BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Application of California-American Water Company (U210W) to Obtain Approval of the Amended and Restated Water Purchase Agreement for the Pure Water Monterey Groundwater Replenishment Project, Update Supply and Demand Estimates for the Monterey Peninsula Water Supply Project, and Cost Recovery.	Application 21-11-024 (Filed November 29, 2021)

PHASE 2 DIRECT TESTIMONY OF IAN C. CROOKS CORRECTED

Sarah E. Leeper
Nicholas A. Subias
Cathy Hongola-Baptista
California-American Water Company
555 Montgomery Street, Suite 816
San Francisco, CA 94111
(415) 863-2960
sarah.leeper@amwater.com

Lori Anne Dolqueist
Willis Hon
Nossaman LLP
50 California Street
34th Floor
San Francisco, CA 94111
(415) 398-3600
ldolqueist@nossaman.com
whon@nossaman.com

Attorneys for California-American Water Company

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I. INTRODUCTION

Q1. Please provide your name and business address.

A1. My name is Ian C. Crooks. My business address is 655 W. Broadway, Suite 1410, San Diego, CA 92101.

Q2. Have you previously provided testimony in this proceeding?

A2. Yes, I submitted testimony in Phase 1 of this proceeding on December 21, 2021, March 11, 2022, April 1, 2022, April 8, 2022, and April 29, 2022.

II. PURPOSE OF TESTIMONY

Q3. What is the purpose of your testimony?

A3. The purpose of my testimony is in response to the February 9, 2022, Assigned Commissioner's Scoping Memo and Ruling ("Scoping Memo") regarding Phase 2 of this proceeding to provide updated supply and demand analysis related to the Monterey Peninsula Water Supply Project.

Q4. What specific issues will you cover in your direct testimony?

A4. I will address the following issues:

Issue 1 – Background: Summarize the key regulations that control public water system sizing to meet maximum demand and summarize the Commission's prior findings in decision D.18-09-017 regarding demand and supply for California American Water's Monterey Peninsula Water Supply Project ("MPWSP").

Issue 2 – Demand: Provide an update of demand forecasts since D.18-09-017 for California American Water's Monterey service area.

Issue 3 – Supply: Provide an update of the quantity and reliability of existing and potential future water supplies that may be available to serve California American Water's customers in its Monterey service area.

Issue 4 - Demand and Supply Analysis: Considering the updated demand and supply information provided above, provide an analysis of the long-term demand and supply outlook that considers a scenario in which the Amended and Restated Water Purchase Agreement ("WPA") for the expanded Pure Water Monterey ("ePWM") project is adopted, and a scenario when the WPA is not adopted.

III. ISSUE 1 – WATER SUPPLY AND DEMAND BACKGROUND

Q5. Please provide a summary of the key laws, regulations, policies and industry guidance that govern water supply planning and planning forecasting to ensure sufficient water supply capacity to meet customer demand.

A5. Listed below are some of the key state regulations and industry guidance:

1. California Waterworks Standards, CCR Title 22, §64554(a) states "At all times, a public water system's water source(s) shall have the capacity to meet the system's maximum day demand (MDD)." When determining MDD §64554(b.2) explains: "(A) Identify the month with the highest water usage (maximum month) during at least the most recent ten years or, if the system has been operating for less than ten years, during its period of operation; (B) To calculate average daily usage during maximum month, divide the total water usage during the maximum month by the number of days in that month; and (C) To calculate the MDD, multiply the [maximum month] average daily usage by a peaking factor that is a minimum of 1.5." Additionally, when planning and permitting a water system capacity expansion, §64558(a).2, Source Capacity Planning Study states that the water provider should provide "Estimates of the amount of water needed to meet the total annual demand and the MDD over the projected ten-year growth period (projected system demand)."

2. The Urban Water Management Planning ("UWMP") regulations, CCR Title 22, §10635 state "(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years."

3. California Public Utilities Commission, General Order 103-A, II.2.B.3 requires "A system's facilities shall have the capacity to meet the source capacity requirements as defined in the Waterworks Standards, CCR Title 22, §64554, or

its successor. If, at any time, the system does not have this capacity, the utility shall request a service connection moratorium until such time as it can demonstrate the source capacity has been increased to meet system requirements."

4. American Water Works Association (AWWA) industry manual M50 titled "Water Resource Planning" provides guidance on various methods regarding demand and water supply forecasting.

Q6. Please describe what the Commission previously found with respect to supply and demand in D.18-09-017, the final decision approving the MPWSP?

A6. On September 20, 2018, the Commission issued D.18-09-017, which, among other things, approved the MPWSP, certified an environmental impact report/environmental impact statement ("EIR/EIS"), and issued a certificate of public convenience and necessity ("CPCN").[1] As part of the Commission's proceedings for the CPCN, California American Water was required to demonstrate that: (1) it had identified all available sources of water supply; (2) its projections of water demand were reasonable; and (3) its proposed solution to provide supply to ensure that water demand will reliably be met (*i.e.*, the MPWSP) was reasonable.[2]

California American Water presented two methods to forecast annual system demand, one based on historical annual and maximum month demand under 22 CCR Section 64554, and one based on its 2015 Urban Water Management Plan based on expected population growth. Average historical annual demand in the ten-year period from 2007-2016 was 11,862 AFY. The maximum month demand occurred in 2007, during which

[1] *See* CPUC D.18-09-017.

[2] *Id*. at 20.

annual demand was 14,644 AFY, but because annual demand had likely been permanently reduced since that time due to conservation, California American Water looked to the maximum month during the time period between 2012-2021, when the plant was expected to be in service.[3] During that period the maximum month occurred in 2012, providing a maximum demand year at 11,549 AFY.[4] Averaging the historical demand with UWMP projections, California American Water determined that normalized annual system demand is expected to be about 12,350 AFY.[5] The Commission found that both of California American Water's methods for projecting demand for existing customers provided reasonable results, and the average was a reasonable figure to use for forecasting demand.[6]

To arrive at its forecasted demand of 14,355 AFY, California American Water added to the projected demand for existing customers additional demand amounts to account for new connections to legal lots of record (1,180 AFY), Pebble Beach entitlements (325 AFY), and tourism rebound (500 AFY).[7] The Commission found that these additional demand amounts were supported, and properly included in future demand. The Commission also noted that "Monterey Peninsula Water Management District indicated that it supported a 1,181 AFY figure, though less than half of that would likely be needed in the next 10-15 years. Further, even if correct, we have already considered and rejected

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[3] Attachment A, California American Water Final 2020 UWMP (June 2021), p. 4-3.

[4] *Id.*

[5] CPUC D.18-09-017 at 25.

[6] *Id*. at 47-49.

[7] *Id.* at 49-50.

the concept that just because the additional water demand will not be needed immediately, that we should reduce the overall projected demand for the system."[8]

Acknowledging the methodology requirements under 22 CCR Section 64554 and CPUC General Order 103-A, the Commission determined that "Cal-Am has more than met its burden to prove that the long-term water supply available to Cal-Am in Monterey is not sufficient to meet the system's projected demand absent new supply."[9] The Commission further concluded that "a demand figure slightly lower than that presented by Cal-Am is the most reasonable figure to adopt in this proceeding."[10] More specifically, after reviewing arguments and evidence submitted by multiple parties, the Commission determined that the proper forecasted demand for the Monterey Peninsula Main System ("MPMS") was approximately 14,000 AFY, reducing California American Water's estimate of 14,355 AFY.[11] The Commission also concluded that "projecting demand at any amount less than approximately 14,000 afy 'presents unreasonable risk without commensurate public benefit.'"[12]

The Commission also considered an expansion of the PWM project as an additional potential water supply source for the MPMS. Although the PWM Expansion was not considered feasible at the time, the Commission explained that "even if we were to include an amount between 650 AFY and 2,250 from PWM expansion as part of the supply available to California American Water, it is insufficient to satisfy an estimated

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[8] *Id*. at 62-63.

[9] *Id*. at 21.

[10] *Id.*

[11] *Id*. at 195; *see also id*. at 68, 171.

[12] *Id*. at 29 (quoting Monterey Peninsula Regional Water Authority testimony, Ex. RWA-27 at 8); *see also id.* at 56, 171, 194, 195.

demand of 14,000 AFY, as it would still result in a supply deficit of between 2,706 and 4,306 AFY.[13] The Commission added that because the "PWM expansion alone fails to provide sufficient supply to meet the average demands assumed in MPWSP planning, and would not provide sufficient flexibility to meet most peak demands," the MPWSP was needed to meet California American Water's forecasted demand.[14] Based on its findings of water supply and demand, as well as the environmental review conducted for the MPWSP, the Commission authorized a 6.4 million gallon per day ("mgd") production capacity for the MPWSP.[15] The 6.4 mgd plant would produce approximately 6,250 AFY of desalinated water in non-drought years and approximately 7,167 AFY in drought years.[16] The Commission explained that "failure to approve the project would have significant impacts on the region's economy. The project's local and regional economic benefits by way of project construction and operation would be lost. There would not be temporary and permanent new local employment opportunities nor increased spending."[17] More importantly, long-term, "the lack of water supply would adversely affect the region's economic vitality . . . by substantially reducing the reliability of water resources and water infrastructure."[18]

[13] *Id*. at 40.

[14] *Id*. at 41.

[15] *Id*. at 65-70.

[16] *Id*. at 70.

[17] *Id*. at 67.

[18] *Id.*

IV. ISSUE 2 – DEMAND

A. HISTORICAL DEMAND

Q7. What are the latest 10-year historical system demands through 2021?

A7. The table below shows the last ten years of system demand. This represents total system production as metered at the well source. Note that in the past, demand was shown using production from the Begonia Iron Removal Plant ("BIRP"), which treats water from the Lower Carmel Valley Wells. However, it is more appropriate to use actual total well production as this value accounts for transmission main and process treatment losses associated with BIRP treatment facility since this indicates actual pumping from Carmel River. Because of this, the historical demands shown below are slightly higher than those shown in the UWMP.

TABLE 1

10-year Historical Annual Demand of Monterey Peninsula Main System

Year	Total Production (AFY)
2012	11,689
2013	11,617
2014	10,599
2015	9,707
2016	9,559
2017	9,760
2018	9,690
2019	9,575
2020	9,412
2021	9,280

Q8. Based on the updated historical demand data, what, in your opinion, is a reasonable base assumption to use as current annual system demand?

A8. Average annual demand over the ten-year period from 2012-2021 is 10,089 AFY, but this includes higher demands in 2012, 2013 and 2014 which do not reflect current trends. Excluding demand from 2012, 2013 and 2014, as well as demand in 2020 and 2021 which may be abnormally low given the global pandemic, since 2015, demand has not varied significantly. The average demand between 2015 and 2019 is 9,658 AFY, with a high in 2017 of 9,760 AFY and a low in 2019 of 9,575 AFY. It is reasonable to assume that without a new source of supply, demands will remain about the same. 2017 is also the year with the maximum month demand (again excluding 2012, 2013 and 2014).

Q9. California American Water Company submitted to DWR its 2020 Urban Water Management Plan for Monterey County District. What did the Urban Water Management Plan determine as for future demand in the Monterey District?

A9. California American Water hired Water Systems Consulting to complete the 2020 UWMP for the Monterey County District and it was filed in accordance with regulations in June 2021 with the California Department of Water Resources ("DWR").[19] Below is the demand forecast provided in the UWMP. The forecast includes an annual population growth rate based on the Association of Monterey Bay Area Governments ("AMBAG") in addition to Pebble Beach Entitlements, Tourism Rebound, and Legal Lots or Record.

[19] Attachment A, California American Water Final 2020 UWMP (June 2021).

TABLE 2

2020 UWMP Estimated Demand Projections

	BASELINE (2016-2020)	2025	2030	2035	2040	2045
Demographics						
Service Area Population	91,717	93,577	95,437	97,297	99,157	101,017
Annual Population Growth Rate		0.41%	0.40%	0.39%	0.38%	0.38%
Service Area Employment	64,307	67,020	69,732	72,445	75,157	77,870
Residential Demand						
Residential Demand (GPCD)	48	48	52.8	52.8	52.8	52.8
Residential Demand (AF)	4,931	5,031	5,644	5,754	5,865	5,975
Non-Residential Demand						
Non-Residential Demand (AF)	4,372	4,556	4,741	4,925	5,110	5,294
Fire Service Demand (AF)		400	400	400	400	400
Other Future Demand						
Pebble Beach Entitlements (AF)		0	65	130	195	260
Tourism Rebound (AF)		250	500	500	500	500
Legal Lots of Record (AF)		0	300	520	740	960
Losses		205	233	245	256	268
Average Annual Demand (AFY)		**10,443**	**11,883**	**12,474**	**13,065**	**13,656**

Q10. Are there any adjustments to the UWMP demand forecasts based on new information, data, or other that you are considering for an updated demand forecast?

A10. Yes. AMBAG released in April 2022 the Draft 6th Cycle Regional Housing Need Allocation ("RHNA") Plan 2023-2031[20] that were not considered at the time the 2020 UWMP was completed. The water demands associated with the RHNA projections were not included in the UWMP demand estimates as the final version has not yet been adopted by AMBAG. Nevertheless, on May 19, 2022, AMBAG informed California American Water that AMBAG had approved Resolution 2022-13 requesting that Monterey One Water, Monterey Peninsula Management District, and California American Water provide the water supply needed to meet AMBAG's 6th Cycle Regional Housing Needs Allocation. On March 17, 2022, the City of Monterey sent a letter to

[20] Attachment B, AMBAG Draft 6th Cycle RHNA Plan (April 2022).

AMBAG identifying the city's near-term (2023-2031) need of 367-406 AF to develop housing for RHNA through 2031.[21] This affirms that there is a real need and pent-up demand for additional water to address housing needs of the community that has been in a moratorium for decades.

Second, the UWMP accounted for fire flow and system losses as separate line items as shown in Table 2 above. Whereas, for the updated supply and demand analysis in this testimony, I am using historical production data as measured from the well sources, which captures all water supplied to system including fire flows and system losses. Therefore, the updated demand estimates provided below incorporate fire flow and system losses as part of overall demand.

B. AMBAG / RHNA

Q11. Please provide a summary of the AMBAG Regional Growth Forecast.

A11. AMBAG is a Joint Powers Authority governed by a twenty-four member board of directors that is comprised of elected officials from each city and county within the AMBAG region. The AMBAG region includes Monterey, San Benito and Santa Cruz Counties. AMBAG's role is to perform metropolitan level transportation planning on behalf of its region. Among its many duties, AMBAG prepares regional population, housing and employment forecasts that are utilized in a variety of regional plans. Specifically, every four years AMBAG updates its regional forecast for population, housing, and employment to support the continued development of its Metropolitan Transportation Plan/Sustainable Communities Strategy ("MTP/SCS"), Regional Travel Demand Model and other planning efforts.[22] The Regional Growth Forecast projects the

[21] Attachment C, City of Monterey Letter to AMBAG (March 17, 2022).

[22] Federal Regulations (23 CFR 450) require AMBAG, as the federally designated Metropolitan Planning Organization, to prepare and update a long-range MTP every four years; and, California state law (Gov.

region's population, employment, and housing numbers for Monterey County, San Benito County and Santa Cruz County. Because growth patterns change over time, and because the MTP/SCS must be revised every four years, the Regional Growth Forecast also is updated every four years to reflect the most current and accurate information available. The purpose of AMBAG's 2022 Regional Growth Forecast is to show likely changes in employment, population, and housing in the AMBAG area between 2015 and 2045. AMBAG's 2022 Regional Growth Forecast was accepted for planning purposes by the AMBAG Board of Directors on November 18, 2020, and was formally adopted by the AMBAG Board of Directors on June 15, 2022.[23]

Between 2025 and 2045, the Regional Growth Forecast projects that the population for the AMBAG area will increase from 800,726 in 2025 to 869,776 in 2045.[24] For Monterey County alone, the Regional Growth Forecast projects that the population will increase from 245,054 in 2025 to 263,437 in 2040.[25] As of 2020, the population in the Monterey Main service area was 91,717 people.[26] Based on AMBAG's 2022 Regional Growth Forecast, California American Water's 2020 UWMP estimates that the population in the Monterey Main service area will grow to 101,017, or by approximately 9 percent, by the year 2045.[27] More specifically, the UWMP projects that the population

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Code 65080(d)) requires AMBAG to prepare and update a SCS every four years. AMBAG develops the Regional Growth Forecast for planning purposes as part of the continued development and updates of its MTP/SCS. Additionally, the Regional Growth Forecast is used to support the development of the Regional Travel Demand Model (to forecast travel patterns) and to inform other regional and local planning projects such as transportation projects, corridor studies and economic activity analyses. (Attachment D, AMBAG Final 2022 Regional Growth Forecast (June 2022); Attachment E, AMBAG Resolution No. 2022-17 (June 15, 2022).

[23] Attachment E, AMBAG Resolution No. 2022-17 (June 15, 2022).

[24] Attachment D, AMBAG Final 2022 Regional Growth Forecast (June 15, 2022), Attachment 1.

[25] *Id.* at Attachment 2.

[26] Attachment A, California American Water Final 2020 UWMP (June 2021), p. 3-5.

[27] *Id*.

for the Monterey Main service area will grow from 91,717 in 2020 to 93,577 in 2025 to 95,437 in 2030 to 97,297 in 2035 to 99,157 in 2040 and to 101,017 in 2045.[28]

Q12. How does AMBAG's RHNA plan for the AMBAG area impact California American Water's Demand Projections?

A12. Since 1969, California has required local governments (cities and counties) to plan to meet the housing needs of everyone in the community. The California Housing and Community Development Department ("HCD") oversees this planning process for all regions throughout the State. In the AMBAG area, the process begins with HCD providing a Regional Housing Needs Determination ("RHND") for Monterey and Santa Cruz counties. To complete its RHND, State law requires HCD to use population projections developed by the Department of Finance.[29] The Department of Finance develops its projections by referencing multiple sources of information, including data from the U.S. Census Bureau and records of driver's licenses, births and deaths, school enrollments, and tax filings.[30] The RHND includes an overall housing need number, as well as the percentage of units required in different income categories.

Based on the RHND, AMBAG then prepares a RHNA plan for Monterey County and Santa Cruz County that establishes the total number of housing units that each city and county must plan for within an eight-year planning period. To create a RHNA plan, AMBAG formulates a methodology to assign a share of the RHND to each jurisdiction in the region. The methodology used for this planning cycle distributes RHNA based on

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[28] *Id.*

[29] Attachment F, Auditor of the State of California, Regional Housing Needs Assessments: The Department of Housing and Community Development Must Improve Its Processes to Ensure That Communities Can Adequately Plan for Housing (March 2022).

[30] *Id.*

AMBAG's current Regional Growth Forecast and other factors like jobs and housing balance, climate resiliency, and transit service.[31]

AMBAG received its 6th Cycle RHND from HCD in August 2021. In the RHND, HCD determined that an additional 33,274 housing units are needed in the AMBAG area by 2031.[32] On April 22, 2022, AMBAG released its draft RHNA plan for a 45-day public review period. AMBAG's draft RHNA plan includes the 33,274 additional housing units, approximately 6,520 of which are within California American Water's Monterey Main service area, as shown in table below. As shown in table below, 426 housing units were allocated to the California American Water service area in the previous RHNA plan covering the period from 2014 to 2023. The 6,520 additional housing units in the current draft RHNA plan for 2023 to 2031 represent a 357% increase of housing units in the California American Water service area. The public review period for the draft RHNA plan closed on June 6, 2022 and the final RHNA plan is scheduled for adoption in fall 2022.[33] Based on the final RHNA plan, each city and county in AMBAG's area must update its housing element to demonstrate how the jurisdiction will meet the expected growth in housing need over this planning period.

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[31] Attachment B, Draft 6th Cycle RHNA Plan (April 2022), p. 14.

[32] *Id.*

[33] Due to errors identified by the California State Auditor in its evaluation of the processes HCD used to develop the RHND numbers, HCD may provide updates on the numbers between now and February 2023, which could potentially delay the release of the final RHNA plan. (*See* Attachment F, Auditor of the State of California, Regional Housing Needs Assessments: The Department of Housing and Community Development Must Improve Its Processes to Ensure That Communities Can Adequately Plan for Housing (March 2022)).

TABLE 3

RHNA Units Allocated to California American Water's Service Area			
Service Area	**2014-2023 RHNA[34] Units**	**Draft 2023-2031 RHNA[35] Units**	**Percent Change**
Carmel-By-The-Sea	31	349	1025.81%
Del Ray Oaks	27	184	581.48%
Monterey	650	3,654	462.15%
Pacific Grove	115	1,125	878.26%
Sand City	55	260	372.73%
Seaside	393	616	56.74%
Balance of County	155 *[1,551 for all of Unincorporated County]*	3323 *[3,326 for all of Unincorporated County]*	114.19%
Service Area Total	**1,426 units**	**6,520 units**	**357.08%**

For informational purposes, "Balance of County" in table refers to portions of unincorporated Monterey County that are situated within California American Water's Monterey Peninsula Main System, including Carmel Highlands, Carmel Valley, Pebble Beach, and the Del Monte Forest.[36] Because AMBAG does not individually provide housing projections for these areas, these areas are grouped with portions of the County that are outside of California American Water's MPMS. For purposes of this testimony, California American Water conservatively assumes that 10 percent of all units allocated to unincorporated Monterey County fall within California American Water's service

[34] The 2014-2023 housing projections were taken from the Association of Monterey Bay Area Governments (AMBAG), *Regional Housing Needs Allocation Plan: 2014 – 2023* (available at https://ambag.org/sites/default/files/2020-06/RHNP%202014-2023_Final_revised_PDFA.pdf).

[35] AMBAG, 6th Cycle Regional Housing Needs Allocation Methodology Memorandum, January 12, 2022, p. 84 [Option Z], available at https://www.ambag.org/sites/default/files/2022-01/AMBAG-January-12-2022-Agenda.pdf.

[36] MPWSP FEIR/EIS, pp. 2.2 – 2.3. See Cal-Am's ***Service Area Map Monterey County District*** (April 1, 2013).

area.[37] This assumption is based on prior analysis done by MPWMD in the PWM Expansion EIR. In the PWM Expansion EIR, MPWMD identified that California American Water's service area in unincorporated Monterey County might require an additional 15-25 AF to meet demand from the RHNA plan for 2014 to 2023.[38] Using this assumption, the number of units was extrapolated that would correspond to 15-25 AF and applied those same assumptions to the draft 2023-2031 RHNA assumptions. The result is that 10 percent the 3,326 units allocated to Unincorporated Monterey County, or 333 units, are allocated to the "Balance of the County" service area. Since the City of Seaside is not entirely served by California American Water's service area, only half of the units for Seaside in the table above are assumed to be within our service area. California American Water conservatively estimated the number of RHNA units in the Monterey Main System at 6,213 and applied a multi-family usage factor of 0.12 AFY per unit.

C. LEGAL LOTS OF RECORD

Q13. Please provide a summary of the demand information related to Legal Lots of Record.

A13. On the Monterey Peninsula, there is a backlog of vacant commercial, industrial and residential properties that remain undeveloped and currently cannot be developed because of the existing moratorium on new water service connections, as mandated in the CDO and as authorized by the Commission in D.11-03-048. In addition, under the existing moratorium there is a backlog of developed commercial, industrial and residential properties that cannot be remodeled or expanded if proposed modifications would intensify water usage, such as through the addition of new bathroom facilities. These vacant and developed properties, which have been referred to as "Legal Lots of Record,"

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[37] Likewise, for Balance of County under the 2014 to 2023 RHNA, this analysis assumes that 10 percent of the units allocated to Balance of County are within California American Water's service area.

[38] PWM Expansion Final SEIR/EIS, Appendix O (Supply and Demand for Water on the Monterey Peninsula, Stoldt, March 13, 2020.

are within California American Water's service area and are generally considered to contain buildable land.[39]

Because these Legal Lots of Record represent a source of water demand that is not currently being serviced by California American Water due to the moratorium on new service connections, the demand for these Legal Lots of Record must be factored into the total future water demand for the Monterey Peninsula. Once a new permanent water supply source sufficient to meet long-term demand becomes available and the SWRCB and Commission lift the moratorium on new service connections, this backlog of properties is expected to be developed either with new or renovated/expanded development, and California American Water will be required to provide water to those developments. As noted in D.18-09-017, the Monterey Peninsula Water Management District ("MPWMD") testified, and California American Water agrees, that the failure to provide water for the Legal Lots of Record would infringe on property rights and would perpetuate a state of "water poverty" in our communities.[40] Accordingly, planning for sufficient water for these Legal Lots of Record is essential.

Q14. What is the annual demand associated with Legal Lots of Record?

A14. The Commission determined in D.18-09-017 that annual demand associated with Legal Lots of Record would be 1,180 AFY. Legal Lots of Record include lots that would be developed for single-family units, multi-family units, commercial and industrial development, along with residential and commercial remodels of existing development. The table below shows the estimated total demand associated with each type of

[39] Attachment G, California American Water MPWSP FEIR/EIS (March 2018), pp. 2-13-15.

[40] CPUC D.18-09-017, pp. 62-63.

development within Legal Lots of Record based on an allocation percentage as originally developed by MPWMD and used in A.12-04-019 for MPWSP.

TABLE 4

Demand from Legal Lots of Record (AF)	
Residential (Single)	234
Residential (Multi)	137
Commercial and Industrial	621
Residential Remodels	106
Commercial Remodels	82
TOTAL	**1,180**

The Legal Lots of Record are expected to be developed from 2030 to 2050 and, due to pent-up demand, the demand from these lots is expected to be 300 AFY by 2030 and then increase at a rate of 220 AFY every five years between 2035 and 2050 as lots are developed or existing development is renovated.[41] California America Water has testified that 1,180 AFY is necessary to meet demand from the development of the Legal Lots of Record.[42] And, even though several parties disputed the water demand needed for development of Legal Lots of Record during A.12-04-019, the Commission's proceeding regarding the MPWSP, the Commission agreed with California American Water and found that 1,180 AFY was a reasonable projection of demand for the Legal Lots of Record.[43] Likewise, the 2018 FEIR for the MPWSP and California American

[41] Attachment A, California American Water Final 2020 UWMP (June 2021), p. 4-7.

[42] Attachment G, California American Water MPWSP FEIR/EIS (March 2018), p. 2-13-15.

[43] CPUC D.18-09-017, pp. 50-51 ("In projecting water demand for the next 10-20 years, the assumptions Cal-Am has made for development of the lots of record and for Pebble Beach are reasonable because

Water's 2020 UWMP both anticipated that 1,180 AFY is required for Legal Lots of Record.[44]

In March 2020, David J. Stoldt, General Manager of the MPWMD, issued a report titled "Supply and Demand for Water on the Monterey Peninsula," which stated that even though the MPWMD was the original source of the 1,180 AFY demand number for Legal Lots of Record, the Legal Lots of Record demand assumption in the sizing of the MPWSP should be between 864 to 1,014 AFY.[45] In his 2020 Memo, Stoldt explained that the 1,180 AFY number was derived from the October 2009 Coastal Water Project Final Environmental Impact Report, which references a 2001 MPWMD analysis as the source.[46] Mr. Stoldt argued that since the study was conducted, conservation programs have reduced demand associated with Legal Lots of Record.[47] Without presenting any evidence, Stoldt argued that some of the lots may have been built upon, others determined unbuildable, and many of the remodels have likely already occurred.[48] Based on these factors, Stoldt claimed the Legal Lots of Record demand assumption in the sizing of the MPWSP should be 864 to 1,014 AFY.[49] However, Mr. Stoldt presented no evidence that supports his argument that demand associated with Legal Lots of Record should be reduced. Nor did Mr. Stoldt demonstrate that once the moratorium on new

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growth will occur, development is halted pending adequate water, and Pebble Beach has a reasonable claim on more water.")

[44] Attachment G, California American Water MPWSP FEIR/EIS (March 2018), p. 2-14-15.; Attachment A, California American Water Final 2020 UWMP (June 2021), p. 4-5.

[45] David J. Stoldt, General Manager MPWMD, Supply and Demand for Water on the Monterey Peninsula (March 13, 2020), p. 11.

[46] *Id.* at 9.

[47] *Id.* at 10.

[48] *Id.* at 10.

[49] *Id.* at 11.

service connections is lifted and a new source of water supply becomes available, that the Legal Lots of Record either will not be developed or that developed properties will not be renovated. And although it had the opportunity, MPWMD provided no comment or objection to California American Water's UWMP, which estimated that 1,180 AFY of water would be needed for the development of Legal Lots of Record between 2030 and 2050. Because there is no new evidence that shows that the Legal Lots of Record will not be developed or renovated once additional water supply is available, the full 1,180 AFY should be included in California American Water's demand projections.

Future development on Legal Lots of Record may have some overlap with growth projections prepared by AMBAG and future housing demands projected by AMBAG's RHNA plan for the AMBAG area. However, as explained in the question below, demand from future population growth and development of dwelling units as a result of RHNA are additive to the 1,180 AFY of demand associated with Legal Lots of Record.

D. PEBBLE BEACH

Q15. Please provide a summary of the demand information related to the Pebble Beach Company's entitlements.

A15. In 1989, MPWMD granted water entitlements totaling 380 AFY to the Pebble Beach Company for underwriting the development of a wastewater reclamation project to provide recycled water in lieu of potable water to golf courses in the Del Monte Forest, which includes Pebble Beach. Out of the 380 AFY entitlement, 325 AFY have not been used. The remaining 325 AFY represents future water demand for California American Water because California American Water is the service provider for all Pebble Beach Company properties, including properties to be developed in the future. In Decision 18-09-017, the Commission previously found that including 325 AFY for the Pebble Beach Company's existing water entitlements in the overall demand determination was

reasonable because growth will occur in the future when new alternative water supplies are developed and California American Water is permitted to establish more connections in its service area.[50]

Q16. What is the annual demand associated with the future buildout of the Pebble Beach Company entitlements?

A16. The full 325 AFY must be included in California American Water's demand projections because these entitlements constitute an existing obligation by California American Water to serve the properties once they are developed.[51] The Pebble Beach entitlements are anticipated to be developed between 2030 and 2050 at a rate of 65 AFY every five years.[52] Moreover, the Pebble Beach Company maintains that it intends to utilize all of its water rights and that it has already allocated all but 60 AF of its rights.[53] It would be speculation to assume that the Pebble Beach Company does not intend to utilize all of these rights.

E. TOURISM BOUNCE-BACK

Q17. Please provide a summary of the demand information related to tourism bounce-back.

A17. The Monterey Peninsula historically has been a popular destination for business and leisure travelers. The hospitality industry, which includes hotels, restaurants, and other visitor-serving businesses, began experiencing reductions in occupancy and visitation rates during the "Great Recession" that started in late 2007.[54] During that recession, and as explained further in the below testimony regarding supply issues, on October 20, 2009,

[50] CPUC D.18-09-017, p. 50.

[51] Attachment A, California American Water Final 2020 UWMP, p. 4-6.

[52] *Id.* at 4-7.

[53] Attachment Y, PBC Letter to CCC, October 18, 2019, p. 2.

[54] Attachment G, California American Water MPWSP FEIR EIS, p. 2-13.

the State Water Resources Control Board ("SWRCB") issued Cease and Desist Order 2009-0060 (the "CDO"). The CDO, which remains in place, prohibits new service connections or certain increased uses of water at existing service connections.[55] Although time has passed since the Great Recession, as a result of the CDO's moratorium, the recovery of the tourism industry has been slow. For example, the Coalition of Peninsula Businesses asserts that the tourism industry still needs to increase hotel occupancy by approximately 12 to 15 percent over the next two decades to re-attain the occupancy levels of a decade ago.[56] Once a new permanent long-term water supply is in place and the prohibition on new service connections or increased use at existing connections is lifted, industry representatives expect that occupancy and visitation rates will eventually rebound to levels in existence prior to the Great Recession. Allowing for new or increased service connections will allow for renovations of existing hotels and visitor-serving businesses, as well as the construction of new hotels, restaurants, and other visitor-serving businesses, and/or expansions of existing uses that require an increased water usage. The water use rates at existing hotels will also increase regardless of whether additional new development occurs. For example, due to tiered water pricing in California American Water's service area, many hotels in the region send laundry miles out of the area to be washed in less expensive service territories. Such inefficient practices are expected to end when additional supplies become available in California American Water's service area.

In D.18-09-017, and as estimated in the MPWSP Final EIR/EIS, the Commission determined that the water demand increase due to tourism bounce-back was 500 AFY.[57]

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[55] *See* CPUC D.11-03-048, issued in A.10-05-020 (authorizes California American Water to implement moratorium on new connections mandated in the 2009 CDO).

[56] CPUC D.18-09-017, p. 31.

[57] *Id.* at p. 50.

This estimate was based on discussions with hospitality industry representatives and had been corroborated by a comparison of occupancy rates and water-use levels for several periods over the last 15 years.[58] The Commission indicated in D.18-09-017 that the evidence persuasively showed that the tourism industry on the Monterey Peninsula had not fully recovered from the economic recession that started in 2008, and to the extent it had recovered, it took steps to conserve water in ways it would not do if there were no constraints on the water supply in the area.[59] The Commission concluded that 500 AFY was a reasonable figure to represent the additional demand California American Water will have to meet in the future for tourism bounce-back.[60]

Q18. What is the annual demand associated with tourism bounce-back?

A18. The full 500 AFY is included in California American Water's demand projections based on the Commission's determination in D.18-09-017. The CDO's prohibition on new service connections is still in place, and 500 AFY represents the additional demand California American Water will have to meet in the future to satisfy the expected tourism bounce-back.[61] Of the 500 AFY of water demand for tourism bounce-back, 250 AFY of that demand is expected by 2025 and the remaining 250 AFY is expected by 2030.[62]

F. DEMAND FORECAST UPDATE

Q19. Based on the above information, what is the California American Water's estimated long-term demands for the Monterey Peninsula Main System?

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[58] Attachment G, California American Water MPWSP FEIR EIS at pp. 2-13-14.

[59] CPUC D.18-09-017, p. 50.

[60] *Id*. at pp. 50-51.

[61] *Id.* at 51.

[62] Attachment A, California American Water Final 2020 UWMP, p. 4-7.

A19. The table below shows the updated demand forecasts considering the information discussed above.

TABLE 5

Updated Demand Estimates

	BASELINE (2017-2021)[1]	2025	2030	2035	2040	2045	2050[2]
Demographics							
Service Area Population	91,717	93,577	95,437	97,297	99,157	101,017	102,877
Annual Population Growth Rate		0.41%	0.40%	0.39%	0.38%	0.38%	0.37%
Service Area Employment	64,307	67,020	69,732	72,445	75,157	77,870	80,583
Residential Demand							
Residential Demand Indoor/Outdoor	47	48	52.8	52.8	52.8	52.8	52.8
Residential Demand (AF)	4,857	5,031	5,644	5,754	5,864	5,974	6,084
Non-Residential Demand							
Non-Residential Demand (AF)[3]	4,686	4,834	5,019	5,204	5,389	5,574	5,759
Fire Service Demand (AF)[3]	Included as non-revenue water in the non-residential demand category						
Other Future Demand							
Pebble Beach Entitlements (AF)		0	65	130	195	260	325
Tourism Rebound (AF)		250	500	500	500	500	500
Legal Lots of Record (AF)		0	300	520	740	960	1,180
Residential (Single)		0	59	103	147	190	234
Residential (Multi)		0	35	60	86	111	137
Commercial		0	158	274	389	505	621
Residential Remodels		0	27	47	66	86	106
Commercial Remodels		0	21	36	51	67	82
RHNA Demands		0	370	745	745	745	745
Losses[3]	Included as non-revenue water in the non-residential demand category						
Average Annual Demand (AFY, rounded to tenth)		**10,110**	**11,900**	**12,850**	**13,430**	**14,010**	**14,590**

1. The average residential and non-residential demand was updated from the UWMP to include data from 2017-2021.
2. Service area population and employment are projected to continue through 2050 as projected through 2045.
3. Residential demand includes both indoor and outdoor water use. Residential water use is expected to increase by 10% when a new water source is available, assumed by 2030.
4. Non-residential demand was updated to inlcude production from all wells, and all non-revenue water including fire service and losses.
5. Tourism and Legal Lots of Record.
6. RHNA 6,213 estimated units multiplied by 0.12AF per unit = 745 AFY, this assumes all RHNA units are multi-family units.

Q20. Can you please explain the need to have capacity to meet maximum month demands ("MMD")?

A20. Yes. As I discussed earlier, CCR Title 22, § 64558 requires water sources to meet maximum day demands ("MDD"). MDD typically can be met through a combination of

supply sources and storage, but a water system must have sufficient supplies to cover the high demands over the duration of a few months. Therefore, it is more important to have adequate water supplies capable of meeting maximum month demands (MMD). The MMD occurs during summer months from about May through September, typically in July or August. Between 2012 and 2021, the peaking factor for MMD to the annual monthly average demand was 1.21. In other words, 21% more supply delivery capacity is needed in the MMD than the annual average month demand, and about 50% more than the lowest demand months, which typically occur between December to February. Shown in Table 6 below is the 5-year historical and projected MMD based on annual demands forecasted shown in Table 5 above.

TABLE 6

Historic and Projected Maximum Month Demands

Year	Total Demand (AF)	Maximum Month Demand (AF)	Maximum Month Demand (MGD)
2017	9,760	987	10.4
2018	9,690	973	10.2
2019	9,575	978	10.3
2020	9,412	952	10.0
2021	9,280	925	9.7
Projected Demand			
2050	14,590	1472	15.5

During the summer months when Carmel River flows are low, pumping from the river will be reduced to a maintenance flow through the Begonia Iron Removal Plant. To make up for the reduced pumping from the Carmel River, production from the Seaside Basin from existing wells and proposed extraction wells as part of ePWM can be adjusted to produce more in the summer months, but this is ultimately capped at the amount of

physical well capacity and firm capacity must be considered (capacity with wells out of service). Additionally, when considering the ability to utilize supply from these wells during maximum month demands, the amount that can be produced from these sources must be balanced with the total annual amount of Seaside Basin Native Water Rights, PWM and ePWM, and ASR availability, as these water supplies are also needed throughout the year. Also, a well can be out of service for any number of reasons. As an example, ASR 1 was recently taken offline due to the determination that there was insufficient PWM residence time. Therefore, it is important to consider a contingency or supply buffer in planning for supply adequacy. This contingency is explained further later in my testimony.

With an estimated future long-term system demand range of 13,845 AFY to 14,590 AFY indicated above in Table 2, the annual monthly average is approximately 1,150 AFM to 1,215 AFM, which, multiplied by the historical 1.21 maximum month peaking factor, equates to a maximum month demand range of approximately 1,400 AFM to 1,500 AFM, or about 14.7 to 15.8 MGD. Not only is the desalination plant necessary to provide a reliable sufficient drought-proof supply to meet the annual long-term supply needs of the community, it is also necessary to provide system firm capacity to ensure MMD can be met over the near-term and long-term planning horizon.

V. ISSUE 3 – SUPPLY

Q21. What supply sources are currently available to the Company?

A21. The water supply sources available to the company are Carmel River Valley Aquifer ("Carmel River"), Seaside Groundwater Basin ("Seaside Basin"), Aquifer Storage and Recovery of excess Carmel River winter flows ("ASR"), Table 13, Pure Water Monterey ("PWM"), and Sand City Desalination. Below is a description of these supply sources.

A. CARMEL RIVER

Q22. Can you please provide background on the Carmel River as a source of water supply?

A22. California American Water extracts water from wells located in the Carmel Valley Aquifer, located along the Carmel River, southeast of the Monterey Peninsula. The Carmel Valley Aquifer is identified by the California Department of Water Resources ("DWR") as a high-priority basin subject to critical overdraft. Because withdrawals are regulated by the State Water Resources Control Board ("SWRCB") through surface water rights, the Carmel Valley Aquifer is not currently managed under the Sustainable Groundwater Management Act ("SGMA").[63]

Prior to 1995, California American Water diverted on average about 14,106 AFY from the Carmel River. In 1995, the SWRCB found that California American Water was diverting on average 10,730 AFY from the Carmel River without a valid basis or right. In 1995, the SWRCB issued Order WR 95-10, requiring California American Water to reduce its Carmel River diversions from an estimated 14,000 AFY to 3,376 AFY.[64] Order WR 95-10 established that California American Water has a legal right to 3,376 AFY from the Carmel River system based on its established appropriative and riparian rights, including surface water diversions from the river and subsurface flow pumped from the Carmel Valley Alluvial Aquifer. Order WR 95-10 also prohibited California American Water from diverting water from San Clemente Dam when stream flows reach low flow conditions and directed California American Water to maximize use of the Seaside Basin to reduce diversions from the Carmel River to the greatest extent practicable.

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[63] Attachment A, California American Water Final 2020 UWMP (June 2021), p. 6-2.

[64] Attachment H, SWRCB, Order WR 95-10 (July 6, 1995), pp. 24-25.

On October 20, 2009, the SWRCB issued Cease and Desist Order 2009-0060 (the "CDO"). The SWRCB based the CDO on its determination that Order WR 95-10 did not authorize California American Water to divert water from the Carmel River in excess of 3,376 AFY and that California American Water was illegally diverting more than this amount of water from the Carmel River. The CDO required California American Water to implement actions to terminate its excess diversions by December 31, 2016. The CDO also prohibited California American Water from diverting water from the Carmel River for new service connections or intensified water use at existing connections.

In 2014, it became clear that more time was required to develop a CPUC-approved lawful alternative water supply to meet demands in the MPMS before Carmel River diversions in excess of 3,376 AFY could be stopped.[65] In July 2016, the SWRCB issued Order WR 2016-0016, amending Order WR 95-10 and the CDO, and extending the deadline to terminate excess diversions from the Carmel River to December 31, 2021 (the "2016 CDO"). The 2016 CDO set an Effective Diversion Limit of 8,310 AFY starting in Water Year 2015-2016 and prohibited California American Water from exceeding this Effective Diversion Limit through December 31, 2021.[66] Starting in Water Year October 1, 2022, California American Water Carmel River diversions (exclusive of diversions under the ASR and Table 13 permits, described in more detail below) are capped at its legal limit of 3,376 AFY.

Q23. Can you please describe the availability of water from the Carmel River and any uncertainty associated with this supply?

[65] Attachment A, California American Water Final 2020 UWMP (June 2021), p. 6-2.

[66] Attachment I, SWRCB, Order WR-2016-0016 (July 19, 2016), p. 19

A23. There is no uncertainty regarding this water supply. Effective Water Year 2022-2023 (beginning October 1, 2022), California American Water Carmel River diversions (exclusive of diversions under the ASR and Table 13 permits) are capped at its legal limit of 3,376 AFY.

Q24. Based on your analysis above, how much water can California American Water reasonably expect from the Carmel River per year?

A24. Per the SWRCB's prior orders, California American Water has a total entitled right of 3,376 AFY from the Carmel River Aquifer (exclusive of diversions under ASR and Table 13 permits). However, it is necessary to have an operational buffer since source water supplies are forecasted and planned for each water year on a month-to-month basis. Because we need to have buffer to account for demand, operational constraints, maintenance, etc. it is not possible to deliver exactly 3,376 AF by the last day of the water year. At the same time, pumping cannot exceed 3,376 AF. Therefore, actual annual supply from Carmel River may be slightly less than 3,376 AF. The supply and demand analysis below shows 3,376 AF for Carmel River and the operational buffer discussed here is captured as part of the 10% Supply Contingency shown in the supply and demand analysis below.

B. SEASIDE BASIN

Q25. Can you please describe the Seaside Basin as a source of water supply?

A25. After the Carmel River, California American Water's Monterey Main system's next largest source of supply is the Seaside Basin. The Seaside Basin provides native groundwater for municipal uses in California American Water's Monterey and Laguna Seca Districts and to the cities of Seaside and Sand City, among other uses. The Seaside Basin also provides critical groundwater storage for California American Water's ASR diversions from the Carmel River and provides storage and treatment of recycled water

for M1W's PWM Project. The Seaside Basin is subdivided into several subbasins for planning purposes, including the Laguna Seca, Coastal, and Inland subbasins.

The Seaside Basin is adjudicated, meaning the groundwater rights of individual water users are limited and enumerated by court order. California American Water's allocation under the initial operating safe yield of the Seaside Basin was 3,504 AFY from the Coastal subbasin and 345 AFY from the Laguna Seca subbasin. Subsequently, California American Water's right has been reduced to 1,474 AFY for the Coastal subbasin and zero AFY for the Laguna Seca subbasin.[67] However, due to years of over pumping the Seaside Basin prior to the 2006 adjudication, California American Water has agreed to an over pumping repayment plan. Under the Court Decision adjudicating the Seaside Basin (*California American Water v. City of Seaside et al.* (filed Feb. 9, 2007) Monterey County Superior Court Case No. M66343, as amended), California American Water must reduce its pumping from the Seaside Basin by 700 AFY for a 25-year period once a new reliable water supply source is operational to help balance the Seaside Basin.[68]

The 2020 UWMP assumes a new reliable water supply source for the Monterey Peninsula will be online by 2030.[69] Accordingly, the 2020 UWMP also assumes that groundwater available to California American Water from the Seaside Basin will be reduced to 774 AFY from 2030 through 2055 as part of the over pumping repayment plan.[70] However, the repayment could increase in volume, or the duration of repayment

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[67] Attachment A, California American Water Final 2020 UWMP (June 2021), p. 6-3-4.

[68] Attachment J, Seaside Basin Watermaster Letter to California Coastal Commission (August 12, 2020), p. 2.

[69] Attachment A, California American Water Final 2020 UWMP (June 2021), p. 6-4.

[70] *Id.*

could lengthen, due to California American Water's ongoing over pumping of the Seaside Basin as a result of delays in securing a new reliable water supply.[71]

Q26. Can you please describe available supply from the Seaside Basin and any uncertainty?

A26. California American Water is entitled to between 774 to 1,474 AFY of groundwater from the Seaside Basin depending on the status of future water projects.[72] As mentioned above, if the MPWSP comes online in 2030, as planned, California American Water's allocation from the Seaside Basin will be reduced to 774 AFY from 2030 to 2055. Additionally, and as discussed further in the demand section above, without the quantities of supplemental supplies from the MPWSP, California American Water and other Seaside Basin pumpers may not be able to meet the pumping reductions called for in the Seaside Basin adjudication.[73] And, without the quantity of supplemental supplies provided by the MPWSP, the Seaside Basin Watermaster will not be able to achieve the protective water levels for the Basin that the Watermaster has identified as necessary to avoid seawater intrusion and irreversible loss of Seaside Basin storage.[74] If Seaside Basin storage is lost or reduced as a result of seawater intrusion, other existing water supplies, such as native groundwater, ASR, and PWM, are in serious jeopardy, as seawater intruded aquifers are not suitable for groundwater storage.[75]

According to the Seaside Basin Watermaster, groundwater levels in the Seaside Basin have continued to fall in some areas despite implementation of pumping reductions, and even if the groundwater levels stabilized at current levels they would be well below sea

[71] *Id.*

[72] *Id.*

[73] Attachment J, Seaside Basin Watermaster Letter to California Coastal Commission (August 12, 2020).

[74] *Id.*

[75] *Id.*

level in some parts of the Seaside Basin.[76] For example, groundwater levels at all of the wells in the deep (Santa Margarita) aquifer are below their respective protective water levels, and only one of the groundwater levels is above the protective water level in the shallow (Paso Robles) aquifer. Persistence of groundwater levels below the protective water levels may lead to seawater intrusion in the Seaside Basin, which would result in almost certain irreversible loss of groundwater storage in the Basin.[77]

Q27. Based on your analysis above, how much water can California American Water reasonably expect from the Seaside Basin per year?

A27. California American Water's Monterey district should have reliable water supplies in place to meet current and future demand, whether those supplies are from the MPWSP or otherwise. With such reliable supplies in place, California American Water will be entitled to 774 AFY from the Seaside Basin for an approximately 25-year period as part of the over pumping repayment plan.

C. ASR

Q28. Can you please describe the Aquifer Storage and Recovery ("ASR") system as a source of water supply?

A28. The ASR system is a joint program between California American Water and MPWMD that allows excess Carmel River flows that meet specified thresholds during the months of December through May to be diverted and injected into the Seaside Groundwater Basin Coastal Subbasin (the "Seaside Basin") for extraction in dryer months, historically between July and November.[78] In 2006, MPWMD and California American Water developed an ASR Management and Operations Agreement to construct, operate and

[76] *Id.*

[77] *Id.*

[78] Attachment A, California American Water Final 2020 UWMP (June 2021), p. 6-7.

maintain ASR and ASR-related support facilities for the recharge, storage and recovery of water. The ASR system was developed in two phases and California American Water began utilizing it in 2008.[79] Operation of Phase 1 ASR is regulated under SWRCB Permit No. 20808A, which permits the withdrawal of up to 2,426 AFY of excess Carmel River flows under specified streamflow conditions in that permit. Operation of Phase 2 ASR is regulated under SWRCB Permit No. 20808C, which permits the withdrawal of up to 2,900 AFY of excess Carmel River flows under specified streamflow conditions in that permit. If specified streamflow conditions are met, the SWRCB permits allow the ASR program to divert a total of up to 5,326 AFY of excess flows from the Carmel River.[80] Under the permits, diversions may only occur from December 1 of each year to May 31, and at a maximum instantaneous rate of 6.7 cubic feet per second (permit 20808A) and 8.0 cubic feet per second (permit 20808C).

Q29. Can you please describe available supply from ASR and any uncertainty?

A29. Despite what the SWRCB permits allow on paper, California American Water's ability to utilize the ASR program is limited by its ability to divert from the Carmel River due to low river flow conditions. Permit conditions, as required by the California Department of Fish and Wildlife and the National Marine Fisheries Service, limit diversions to the ASR system, including a requirement that minimum mean daily instream flows in the Carmel River be maintained for the protection of fisheries, wildlife, and other instream uses. Because diversions for the ASR program are contingent on maintaining minimum daily instream Carmel River flows, and precipitation and streamflow vary substantially from year to year, the actual supply from the ASR program can and will vary substantially. In wet years with high streamflow, the ASR system is able to divert from the Carmel River

[79] *Id.*

[80] *Id.*

and inject a significant volume of water into the Seaside Basin, but in dry years no water may be available.[81] Additionally, due to climate change and prolonged drought conditions, a larger percentage of precipitation is expected to come from intense single-day events, which may limit California American Water's future ability to maximize ASR diversions because of firm capacity limitations. Firm capacity is the capacity of a system with the largest well out of service. For the ASR system, firm capacity to divert excess Carmel River flows is approximately 15 AFD.[82] When all wells are in service, total capacity is approximately 19 AFD.[83] Responsible water resource planning never assumes that a water system operates at one hundred percent capacity. Accordingly, ASR's rated capacity is solely based on its firm capacity.

The capability of the ASR system to provide potable water to California American Water's portfolio is highly unpredictable and depends entirely on rainfall conditions during a water year. Between Water Year 2005-2006 and Water Year 2021-2022, diversions varied between a high of 2,345 AF in 2016-2017, to a low of 0 AF in 2013-2014. And, during the recent drought from 2011-2016, ASR diversion rates dropped to negligible levels and built-up storage was nearly depleted by 2013, the second year of that drought, and no injection occurred in 2014.[84] As a result, ASR extractions declined significantly during this drought and extractions were reduced to zero in 2014 and 2015.

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[81] *Id*. at p. 6-7.

[82] Attachment K, Paul Findley and Sarp Sekeroglu, ASR Availability and Reliability Analysis Technical Memorandum (July 15, 2022), p. 2.

[83] *Id.*

[84] *Id.* at 4.

In both 2020 and 2021, also drought years, ASR injection was less than 100 AFY.[85] Over the entire period of ASR operations, diversions have averaged only 559 AFY.

At the end of water year 2020, California American Water had about 1,170 AF in the ASR storage reserve.[86] As of March 2022, current ASR reserves were 1,307.30 AF.[87] The 1,300 AF in storage is less than the approximately 1,500 AF in storage that California American Water had going into the 2012 drought. Given that ASR storage was depleted in just two years in the 2012 to 2016 drought, the present ASR system remains highly vulnerable.

As part of the process to prepare the 2020 UWMP, California American Water retained expert water supply consultants Paul Findley and Sarp Sekeroglu to conduct an extensive analysis regarding the reliability of the ASR system.[88] Findley and Sekeroglu concluded that injection into the ASR wells is limited to approximately 17 AFD due to the maximum capacities of the lower Carmel Valley wells (which supply water for treatment at the BIRP and the maximum capacity of the Crest Pipeline (which connects the ASR well to BIRP).[89] Further, Findley and Sekeroglu's analysis revealed that for 7 of the last 59 water years, Carmel River flows during the ASR system's December to May injection season were negligible, and diversions of excess Carmel River flows for injection in the Seaside Basin would have been negligible if the ASR system had existed.[90] This

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[85] *Id.*

[86] Attachment A, California American Water Final 2020 UWMP (June 2021), p. 6-7.

[87] Supplemental Testimony of Ian C. Crooks before the CPUC (March 11, 2022), p. 4.

[88] Attachment K, Paul Findley and Sarp Sekeroglu, ASR Availability and Reliability Analysis Technical Memorandum (July 15, 2022).

[89] *Id.* at 12.

[90] *Id.*

suggests that there is a twelve percent probability that future ASR injection for any given year would be negligible. Thus, according to Findley and Sekeroglu, California American Water "cannot rely upon ASR injection for any given future year."[91]

As a part of their analysis, Findley and Sekeroglu also used historical Carmel River flow data to develop simulated injection averages over the last 59 years.[92] Using this historical data, Findley and Sekeroglu projected the following probabilities for any given five-year period in the future:

- The probability that the five-year ASR injection average will be less than 240 AFY is approximately five percent. In other words, with **ninety-five percent reliability**, CAW can expect that the five-year ASR injection average will exceed **240 AFY**.

- The probability that the five-year ASR injection average will be less than 470 AFY is approximately ten percent. In other words, with **ninety percent reliability**, California American Water can expect that the five-year ASR injection average will exceed **470 AFY**.[93]

Q30. Based on your analysis above, how much water can California American Water reasonably expect from ASR per year?

A30. California American Water's 2020 UWMP assumes 920 AFY for future normal years of ASR supplies. The 2020 UWMP assumes that 920 AFY is available based on the

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[91] *Id.*

[92] *Id.* at Table 5.

[93] *Id.* at p. 11.

average of ASR supply from 2018 to 2020.[94] In reaching this 920 AFY average, the UWMP excluded the "exceptionally wet year of 2017 and five preceding dry years from 2012-2016."[95]

However, Findley and Sekeroglu's analysis takes into account ASR's variability due to both wet year and dry years.[96] As demonstrated in that analysis, the unreliability of ASR supplies makes it difficult to project how much water will be available from ASR in the future. Furthermore, the likelihood of continuous drought conditions in the future further dampens the probability of sustained ASR supplies. It is prudent water resource planning to use 90 percent confidence. Additionally, the 90 percent confidence figure of 470 AFY correlates well with historical averages. Based on the analysis above, for purposes of this testimony, California American Water assumes that 470 AFY from ASR supplies will be available for extraction in normal years and 240 AFY in drought years at 95 percent confidence.

D. TABLE 13

Q31. Can you please describe "Table 13" Water as it relates to the Carmel River?

A31. In 1993, California American Water applied to SWRCB (Application No. 30215A) for a permit authorizing California American Water to divert flows from the Carmel River separate from California American Water's then existing appropriative and riparian rights. In October 2013, after SWRCB issued Order WR 95-10 and the CDO, limiting California American Water's Carmel River diversion rights to 3,376 AFY, SWRCB issued water-right Permit 21330 in response to Application No. 30215A. The water

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[94] Attachment A, California American Water Final 2020 UWMP (June 2021), pp. 6-8, 6-19.

[95] *Id.* at p. 6-8.

[96] Attachment K, Paul Findley and Sarp Sekeroglu, ASR Availability and Reliability Analysis Technical Memorandum (July 15, 2022), p. 12.

appropriated from Permit 21330 is limited to the quantity which can be beneficially used from December 1 of each year to May 31 of the succeeding year and cannot exceed a rate of 4.1 cubic feet per second (cfs) and a maximum annual diversion of 1,488 AF.[97] This water source is known as "Table 13" water. Use of Table 13 water is also limited to the Carmel River watershed. Diversion under Permit 21330 is subject to specific minimum daily instream flow requirements for the protection of fisheries, wildlife, and other instream uses in the Carmel River.

Q32. Can you please describe the availability of water from Table 13 and any uncertainty associated with this supply?

A32. As a result of low flow conditions, Table 13 water is not always available from year-to-year.[98] The table below shows California American Water use of the Carmel River under Permit 21330.

TABLE 6

Permit 21330 Production (AF)								
2013	2014	2015	2016	2017	2018	2019	2020	2021
0	27.17	26.06	175.9	525.13	117.48	641.27	166.90	17.97

Diversion of Table 13 water is dependent on seasonal flows and is vulnerable to drought conditions and climate change. In some years, Table 13 water is unavailable or only available in negligible amounts because flows must remain above specified levels in the river to protect fisheries, wildlife, and other instream uses. From year-to-year, this source is not dependable.

[97] Attachment L, SWRCB Right to Divert and Use Water (Permit 21330) (October 4, 2013), p. 3.

[98] Attachment A, California American Water Final 2020 UWMP (June 2021), p. 6-2.

Q33. Based on your analysis above, how much water can California American Water reasonably expect from Table 13 per year?

A33. California American Water's supply must be assessed in dry and multiple dry water years and must include the source's lowest anticipated daily yield.[99] Due to the uncertainty of the availability of Table 13, inclusion of any permitted amounts from this source in determining the adequacy of California American Water's supplies is speculative and not supported.

E. SAND CITY DESALINATION

Q34. Can you please describe the Sand City Water Supply Project as a source of water supply?

A34. The Sand City Water Supply Project is a desalination plant and supporting infrastructure, which is located in and owned by Sand City, and is operated by California American Water. Construction of the Sand City Water Supply Project was completed in 2009.[100] The project includes four intake wells on the beach, a reverse osmosis desalination plant, a pipeline to deliver the treated water to Sand City users, two water storage tanks, and a connection to California American Water's Monterey Main distribution system.[101] The source for the desalination plant is brackish water from the Aroma Sands Formation aquifer near Monterey Bay.[102] The brackish water is obtained through the four brackish water feed wells and the concentrate is disposed through a below sea-level horizontal

[99] *See* Water Code, § 10635(a); Cal. Code Regs., tit. 22, § 64554(k).

[100] Attachment A, California American Water Final 2020 UWMP (June 2021), p. 6-17.

[101] *Id.*

[102] *Id.*

well.[103] California American Water began operating and distributing water from the Sand City Desalination Plant in April 2010.[104]

Q35. Can you please describe available supply from the Sand City Water Supply Project and any uncertainty?

A35. The Sand City Water Supply Project is designed to produce up to 300 AFY, but it does not typically produce this volume. The average deliveries between 2016 and 2020 were approximately 190 AFY.[105] Under MPWMD Ordinance 132, Sand City has a right to 206 AFY from the Sand City Water Supply Project for use on certain properties located within the City's jurisdiction that are also within California American Water's service area.[106] The remaining 94 AFY was permanently allocated to California American Water to reduce pumping demand from the Carmel River and/or the Seaside Groundwater Basin.[107] California American Water may use the available supply from the City's allocation until new development utilizes the remaining available supply.[108]

Q36. Based on your analysis above, how much water can California American Water reasonably expect from the Sand City Water Supply Project per year?

A36. California American Water's allocation of 94 AFY from the Sand City Water Supply Project is assumed to be reasonably available as a future water supply.[109] Any other water produced by the Sand City Water Supply Project is reserved by the City and cannot

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[103] *Id.*

[104] *Id.*

[105] *Id.*

[106] MPWMD Ord. 132, p. 3.

[107] *Id.*

[108] Attachment A, California American Water Final 2020 UWMP (June 2021), p. 6-17.

[109] *Id.*

be relied upon as a future water supply for the rest of California American Water's service territory. California American Water also agrees with statements in the Final Supplemental EIR for the PWM expansion project that future water supply from the Sand City Water Supply Project attributable to California American Water's portfolio is 94 AFY.[110] In sum, California American Water only may reasonably assume that 94 AFY will be available from the Sand City Water Supply Project as a future water supply.

Q37. Are there any additional factors that must be considered when determining supply adequacy?

A37. Yes, we must plan to have sufficient supply contingency factors to accommodate fluctuations in water demand in addition to projected demands. Some examples would be emergencies and fires, losing well capacities as wells age, reduced source capacity due to climate change/drought, loss of dam storage, facility maintenance and/or failure, and general system demand forecasting variability and unknowns.

F. PWM SUPPLY

Q38. Can you please describe the Pure Water Monterey ("PWM") Project and the proposed expansion of that project ("PWM Expansion") as a source of water supplies?

A38. In 2019, MPWMD and M1W completed the construction and startup of the PWM Project. The PWM Project provides purified recycled water for injection into the Seaside Basin for ultimate use in California American Water's MPMS as potable water. The PWM Project also provides purified recycled water to MCWD and augments the Castroville Seawater Intrusion Project's ("CSIP") agricultural irrigation supply. California American Water has a water purchase agreement to secure water from the

[110] *See, e.g.,* David J. Stoldt, General Manager MPWMD, Supply and Demand for Water on the Monterey Peninsula (March 13, 2020), pp. 3-4.

PWM Project, which is intended to inject 3,500 AFY into the Seaside Basin for extraction and use by California American Water.[111]

On May 14, 2019, M1W issued a Notice of Preparation for a Draft Supplemental Environmental Report ("SEIR") for the proposed PWM Expansion. The Draft SEIR was published and circulated for public comment on November 7, 2019. In response to the Draft SEIR, M1W received several comments from California American Water and others focusing on several issues, including the potential inadequacy of identified source waters to supply the PWM Expansion to provide its planned output of potable water. For example, MCWRA commented that "there are potential inaccuracies in the amount of water available as described in the DSEIR," and that "it is possible that M1W has no access to the water described."[112] Likewise, the City of Salinas commented that "[w]hile the Draft SEIR appears to rely on the availability of [agricultural produce wash water] to produce the 2,250 AFY of additional potable water that the Expansion Project proposes to produce, M1W does not have sufficient agreements in place with the City" to permit such use.[113] The Coalition of Peninsula Businesses also expressed "serious concerns about the availability of source water for the expansion project."[114] California American Water also pointed out uncertainty over the PWM Expansion's available source waters based on reduction in wastewater discharge and uncertainty under M1W's Amended and Restated Water Recycling Agreement ("ARWRA").[115]

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[111] Attachment A, California American Water Final 2020 UWMP, p. 6-10.

[112] Attachment M, PWM Expansion Final SEIR, p. 4-5.

[113] *Id*. at p. 4-42.

[114] *Id*. at p. 4-565.

[115] *Id*. at pp. 4-259-263.

In April 2020, M1W issued a Final SEIR for the PWM Expansion, which provided responses to comments, including comments regarding the project's source waters. At the April 27, 2020 M1W Board meeting, M1W staff provided resolutions for certification of the Final SEIR and approval of the PWM Expansion, however the M1W Board refused to certify the Final SEIR or approve the project. Ultimately, it was not until the following year—April 2021—that the M1W Board reconsidered and voted to certify the Final SEIR and approve the PWM Expansion.

The PWM Expansion is proposed to deliver an additional 2,250 AFY of water to the Seaside Basin for ultimate use by California American Water. While California American Water supports the CPUC's approval of the Amended WPA for the PWM Expansion project, California American Water remains concerned with the availability of source waters for the PWM Expansion. It remains uncertain whether the PWM Expansion project has an adequate volume of source water to provide its full projected 2,250 AFY potable water output, especially during dry years.[116]

Q39. What are the proposed sources of supply water for the PWM Expansion project?

A39. At various times, M1W has identified different sources and relied on different models to calculate and explain the source waters for the PWM Project and PWM Expansion.[117] Because Appendix M to the Final SEIR constitutes the most recent analysis of PWM Project and PWM Expansion source waters that has been certified under the California Environmental Quality Act, California American Water relies on this document as the basis for understanding the projects' source waters. Appendix M to the Final SEIR for

[116] Attachment A, California American Water Final 2020 UWMP, p. 6-10-13.

[117] Compare Attachment N, PWM Expansion Draft SEIR, Appendix I, Schaf and Wheeler, Source Water Availability, Yield and Use Technical Memorandum, Tables 8-11 with Attachment M, PWM Expansion Final SEIR, Appendix M, Tables 2-3.

the PWM Expansion identifies the following fourteen specific water supply sources as sufficient to meet demand for the PWM Project and PWM Expansion:

(1) Secondary Effluent to Ocean Outfall,
(2) Reclamation Ditch,
(3) Blanco Drain,
(4) Agricultural Wash Water,
(5) Recycle Sump #1,
(6) Recycle Sump #2,
(7) PWM Project and MCWD Advanced Water Purification Facility Backwashes,
(8) Modifications to Advanced Water Purification Facility Backwashes,
(9) Salinas Valley Reclamation Plant Backwashes,
(10) Boronda,
(11) Farmworker Housing,
(12) M1W's ARWRA Summer Water,
(13) Salinas River Diversion Facility Screening, and
(14) Salinas Industrial Wastewater Treatment Facility Pond System.

The following analysis describes each of these sources and projects how much water could reasonably be available from each to supply the PWM Expansion in a best-case, normal year. Accordingly, this analysis does not account for seasonal variability in flows.

Q40. Can you please describe Secondary Effluent to Ocean Outfall as a water supply source for the PWM Expansion?

A40. Secondary Effluent to Ocean Outfall is municipal wastewater from M1W's service area that is not diverted to the Salinas Valley Reclamation Project ("SVRP"), which produces

recycled water for the CSIP, and is instead sent to M1W's existing Ocean Outfall. Secondary Effluent to Ocean Outfall provides source water to both the PWM Project and the PWM Expansion. The PWM Expansion Draft SEIR states that a total 8,809 AFY of effluent is available from this source for both projects.[118] However, the Final SEIR reduced this projection of available effluent in a normal year to 5,811 AFY.[119]

The amount of Secondary Effluent to M1W's Ocean Outfall is dependent on wastewater that goes through M1W's Regional Treatment Plant ("RTP"). When there is less municipal wastewater flows available in a given year, there is less effluent sent to the Ocean Outfall. In Appendix E to the PWM Expansion SEIR, M1W projected that in normal years municipal wastewater flows to the RTP would be 18,810 AFY.[120] In Appendix M to the PWM Expansion Final SEIR, M1W projected that in normal years 5,811 AF of these RTP flows would be Secondary Effluent to the Ocean Outfall.[121] Accordingly, in normal years, Secondary Effluent to Ocean Outfall represents approximately 31% of all RTP wastewater flows, while 69% is committed to the SVRP.

Since the Final SEIR, M1W has not provided updated information on Secondary Effluent to Ocean Outfall. However, in 2020, California American Water's expert water consultants Hazen and Sawyer ("Hazen")[122], used updated wastewater flow data to

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[118] Attachment N, PWM Expansion Draft SEIR, Appendix I, Schaf and Wheeler, Source Water Availability, Yield and Use Technical Memorandum, p. 5

[119] Attachment M, PWM Expansion Final SEIR, Appendix M, Table 2.

[120] Attachment O, PWM Expansion Draft SEIR, Appendix E, p. 122.

[121] Attachment M, PWM Expansion Final SEIR, Appendix, Table 2.

[122] In 2020, California American Water retained the services of Hazen and Sawyer ("Hazen"), a water engineering and consulting firm, to independently review MPWMD and M1W's water supply and demand analysis, including the analysis of the PWM Expansion's source waters. In 2020, as part of California American Water's application for a coastal development permit from the Coastal Commission, Hazen prepared a series of memoranda regarding Monterey Peninsula water supply and demand issues.

determine how much Secondary Effluent to Ocean Outfall is actually available for the PWM Project and the PWM Expansion. Hazen determined that the Final SEIR overstated that availability of Secondary Effluent to Ocean Outfall. To begin this analysis, Hazen used actual average wastewater flows from M1W's RTP from 2018 to 2020, which were 18,555 AF, rather than the 18,810 AF projection used in the PWM Expansion Final SEIR.[123] Applying the same ratio of total RTP wastewater flows to Ocean Outfall flows as represented in the PWM Expansion Final SEIR (31%), Hazen determined that, after accounting for reduced wastewater flows to the RTP (18,555 AF), only 5,732 AF of Secondary Effluent would be available for the PWM Project and PWM Expansion.[124] Moreover, when considering actual 2020 wastewater flow data by itself (17,980 AF), which showed a continuing declining trend of wastewater flows over time, Hazen determined that only 5,554 AF of Secondary Effluent to Ocean Outfall would be available.[125] Of this available Secondary Effluent, which could be between 5,554 AF of actual 2020 flows and 5,732 AF of average flows, the PWM Project requires 4,320 AF to produce 3,500 AF of water for injection into the Seaside Basin and subsequent extraction by California American Water, or 4,568 AF to produce 3,700 AF for injection into the Seaside Basin when building a drought reserve.[126] Moreover, the Regional Urban Water

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These include an August 11, 2020 memo ("August 11 Hazen Memo"), an August 23, 2020 memo ("August 23 Hazen Memo"), and a September 10, 2020 memo ("September 10, 2020 Hazen Memo"). These memos are attached hereto as Attachments P, Q, and R, respectively.

[123] Attachment R, September 10, 2020 Hazen Memo, p. 2.

[124] *Id*. Similar to Hazen, the FSEIR for the PWM Expansion concluded that 5,811 of wastewater is available from this source.

[125] *Id*.

[126] *Id*. Here, it is worth noting that recently released data indicates that the PWM Project has not provided surplus water to build a drought reserve. (*See* Attachment S, PWM Deliveries and Reserve Balances FY 2021-22.)

Augmentation Project ("RUWAP"),[127] which M1W supplies with 600 AFY of purified irrigation water, requires an additional 741 AF of Secondary Effluent to Ocean Outfall to produce.[128] Therefore, the remaining amount of Secondary Effluent to Ocean Outfall available to the PWM Expansion, less the Secondary Effluent needed for the PWM Project and the RUWAP, is between 245 and 432 AF.[129] Indeed, even using the higher assumption of 5,811 AF of Secondary Effluent from the PWM Expansion Final SEIR, only 502 AFY would be left for the PWM Expansion.[130] Thus, wastewater alone is not sufficient source water for the PWM Expansion to produce 2,250 AFY.

Despite Hazen's detailed analysis and the revised information included in the PWM Expansion Final SEIR, an April 14, 2022 Staff Report for M1W's Recycle Water Committee ("April 14 M1W Staff Report"), indicates that between 4,000 to 10,000 AFY would be available to M1W from the portion of Secondary Effluent not needed to meet SVRP demands.[131] However, M1W staff's assumptions remain outdated and based on data from 2015 to 2019, when effluent flows were higher. Again, when Hazen looked at the most current wastewater flows available for 2020, Hazen found that flows would only be 17,980 AF, which correlates to Secondary Effluent to Ocean Outfall of 5,554 AF.[132]

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[127] The RUWAP consists of recycled water distribution pipelines that provide recycled water from M1W's Advanced Water Purification Facility ("AWPF") to urban users in the MCWD service area and former Fort Ord. The AWPF is the same facility that purifies water before it is injected into the Seaside Basin as part of the PWM Project.

[128] Attachment R, September 10, 2020 Hazen Memo, p. 2.

[129] *Id*. 245 AF is 5,554 AF minus 4,568 AF (for the PWM Project) and 741 AF (for RUWAP). 432 AF is 5,732 AF minus 4,568 AF and 741 AF.

[130] 502 AF is 5,811 AF minus 4,568 AF (for the PWM Project) and 741 AF (for RUWAP).

[131] Attachment T, M1W RCW Agenda Item 12, Attachment 1.

[132] Attachment R, September 10 Hazen Memo, p. 2.

As evidenced from these varying projections, there is significant uncertainty regarding the Secondary Effluent to Ocean Outfall as a source water for the PWM Expansion. Hazen's analysis is the most reliable as it is primarily based on the most current flow data. In contrast, M1W's description of wastewater flow, which correlate to Secondary Effluent to Ocean Outfall, have been in a constant state of flux. At various times, M1W has described wastewater flows as 21,764 AFY[133], 19,869 AFY[134], and 18,810 AFY.[135] Because Hazen's analysis relies on actual, updated wastewater flow data and accurately represents the amount of water that is actually available for the PWM Expansion, Hazen's analysis should be used to set the lower bounds for the availably of water from Secondary Effluent to Ocean Outfall (245 AFY) for the PWM Expansion. At the upper bounds of Secondary Effluent to Ocean Outfall as source for the PWM Expansion is 502 AFY, based on the projected flows in the Final SEIR. Accordingly, the Secondary Effluent to Ocean outfall can only be reasonably expected to provide **between 245 to 502 AFY** to the PWM Expansion. Here, it is also worth noting that for the remainder of the PWM Expansion source waters analyzed in this testimony, California American Water will analyze whether these sources are available to the PWM Expansion. Although many of the 14 sources identified may technically be available for both the PWM Project and PWM Expansion, this analysis of PWM Expansion source waters assumes, as described above, that the PWM Project will be fully supplied from Secondary Effluent to Ocean Outfall.

[133] Attachment N, PWM Expansion Draft SEIR, Appendix I, Schaf and Wheeler, Source Water Availability, Yield and Use Technical Memorandum, p. 5 (based on average flows from 2009-2013).

[134] *Id*. (based on average flows from 2016-2018).

[135] Attachment O, PWM Expansion Draft SEIR, Appendix E, p. 122 (describing "Projected Monthly Flows of Source Waters to the Regional Treatment Plant Influent").

Q41. Can you please describe the Reclamation Ditch as a water supply source for the PWM Expansion?

A41. Flows from a source known as the Reclamation Ditch consist of agricultural runoff water and drainage. The PWM Expansion Draft SEIR estimated that between 578 to 1,014 AFY would be available for the PWM Project and the PWM Expansion from the Reclamation Ditch.[136] The Draft SEIR relied on data from a March 2015 Reclamation Ditch Yield Study by Schaaf & Wheeler to determine Reclamation Ditch flows.[137] This study relied on U.S. Geological Survey ("USGS") data from 2003 to 2014. The PWM Expansion Final SEIR explained that 808 AF of water would be available to M1W for the PWM Project from the Reclamation Ditch.[138] However, the PWM Expansion Final SEIR also explained that these flows would not be available for the PWM Expansion because M1W had not met certain conditions under the ARWRA between M1W and MCWRA, which governs M1W's use of water from the Reclamation Ditch and other sources.[139] Acknowledging that the Final SEIR assumed Reclamation Ditch flows were unavailable, Hazen projected that 0 AFY would be available from the Reclamation Ditch for the PWM Expansion.[140]

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[136] Attachment N, PWM Expansion Draft SEIR, Appendix I, Schaf and Wheeler, Source Water Availability, Yield and Use Technical Memorandum, pp. 5, Table 10.

[137] Attachment N, PWM Expansion Draft SEIR, Appendix I, Schaf and Wheeler, Source Water Availability, Yield and Use Technical Memorandum, p. 1.

[138] Attachment M, PWM Expansion Final SEIR, Appendix M, Table 2.

[139] Attachment M, PWM Expansion Final SEIR, Appendix M, p. 9 (Reclamation Ditch and Blanco Drain flows "are not assumed to be available for the Proposed Modifications, regardless whether the conditions precedent [in the ARWRA] are met.")

[140] Attachment R, September 10, 2020 Hazen Memo, Table 1. Notwithstanding the fact that the Final SEIR assumed Reclamation Ditch flows were unavailable for the PWM Expansion, Hazen also demonstrated that updated USGS flow data for the Reclamation Ditch revealed significantly reduced flows during the summer months compared to what was presented in the Draft SEIR for the PWM Expansion. Hazen also concluded that for a single dry year total flows from the Reclamation Ditch would be 266 AF. (*See* Attachment P, August 11 Hazen Memo, pp. 10-11, Table 3).

Despite the Final SEIR's determination that 0 AF would be available for the PWM Expansion from Reclamation Ditch flows, the April 14 M1W Staff Report indicates that the Reclamation Ditch would yield between 100 to 1,400 AFY for M1W.[141] M1W has not provided any data or other evidence in support of this estimate. Regardless of the discrepancies in actual flow amounts between the Draft SEIR, Final SEIR, and the April 14 M1W Staff Report, the Final SEIR is clear that Reclamation Ditch flows are not available for the PWM Expansion.

However, on June 9, 2022, MCWRA invoked section 16.16 of the ARWRA, which means that M1W is entitled to use water rights from 6,500 AFY of new source water, including Reclamation Ditch and Blanco Drain flows, for the PWM Project.[142] We note however, that the 6,500 AFY of new source waters is "paper water" and represents the legal limit of potential water available to M1W. The 6,500 AFY figure does not represent available or projected flows. Nonetheless, the 808 AF of Reclamation Ditch flows described in the PWM Expansion Final SEIR would be available for the PWM Project, which would in turn free up a corresponding 808 AF of Secondary Effluent to Ocean Outfall allocated to the PWM Project that instead could be used for the PWM Expansion. To keep this analysis straightforward, we will continue to assume the PWM Project is fully sourced by the Secondary Effluent to Ocean Outfall and will therefore attribute Reclamation Ditch flows to the PWM Expansion. Accordingly, **808 AFY** reasonably can be expected to supply the PWM Expansion.

Q42. Can you please describe the Blanco Drain as a water supply source for the PWM Expansion?

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[141] Attachment T, M1W RCW Agenda Item 12, Attachment 1.

[142] Attachment U, June 9, 2022, MCWRA letter to M1W, p. 1.

A42. Flows from a source known as the Blanco Drain consist of seasonal stormwater flows and agricultural tile drainage. Summer flows in the Blanco Drain are generally tile drainage and runoff from agricultural uses. Winter flows are generally from stormwater runoff. The PWM Expansion Draft SEIR estimated that between 1,456 to 2,620 AFY from this source would be available for the PWM Project and PWM Expansion.[143] The Draft SEIR reached this conclusion based on flow data from 2010 to 2013 for the months of April and October.[144] Thus, the Draft SEIR did not have a complete picture of historic Blanco Drain flows to support its claimed availability from this source.

In addition, much like the Reclamation Ditch discussed above, the Final SEIR explained that flows from the Blanco Drain would not be available for the PWM Expansion.[145] Acknowledging the revisions made in the Final SEIR and that Blanco Drain flows are both unverified and speculative, Hazen projected that 0 AFY would be available from the Blanco Drain for the PWM Expansion.[146] Because M1W has never provided updated verified flow data for Blanco Drain, California American Water cannot reasonably rely on estimates from data that is nearly 10 years old.

Despite the fact that M1W has not provided updated Blanco Drain flow information, in the April 14 M1W Staff Report, M1W staff claims that Blanco Drain flows would yield between 1,200 to 2,600 AFY of source water for M1W.[147] As with Reclamation Ditch

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[143] Attachment N, PWM Expansion Draft SEIR, Appendix I, Schaf and Wheeler, Source Water Availability, Yield and Use Technical Memorandum, Table 8 and Table 9.

[144] Attachment V, PWM Project Draft EIR, Appendix Q, p. 7.

[145] Attachment M, PWM Expansion Final SEIR, Appendix M, p. 9 (Reclamation Ditch and Blanco Drain flows "are not assumed to be available for the Proposed Modifications, regardless whether the conditions precedent [in the ARWRA] are met."

[146] Attachment R, September 10, 2020 Hazen Memo, Table 1, p. 11.

[147] Attachment T, M1W RCW Agenda Item 12, Attachment 1.

flows, M1W has not provided any data or other evidence in support of this estimate. Until current and verified flow data is provided by M1W for the Blanco Drain, Blanco Drain flows should not be assumed to be available for the PWM Expansion. [148] Responsible water resource planning cannot rely on unverified claims of water supply availability that are based on data that is nearly 10 years old that were neither updated nor analyzed as part of the PWM Expansion's CEQA process, Therefore, California American Water must assume that this source is not available. Thus, for purposes of this testimony, and until current and verified flow data has been provided, California American Water assumes that **0 AFY** can be reasonably expected from the Blanco Drain to supply the PWM Expansion.

Q43. Can you please describe Agricultural Wash Water ("AWW") as a water supply source for the PWM Expansion?

A43. The City of Salinas owns and operates an industrial wastewater collection and treatment system which serves agricultural processing and related businesses located in the City of Salinas. AWW flows are conveyed to the Salinas Industrial Wastewater Treatment Facility for treatment and disposal using evaporation and percolation. The PWM Expansion Draft SEIR assumes that 3,732 AFY of AWW flow is available for the PWM Project and PWM Expansion.[149] To reach this conclusion, the Draft SEIR averaged monthly flow data from 2007 to 2013 to estimate future flows for 2017.[150] However, as

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[148] As discussed above, on June 9, 2022, MCWRA invoked section 16.16 of the ARWRA, which means that M1W is entitled to use water rights from 6,500 AFY of new source water, including Reclamation Ditch and Blanco Drain flows, for the PWM Project. However, because M1W continues to rely on incomplete Blanco Drain data that is nearly a decade old, it is still reasonable to assume that the Blanco Drain will not provide any source water, including to the PWM Project.

[149] Attachment N, PWM Expansion Draft SEIR, Appendix I, Schaf and Wheeler, Source Water Availability, Yield and Use Technical Memorandum, Tables 8, 9, and 10.

[150] *Id*. at p. 3. Here, it's not clear why M1W relied on estimated future flows for 2017 when Appendix I was drafted in November 2019 and more accurate data was presumably available.

with Reclamation Ditch and Blanco Drain flows, the Final SEIR explained that AWW flows would not be available for the PWM Expansion.[151] The Final SEIR explained that "AWW is only available if conditions precedent [to the ARWRA] are met and are assumed to not be available for the Proposed Modifications for the purpose of this analysis."[152] Under the ARWRA, M1W is required to construct conveyance facilities when six conditions are satisfied. Among these conditions is a requirement that the Regional Water Quality Control Board find that dry weather flow treatment requirements are met for the Blanco Drain.[153] The ARWRA provides that if M1W fails to meet these preconditions, MCWRA may exercise its rights under section 16.16, which provides, among other things, that MCWRA will retain the right to utilize the AWW.

Recent events confirm that AWW flows are not available to M1W for both the PWM Project and the PWM Expansion. On June 9, 2022, upon finding that M1W is unable to meet Blanco Drain dry weather flows treatment requirements, MCWRA invoked section 16.16 of the ARWRA, which means that MCWRA will retain the right to utilize the AWW flows.[154] As a result of M1W's failure to comply with its commitments under the ARWRA, M1W does not have rights to the AWW for either the PWM Project or the PWM Expansion. Because M1W does not have any rights to AWW flows, **0 AFY** is assumed to be available for the PWM Expansion.

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[151] Attachment M, PWM Expansion Final SEIR, Appendix M, p. 9 (AWW flows "are not assumed to be available for the Proposed Modifications, regardless whether the conditions precedent [in the ARWRA] are met".)

[152] *Id*. at Table 2.

[153] ARWRA Sections 1.01, 16.15.

[154] Attachment U, June 9, 2022, MCWRA letter to M1W, p. 1.

Q44. Can you please describe Recycle Sump #1 as a water supply source for the PWM Expansion?

A44. Recycle Sump #1 produces recycled, wastewater, and backwash flows that originate from on-site or near M1W's RTP and from the Monterey Regional Waste Management District.[155] The PWM Expansion Final SEIR explained that 41 AFY from Recycle Sump #1 would be available to the PWM Project and PWM Expansion.[156] In the April 14 M1W Staff Report, M1W staff projected that this source would yield 40 AFY for the PWM Expansion.[157] While California American Water has not specifically confirmed water availability from this source, it should be noted that Hazen confirmed there have been consistently declining wastewater flows since the early 2000s.[158] Moreover, backwash flows, the other component of Recycle Sump #1, are also reduced proportionally with declining wastewater flows. Accordingly, it is likely that flows from Recycle Sump #1 will be reduced below the figures presented in the Final SEIR as wastewater flows continue to decline. Nonetheless, California American Water assumes that this source will provide **41 AFY** to the PWM Expansion, as described in the Final SEIR.

Q45. Can you please describe Recycle Sump #2 as a water supply source for the PWM Expansion?

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[155] Backwash flows refer to water that is pumped backwards through the filters media as a form of preventive maintenance so that the filter media can be reused. Appendix I to the Final SEIR explains that Recycle Sump #1 represents a portion of "wastewater originating from domestic use within the M1W facility and the adjacent Monterey Regional Waste Management District (landfill) plus Salinas River Diversion Facility (SRDF) screening backwash flows and Salinas Valley Reclamation Project (SVRP) filter backwash." (Attachment N, PWM Expansion Draft SEIR, Appendix I, Schaf and Wheeler, Source Water Availability, Yield and Use Technical Memorandum, p. 5.)

[156] Attachment M, PWM Expansion Final SEIR, Appendix M, Table 2.

[157] Attachment T, M1W RCW Agenda Item 12, Attachment 1.

[158] Attachment P, August 11 Hazen Memo, p. 8.

A45. Recycle Sump #2 produces recycled and wastewater flows that originate from on-site or near M1W's RTP. This source was not described in the PWM Expansion Draft SEIR, however, the PWM Expansion Final SEIR projected that 104 AFY from this source would be available to the PWM Project and PWM Expansion.[159] In the April 14 M1W Staff Report, M1W staff projected that this source would yield 100 AFY.[160] While California American Water has not specifically confirmed water availability from this source, it should be noted that Hazen has confirmed there have been consistently declining wastewater flows in M1W's service territory since the early 2000s[161], and wastewater flows from Recycle Sump #2 are therefore likely to be similarly reduced compared to the 104 AFY projected in the Final SEIR. Nonetheless, California American Water assumes that **104 AFY** is available from this source for the PWM Expansion.

Q46. Can you please describe PWM Project and MCWD AWPF Backwashes as a water supply source for the PWM Expansion?

A46. This source represents backwash flows that would be available from production of 3,700 AFY for the PWM Project. There is some discrepancy between how this source was characterized in the PWM Expansion Final SEIR and M1W staff's estimates for this source in the April 14 M1W Staff Report. The PWM Expansion Final SEIR projected that 290 AFY of AWPF Backwashes would be available for the PWM Expansion.[162] Although this source has not been specifically confirmed by California American Water, it should be noted that backwash flows are reduced proportionality with wastewater flows. Since Hazen confirmed there have been consistently declining wastewater flows

[159] Attachment M, PWM Expansion Final SEIR, Appendix M, Table 2.

[160] Attachment T, M1W RCW Agenda Item 12, Attachment 1.

[161] Attachment P, August 11 Hazen Memo, p. 8.

[162] Attachment M, PWM Expansion Final SEIR, Appendix M, Table 2.

in M1W's service territory since the early 2000s[163], backwash flows from AWPF Backwashes likely will be similarly reduced below the figures presented in the Final SEIR.

The April 14 M1W Staff Report indicated that backwash flows from operation of the PWM Project "that would be available from production of 3,700 AFY . . . would be approximately 550 AFY and would be recirculated within the RTP."[164] However, the Final SEIR explained that for this source, only half of the backwash flows would be available to M1W for the PWM Expansion and that the other half would be used for the CSIP.[165] Accordingly, the Final SEIR indicated that the values shown in Final SEIR Table 2 for this source (290 AFY) reflected only the amount of flows available for M1W for the PWM Expansion.[166] Therefore, California American Water must assume the 550 AFY figure listed in the April 14 M1W Staff Report reflects the total PWM Project and MCWD AWPF Backwashes, not just the flows available for the PWM Expansion. Accordingly, based on M1W staff's recent statements, only 275 AFY would be available from PWM Project and MCWD AWPF Backwashes for the PWM Expansion. For purposes of this analysis, California American Water assumes that PWM Project and MCWD AWPF Backwashes will provide between **275 and 290 AFY** to the PWM Expansion.

Q47. Can you please describe Proposed Modifications AWPF Backwashes (only available for Modifications) as a water supply source for the PWM Expansion?

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[163] Attachment P, August 11 Hazen Memo, p. 8.

[164] Attachment T, M1W RCW Agenda Item 12, p. 242.

[165] Attachment M, PWM Expansion Final SEIR, Appendix M, Table 2.

[166] *Id*.

A47. This source represents backwash flows that would be available from full production of the PWM Expansion. The PWM Expansion Final SEIR projected that 152 AFY would be available from the Proposed Modifications AWPF Backwashes for the PWM Expansion.[167] California American Water assumes that the 152 AFY backwash projection in the Final SEIR is based on a scenario where the PWM Expansion is in full production (i.e., is fully supplied with 2,778 AF of source water). However, because of reduced source water projections, Hazen found that 152 AFY from the Proposed Modifications AWPF Backwashes would be very unlikely.[168]

Nonetheless, the April 14 M1W Staff Report states, without providing any underlying data or evidence, that "[t]he AWPF backwash from full operation of the Expanded PWM Project would be approximately 350 AFY."[169] However, as with PWM Project and MCWD AWPF Backwashes, the Final SEIR explained that for this source, only half of the backwash flows would be available to M1W for the PWM Expansion and that the other half would be used for CSIP.[170] Accordingly, the Final SEIR indicated that the values shown in Final SEIR Table 2 for this source (152 AFY) reflected only the amount of flows available for M1W for the PWM Expansion.[171] Therefore, California American Water must assume the 350 AFY figure listed in the April 14 M1W Staff Report reflects the total Proposed Modifications AWPF Backwashes, not just the flows available to for the PWM Expansion. Accordingly, based on M1W staff's recent statements, only 175 AFY would be available from AWPF Backwashes for the PWM Expansion. As the remainder of this testimony will demonstrate and as summarized in Table 7, it is unlikely

[167] *Id*.

[168] Attachment R, September 10 Hazen Memo, p. 9.

[169] Attachment T, M1W RCW Agenda Item 12, p. 242, fn. 3.

[170] Attachment M, PWM Expansion Final SEIR, Appendix M, Table 2.

[171] *Id*.

the PWM Project will have sufficient source waters (2,778 AFY) to produce the full 2,250 AFY. Instead, when excluding Proposed Modifications AWPF Backwashes, California American Water projects that the PWM Expansion will have between 2,101 and 2,373 AFY of source water. If 2,778 AFY of source waters would yield 152 AFY of Proposed Modifications AWPF Backwashes, California American Water projects that 2,101 and 2,373 AFY of source waters would yield between 114 and 130 AFY of Proposed Modifications AWPF Backwashes, respectively. Accordingly, when looking at updated projections for PWM Expansion source waters, California American Water projects that between **114 and 130 AFY** from this source can be reasonably expected to supply the PWM Expansion.

Q48. Can you please describe SVRP Backwashes as a water supply source for the PWM Expansion?

A48. This source represents backwash flows resulting from the operation of the SVRP, a water reclamation facility producing recycled water for agricultural irrigation in the CSIP distribution system. The PWM Expansion Final SEIR projected that 515 AFY from this source would be available to the PWM Project and PWM Expansion.[172] Using updated wastewater flow data, Hazen projected that the actual supply from this source would be between 492 to 515 AFY.[173]

In contrast, the April 14 M1W Staff Report claims , without supporting evidence or data, that SVRP Backwashes would produce between 1,000 to 1,500 AFY of source water for the PWM Expansion.[174] However, as with PWM Project and MCWD AWPF Backwashes, and Proposed Modifications AWPF Backwashes, the Final SEIR indicates

[172] *Id.*

[173] Attachment R, September 10, 2020 Hazen Memo, Table 1.

[174] Attachment T, M1W RCW Agenda Item 12, Attachment 1.

that for this source, only half of the backwash flows would be available to M1W for the PWM Project and PWM Expansion and that the other half would be used for CSIP. [175] Accordingly, the Final SEIR indicated that the values shown in Final SEIR Table 2 for this source (515 AFY) reflected only the amount of flows available for M1W for the PWM Project and PWM Expansion.[176] Therefore, California American Water assumes the 1,000 to 1,500 AFY figure listed in the April 14 M1W Staff Report reflects the total Proposed Modifications SVRP Backwashes, not just the flows available for the PWM Project and PWM Expansion.

To be conservative, California American Water believes it is appropriate to rely on the 515 AFY amount for SVRP Backwashes presented in the Final SEIR rather than the 492 AFY amount that is based on 2020 wastewater flows or the unsupported and unverified amounts set forth in the April 14 M1W Staff Report. Accordingly, **515 AFY** is assumed to be available from this source.

Q49. Can you please describe Boronda as a water supply source for the PWM Expansion?

A49. This source constitutes wastewater flows from Boronda and the areas north and southeast of the City of Salinas. The PWM Expansion Final SEIR projected that 95 AFY would be available from this source.[177] Hazen did not identify evidence that would contradict this projection. However, it should be noted that flows from this source may be reduced due to lowering wastewater flows and drought conditions. The April 14 M1W Staff Report indicated that Boronda flows combined with Farmworker Housing flows, described below, would yield a total of 100 AFY.[178] Because there is general consistency among

[175] Attachment M, PWM Expansion Final SEIR, Appendix M, Table 2.

[176] *Id*.

[177] *Id.*

[178] Attachment T, M1W RCW Agenda Item 12, p. 243.

these various projections, it is reasonable to assume that the **95 AFY** described in the Final SEIR will be available from this source.

Q50. Can you please describe Farmworker Housing as a water supply source for the PWM Expansion?

A50. This source constitutes wastewater flows from the farmworker housing site on Hitchcock Road, southwest of the City of Salinas. The PWM Expansion Final SEIR projected that 18 AFY would be available from this source.[179] Hazen did not identify evidence that would contradict this projection. However, it is worth noting that flows from this source may be reduced due to lowering wastewater flows and drought conditions. As discussed above, the April 14 M1W Staff Report indicated that Boronda flows combined with Farmworker Housing flows would yield a total of 100 AFY.[180] Because there is general consistency among these various projections, it is reasonable to assume the **18 AFY** described in the Final SEIR will be available from this source.

Q51. Can you please describe MIW's ARWRA Summer Water (ARWRA Section 4.01(d)) as a water supply source for the PWM Expansion?

A51. Under ARWRA Section 4.01.1(d), M1W has the right to 650 AF of wastewater flow to the RTP during May through August from MCWRA. This water is available even if there is not enough wastewater to meet CSIP irrigation demands. The PWM Expansion Final SEIR projected that 650 AFY would be available from this source,[181] and the April 14 M1W Staff Report indicates the same projection.[182] Hazen did not identify evidence that would contradict this projection. Until build out of MCWD's irrigation projects, the

[179] Attachment M, PWM Expansion Final SEIR, Appendix M, Table 2

[180] Attachment T, M1W RCW Agenda Item 12, p. 243.

[181] Attachment M, PWM Expansion Final SEIR, Appendix M, Table 2.

[182] Attachment T, M1W RCW Agenda Item 12, Attachment 1.

650 AF is available to meet source water needs for the PWM Expansion. However, once MCWD's irrigation projects are complete, M1W's summer water will be allocated to MCWD's irrigation projects and will no longer be available to M1W.[183] Given that M1W's summer water is allocated to MCWD in the future, this source should not be considered available to the PWM Expansion for long-term planning purposes.

Because the summer water is allocated to MCWD for future use, California American Water assumes that **0 AFY** will be available from this source.

Q52. Can you please describe Salinas River Diversion Facility ("SRDF") Screening as a water supply source for the PWM Expansion?

A52. This source represents SRDF Screening backwash flows. MCWRA's SRDF project began operation in 2010 to provide treated Salinas River water for irrigation. There is significant uncertainty regarding the availability of flows from this source. The PWM Expansion Final SEIR stated that "SRDF Screening and Salinas IWTF Pond System waters are assumed to not be available" for the PWM Expansion.[184] The Final SEIR explained that "[t]hese analyses also exclude SRDF screening backwash flows for the same rationale as the Schaaf & Wheeler analysis. Specifically, when SRDF is operating, this indicates excess water is available for meeting all CSIP demands, and these flows are inconsistent year-to-year."[185] The Final SEIR also states that these flows were "[i]gnored" because "these flows are inconsistent year-to-year."[186] Acknowledging this, Hazen projected that 0 AFY would be available from the SRDF Screening.[187] Despite

[183] Attachment W, M1W Petition to Modify SWRCB Resolution 2016-0040, May 9, 2018, p. 3.

[184] Attachment M, PWM Expansion Final SEIR, Appendix M, Table 2.

[185] *Id.* at p. 10.

[186] *Id*. at p. 7.

[187] Attachment R, September 10 Hazen Memo, Table 1.

this prior analysis, in the April 14 M1W Staff Report, M1W staff projected that this source would yield between 150 to 220 AFY of source water for the PWM Expansion.[188] M1W has not provided any evidence or other support for this claim, or any explanation that calls into questions the Final SEIR's conclusion that no water from this source would be available. Accordingly, consistent with the Final SEIR, SRDF Screening backwash flows can be reasonably expected to provide **0 AFY** to the PWM Expansion.

Q53. Can you please describe the Salinas Valley Industrial Waste Water Treatment Facility ("IWTF") Pond System as a water supply source for the PWM Expansion?

A53. This source is comprised of City of Salinas urban runoff/stormwater, mixed with agricultural wash water, conveyed to, treated, and stored in the Salinas Valley IWTF ponds, and then diverted to the M1W's RTP. There is significant uncertainty regarding the availability of flows from this source. As described above, the PWM Expansion Final SEIR stated that "SRDF Screening and Salinas IWTF Pond System waters are assumed to not be available" for the PWM Expansion.[189] The Final SEIR indicated that the infrastructure necessary to divert flows stored in the Salinas Valley IWTF Pond System was under construction and that M1W did not have the ability to divert this water.[190] Acknowledging these statements, Hazen projected that 0 AFY would be available from the Salinas Valley IWTF Pond System.[191] Despite this prior analysis, in the April 14 M1W Staff Report, M1W staff projected that this source would yield between 0 to 300 AFY of source water for the PWM Expansion.[192] M1W has not provided any evidence or other support for this claim, or any explanation that calls into questions the Final SEIR's

[188] Attachment T, M1W RCW Agenda Item 12, Attachment 1.

[189] Attachment M, PWM Expansion Final SEIR, Appendix M, Table 2.

[190] *Id*. at p. 5.

[191] Attachment R, September 10 Hazen Memo, Table 1.

[192] Attachment T, M1W RCW Agenda Item 12, Attachment 1.

conclusion that no water from this source would be available. Accordingly, consistent with the Final SEIR, Salinas Valley IWTF Pond System flows can be reasonably expected to provide **0 AFY** to the PWM Expansion.

Q54. Based on your source-by-source analysis, what is your conclusion for overall supply sources available to the PWM Expansion in a best-case, normal year?

A54. Based on the above analysis and as shown in table below, between 2,215 to 2,503 AFY is reasonably assumed to be available as source water flows to the PWM Expansion. The PWM Expansion requires at least 2,778 AFY of source water to provide 2,250 AFY of potable water. In this best-case scenario, when 2,215 to 2,503 AF of source waters are available, the PWM Expansion would produce 1,794 to 2,027 AF of potable water.

TABLE 7

PWM Expansion Best-Case Scenario		
#	**Source Name**	**Source Amount AFY**
1	Secondary Effluent to Ocean Outfall	245 - 502
2	Reclamation Ditch	808
3	Blanco Drain	0
4	Agricultural Wash Water	0
5	Recycle Sump #1	41
6	Recycle Sump #2	104
7	PWM Project and MCWD AWPF Backwashes	275 - 290
8	Proposed Modifications AWPF Backwashes	114 - 130
9	SVRP Backwash	515
10	Boronda	95
11	Farmworker Housing	18

12	M1W's ARWRA Summer Water	0
13	SRDF Screening	0
14	Salinas IWTF Pond System	0
TOTAL PWM EXPANSION SOURCE WATER		**2,215 – 2,503**
TOTAL PWM EXPANSION OUTPUT		**1,794 – 2,027**

Thus, from California American Water's perspective, based on the data and analysis conducted by expert consultants, the best-case production scenario for the PWM Expansion is 2,027 AF of water for injection in the Seaside Basin. This projection assumes all flows from all of the sources that feed the PWM Expansion are available 100 percent of the time and when necessary to meet demand. In other words, this analysis does not account for seasonal variability in flows.

Q55. In drought years, what is your conclusion for overall supply sources available to the PWM Expansion?

A55. The above source-by-source analysis does not take into account a drought scenario. However, during drought years, Hazen demonstrated that there would be no source water to the PWM Expansion, which would result in the project producing no water. Here, Hazen updated Table 11 (Diversion Pattern for a Drought Year, Starting with a Full Reserve) from the PWM Expansion Draft SEIR to account for updated, projected drought conditions of 17,016 AFY of RTP wastewater flows, rather than the 20,090 AFY considered in the Draft SEIR.[193] When these reduced singe-year drought flows were taken into account, Hazen demonstrated that the PWM Expansion would have no source

[193] Attachment Q, August 23 Hazen Memo, p. 5; Attachment R, September 10 Hazen Memo, p. 10.

water, and would therefore yield none of the 2,250 AFY the project is designed to produce.[194]

As an alternative to Hazen's drought projections, California American Water considers the Amended WPA's contractual guarantees as a potential drought scenario. The Amended WPA describes California American Water's "Allotment" from the PWM Project as 3,500 AF until the start of the PWM Expansion, after which the allotment increases to 5,750 AF.[195] However, California American Water's "Minimum Allotment" or "Water Delivery Guarantee" under the Amended WPA is 2,800 AF until the Expansion is online, after which it increases to 4,600 AF.[196] This 4,600 AFY represents full production from the PWM Project (3,500 AFY) with an additional production of 1,100 AFY from the PWM Expansion. Thus, in drought years, California American Water assumes that the PWM Expansion could produce 1,100 AFY based on the Amended WPA.

Accordingly, the range of production from the PWM Expansion during drought years is between 0 to 1,100 AFY.

Q56. For purposes of future water planning in California American Water's service area, how much water is reasonably expected per year from the PWM Project and the PWM Expansion?

A56. In normal years, California American Water projects that the PWM Project will produce 3,500 AFY. In normal years, California American Water projects that the PWM Expansion will produce 1,794 to 2,027 AFY. Combined, the PWM Project and PWM

[194] Attachment R, September 10 Hazen Memo, p. 10, 13.

[195] Attachment X, Amended Water Purchase Agreement, November 29, 2021, p. 5.

[196] *Id*. at pp. 7, 11.

Expansion may produce 5,294 to 5,527 AFY in normal years. In drought years, California American Water projects that the PWM Project will still produce 3,500 AFY. However, in drought years, California American Water projects that the PWM Expansion will produce between 0 AFY to 1,100 AFY. Combined, the PWM Project and PWM Expansion may produce 3,500 to 4,600 AFY in drought years.

VI. ISSUE 4 – SURPLUS/DEFICIT ANALYSIS

Q57. Based on the updated supply and demand provided above, can you please provide an analysis of whether there will be a supply surplus or deficit based on the forecasted long-term demand for Monterey Main System?

A57. The table below presents the projected supply surplus or deficit in a scenario with or without ePWM project, with each analyzed for normal conditions and multi-year drought conditions. And additionally for each these scenarios, the projected supply surplus or deficit with MPWSP Desalination supply is shown.

TABLE 8

Supply and Demand Summary

Demand Estimate Year 2050 (incl. RHNA)	**14,590 AFY**			
Supply	w/o ePWM		w/ ePWM	
	Normal Year	Drought[1]	Normal Year	Drought[1]
Carmel River Aquifer	3,376	3,376	3,376	3,376
Seaside Groundwater Basin	774	774	774	774
Sand City Desalination	94	94	94	94
ASR[2,3]	470	0	470	0
Pure Water Monterey	3,500	3,500	3,500	3,500
Pure Water Monterey Expansion[4]	n/a	n/a	1,794 - 2027	0 to 1,100
Pure Water Monterey Reserves[5]	n/a	n/a	n/a	0 to 775
Total Water Supply	8,214	7,744	10008 - 10241	7744 - 9619
Total Firm Supply @ 90% operating capacity (or 10% Supply Buffer/Contingency)[6]	**7,393**	**6,970**	**9007 - 9217**	**6970 - 8657**
Deficit / Surplus using Firm Supply	numbers below are rounded to nearest tenth			
Supply Deficit / Surplus	-7,200	-7,620	-5370 to -5580	-5930 to -7620
MPWSP Desalination Supply[7]	6,250	6,250	6,250	6,250
Total Firm Supplies with MPWSP Desalination	13,640	13,220	15257 to 15470	13220 to 14910
Supply Deficit/Surplus with MPWSP Desalination	-950	-1,370	667 to 880	-1370 to 320

Notes:
1. Drought conditions consider multiple consecutive dry years
2. ASR availability is determined to be 470 AFY with 90% reliability (Findley and Sekeroglu Memo, July 15, 2022)
3. ASR availabilty will likely be zero in a multi-year drought as any reserves will be depleted
4. Assumes during normal year PWM Project delivers 3,500 and PWM Expansion can deliver 1,795-2,027 based on assessment of source water availability as described in testimony above. During drought years the assumption is PWM Project delivers 3,500 but PWM Expansion on low end is zero due to source water availability during a multi-year drought and reserves are not established or used already, and on high end 1,100 to meet the minimum Water Guarantee of 4,600 AF (PWM 3,500 plus ePWM 1,100).
5. During a multi-year drought it is assumed that PWM Reserves are used to offset some of the resulting shortfall if available. The Amended and Restated WPA requires Operational and Drought Reserves of 2,875 AF and 1,000 AF, respectively, for a total of 3,875 AF. This analysis assumes that 775 AF will be available per year from Operational and Drought Reserves over a 5-year drought period (775 x 5 = 3,875).
6. Contingency / Buffer is to account for uncertainty, fluctuations, interruptions, and/or unanticipated limitations to these supply sources for various reasons including: operations, maintenance, water quality, wildefires and other nature disasters, climate change, Seaside Basin or Carmel River rights, environmental mitigations, habitat protection, Seaside Basin Protective Water Levels, etc.
7. Assumes approximately 6,250 AFY of desalination water per CPUC D.18-09-017.

Q58. Please explain the need for a 10% Contingency, and why Firm Supply is considered to be 90% of maximum supply?

A58. A complex water system such as the Monterey system cannot be operated to produce water at 100% capacity 100% of the time. While the Monterey System benefits from a

diverse portfolio of water supplies (existing and planned), this diversity adds to the number of complicated regulations, agreements, and supply constraints limiting the operation of the system. These limitations, plus risks associated with each of the Monterey system supplies, must be taken into account to ensure sufficient supplies are available to meet customer demand, especially during dry summer months and extended periods of drought. Assuming 100% of a system's maximum supply will be available all of the time is not prudent. Moreover, it is common industry practice that a system's firm capacity is determined as the available supply with the system's largest unit(s) out of service.[197]

The 10% Contingency / Buffer is a prudent and reasonable approach for water resource planning over a long-term horizon to account for uncertainty, fluctuations, interruptions, and/or unanticipated future limitations to Monterey supply sources for a variety of reasons including: operational issues and/or system maintenance, wells unexpectedly taken out of service (such as the current shut down of ASR-01), water quality changes or new regulations, new streamflow requirements, new affordable housing requirements, environmental mitigations, habitat protection, increased fire flow protection for wildfires, climate change, nature disasters, potential changes to Seaside Basin or Carmel River water rights, Seaside Basin Protective Water Levels, unknowns in demand forecasting, etc.

Additionally, the Seaside Basin Watermaster has identified the need for an additional 1,000 AFY for 25 years for the protection of the Seaside Basin from seawater intrusion.[198] The Seaside Basin Watermaster is currently undertaking efforts to further

[197] Attachment K, Paul Findley and Sarp Sekeroglu, ASR Availability and Reliability Analysis Technical Memorandum (June 15, 2022), p. 2.

[198] Attachment J, Seaside Basin Watermaster Letter to California Coastal Commission (August 12, 2020).

study and evaluate seawater intrusion risks and the extent of the need for protective water levels in the Seaside Basin.[199] The Watermaster has concluded that, at a minimum, increasing groundwater elevations in the Seaside Basin aquifers across the coastal front is a prudent and necessary action to prevent seawater intrusion into the Seaside Basin's aquifers.[200] If seawater intrusion were to occur in the Seaside Basin, it could adversely affect numerous Monterey supply sources, including ASR, PWM Project and PWM Expansion supplies. Thus, a 10% Contingency / Buffer is necessary and prudent to account for potential demand increases and supply fluctuations, including demand for fire service and the need for protective water levels in the Seaside Basin, among other future variables that cannot be anticipated with certainty.

In D.18-09-017, the CPUC noted "As persuasively stated by Mayor Kampe:

> Because the future is very uncertain. It's hard to tell exactly what's going to happen. There are a number of elements that I think are going to surprise us when we get beyond the current water poverty situation. And we're looking at a 50-year project. Why in the world are we trying to look at the -- the tiny microscopic level details of today's demand as the exclusive basis for projecting 50 years in the future? To me, and I don't have water demand experience, but I do have significant experience in forecasting in business environment, you just can't know the future that well. And to handicap ourselves over that period of time strikes me as – as just it doesn't make any sense."[201]

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[199] Id.

[200] Id.

[201] CPUC D.18-09-017, p. 67.

Q59. Does this conclude your testimony?

A59. Yes.