carbon(GAC)
  - Anion Exchange (AIX)
  - Nanofiltration (NF) and Reverse Osmosis (RO)
- Some water systems may be able to reduce PFAS levels without installing treatment by using an alternative source of water that does not have PFAS contamination.

PFAS Drinking Water Treatment Technologies

- EPA conducted an extensive review of available PFAS removal treatment literature in EPA's Drinking Water Treatability Database and detailed in EPA's proposed rule support documents. The available data includes hundreds of studies conducted in the laboratory, in the field at pilot scale, and in full-scale application.
- Based on the best available science, EPA found that all of the best available technologies (GAC, AIX, RO, and NF) can exceed treatment removal efficiencies > 99% and can achieve concentrations below analytical detection limits.
- These technologies can also co-remove PFAS. For example, PFHxS is removed approximately as well as PFOA.

PFAS Drinking Water Treatment Technologies

Broad Considerations

- **"Longer Chain" PFAS are typically easier to remove**
- **Site specific footprints**
- **Formation from precursors**
- **GAC, AIX, RO, and NF can also remove other PFAS, disinfection byproducts, pesticides, certain heavy metals, and may help control for taste and odor.**
- **These technologies have been demonstrated to reduce PFAS concentrations to at or below current PFAS analytical quantitation limits in drinking water.**

PFAS Treatment Residuals and Disposal

- EPA evaluated actions that public water systems must take to dispose of treatment residuals that contain PFAS.
- EPA has developed interim guidance for the destruction and disposal of PFAS and PFAS-containing materials from some products, including spent drinking water treatment media.
- EPA is aware that actions resulting from other environmental statutes (e.g., Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)) may impact future drinking water treatment and disposal options.
  - As part of the proposed PFAS NPDWR, EPA has considered the costs of various disposal options for drinking water treatment residuals that contain PFAS.
- EPA is prioritizing research on PFAS disposal options in different environmental media and best management practices.

Economic Analysis for the Proposed Rule

- Benefits are assessed as avoided cases of illness and deaths associated with exposure to the six PFAS in the NPDWR. EPA's benefits analysis considered the strength of evidence for each effect and the availability of data to quantify the associated morbidity and mortality impacts.
- Costs are assessed as the expenses incurred by public water systems to monitor for the six PFAS included in the NPDWR, install and operate treatment technologies, inform consumers, and perform record-keeping and reporting responsibilities. State (or primacy agency) costs are assessed as expenses incurred to administer and implement the rule.
- EPA used the best available science and peer reviewed models to complete the economic analysis for the proposed rule. **The Administrator has determined that the benefits of this proposed regulation justify the costs.**

National Benefits Summary

- EPA has quantified some of the reduced adverse health effects expected from the proposed rule including kidney cancers, heart attacks, strokes, and developmental (birth weight) effects. EPA relied on the assessment of adverse health effects of PFOA and PFOS in the MCLG documents to inform the benefits analysis.
- EPA anticipates significant additional benefits beyond those that EPA has quantified associated with the following adverse health effects:
  - Immune
  - Developmental
  - Cardiovascular
  - Hepatic
  - Carcinogenic
  - Endocrine
  - Metabolic
  - Reproductive
  - Musculoskeletal

Annualized Quantified Rule Benefits (i.e., per year)	3% Discount Rate	7% Discount Rate
	$1.23 billion	**$908 million**

National Costs Summary

- EPA expects roughly 66,000 water systems to be subject to the rule, with approximately 3,400-6,300 systems anticipated to exceed one or more MCL.
- EPA has estimated the costs of the proposed rule to public water systems associated with administration, monitoring, and treatment and costs to primacy agencies associated with rule implementation and administration.
- Public water system treatment cost estimates include capital, and yearly operation and maintenance costs over the period of analysis and are derived using peer-reviewed work breakdown structure models.

Annualized Quantified Rule Costs (i.e., per year)	3% Discount Rate	7% Discount Rate
	$772 million	**$1.20 billion**

- EPA also prepared a supplemental cost analysis that estimates the annual costs would increase by $30-$61 million per year if water systems are required to dispose of PFAS treatment as hazardous waste.

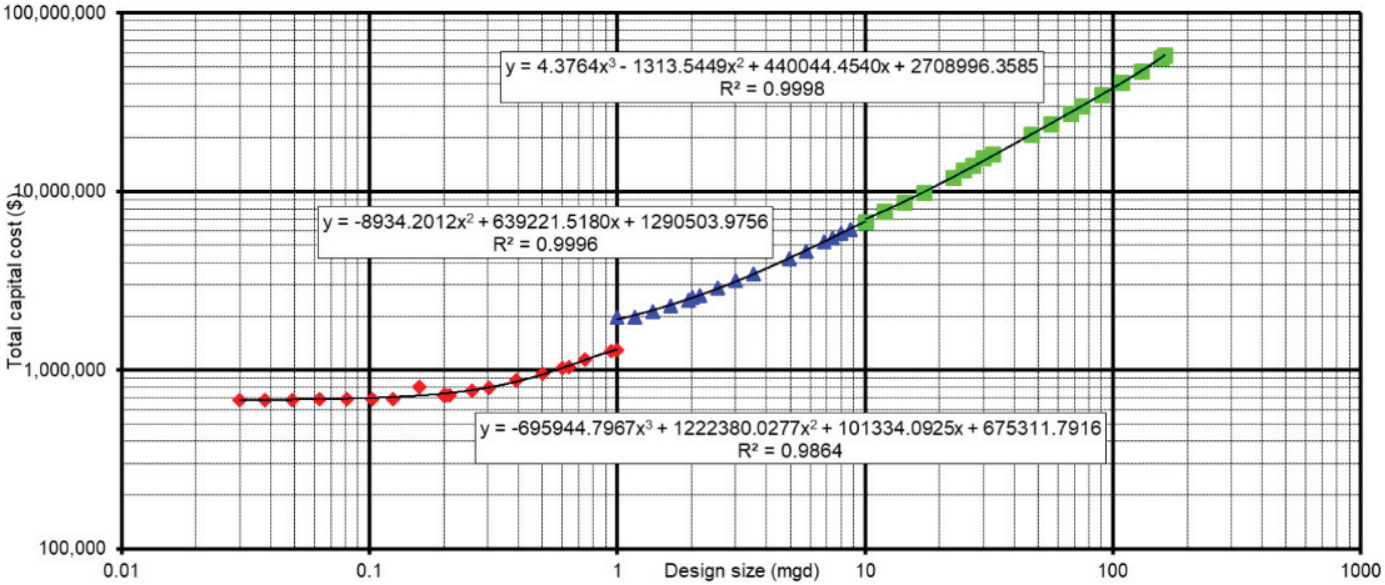
EPA appreciates additional information and will use input received in public comments to inform the economic analysis for the final rule.

Water System Treatment Costs

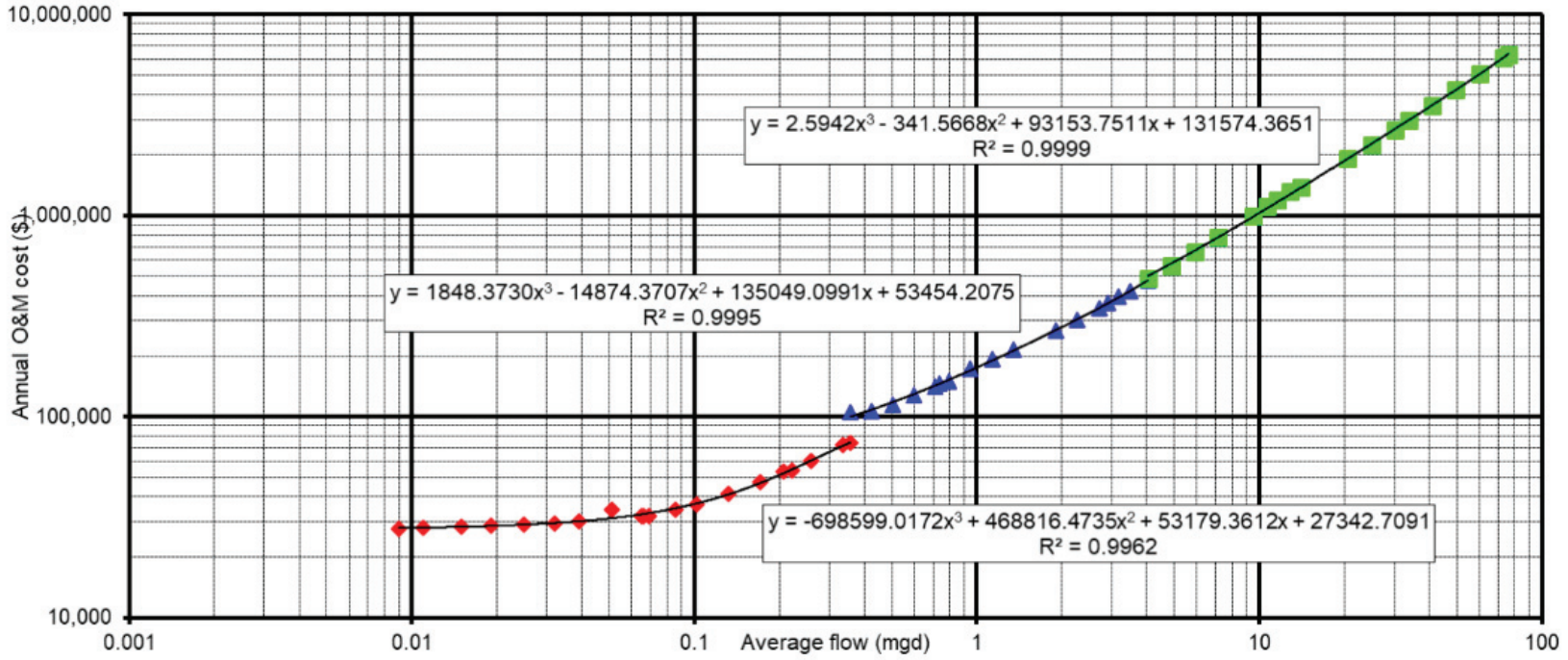
- EPA estimated annualized costs per year for water systems that treat or change water source.
  - Costs of system capital, operation, and maintenance are annualized.
- Quantified costs are estimated over a human lifetime (82 years) to be comparable to quantified benefits estimates.
- Costs factor in repairs and replacement of capital infrastructure at the end of its lifespan (variable, based on materials used; for example, useful life range of approximately 20-35 years for GAC capital).
- Costs differ based on treatment technology used.
- For more information, see USEPA (2023) Economic Analysis of the Proposed National Primary Drinking Water Regulation for Per- and Polyfluoroalkyl Substances. EPA-822-P-23-001.

Capital Cost Estimates

- EPA developed dozens of Work Breakdown Structure cost equations for treatment at surface and ground water systems across the range of bed life (5,000 to 150,000 BVs) and residuals management scenarios (hazardous and non-hazardous), including high, mid, and low-cost levels.
- The mid-level capital cost curve (right) estimates costs of removal of PFAS from surface water using GAC.
- These curves are used to inform the SafeWater model, which estimates national level treatment costs.



Operation and Maintenance Cost Estimates



Mid-level Cost Results for Removal of PFAS from Surface Water Using Gravity GAC ($2020)

Bipartisan Infrastructure Law Funding for PFAS

- The Bipartisan Infrastructure Law provides $9 billion to invest in drinking water systems specifically impacted by PFAS and other emerging contaminants.
  - $4 billion through the Drinking Water State Revolving Fund (DWSRF)
  - $5 billion through EPA's Emerging Contaminants in Small or Disadvantaged Communities Grant Program
- States and communities can also leverage an additional nearly $12 billion in BIL DWSRF funds dedicated to making drinking water safer.

Key Questions and Answers

QUESTION: My state (or tribe or territory) currently has a different safety level for these six PFAS other than EPA's proposed values. Why is this?

ANSWER: Some states have established drinking water regulations or guidance values for some PFAS prior to this proposed rule and have led the way in monitoring for and limiting some of these chemicals. The NPDWR proposed by EPA, if finalized, will provide a nationwide, health protective level for these six PFAS in drinking water. The rule reflects regulatory development requirements under the Safe Drinking Water Act (SDWA), including EPA's analysis of the best available and most recent peer-reviewed science; available drinking water occurrence, treatment and analytical feasibility information; and consideration of costs and benefits.

At this time, communities and water systems should follow all applicable current state requirements, recognizing that EPA's proposed rule does not require water systems to take any action at this time. When the final NPDWR goes into effect, states will be required to have a standard that is no less strict than the NPDWR – as SDWA requires.

Key Questions and Answers

QUESTION: What is the difference in this proposed PFAS drinking water regulation and the recently released drinking water health advisories for PFOA, PFOS, PFBS, and GenX Chemicals?

ANSWER: This is a proposed rule for public comment. It does not require any action for drinking water systems until the rule is finalized. Once the rule is finalized, water systems would have three years to be in compliance with the MCLs.

The proposed regulation includes MCLs which, if finalized, are legally enforceable regulatory drinking water standards. EPA establishes MCLs as close as feasible to the health-based, non-enforceable MCLG, taking into consideration the ability to measure and treat to remove a contaminant, as well as the costs and benefits.

Drinking water health advisories are different from MCLs and MCLGs. Each serves a different purpose. Health advisories are not regulatory and are not legally enforceable. Health advisories reflect EPA's assessment of health risks of a contaminant based on the best available science and provide advice and information on actions that water systems may take to address contamination for these and other PFAS. After EPA has considered public comments and issues a final NPDWR, EPA will decide whether to update or remove the interim health advisories for PFOA and PFOS and the final health advisories for PFBS and GenX Chemicals.

For more information on the health advisories, please visit https://www.epa.gov/sdwa/drinking-water-health-advisories-pfoa-and-pfos.

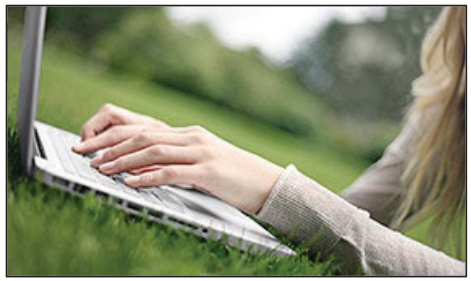
Dates of Proposed Action for the PFAS NPDWR

- On March 14, 2023, Administrator Regan announced the Proposed PFAS National Primary Drinking Water Regulation (NPDWR).
  - The prepublication Federal Register Notice (FRN), technical health and Maximum Contaminant Level Goal (MCLG) documents, and the economic analysis were concurrently posted on EPA's PFAS NDPWR website on this date.
- The FRN was formally published in the Federal Register on March 29, 2023 (today). This also initiated the public comment period.
- Public commenters have until May 30, 2023, to provide comments.
- EPA is providing commenters with a 60+ day comment period, in addition to the 15 days when the documents posted to EPA's PFAS NDPWR website were made available for public review.

FEDERAL REGISTER
The Daily Journal of the United States Government

Public Comment Period and Docket

- The public is invited to review the proposal and supporting information and provide their written input to EPA through the public docket.
- The public docket can be accessed at: www.regulations.gov under Docket ID: EPA-HQ-OW-2022-0114.
- Written comments must be submitted to the public docket within the public comment period which ends on **May 30, 2023.**
- For more information on submitting information EPA dockets: https://www.epa.gov/dockets/commenting-epa-dockets



Public Comment Period and Public Hearing

- During the public comment period, EPA will be holding a virtual public hearing on the proposed PFAS NPDWR on May 4, 2023, to listen to the public's views about the proposal.
- EPA invites members of the public to register and attend the hearing where there will also be an opportunity to make oral comments to EPA.
- Details on the public hearing, including registration, are available in the proposed rule preamble and on EPA's PFAS NPDWR website.
- EPA will consider both written and oral public comments equally in the development of the final NPDWR.

Additional Resources

- EPA PFAS NPDWR Website
- EPA PFAS Website
- EPA PFAS Strategic Roadmap
- EPA Basics of Regulatory Process Website
- EPA Get Involved in EPA Regulations Website
- EPA Commenting on EPA Dockets Website
- Regulations.gov
- FederalRegister.gov

PFAS NPDWR Key Milestones and Path Forward

- Final Regulatory Determinations for PFOA and PFOS: March 2021
- Preliminary Regulatory Determinations for PFHxS, PFNA, PFBS, GenX Chemicals, and their mixtures: March 2023
- Proposed PFAS NPDWR for PFOA, PFOS, PFHxS, PFNA, PFBS, and GenX Chemicals: March 2023
- Public Comment Period on Proposed PFAS NPDWR: March 29 – May 30, 2023
- Public Hearing on Proposed PFAS NPDWR: May 4, 2023
- Final PFAS NPDWR Promulgated: Anticipated December 2023
- PFAS NPDWR Effective Date: Anticipated December 2026 (three years following final rule promulgation)

EPA's PFAS NPDWR website:
https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas

Chapter Attachment 2-

California Utilities Battle PFAS with New Ion Treatment Plant, AWWA Article, March 23, 2022

AWWA ARTICLES

California utilities battle PFAS with new ion treatment plant

March 23, 2022
Connections Article, Publications

Two Southern California water districts recently began operating what is believed to be the largest ion exchange treatment plant in the United States to remove per- and polyfluoroalkyl substances (PFAS), or "forever chemicals," from groundwater.

Orange County Water District (OCWD), which manages groundwater for 19 water providers, worked with one of its member utilities, Yorba Linda Water District, to build the plant.

The new facility is one of 35 that OCWD plans to construct in the coming years for its member agencies, known locally as groundwater producers, as the utility takes required steps to comply with existing and pending state and anticipated federal PFAS requirements.

"We take both the federal and state PFAS recommendations for public health protection very seriously," said Jason Dadakis *(pictured right)*, OCWD's executive director of water quality and

technical resources.

Manmade chemicals with staying power

PFAS, a group of more than 3,000 manmade chemicals, have been manufactured and used in various industries around the globe since the 1940s. Their prevalence and staying power in the environment —including drinking water sources — have raised concerns about the possibility of adverse health impacts.

They have been used to fight fires and recover oil, and to produce medical equipment, food packaging, cleaning products, nonstick cookware, stain- and water-resistant coatings, paints, inks and cosmetics. Their release into the environment has led to a serious challenge for public water suppliers.

The U.S. Environmental Protection Agency is developing new national primary drinking water standards for two individual PFAS chemicals — perfluorooctanoic acid (PFOA) and perfluorooctyl Sulfonate (PFOS) — to be released by fall 2023. The American Water Works Association and other water organizations have provided input and congressional testimony to advocate for source water protection, following a scientific process and continuing research to confront the challenge of PFAS in drinking water.

Dadakis said OCWD has traced the district's primary source of these chemicals to the Santa Ana River, which replenishes underground aquafers.

"We find it in stormwater runoff and other discharges from upstream areas entering the river," he said. "PFAS are very resilient. Conventional sewage and stormwater treatment systems were never designed to remove compounds like PFAS."

States pushing for innovative treatment

As scientists learn more about these chemicals and their health effects, states are regulating them differently. The state of California started tightening its health advisories and notification requirements about five years ago.

Yorba Linda, which detected PFAS in all 10 of its groundwater wells, had to temporarily shut down wells and transition to purchasing 100% imported surface water sourced from the Colorado River and Northern California while it searched for a treatment-based solution.

That's an expensive and difficult move. Typically, the 19 water agencies in the basin managed by OCWD get 75% of their water from groundwater wells.

"That transition from groundwater to imported surface water has rate impacts," Dadakis said. "It effectively doubles wholesale water costs, and each agency has to decide how to handle that."

In 2019, OCWD began testing 14 different absorbents, including granular activated carbon (GAC), ion exchange (IX) resins, and a handful of emerging alternative "novel" absorbents, to determine how to best remove PFAS. Yorba Linda and most member utilities have selected IX treatment, which acts like a magnet to remove chemicals, because it requires roughly one-fifth to one-third the footprint of GAC treatment plants, Dadakis said.

"Land is so valuable out here that utilities typically don't have the extra room," he said.

Yorba Linda's 10 wells are all located in the same area, and a pipeline passes by its headquarters enroute to a reservoir, making it possible to build one centralized, large treatment facility, he said.

The plant consists of 11 two-vessel IX systems, a 25-million-gallon-per-day booster pump station and an upgraded onsite chlorine generation system. Construction began in March 2021 and initial operations began December 2021, with full production scheduled to begin this month. Initial project capital costs are estimated at $27.6 million, not including long-term operations and maintenance.

Capital costs for building all 35 treatment plants for OCWD's member agencies are estimated at $275 million, Dadakis said.

Lawsuit underway

OCWD is paying for 100% of the design and construction costs for each PFAS treatment plant and is splitting the maintenance costs with each member agency. A federal Water Infrastructure Finance and Innovation (WIFIA) loan is helping with 49% of the program, but ultimately must be paid back with interest. District officials also are applying for state and federal grants.

"We absolutely don't think our ratepayers should be on the hook for these costs," Dadakis said.

To recover their costs, OCWD and 10 of Orange County's public water agencies have filed suit against chemical manufacturers 3M Company; E.I. DuPont de Nemours, Inc.; DuPont de Nemours and Company; Chemours Company; Corteva, Inc.; and others. That lawsuit, filed in Orange County Superior Court in December 2020, is still in the pre-trial phase.

Dadakis said the cost of removing PFAS in Orange County could exceed $1 billion in the next 30 years. But it's still far more affordable and reliable than permanently transitioning to 100% imported water sources, which officials estimate would add $20 to the average ratepayer's monthly bill.

"We are really working hard to make sure it doesn't fall on the ratepayers," he said.

More information is available on AWWA's PFAS Resource Page.

Contact

Contact AWWA

Jobs

Find a Job

Post a Job

Work for AWWA

Locations

AWWA Headquarters

6666 W. Quincy Ave.

Denver, CO 80235 USA

Phone: 303.794.7711 or 800.926.7337

AWWA Government Affairs Office

1300 Eye St. NW Suite 701

Washington, DC 20005 USA

Phone: 202.628.8303

AWWAIndia Association

New Delhi, India

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Chapter Attachment 2-1

DR BYU-06 Response #5.xlsx

Agency	Total Applied Amount	Application Date	Result
San Gabriel Basin Water Quality Authority	$1,000,000	11/10/2022	Approved 3/31/2023

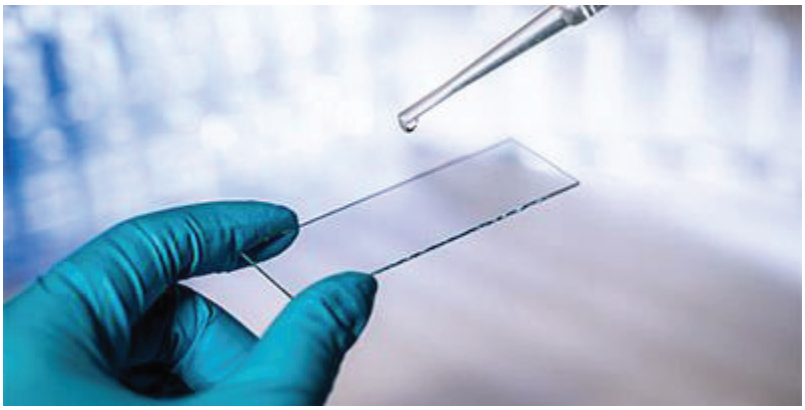
Chapter Attachment 2-1

$4 Million in Funding for ELA PFOS,PFOA Removal, Cal Water Newsletter, August 2, 2022

$4 Million in Funding for ELA PFOS, PFOA Removal

Posted on August 02, 2022

Grant Reduces Costs of Treatment for Customers



Cal Water has secured a $4.23 million grant from the Water Replenishment District (WRD) to fund expenditures for treatment equipment that removes perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) from groundwater in Cal Water's East Los Angeles District. The treatment plant went online in January 2022 and enabled the utility to return an important water supply source to service for area residents and businesses.

Although there is not a maximum contaminant level (MCL) set for PFOS or PFOA yet, Cal Water proactively tested all active water sources across its service areas in recent years to identify how its systems may be impacted by the contaminants. In the cases where detections reached the State Water Resources Control Board's Division of Drinking Water-established response levels, including this well site in East Los Angeles, the utility decided to remove wells from service until treatment could be installed. Cal Water also shared its test results with state and federal regulators to help them gain a better understanding of how the contaminants have impacted water supplies.

PFOS and PFOA are two of the more common contaminants in a broader family of compounds called per- and polyfluoroalkyl substances, or PFAS.

"We take our responsibility to deliver a reliable, high-quality water supply to our customers very seriously, and protecting their health and safety has always been our highest priority," said Marty Kropelnicki, Cal Water President and CEO. "That's why we decided to install treatment at this well without assurance of cost recovery, so that we would know our customers will have a reliable supply of water that will meet both current and anticipated future water quality standards."

“We are thankful for WRD’s grant funding to help cover the costs of this facility and reduce the financial impact of treatment,” Kropelnicki said.

“The Water Replenishment District is committed to proactively working with water providers in our service area to identify and treat wells that have been contaminated with PFAS,” said John D. S. Allen, President of the WRD Board of Directors. “We are proud to partner with Cal Water to ensure safe and clean drinking water to the communities we serve.”

Cal Water has filed a lawsuit to hold the manufacturers of PFOS and PFOA responsible and prevent customers from bearing the costs of treatment. Additionally, the utility actively supports legislation designed to address public health concerns regarding the contaminants.

This news release contains forward-looking statements within the meaning established by the Private Securities Litigation Reform Act of 1995 (“Act”). The forward-looking statements are intended to qualify under provisions of the federal securities laws for “safe harbor” treatment established by the Act. Forward-looking statements are based on currently available information, expectations, estimates, assumptions and projections, and management’s judgment about the Company, the water utility industry and general economic conditions. Such words as will, would, expects, intends, plans, believes, estimates, assumes, anticipates, projects, predicts, forecasts or variations of such words or similar expressions are intended to identify forward-looking statements. The forward-looking statements are not guarantees of future performance. They are subject to uncertainty and changes in circumstances. Actual results may vary materially from what is contained in a forward-looking statement. Factors that may cause a result different than expected or anticipated include, but are not limited to: natural disasters, public health crises, pandemics, epidemics or outbreaks of a contagious disease, such as the outbreak of coronavirus (or COVID-19), governmental and regulatory commissions’ decisions, including decisions on our GRC and on proper disposition of property; consequences of eminent domain actions relating to our water systems; changes in regulatory commissions’ policies and procedures; the timeliness of regulatory commissions’ actions concerning rate relief and other actions; changes in water quality standards; changes in environmental compliance and water quality requirements; electric power interruptions; housing and customer growth trends; the impact of opposition to rate increases; our ability to recover costs; availability of water supplies; issues with the implementation, maintenance or security of our information technology systems; civil disturbances or terrorist threats or acts; the adequacy of our efforts to mitigate physical and cyber security risks and threats; the ability of our enterprise risk management processes to identify or address risks adequately; labor relations matters as we negotiate with unions; changes in customer water use patterns and the effects of conservation; the impact of weather, climate, natural disasters, and diseases on water quality, water availability, water sales and operating results, and the adequacy of our emergency preparedness; and, other risks and unforeseen events. When considering forward-looking statements, you should keep in mind the cautionary statements included in this paragraph, as well as the annual 10-K, Quarterly 10-Q, and other reports filed from time-to-time with the Securities and Exchange Commission (SEC). The Company assumes no obligation to provide public updates of forward-looking statements.

Chapter Attachment 2-1

3M Resolves Claims by Public Water Suppliers, Supports Drinking Water Solutions for Vast Majority of Americans, 3M Newsletter, June 22, 2023

June 22, 2023

3M Resolves Claims by Public Water Suppliers, Supports Drinking Water Solutions for Vast Majority of Americans

- Agreement includes present value commitment of up to $10.3 billion payable over 13 years
- Provides funding for public water suppliers (PWS) nationwide that have detected PFAS in drinking water, as well as for eligible PWS that may detect PFAS at any level in the future

ST. PAUL, Minn., June 22, 2023 /PRNewswire/ -- 3M (NYSE: MMM) has entered into a broad class resolution to support PFAS remediation for public water suppliers (PWS) that detect PFAS at any level or may do so in the future. This agreement will benefit U.S.-based PWS nationwide that provide drinking water to a vast majority of Americans. Subject to court approval, the agreement:

- Provides funding for PWS across the country for PFAS treatment technologies without the need for further litigation.
- Provides funding for eligible PWS that may detect PFAS in the future.
- Resolves current and future drinking water claims by PWS related to PFOA, PFOS, and all other PFAS, including those that are included as a portion of the Aqueous Film Forming Foam (AFFF) multi-district litigation based in Charleston, South Carolina.
- Provides funding for PWS nationwide to conduct testing for PFAS.

"This is an important step forward for 3M, which builds on our actions that include our announced exit of PFOA and PFOS manufacturing more than 20 years ago, our more recent investments in state-of-the-art water filtration technology in our chemical manufacturing operations, and our announcement that we will exit all PFAS manufacturing by the end of 2025," said 3M chairman and CEO Mike Roman.

Financial Considerations
Under the terms of the settlement, 3M has agreed to contribute up to a present value of $10.3 billion, payable over 13 years.

3M expects to record a pre-tax charge of approximately $10.3 billion in the second quarter of 2023 and to reflect it as an adjustment in arriving at results, adjusted for special items. Additional details will be included in 3M's filings with the Securities and Exchange Commission.

The strength and stability of 3M's business model and strong free cash flow capability, together with proven capital markets access, provide financial flexibility to deploy capital to meet its cash flow needs under this agreement and other contractual commitments and obligations.

This agreement is not an admission of liability. If the agreement is not approved by the court or certain agreed terms are not fulfilled, 3M is prepared to continue to defend itself in the litigation. 3M also will continue to address other PFAS litigation by defending itself in court or through negotiated resolutions, all as appropriate.

About PFAS
PFAS can be safely made and used and are critical in the manufacture of many products that are important for modern life, including medical technologies, semiconductors, batteries, phones, automobiles, and airplanes. Additional details are available on 3M's website, www.3M.com/PFAS.

Forward-Looking Statements
This news release contains certain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, including projections as to the amount and timing of payments made under the Settlement. You can identify these statements by the use of words such as "anticipate," "estimate," "expect," "aim," "project," "intend," "plan," "believe," "will," "should," "could," "would," "target," "forecast" and other words and terms of similar meaning in connection with any discussion of future operating or financial performance or business plans or prospects. Forward-looking information is based on management's estimates, assumptions, and projections, and is subject to significant uncertainties and other factors, many of which are beyond 3M's control. Important risk factors could cause actual future results and other future events to differ materially from those currently estimated by management, including, but not limited to, whether court approval of the Settlement will be obtained, whether the number of plaintiffs that opt out of the Settlement will exceed current expectations or will exceed the level that would permit 3M to terminate the Settlement (and whether 3M will elect to terminate the Settlement if this occurs), whether the Settlement is appealed, the filing of additional, or the outcome of any other pending or future, litigation relating to PFAS or related products or chemistries, costs of remediation obligations relating to PFAS or related products or chemistries, changes in related laws or regulations, or the impact of the settlement, any litigation or related matters on 3M's financial condition. Additional important risk factors that could cause future actual results or events to differ materially are the following: (1) worldwide economic, political, regulatory, international trade, geopolitical, capital markets and other external conditions and other factors beyond 3M's control, including inflation, recession, military conflicts, natural and other disasters or climate change affecting the operations of 3M or its customers and suppliers; (2) risks related to unexpected events such as the public health crises associated with the coronavirus (COVID-19) global pandemic; (3) foreign currency exchange rates and fluctuations in those rates; (4) risks related to certain fluorochemicals, including liabilities related to claims, lawsuits, and government regulatory proceedings concerning various PFAS-related products and chemistries, as well as risks related to 3M's plans to exit PFAS manufacturing and discontinue use of PFAS across its product portfolio; (5) legal proceedings, including significant developments that could occur in the legal and regulatory proceedings described in 3M's Annual Report on Form 10-K for the year ended Dec. 31, 2022 and any subsequent quarterly reports on Form 10-Q (the "Reports"); (6) competitive conditions and customer preferences; (7) the timing and market acceptance of new product and service offerings; (8) the availability and cost of purchased components, compounds, raw materials and energy due to shortages, increased demand and wages, supply chain interruptions, or natural or other disasters; (9) unanticipated problems or delays with the phased implementation of a global enterprise resource planning (ERP) system, or security

breaches and other disruptions to 3M's information technology infrastructure; (10) the impact of acquisitions, strategic alliances, divestitures, and other strategic events resulting from portfolio management actions and other evolving business strategies; (11) operational execution, including the extent to which 3M can realize the benefits of planned productivity improvements, as well as the impact of organizational restructuring activities; (12) financial market risks that may affect 3M's funding obligations under defined benefit pension and postretirement plans; (13) 3M's credit ratings and its cost of capital; (14) tax-related external conditions, including changes in tax rates, laws or regulations; (15) matters relating to the proposed spin-off of 3M's Health Care business; and (16) matters relating to the voluntary chapter 11 proceedings of 3M's subsidiary Aearo Technologies and certain of its affiliates. Changes in such assumptions or factors could produce significantly different results. A further description of these factors is located in the Reports under "Cautionary Note Concerning Factors That May Affect Future Results" and "Risk Factors" in Part I, Items 1 and 1A (Annual Report) and in Part I, Item 2 and Part II, Item 1A (Quarterly Reports). 3M assumes no obligation to update any forward-looking statements discussed herein as a result of new information or future events or developments.

About 3M
3M (NYSE: MMM) believes science helps create a brighter world for everyone. By unlocking the power of people, ideas and science to reimagine what's possible, our global team uniquely addresses the opportunities and challenges of our customers, communities, and planet. Learn how we're working to improve lives and make what's next at 3M.com/news or on Twitter at @3M or @3MNews.

View original content to download multimedia:https://www.prnewswire.com/news-releases/3m-resolves-claims-by-public-water-suppliers-supports-drinking-water-solutions-for-vast-majority-of-americans-301858581.html

SOURCE 3M

Chapter Attachment 2-1

Suburban Response to DR BYU-10 (Plant 409)

Suburban Water Systems
1325 N. Grand Ave. Ste. 100, Covina, CA 91724-4044
Phone: 626.543.2500, Fax: 626.331.4848
www.swwc.com

May 9, 2023

To: Suliman Ibrahim
Project Coordinator

Brian Yu
Utilities Engineer/Regulatory Analyst

Shanna Foley
Attorney for Public Advocates Office

Re.: Response to A.23-01-001, Public Advocates Office DR BYU-10 (Plant 409)

Dear Mr. Ibrahim et al.,

Attached is the information you requested in writing for Suburban's Total Company General Rate Case.

Sincerely,

/s/Carmelitha Bordelon

Carmelitha Bordelon
Director of Regulatory Affairs

Response to A.23-01-001, Public Advocates Office

DR BYU-10 (Plant 409)

1. Suburban's MDR identifies Plant 409 Arsenic Treatment was constructed as an Unauthorized Completed Project.

   a. Provide a list of all facility equipment at Plant 409.

      Response:

      Enclosed is the list of assets at Plant 409, "DR BYU-10 Response #1.a.xlsx"

   b. Provide project justification for the Plant 409 Arsenic Treatment. Also provide DDW permit document for the Arsenic Treatment at Plant 409.

      Response:

      Arsenic is an inorganic contaminant regulated by EPA with an MCL of 10 ppb. Arsenic has been linked to bladder, lungs, skin, kidney nasal passage, liver and prostate cancers. Water quality samples from Well 3 (Plant 409 W-3) are above the arsenic MCL and the well was taken out of service prior to receiving a violation from DDW. Water quality data was provided to DDW and as noted on DRBYU-09 Response #3.b.ii. DDW's sanitary survey recommended installing a new treatment process. DDW will not issue a permit amendment until the treatment process testing and water samples are verified. The arsenic treatment process is scheduled to be tested in June 2023. The proposed treatment process is the lowest cost option as shown on the attached Technical Memorandum (DR BYU-10 Response #1.b.pdf) and requires minimal mechanical work and changing chemicals from poly aluminum chloride to Ferric Chloride to remove arsenic.

   c. Provide the most recent 5 years of Arsenic monitoring results at Plant 409.

      Response:

      The most recent five years of arsenic monitoring samples were included in excel file "DR BYU-09 Response #3.b.i.xlsx."

   d. Provide a detailed project cost recorded to date. If Suburban expects more cost to close out the project, provide estimates: cost and time of closure. Provide support to substantiate any recorded or projected costs including but not limited to vendor invoices, quotes, etc.

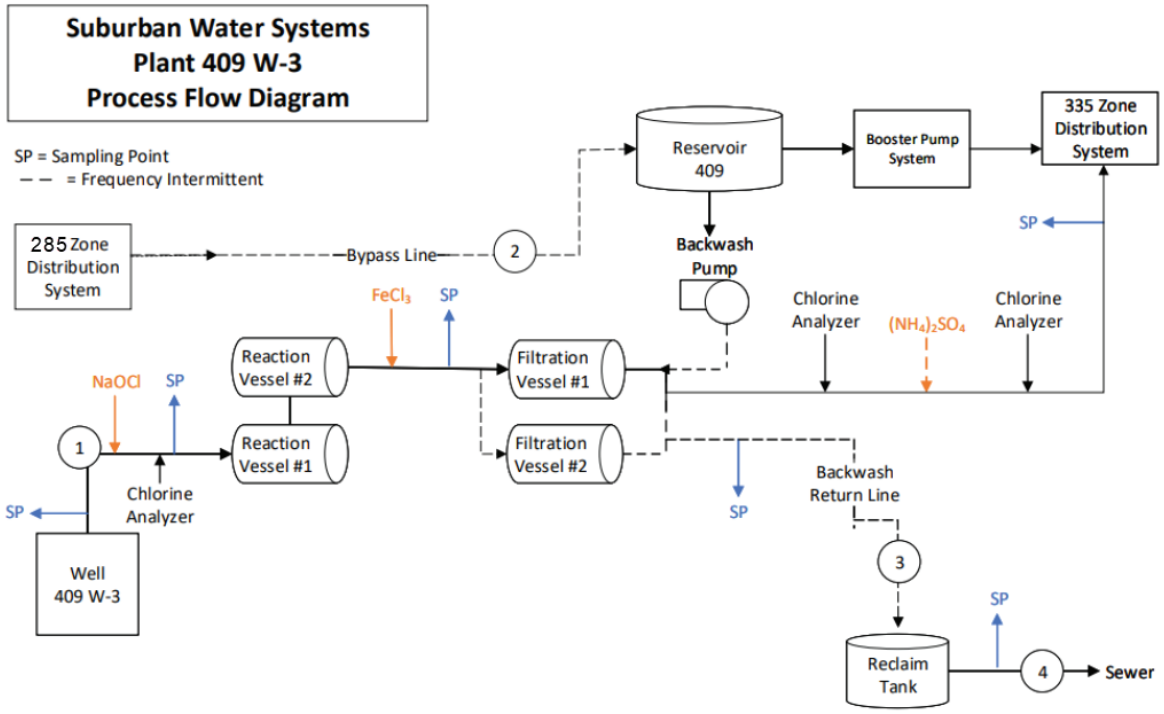
      Response:

      The Excel file "DR BYU-10 Response #1.d.xlsx" includes the recorded costs to date and the pdf file "DR BYU-10 Response #1.d.pdf" includes copies of the invoices.

e. Provide treatment system's capacity and schematic drawing of the new treatment on the Plant 409 site as to how it is connected to the existing system set up.

Response:

Below is the schematic of the treatment process at Plant 409. The treatment capacity is 2,500 gpm.



2. Refer to Suburban's request to rehabilitate Plant 409 Well 3.

   a. Referring to Suburban's cost estimate on Lopez Testimony p. 480,

      i. Provide copies of invoices from previous well rehabilitation that substantiate the current cost estimate.

      Response:

      The pdf file "DR BYU-10 Response #2.a.i.pdf" includes invoices for previous redevelopment process.

      ii. If there are other documents that substantiate the cost estimate, such as vendor quote, please provide.

      Response:

      The pdf file "DR BYU-10 Response #2.a.ii.pdf" includes vendor quotes used to determine the cost estimate.

b. Provide a cost benefit analysis of continuing to budget over $300,000 for each GRC to rehabilitate Plant 409 Well 3.

Response:

Redeveloping Plant 409 W-3 ensures its production capacity is maintained. Sustained well production reduces the need to purchase alternative water. Well redevelopment costs are significantly less than the cost to purchase water from other sources. As shown in "DR BYU-10 Response #2.c.i_Rev1.xlsx", declining well production has increased annual purchased water expenses from $79,013 to $1,288,040. The annual revenue requirement to rehabilitate the well is $52,024 ($322,000 x 16.16% [Authorized rate of return]) which is much less than purchased water from alternative sources.

Alternatively, a replacement well could be drilled to replace the declining production. The estimate to drill and equip exceeds $5,000,000, as shown on page 136 of Jorge Lopez's testimony. The proposed well rehabilitation costs are also significantly less than the cost to drill a new well.

c. Referring to Lopez Testimony statement on page 129 "If Suburban cannot produce Central Basin water, then it must replace it with significantly more expensive imported water from CBMWD,"

   i. Provide purchase water cost incurred, annually, that directly replaced Plant 409 Well 3 due to loss of normal production capacity from 2012 to 2022. Provide this data in MS Excel format.

      Response:

      File "DR BYU-10 Response #2.c.i_Rev1.xlsx" shows the cost of water purchased to make up for declining production at Plant 409 W-3. Plant 409 W-3's nominal production capacity is 1,932AF (1,200 gpm). Plant 409 W-3's production in 2012-2016 exceeded this nominal production goal, did not generate a need to purchase replacement water, and are not included in the calculation.

d. Provide the supply and demand analysis of zones 285 and 335 in terms of ADD, MDD and PHD. Substantiate the ADD, MDD and PHD figures with measured demands such as SCADA readings.

Response:

See Excel Files for ADD, MDD, and PHD using SCADA for 285 and 335 Zones:

- DR BYU-10 Response #2.d – Z282 & Z335 Demand 2012-2021_ADD.xlsx
- DR BYU-10 Response #2.d – Z282 & Z335 Demand 2012-2021_MDD.xlsx
- DR BYU-10 Response #2.d – Z282 & Z335 Demand 2012-2021_PHD.xlsx

e. Can Plant 410 directly supply the system zones, or can it only be pumped to Plant 409 reservoirs?

Response:

Water from the Plant 410 Well (Plant 410 W-1) is delivered directly into the 285 zone distribution system. When 285 Zone demand exceeds Plant 410 W-1 well capacity, supplemental water is provided from the 335 zone by pressure reducing valves. When production from the well exceeds 285 Zone demand, excess water is relieved into the Plant 409 reservoir by pressure relief valve. Booster pumps at Plant 409 pump water from the Plant 409 reservoir into the 335 zone.

f. Provide the current operational status of both Plants 409 and 410. Substantiate the status with the most recent production report.

Response:

Enclosed is the most recent production report "DR BYU-10 Response #2.f. – Production Report 409 & 410 by Month 2023" showing Plant 410 in service and Plant 409 out of service.

Attachment D: Chapter 3 Attachments

Chapter Attachment 3-1

Suburban Response to DR BYU-02 (Sativa Projects)

Suburban Water Systems
1325 N. Grand Ave. Ste. 100, Covina, CA 91724-4044
Phone: 626.543.2500, Fax: 626.331.4848
www.swwc.com

February 14, 2023

To: Jeffrey Roberts
Project Coordinator

Brian Yu
Utilities Engineer/Regulatory Analyst

Shanna Foley
Attorney for Public Advocates Office

Re.: Responses to A.23-01-001, Public Advocates Office DR BYU-02 (Sativa Projects)

Dear Mr. Roberts et al.,

Attached is the information you requested in writing for Suburban's Total Company General Rate Case.

Sincerely,

/s/Carmelitha Bordelon

Carmelitha Bordelon
Director of Regulatory Affairs

Responses to A.23-01-001, Public Advocates Office

DR BYU-02 (Sativa Projects)

1. Please refer to the Sativa Paulsen Pipeline project and provide the following:
   a. Provide **documentation** demonstrating why the previous 4-inch main is insufficient to transmit the 1,250 gpm fire flow.

      Response:

      DDW's Full Permit, Engineering Report for Los Angeles County Public Works – Sativa Water System, System No. 1910147, section 2.4.4 Pipeline Improvements, page 20 addresses that "the distribution system contains undersized pipes and not able to meet the 1,250 gpm fire flow requirements for single family houses".

      Suburban's APA, section F.1. addresses investments during "the Interim Period as necessary to comply with applicable Laws (including, without limitation, the DDW permit)" and "with Suburban's plan for DDW permit compliance measures". DDW requires the Sativa water system insufficient fireflow availability be addressed.

      This section of pipe is adjacent to the Liberty connection and is critical to providing the required 1,250gpm of available fireflow at 20psi to the rest of the water system. The table below compares the frictional headloss of water passing through a 4-inch and 8-inch diameter pipe.

      The headloss through a 4-inch pipe flowing 1,250 gpm is 152 psi; this exceeds the available pressure (55psi) and unacceptably restricts flow exposing customers to significant fire risks due to insufficient fire flow availability.

      The headloss through an 8-inch pipeline flowing 1,250 gpm is 4.6psi and provides sufficient transmission capacity to provide required fire flow availability to the rest of the system.

Diameter (d)	4	inch	8	inch
Length (L)	500	feet	500	feet
Flow (Q)	1250	gpm	1250	gpm
Hazen Williams Constant C	140	Asbestos (	150	PVC
Headloss	352.6097	feet	10.64635	feet
Headloss	152.6449	psi	4.608811	psi
Static Pressure	55	psi	55	psi
Residual	-98	psi	50	psi

      i. As part of this documentation, provide all communications from the Los Angeles County Fire Department stating the 4-inch main was insufficient for the fire flow.

         Response:

There is no communication from Los Angeles County Fire Department stating that the 4-inch main was insufficient for the fire flow. The Fire Department does not require main size for fire protection and instead require owners to determine that new structures have access to sufficient fire flow availability based on the nature of the structures.

Utilities must evaluate water systems and follow recommendations from regulators to meet the requirements. The Public Utilities' Commission General Order 103-A, section 3.C, indicating that in no event the minimum size for new mains be less than six inches in diameter when used in conjunction with a fire protection system.

As noted in Response to 1.a. DDW is requiring that fire flow in the Sativa water system be increased.

b. Provide a copy of the service agreement between Liberty and Suburban regarding the service interconnection. Suburban's workpaper provided only the agreement between the Liberty and LACPW.

Response:

Please see file titled "DR BYU-02 #1.b. Response – Liberty Agreement.pdf."

c. Lopez testimony states that "Suburban only became aware of the need for this pipeline at the end of 2022, well after it filed its application for acquisition on 08/13/21." (p.141). However, according to the workpaper page 2721 (pdf page), Liberty and Sativa amended the interim service agreement to have Sativa install 2,360 feet of 8-inch pipe and necessary appurtenances. Please provide substantiation showing that the cost of this project was not included in the Sativa purchase.

Response:

Figure F-1, Page 13 of MRV's RCNLD includes a plan showing water pipelines included in the Sativa acquisition. The map shows the existing 4-inch main on Paulsen. The 8-inch main was installed at the end of 2022 well after the RCNLD was prepared and after Sativa Acquisition Application Decision 22-04-010 was issued by the CPUC.

d. Provide records of the work order by the LACPW for the new 8-inch main that is ongoing.

i. Also provide the progress reports of the project including the estimated completion date.

Response:

The project's anticipated completion date is February 2023. Enclosed is a progress report noting pavement work performed at the project's end in January 2023. Please see file titled "DR BYU-02 #1.d.i. Response.pdf" for an email about closeout items dated February 2, 2023.

ii. Also provide the record showing the project cost incurred so far and estimate of the future cost.

Response:

For a copy of invoice #3 for the Paulsen Pipeline project showing work through the end of February, please see file titled "DR BYU-02 #1.d.ii Response.pdf." The remaining cost is estimated to be approximately $40,000 due to change orders that have not been finalized.

2. Referring to the 2024 Sativa permit compliance projects (Lopez testimony, p. 252):

a. Provide a detailed description of the proposed 300,000 gallons Steel Tank at site no. 4

Response:

The 300,000-gallon welded steel tank will have a diameter of 45-feet and overflow at 24-feet high.

b. Provide a detailed cost breakdown, and the source/basis of each item's unit cost, of the $974,000 project cost.

Response:

The table below summarizes the sources of costs. Please see file titled "DR BYU-02 #2.b. Response – Tanks Costs.pdf" for the supporting documents.

Description	QTY.	Unit	Unit Cost	Cost	Cost Reference
Mobilization	1	Lump Sum	$21,000	$21,000	Used accepted industry standard. 3% of costs
Demobilization	1	Lump Sum	$14,000	$14,000	Used accepted industry standard. 2% of costs
300,000 gallon welded tank	1	Lump Sum	$550,000	$550,000	Estimate from tank manufacturer (see attached email)
Ring wall footing	1	Lump Sum	$90,000	$90,000	Prorated cost from estimate of similar tank that was 0.5MG (150,000x3/5). See attached Plant 128 cost estimate from thrid party consultant.
Piping and Fittings	1	Lump Sum	$50,000	$50,000	Similar project cost estimate. See attached Plant 128 cost estimate from third party consultant.
Tank Disinfection	1	Lump Sum	$10,000	$10,000	Plant 109 Reservoir disinfection average cost (see tabulation of bids)
Subtotal				$725,000	
Engineering Services and Inspecti			12%	$87,000	
Subtotal				$812,000	
Contingency			10.0%	$81,200	
Subtotal				$893,200	
General Administration			9.0%	$80,388	
Total				$974,000	

c. Provide a schematic drawing of this new tank showing how it is connected to the existing system.

Response:

Please see file titled "DR BYU-02 #2.c. Response – Schematic (CONFIDENTIAL).pdf" for the proposed tank included in Suburban's proposal to LA County.

d. Provide a reference to the DDW's finding and/or recommendations that this proposed tank is going to address.

Response:

DDW's Full Permit, Engineering Report for Los Angeles County Public Works – Sativa Water System, System No. 1910147, section 2.3, Storage Facility, page 18 states that "Systems serving more than 150 living units should have ground or elevated storage…". The tank will provide fire flow protection and emergency storage to meet DDW's requirements.

e. For each of the pipeline projects proposed, provide a reference to the DDW's finding and/or recommendations that this proposed pipeline will address.

Response:

DDW's Full Permit, Engineering Report for Los Angeles County Public Works – Sativa Water System, System No. 1910147, section 2.4.4 Pipeline Improvements, page 20 addresses that "the distribution system contains undersized pipes and not able to meet the 1,250 gpm fire flow requirements for single family houses."

DDW does not specify which pipelines are to be replaced. Suburban's plan to replace pipelines is intended to efficiently replace undersized pipes to improved flushing velocity and fireflow capacity, minimize dead ends and removes inaccessible pipes from backyards.

f. Well 5 Mn Treatment project:

i. Provide a copy of DDW's order, and make a specific reference a section of the order, that substantiates Suburban's claim that the Well 5 was required to be out of service due to the Iron and Manganese level of the well.

Response:

DDW's Full Permit, Engineering Report for Los Angeles County Public Works – Sativa Water System, System No. 1910147, page 3, identified urgent infrastructure improvements identified by LA County PW but still awaiting funding. The report indicates "Manganese concentration in the water produced by the well, even after the rehabilitation works, is still near the secondary MCL and causing water quality concerns". In order to eliminate this water quality concern, the well needed to be taken out of service.

ii. The DDW's inspection report extensively discusses Sativa's flushing program performance. Provide documentation showing that installing Iron Manganese treatment will alleviate the "brown water" issues in the system without flushing.

Response:

Documentation does not exist showing that installing Iron Manganese treatment will alleviate the "brown water" issues in the system without flushing.

iii. Provide the Iron and Manganese levels of the Well 5 wellhead (not from the sampling locations in the distribution system) for the past 5 years.

Response:

Please see files titled "DR BYU-02 #2.f.iii. Response – Iron.xlsx" and "DR BYU-02 #2.f.iii. Response – Manganese.xlsx" for database for Iron and Manganese from the state waterboard website.

iv. Provide further information whether this project is still being managed by the WRD of So Cal, or whether Suburban has taken over.

Response:

WRD is managing the project. Please see file titled "DR BYU-02 #2.f.iv. Response.pdf" for an email from WRD showing they advertised the project.

3. Referring to the 2025 Sativa permit compliance projects (Lopez testimony, p.523)

   a. Provide a schematic drawing of the proposed Pump Station and the Generator at Site No. 4.

   Response:

   Please see response to question 2.c.

   b. Provide a copy of DDW's report, make a specific reference to a section of finding and/or recommendations, that this proposed pump station and generator are intended to address.

   Response:

   Refer to response 2.d. DDW recommends the installation of storage. The storage capacity cannot be used without installing a pump station because there is no elevation to gravity feed the system. A generator ensures the pump station can supply water during power outages.

   c. For each of the pipeline projects proposed, provide a copy of, and specific reference to, the DDW's finding and/or recommendations that each proposed pipeline project is intended to address.

   Response:

   This is a duplicate question to 2.e. See response to question 2.e.

4. Referring to Suburban's statement on page 24 of Workpaper Volume III-D Sativa Projects, regarding Suburban's plant to establish interconnection with the City of Compton and Liberty-Park, provide records to show Suburban is engaging in such agreements with the City of Compton and Liberty-Park.

   Response:

For the Liberty agreement, please see file "DR BYU-02 #1.b. Response - Liberty Agreement.pdf"

See file titled "DR BYU-02 #4 Response – Compton.pdf" for an email from Suburban to DDW in response to their request for an agreement. The City of Compton has requested Suburban sign up as a regular customer rather than establishing a water supply agreement.

5. Provide a list of all ground water wells (active, inactive, or standby) and each well's capacity.
    a. For the inactive or standby wells, provide Suburban's plan of re-activation including the estimated completion date.

    Response:
    Well 3 - Active - Suburban is now pursuing well investigation to examine the water quality and related rehabilitation and treatment needs for Well 3 so that Sativa customers are no longer subject to the poor water quality provided by the former Sativa Los Angeles County Water District. Suburban expects to complete the investigation work in 2023.

    Well 5 – Active – The well has elevated levels of Manganese and was taken out of service. The well will be placed into service after treatment is installed. Bids for the treatment plant open on February 13, 2023. It will take between 12 and 24 months.

    Well 2 – Inactive – Well 2 was removed from service in December 2015 due to the presence of E. Coli. The well must be destroyed to prevent it from becoming a conduit of groundwater contamination. Destruction is anticipated in 2024.

Chapter Attachment 3-2

DDW Permit Amendment for System No. 1910174 (Sativa System)

Amended Permit 1910174PA-001 – To Change the Status of the City of Compton Interconnection from Emergency to Active.

WATER PERMIT AMENDMENT NO. 1910147PA-001

Suburban Water Systems - Sativa Water System

Los Angeles County
System No. 1910147

April 2023

CALIFORNIA
Water Boards

STATE WATER RESOURCES CONTROL BOARD
DIVISION OF DRINKING WATER

STATE OF CALIFORNIA

AMENDMENT TO THE

DOMESTIC WATER SUPPLY PERMIT ISSUED TO

SUBURBAN WATER SYSTEMS - SATIVA

Public Water System Number: 1910147

REVISED FULL PERMIT NO. ***04-22-22P-007*** DATE OF ISSUE: ***11/04/2022***
PERMIT AMENDMENT NO. ***1910147PA-001*** EFFECTIVE DATE: ***04/24/2023***

WHEREAS:

I. The ***Suburban Water Systems (hereafter, Suburban WS)*** submitted an application to the Division of Drinking Water of the State Water Resources Control Board on ***January 25, 2023,*** to amend the Domestic Water Supply Permit issued to the ***Suburban WS - Sativa*** water system *on* ***November 4, 2022.***

II. The purpose of this amendment, as stated in the application, is to allow ***Suburban WS*** to make the following modification to the ***Sativa*** water system:

- ***Change the status of the City of Compton Interconnection from an emergency interconnection to an active water source for Sativa water system.***

III. The ***Suburban WS*** has submitted all of the supporting information required to evaluate the application.

IV. The Division of Drinking Water of the State Water Resources Control Board has evaluated the application and the supporting materials and has determined that the proposed modification complies with all applicable State drinking water requirements.

THEREFORE:

I. The Division of Drinking Water (hereafter, Division) of the State Water Resources Control Board hereby approves the application submitted by the ***Suburban WS.*** The Domestic Water Supply Permit issued to the ***Suburban WS - Sativa*** water system on ***November 4, 2022***, is hereby amended as follows:

The City of Compton Interconnection is now an active source of supply for the Suburban WS - Sativa water system.

II. This permit amendment is subject to the following conditions:

General

1. This document amends and adds to the domestic water supply permit (Permit No. 04-22-22P-007) issued to Suburban WS - Sativa by the Division on November 4, 2022. If any condition of this amendment conflicts with the full permit, the conditions of this amendment shall be followed.

2. The Suburban WS shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards, or orders adopted thereunder.

3. The only sources approved for domestic water supply for the Sativa water system are listed in Table 1 and Table 2:

Table 1. Groundwater Sources

Source	Primary Station (PS) Code	Status	Capacity (gpm)
Well 3	1910147_002_002	Active	424
Well 5	1910147_005_005	Active	650

Table 2. Interconnection

Source	PS Code	Location	Status	Capacity (gpm)
Liberty Utilities – Compton/Willowbrook	1910147_010_010	137th Street & Paulsen Avenue 8” One Way Connection	Active	1,500
City of Compton	1910147_009_009	Oris Street & Willowbrook Avenue 6” One Way Connection	Active	900

4. The only approved treatment facilities for Sativa are those listed in Table 3:

Table 3. Treatment Facilities

Treatment Plant	Treatment Processes
Wells 3 and 5 Chlorination Facilities	Chlorination for precautionary purposes with 12.5 percent sodium hypochlorite solution.

5. No additions, changes, or modifications to the sources of water supply or water treatment facilities outlined in Conditions 3 and 4 shall be made without prior receipt of an amended domestic water supply permit from the Division.

Water Quality

6. All water supplied by the Sativa water system for domestic purposes shall meet all Maximum Contaminant levels (MCLs) established by the Division. If the water quality does not comply with the California Drinking Water Standards, additional treatment shall be provided to meet standards. The plans and specifications for the proposed treatment facilities shall be submitted to the Division for review and approval prior to construction.

7. The Suburban WS shall monitor all groundwater sources listed in Table 1 in accordance with Title 22, Chapter 15, CCR and the Division's most recent Vulnerability Assessment and Monitoring Frequency Guidelines.

8. Except for bacteriological analyses and constituents without chemical storet numbers, all water quality monitoring results obtained at a certified laboratory shall be submitted to the Division by Electronic Data Transfer using the appropriate Primary Station (PS) Codes. Analytical results of all sample analyses completed in a calendar month shall be reported to the Division no later than the tenth day of the following month.

9. The Suburban WS shall notify the governing body of the local agency in which users of the drinking water reside (i.e., city council and county board of supervisors) when a notification level is exceeded in drinking water that is provided to consumers.

Operator Certifications

10. The distribution system and treatment facilities shall be operated by personnel who have been certified in accordance with Chapter 13, Title 22, CCR, *Operator Certification Regulations*. The chief and shift operator(s) for the Sativa water system's distribution facilities shall have, at minimum, D2 and D1 certifications, respectively. The minimum certification requirements for all disinfection facilities for which no *Giardia* or Virus reduction is required shall either be certified distribution operators or certified treatment operators that have been trained to operate these facilities.

Cross-connection Control Program

11. The Suburban WS shall comply with Title 17, CCR, to prevent the Sativa water system and its facilities from being contaminated by possible cross-connections. The Suburban WS shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow prevention assemblies shall be tested annually.

Direct Additives

12. The Suburban WS shall only use additives that have been tested and certified as meeting the specifications of NSF International/American National Standard Institute (NSF/ANSI) Standard 60. This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by ANSI.

Indirect Additives

13. The Suburban WS shall only use chemicals, materials, lubricants, or products that have been tested and certified as meeting the specifications of NSF/ANSI Standard 61 in the production, treatment or distribution of drinking water that will result in its contact with the drinking water, including process media, protection materials (i.e. coating, linings, liners), joining and sealing materials, pipe and related products, and mechanical devices used in treatment/transmission/ distribution system, unless conditions listed in Section 64593, Title 22, CCR are met. This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by ANSI.

Chloramines

14. The Suburban WS shall inform the public served by Sativa water system of the possibility of receiving chloraminated water. The Suburban WS shall reach out to kidney dialysis facilities, if any, and home patients to ensure their treatment units can remove chloramines. The Suburban WS shall answer questions that the general public and dialyses centers may have. If chloraminated water is used, the notification shall be repeated yearly in Sativa's consumer confidence report to the consumers.

15. Liberty Utilities and City of Compton may switch to imported surface water from MWDSC, which contains chloramines, when their respective groundwater sources cannot meet their systems demands. The Suburban WS shall develop and implement a transition plan to address the potential water quality issues in case water imported from Liberty Utilities and City of Compton contains chloramines. If the Sativa water system needs to rely on chloraminated water for an extended period, the Suburban WS shall develop a nitrification monitoring and control plan. Special water quality parameters sampling and lead and copper tap sampling shall be conducted to ensure the switch does not cause adverse impact on lead and copper leaching in the area receiving chloraminated water from the interconnection.

16. The Sativa water system shall comply with the minimum residual requirements of the Surface Water Treatment Rule (SWTR) during the time the water system receives treated surface water.

17. If chloraminated water is provided by either the Liberty Utilities or the City of Compton interconnections, the Sativa water system shall begin submitting the monthly SWTR reports to the Division by the tenth day of the following month.

Minimum Pressure Requirement

18. The Suburban WS shall continue to evaluate if the current source, storage and pipeline capacities are adequate to meet the fire flow requirement and the minimum system pressure requirement (20 psi) at the same time; if not, more improvement should be planned.

Compton Interconnection

19. During the start-up of the interconnection, the Suburban WS should flush out the stagnant water in the interconnection and ensure adequate chlorine residuals before discharging the water into the distribution system. The Suburban WS should also collect chlorine residual samples at the adjacent areas shortly after introducing the water to closely monitor any changes in water quality.

20. It is not clear at this time the impact of the new sources to the existing Stage 2 Disinfection Byproduct Rule (DBPR) monitoring. The Suburban WS should monitor closely of the trihalomethanes (TTHM) and haloacetic acids (HAA5) data collected from Sativa distribution system after the Compton Interconnection is placed into service to determine if the existing monitoring sites need to be modified to comply with the sampling location requirements of the Stage 2 DBPR

Consumer Confidence Report

21. Suburban WS shall prepare Sativa water system's Consumer Confidence Report on an annual basis, which must be distributed to customers and a copy provided to the Division by July 1 of each year.

Annual Reports

22. The Suburban WS shall submit an electronic Annual Report to the Division each year, documenting Sativa water system information for the prior year. The report shall be in the format specified by the Division.

This amendment shall be appended to and shall be considered to be an integral part of the Domestic Water Supply Permit issued to the ***Suburban Water Systems – Sativa*** *on* ***November 4, 2022.***

FOR THE DIVISION OF DRINKING WATER,
STATE WATER RESOURCES CONTROL BOARD

4/24/2023

_____ _____

Date ***Bill Liang, P.E., District Engineer***
Angeles District
Southern California Section

Chapter Attachment 3-3
CCR Title 22, §64554 (a) (1).

adequate to do so, such as, but not limited to, well pump tests, the capacities of all pumping facilities, and the hydraulic capacity of surface water treatment facilities,

(A) If the system plans to use surface water, the system shall demonstrate that it holds a valid water right to that amount of water including any allowable reductions or limitations on its availability, as stated in the water rights contract;

(B) If groundwater is to be used, the system shall demonstrate that the groundwater aquifer is sufficient, or in the case of adjudicated groundwater basins, that approval has been obtained to allow that amount of sustained withdrawal including any allowable reductions or limitations on its availability, as stated in the water rights contract;

(C) If purchased water is to be used, the system shall provide contracted amount and the hydraulic capacity at each turnout and any allowable reductions or limitations on its availability, as stated in the purchased water contract; and

(7) Information that demonstrates how the system proposes to reliably meet four hours of PHD using, but not limited to, available source capacity and distribution reservoirs.

(b) The information in subsection (a) shall be prepared by a professional civil engineer registered in the State of California with experience in water supply engineering.

§64554. New and Existing Source Capacity.

(a) At all times, a public water system's water source(s) shall have the capacity to meet the system's maximum day demand (MDD). MDD shall be determined pursuant to subsection (b).

(1) For systems with 1,000 or more service connections, the system shall be able to meet four hours of peak hourly demand (PHD) with source capacity, storage capacity, and/or emergency source connections.

(2) For systems with less than 1,000 service connections, the system shall have storage capacity equal to or greater than MDD, unless the system can demonstrate that it has an additional source of supply or has an emergency source connection that can meet the MDD requirement.

(3) Both the MDD and PHD requirements shall be met in the system as a whole and in each individual pressure zone.

(b) A system shall estimate MDD and PHD for the water system as a whole (total source capacity and number of service connections) and for each pressure zone within the system (total water supply available from the water sources and interzonal transfers directly supplying the zone and number of service connections within the zone), as follows:

(1) If daily water usage data are available, identify the day with the highest usage during the past ten years to obtain MDD; determine the average hourly flow during MDD and multiply by a peaking factor of at least 1.5 to obtain the PHD.

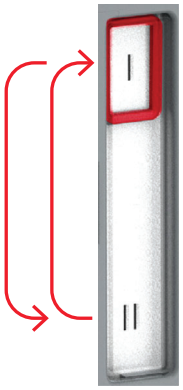
Chapter Attachment 3-4

ABB Zenith ZTX Series Operation, Maintenance, and Installation Guide, pp.27-36.

3. General operation

3.1 Position indication

Contact movement and position indication is indicated in the figure below, open transition I - II (or II - I).



ZTX I - II

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Fig. 3.1 Contact movement / position indication:
Type ZTX, Open transition

3.2 Operating and locking

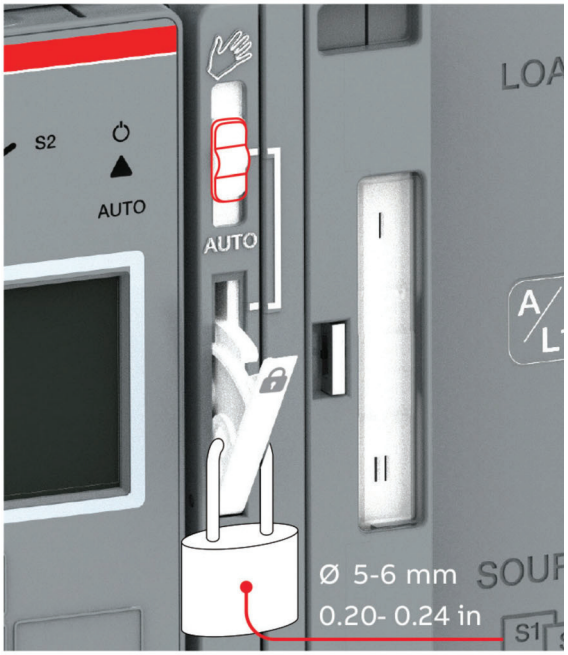
The operation mode is selected by using the slide switch (Hand - Locking - AUTO) located on the front of the automatic transfer switch (ATS).

- **Hand**-position = **Manual mode**, enabling emergency manual operation using the handle. ATS functionality is disabled when in Hand position.
- **Lock**-position = **Locking mode**, padlocking the automatic transfer switch in a specific position to prevent automatic and manual operation.

Notice
The handle has to be in its stored position (not in use), after which the slide switch will move to the Locking mode automatically and the switch is allowed to be padlocked. To set the operating handle back to its place, refer to the left most picture in Fig. 3.6.

- **AUTO**-position = **Automatic control mode enabled**, ATS is operable in Automatic mode or from the HMI manual control keys. When the slide switch is moved to the AUTO position, the ATS is functioning immediately in the automatic control mode.

Manual mode Automatic mode



Locking mode

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Fig. 3.2 Above the selection of the operation modes (Manual or Automatic) by the slide switch. Below padlocking the automatic transfer switch; The handle has to set standby slot (not in use), after that the slide switch will move to the Locking mode automatically and the switch is allowed to be padlocked.

3.3 Manual handle operation

Warning
Verify the condition of power source prior to manually transferring. Manual operation may result in out-of-phase transfer when both sources are energized.

To mount the handle in the operating position, turn the slide switch to the Manual mode (Hand), lift the handle from its place inside and place it to the operating position.

More information, see animation: Manual and automatic operation - TruONE® ATS (https://youtu.be/bosvSPVi2sM).

Fig. 3.3 Mounting of the handle in the operating position

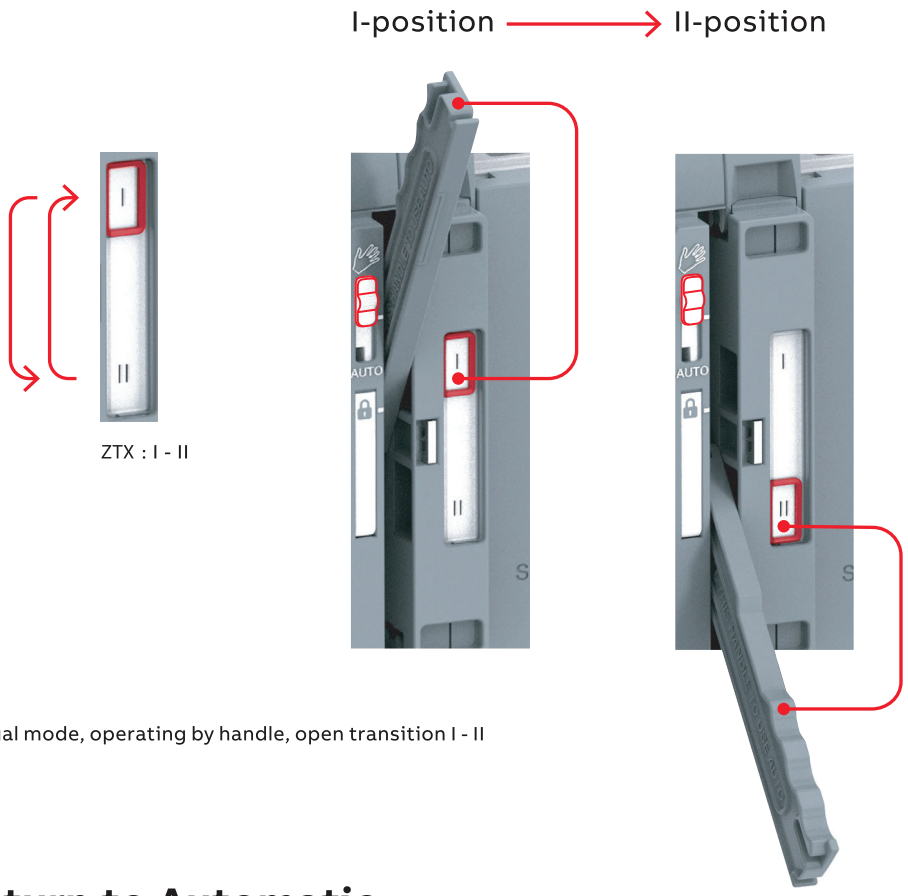


Fig. 3.4 Manual mode, operating by handle, open transition I - II

3.4 Return to Automatic mode, operating by HMI

When operating the automatic transfer switch by HMI, turn the slide switch to Automatic mode (AUTO).

Notice
The handle has to be standby slot (not in use) before turning to automatic mode.

When the slide switch is moved to the AUTO position, the ATS will enter auto mode after a 3 second delay.

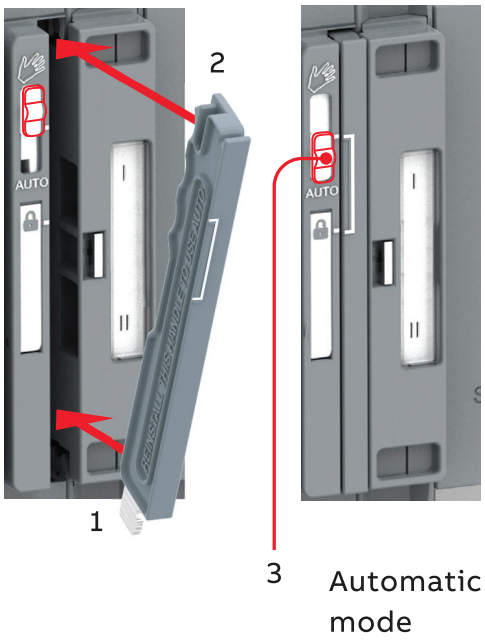
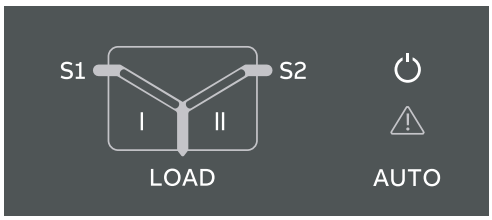


Fig. 3.5 The operating handle must set back to standby slot before moving to the automatic mode

3.5 LED functionality in HMI

At the top of ZTX 30-1200 A, 200-480 Vac ATS, there is a set of LEDs intended to model the state of the transfer switch sources, position, alarms, and mode. A considerable amount of information can be deciphered from the LED states. See the tables below for more information.



I - II

Fig. 3.6 LEDs in ZTX, open transition I - II.

LED	Indication	Description
Power led		
	ON, fixed light	Power supply and communication present
	2 quick flashes/1s	Power supply present, communication absent between switch and the HMI
	OFF	No power available for HMI.
S1 and S2 leds		
	ON, fixed light	S1 or / and S2 is present and within user defined limits
	2 quick flashes/1s	Undervoltage
	Flash/1 s, 90%/10 %	Invalid frequency
	Flash/1 s, 10%/90 %	Unbalance
	5 flashes/1 s, 50%/50 %	Overvoltage
	Flash/2 s, 50%/50%	Incorrect phase sequence
	Flash/4 s, 50%/50 %	Phase missing
	Flash/1 s, 50%/50 %	Generator stop delay ongoing
	OFF	No voltage

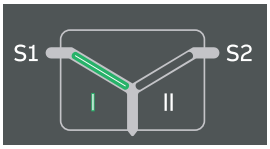
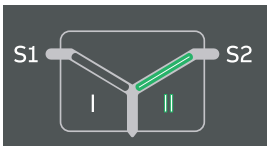
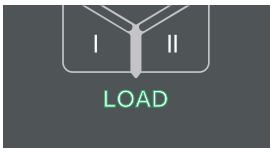
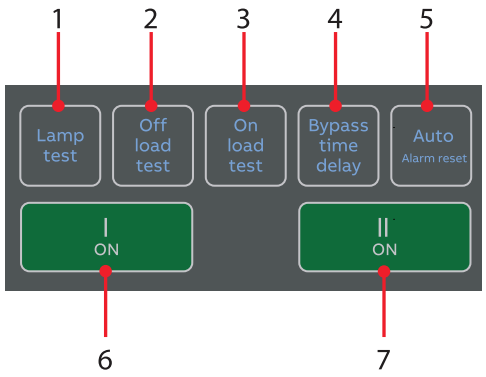
I and II leds		
	ON, fixed light	Switch position is indicated with fixed light in I, O or II led. Only one can be on simultaneously
	Flash/1 s, 50%/50 %	Delay ongoing. Going to move away from the blinking status
Load led		
	ON	Supply ok and connected to load
	OFF	Not connected to load
Auto led		
	ON, fixed light	Switch is in automatic mode
	Flash/1 s, 50%/50 %	Test on load
	Flash/1 s, 90%/10 %	Test off load
	5 flashes/1 s, 50%/50 %	Autoconfig completed
Alarm led		
	OFF	No alarms
	ON, fixed light	Handle attached, locked, other alarm
	2 quick flashes/1s	Control Alarm
	5 flashes/1 s, 50%/50%	Auto configuration ongoing
	Flash/1 s, 50%/50%	Control Retry
	Flash/1 s, 10%/90%	Auto mode off

Table 3.1 LED functionality

3.6 Using Level 2 (DIP) control interface HMI

3.6.1 Keypad



ZTX_, open transition, I - II

Fig. 3.7 Keypad HMI with DIP-switches

1 **Lamp test:** Turns on all LEDs simultaneously to confirm all LEDs are operational

2 **Off load test:** Initiates off load test (Starts generator but does not transfer the load to the generator)

3 **On load test:** Initiates on load test (Starts the generator and transfers the load to the generator)

4 **Bypass time delay:** Bypass any currently running time delay

5 **Auto (Alarm reset):** In the event of active switch control alarm (open I failure, close I failure, open II failure, close II failure), resets to no alarm state. If no active alarms, toggle between automatic/HMI control modes

6 **I ON:** Operate switch to I position

7 **II ON:** Operate switch to II position

4. Navigating HMI

4.1 Configuration by DIP switch

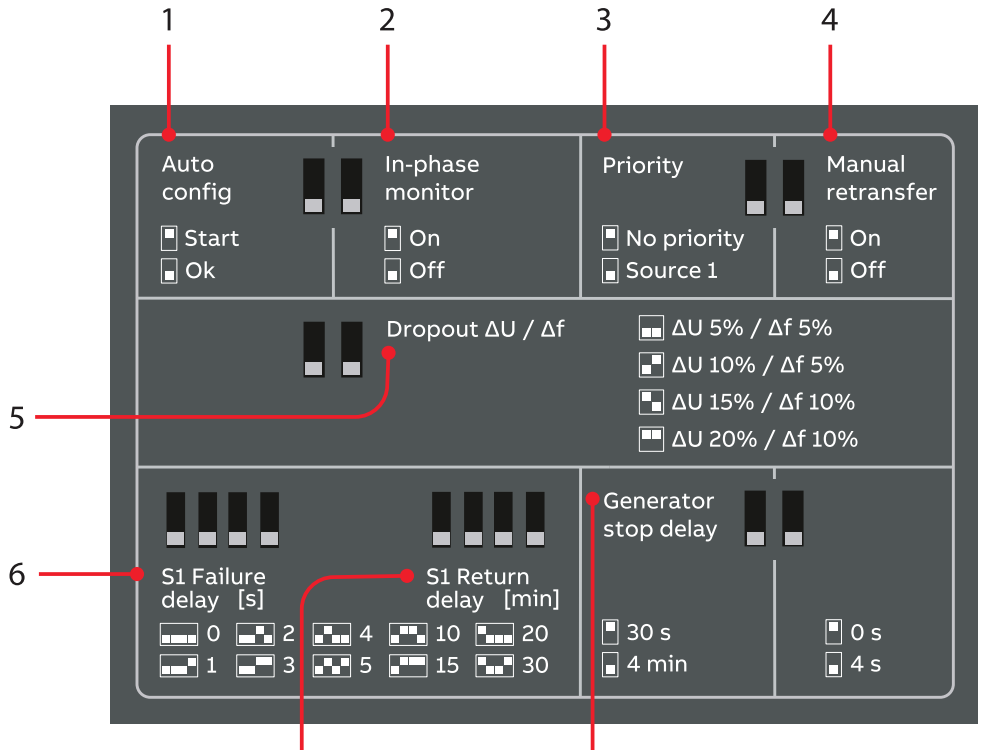


Fig. 4.1 DIP-switches for configuration in ZTX HMI

1 **Auto config:** Automatically detecting Source 1 and Source 2 parameters. Automatic configuration sequence is started by setting DIP to 'Start' position. Parameter detection is ready when AUTO LED flashes 5 times in 1 second. After this the DIP must be set to 'Ok' position to resume normal operation. Check power supply of the voltage source in case the Alarm LED keeps flashing instead of AUTO LED. This indicates that system parameters cannot be detected from the supplied voltage.

2 **In-phase monitor:**
On: Enable in-phase monitor
Off: Disable in-phase monitor

3 **Priority:**
No priority: Application 'Two Transformers / No Priority' selected.
Source 1: Application 'S1-Transformer / S2-Generator' selected.

4 **Manual retransfer:**
On: Manual retransfer to priority source enabled (automatic retransfer disabled)
Off: Manual retransfer to priority source disabled (automatic retransfer enabled)

5 **Dropout △U[1)]/ △F:**
Dropout voltage/frequency limit.
For example 5 % / 5 %:
Voltage source is considered acceptable when measured voltage is in range 0.95 - 1.05 nominal Voltage (Un) * Un and measured frequency is in range 0.95 - 1.05 x nominal frequency (fn).

6 **S1 Failure delay:** The time (0/1/2/3/4/5/10/15/20/30 s) device waits after priority source failure before starting automatic transfer sequence from priority source to non-priority source.

7 **S1 Return delay:** The time (0/1/2/3/4/5/10/15/20/30 min) device waits after priority source return before starting automatic retransfer sequence from non-priority source to priority source.

8 **Generator stop delay:** The time (30 s or 4 min) device waits after transferring back to priority source before stopping the generator.

Notice
1 U is also commonly known as V.