

Docket: : A.04-09-019  
Exhibit Number : \_\_\_\_\_  
Commissioner : John Bohn  
Admin. Law Judge : Angela Minkin  
DRA Project Mgr. : Diana Brooks  
:



**DIVISION OF RATEPAYER ADVOCATES  
CALIFORNIA PUBLIC UTILITIES COMMISSION**

**DRA Testimony  
on the Settlement Agreement by and among California American  
Water Company, Monterey County Water Resources Agency,  
Marina Coast Water District, Monterey Regional Water Pollution  
Control Agency, Surfrider Foundation, and The Public Trust  
Alliance**

**Application 04-09-019**

San Francisco, California  
April 30, 2010



## **Memorandum**

This report presents the testimony of DRA’s witnesses Dr. Nihar Shah, Joyce Steingass, Richard Rauschmeier, and Lindsey Fransen on the proposed “Settlement Agreement by and among California American Water Company, Monterey County Water Resources Agency, Marina Coast Water District, Monterey Regional Water Pollution Control Agency, Surfrider Foundation, and The Public Trust Alliance” in California American Water Company’s Application A.04-09-019.

Together with the concurrently submitted “Comments of the Division of Ratepayer Advocates on the Proposed Settlement Agreement” this report presents DRA’s positions and recommendations to the California Public Utilities Commission.

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1                                   **CHAPTER 1: PRODUCT WATER COST CAP**

2                   **A. INTRODUCTION**

3           This chapter discusses DRA’s recommendation regarding a \$ per-acre foot  
4 Product Water Cost Cap, (“Cost Cap”) for product water purchased by Cal Am  
5 under the Water Purchase Agreement (“WPA”) attached to the Settlement  
6 Agreement (“Agreement”) by and among Cal Am, Marina Coast Water District  
7 (“MCWD”), Monterey County Water Resources Agency, (“MCWRA”),  
8 Monterey Regional Water Pollution Control Agency, (“MRWPCA”), Public Trust  
9 Alliance, (“PTA”) and Surfrider Foundation (“Surfrider”).

10           DRA reviewed recent literature regarding costs of desalinated product  
11 water, as well as testimony by the settling parties, (collectively “Parties”) in  
12 arriving at this recommendation.

13                   **B. SUMMARY OF RECOMMENDATIONS**

14           DRA recommends a \$2200/AF cost cap for product water purchased by Cal  
15 Am under the WPA, based on 1) recently published (2008) data on the costs of  
16 water desalinated by reverse osmosis in the United States, and 2) recent statements  
17 and presentations made by Parties, to decisionmakers in this proceeding and  
18 before the State Water Resource Control Board.

19                   **C. DISCUSSION**

20  
21                   **1)           Recent literature indicates seawater desalination by reverse**  
22 **osmosis in the United States should cost below \$2200/AF.**

23           Recently published literature such as the September 15, 2008 issue of the “Water  
24 Desalination Report”, (“WDR”) indicate that the cost of reverse-osmosis (“RO”)  
25 desalination plants shows some economies of scale as further indicated in the

1 testimony of Drs. Berkman and Sunding<sup>1</sup> and Mr. Melton<sup>2</sup> on behalf of MCWD,  
 2 in this proceeding. Table 1 shows cost data from the WDR of various recently  
 3 estimated, bid or built desalination plants around the world.

4 **Table 1 Recent Desalination Plant Costs**, data reprinted with permission from Global Water Intelligence.  
 5 Page 3 of September 15, 2008 issue of “Water Desalination Report”, Vol 44, No.33. (SWRO stands for Sea  
 6 Water Reverse Osmosis, MSF stands for Multi Stage Flash Distillation, and MED stands for Multi Effect  
 7 Distillation). Copyright © 2008 Media Analytics.  
 8

Plant	Date of Estimate	\$/m3	m3/d	MGD	Process
Fujairah 2, UAE	2007	\$0.85	590,000	155.9	Hybrid
Ras Azzour, Saudi Arabia (bid avg.)	2008	\$1.09	1,000,000	264.2	Hybrid
Taweelah A1, UAE	2001	\$0.70	236,185	62.4	MED
Reliance Refinery, India	2005	\$1.53	14,400	3.8	MED
Marafiq, Saudi Arabia	2006	\$0.83	758,516	200.4	MED
Shoaiba 3, Saudi Arabia	2005	\$0.57	881,150	232.8	MSF
Hidd, UAE	2008	\$0.69	400,000	105.7	MSF
Ras Laffan B	2008	\$0.80	272,520	72.0	MSF
Shuweihat 2, Abu Dhabi	2008	\$1.13	454,610	120.1	MSF
Santa Barbara, California	1991	\$1.22	25,360	6.7	SWRO
Bahamas	1996	\$1.28	9,840	2.6	SWRO
Dhekelia, Cyprus	1997	\$1.19	40,000	10.6	SWRO
Larnaca, Cyprus	1999	\$0.76	54,000	14.3	SWRO
Taweelah C, UAE (est)	2000	\$0.72	325,000	85.9	SWRO
Ashkelon, Israel	2001	\$0.52	326,144	86.2	SWRO
Carboneras, Spain	2002	\$0.57	120,000	31.7	SWRO
Point Lisas, Trinidad	2002	\$0.71	119,000	31.4	SWRO
Tuas, Singapore	2003	\$0.48	136,360	36.0	SWRO
Tampa Bay, Florida	2004	\$0.55	95,000	25.1	SWRO
Jeddah Barge	2008	\$2.27	52,000	13.7	SWRO
Arzew, Algeria	2005	\$0.90	86,000	22.7	SWRO

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<sup>1</sup> Direct Testimony of Dr. Mark P. Berman and Dr. David L. Sunding p. 3. Drs. Berkman and Sunding state: “the Regional alternative enables the region to take advantage of scale economies in the construction of a desalination plant. Scale economies refer to the condition where unit costs fall as size increases”.

<sup>2</sup> Direct Testimony of Mr. Lyndel Melton, p. 33. Mr. Melton states: “Areas of cost savings that contribute to the more favorable unit costs associated with the regional project are: Economies of scale from treatment plant and pipeline sharing with the regional project.....”

<b>Plant</b>	<b>Date of Estimate</b>	<b>\$/m3</b>	<b>m3/d</b>	<b>MGD</b>	<b>Process</b>
Beni Saf, Algeria	2005	\$0.70	150,000	39.6	SWRO
Cap Djinet, Algeria	2005	\$0.73	100,000	26.4	SWRO
Douaouda, Algeria	2005	\$0.75	120,000	31.7	SWRO
Fukuoka, Japan	2005	\$1.84	50,000	13.2	SWRO
Hamma, Algeria	2005	\$0.82	200,000	52.8	SWRO
Los Angeles, California (est)	2005	\$0.82	94,625	25.0	SWRO
Palmachim, Israel	2005	\$0.78	110,000	29.1	SWRO
Skikda, Algeria	2005	\$0.74	100,000	26.4	SWRO
West Basin, California (est)	2005	\$0.64	37,850	10.0	SWRO
Blue Hills, Bahamas	2006	\$1.30	27,250	7.2	SWRO
Perth, Australia	2006	\$0.75	143,700	38.0	SWRO
Shuqaiq, Saudi Arabia	2006	\$1.03	213,475	56.4	SWRO
Tampa Bay, Florida (rehab)	2006	\$0.84	95,000	25.1	SWRO
Carlsbad, California (est)	2007	\$0.77	189,250	50.0	SWRO
Chennai, India	2007	\$1.10	100,000	26.4	SWRO
Dhekelia, Cyprus (rehab)	2007	\$0.88	40,000	10.6	SWRO
Gold Coast, Australia	2007	\$1.09	133,000	35.1	SWRO
Hadera, Israel	2007	\$0.60	330,000	87.2	SWRO
Malta (various, avg)	2007	\$0.72	20,000	5.3	SWRO
Sur, Oman	2007	\$1.20	80,200	21.2	SWRO
Tianjin, China	2007	\$0.95	150,000	39.6	SWRO
Ad Dur, Bahrain	2008	\$0.93	218,000	57.6	SWRO
Ashkelon, Israel (update)	2008	\$0.78	326,144	86.2	SWRO
El Tarf, Algeria (bid)	2008	\$0.89	50,000	13.2	SWRO
Hadera, Israel (update)	2008	\$0.86	330,000	87.2	SWRO
Mactaa, Algeria (bid)	2008	\$0.56	500,000	132.1	SWRO
Oued Sebt, Algeria	2008	\$0.68	100,000	26.4	SWRO
Palmachim, Israel (update)	2008	\$0.86	83,270	22.0	SWRO
Taunton, Massachusetts	2008	\$1.53	18,925	5.0	SWRO
Tenes, Algeria	2008	\$0.59	200,000	52.8	SWRO
Tuas, Singapore (update)	2008	\$0.57	136,360	36.0	SWRO

1 DRA conducted the following analysis:

2 a) considering only recent (i.e. post 2005) data for plants in the United States  
3 reported in the WDR,

4 b) the reported cost \$ per cubic meter ( $\$/\text{m}^3$ ) in the WDR is converted into \$  
5 per acre foot ( $\$/\text{AF}$ )<sup>3</sup>,

6 c) the reported capacity in million gallons per day (MGD) is converted into  
7 Acre Feet per Year (AFY)<sup>4</sup>

8 d) costs are escalated from the year of the WDR estimate to 2015 dollars at  
9 4% .<sup>5</sup>

10 DRA obtained by this process, an estimated (curve-fit) relationship of unit cost  
11 ( $\$/\text{AF}$ ) to plant capacity (AFY) shown in Figure 1 as “Average Product Water  
12 Cost”, showing the aforementioned economies of scale.

13 Figure 1 also shows the range of costs between 85% and 125% of the estimated  
14 “Average Product Water Costs.” From Figure 1, DRA concludes that **a plant built**  
15 **at 125% of the recent average cost** of seawater reverse osmosis desalination in  
16 the United States in 2015, at a capacity equal to the capacity of the Regional  
17 Project (i.e.10500 AFY) **should have an all inclusive cost of \$2200/AF** or less,  
18 excluding only distribution costs. DRA therefore recommends that the costs of  
19 purchased Product Water under the Agreement be capped at \$2200/AF, excluding  
20 Cal-Am only distribution costs, escalated in years after 2015 at the inflation rate as  
21 published in the Global Insight U.S. Economic Outlook monthly publication.<sup>6</sup>

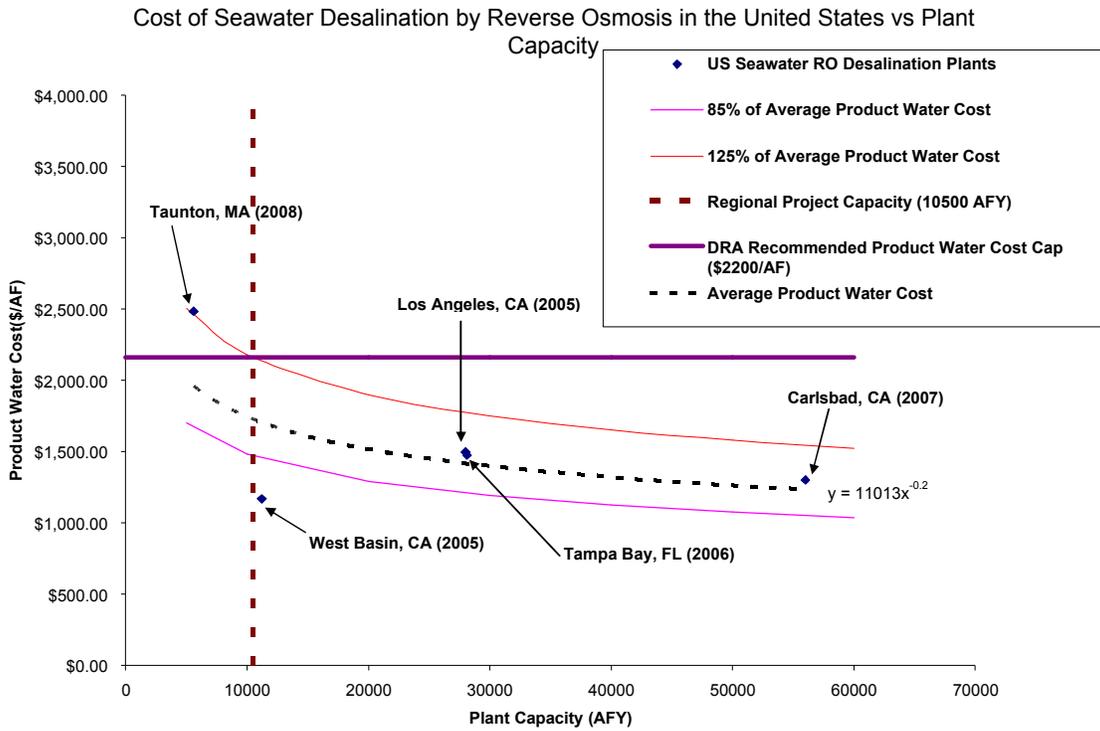
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<sup>3</sup> 1 acre-foot (AF) =1233.5 m<sup>3</sup>.

<sup>4</sup> 1 million gallons per day (MGD) =3.07 acre feet per day (AFD) = 1120.55 AFY.

<sup>5</sup> This is consistent with the assumption of a 4.5 year construction period as further discussed in the testimony of Richard Rauschmeier. DRA escalated from the year of the estimate to 2015 at 4% to provide a conservative estimate from the years of the estimate (post 2005) to 2015.

<sup>6</sup> These annualized escalation factors are summarized by DRA’s Energy Cost of Services Branch in a



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2 **Figure 1 Cost of Seawater Reverse Osmosis Desalination in the United States vs Plant Capacity**  
 3 **(Source Data: Water Desalination Report, Vol 44, No. 33, September 15, 2008)**

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monthly memorandum that is available to utilities. See the testimony of Joyce Steingass for a more detailed discussion of the rates published by DRA's Energy Cost of Service Branch.

1           **2) Parties cost estimates for the Regional Project are**  
2 **comparable to DRA’s Cost Cap recommendation of \$2200/AF.**

3 DRA notes that Parties’ testimony and presentations before decision makers in this  
4 and related proceedings before this Commission and the State Water Resource  
5 Control Board show costs for the Regional Project comparable to DRA’s cost cap  
6 recommendation as follows:

7       a) Mr. Steve Collins, Director and Mr. Curtis Weeks, General Manager of  
8       MCWRA and Mr. Jim Heitzman General Manager of MCWD made a  
9       presentation to the State Water Resource Control Board on February 16,  
10       2010, showing a cost of approximately \$2200/AF for the Regional Project  
11       not including grants or State Revolving Fund (SRF) loans as shown in  
12       Figure 2.<sup>7</sup>

13       b) Mr. Lyndel Melton’s testimony on behalf of MCWD in this proceeding  
14       stated a cost of \$2290/ AF for the Regional Project not including  
15       distribution facilities, grants or SRF loans.<sup>8</sup>

16       c) MCWRA draft April 14, 2010 ex-parte document entitled: “Project Cost  
17       Comparison- Cost Summary (With Escalation to October 2012)” stated a  
18       cost of \$2260/AF, not including distribution facilities, grants or SRF loans.<sup>9</sup>

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<sup>7</sup> Slide 18 of 24 slides in the February 16, 2010 presentation to the State Water Resource Control Board by Mr. Steve Collins, Director and Mr. Curtis Weeks, General Manager of MCWRA, and Mr. Jim Heitzman, General Manager of MCWD, according to item 6 of the State Water Resource Control Board minutes available at: [http://www.swrcb.ca.gov/board\\_info/agendas/2010/feb/mins021610.pdf](http://www.swrcb.ca.gov/board_info/agendas/2010/feb/mins021610.pdf). The presentation itself is available at: [http://www.waterboards.ca.gov/board\\_info/agendas/2010/feb/021610\\_6.pdf](http://www.waterboards.ca.gov/board_info/agendas/2010/feb/021610_6.pdf), and is attached. (Attachment G)

<sup>8</sup> Direct Testimony of Mr. Lyndel W. Melton, p. 29.

<sup>9</sup> Parties response to DRA data request CWP 53, provided this document as an attachment. It summarizes the cost of the intake and desalination facilities as \$380/AF and \$1880/AF, i.e. together as \$2260/AF, not including distribution facilities, grants or SRF loans. The same presentation showed “Product Water Distribution facilities” common to MCWD and Cal Am, and therefore part of the Product Water Cost under the WPA, would increase the Product Water Cost by \$190/AF, and SRF Loans and grants would reduce the total project cost by \$960/AF.



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2 Figure 2 Slide 18 of 24 slides in the February 16, 2010 presentation to the State Water Resource  
 3 Control Board by Mr. Steve Collins, Director and Mr. Curtis Weeks, General Manager of MCWRA,  
 4 and Mr. Jim Heitzman, General Manager of MCWD. (See Attachment G) <sup>10</sup>

5 DRA therefore recommends that the Commission:

6 a) Order that the costs of Product Water purchased by Cal Am under the  
 7 Agreement, and attachments thereto, be capped at a maximum cost of  
 8 \$2200/AF, not including Cal Am only distribution facilities, escalated at  
 9 a rate equivalent to that published in DRA's Energy Cost of Services  
 10 Branch's latest escalation memorandum. <sup>11</sup>

11 b) Disallow any Product Water costs under the Agreement above the then  
 12 escalated \$2200/AF as unreasonable, unless Cal Am or Parties jointly

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<sup>10</sup> The presentation itself is available at:  
[http://www.waterboards.ca.gov/board\\_info/agendas/2010/feb/021610\\_6.pdf](http://www.waterboards.ca.gov/board_info/agendas/2010/feb/021610_6.pdf).

<sup>11</sup> See the testimony of Joyce Steingass for a more detailed discussion of the rates published by DRA's Energy Cost of Service Branch.

1 file a separate application for recovery of such costs with a full  
2 justification for exceeding the Cost Cap, including supporting  
3 documentation and full justifications for costs both above and below the  
4 \$2200/AF cost cap.

5 **D. CONCLUSION**

6 DRA recommends that the Commission establish a Cost Cap of \$2200/AF  
7 for Product Water, excluding Cal Am only distribution facilities, escalated after  
8 2015 at a rate equivalent to that published in DRA's Energy Cost of Services  
9 Branch's latest escalation memorandum, and disallow any costs above the  
10 escalated \$2200/AF as unreasonable, unless Cal Am or Parties jointly file a  
11 separate application for recovery of such costs with a full justification for  
12 exceeding the Cost Cap, including supporting documentation and full justifications  
13 for costs both above and below the escalated \$2200/AF cost cap.



2 **Table 1 – Description of Cal Am Only Facilities Proposed**

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<b>Project Description</b>	<b>Medium Scenario Total Estimated Cost</b>
<b>Transfer Pipeline</b> -15,000 lineal feet of 36-inch diameter pipeline that delivers desalinated water to Monterey Peninsula from the Regional Project	\$ 11,000,000
<b>Seaside Pipeline</b> - 13,000 lineal feet of 36-inch diameter pipeline that moves water to/from the ASR facilities through the Terminal Reservoirs and to the Monterey Pipeline	\$ 15,000,000
<b>Monterey Water Pipeline</b> -28,700 lineal feet of 36-inch diameter pipeline that delivers desalinated water and ASR water to the Forest Lake Tanks, which ultimately will feed Carmel Valley.	\$ 25,000,000
<b>Terminal Reservoirs</b> -Twin 3-million gallon pre-stressed concrete water storage tanks located in the City of Seaside.	\$ 17,000,000
<b>Aquifer Storage and Recovery System</b> -Phase 2 involves pipeline, ASR production wells, reclamation basin, monitoring well.	\$ 27,000,000
<b>TOTAL</b>	<u><u>\$ 95,000,000</u></u>

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27 DRA engaged the professional consulting services of the Bureau of  
28 Reclamation to review and analyze the technical feasibility, reliability, risks, and  
29 cost estimates of the project alternatives for a major desalination plant on  
30 Monterey Bay, as proposed by California American Water Company. DRA  
31 reviewed the final report of the Bureau of Reclamation and recommends the  
32 Commission adopt those recommendations.

33 Additionally, DRA reviewed the Final Environmental Impact Report  
34 (“FEIR”), Coastal Water Project Phase 2 - Direct Testimony of Mark Schubert,  
35 Project Cost Comparison Exhibit, responses to Coastal Water Project Data  
36 Requests, and the Settling Parties’ Motion to Approve Settlement Agreement with  
37 its Exhibits and Attachments.

1 **B. SUMMARY OF RECOMMENDATIONS**

2 **(1) Total Cost of \$95 million and the Cost Cap of \$106 million**  
3 **is too high for the Cal Am owned facilities.**

4 DRA finds the Median Scenario Total Cost of \$95 million and the Cost Cap  
5 of \$106 million is too high for the Cal Am owned facilities. DRA identified  
6 reductions of more than \$25 million because proposed costs were unreasonable,  
7 not fully justified, or calculated incorrectly. DRA recommends setting the  
8 Conceptual Capital Cost Estimate – Project Cashflow under the Medium Scenario  
9 at \$70 million and using that value as the Cost Cap. DRA therefore recommends  
10 that the Commission:

11 **(a)** Order that the costs of the Cal Am only facilities under  
12 the Settlement Agreement be capped at a maximum cost of \$70 million,  
13 rather than at \$106.9 million as recommended by the settling parties.

14 **(b)** Disallow any Cal Am only facilities costs under the  
15 Settlement Agreement above \$70 million as unreasonable, unless Cal Am  
16 files a separate application for recovery of such costs with a full  
17 justification for exceeding the Cost Cap, including supporting  
18 documentation and full justifications for all costs expended (both above and  
19 below the \$70 million cost cap).

20 **(c)** Table 2 below provides an illustrative example of the  
21 DRA recommended adjustments.

**Table 2-DRA Recommended Adjustments**

<b>Issue</b>	<b>Approx. CAW Value</b>	<b>DRA Recommendation</b>	<b>DRA Recommended Adjustment</b>
Terminal Reservoir	\$ 17,000,000	\$ 13,000,000	\$ 4,000,000
ASR System	\$ 27,000,000	\$ 23,750,000	\$ 3,250,000
Reduce Project Contingency at time of Bid-Level Estimate	Assumes 25% of capital costs	Reduce to 5% of capital costs at Class 1 Estimate	\$ 17,400,000
Modify Assumptions used for Cost Escalation	Constant 4%	Use Escalation based on DRA Memorandum	\$ 3,000,000
Re-calculate Project Contingency	\$ 14,300,000	\$ 10,600,000	\$ 3,700,000
Remove Legal Expenses, thereby reducing Implementation Costs from 30% to 28%	2%	0%	\$ 850,000
<b>TOTAL</b>			<b>\$ 32,200,000</b>

Data Sources: SA, Attachment 3 and CWP-Project Cost Comparison of August 14, 2009

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**(d)** Construct the Terminal Reservoir storage tanks aboveground rather than burying them underground. This modification results in a DRA recommended cost adjustment of \$4 million reducing the cost estimate from \$17 million to \$13 million.

**(e)** Reduce the cost estimate for the ASR Wells based on using actual historical cost expenditures incurred by Monterey Peninsula Water Management District (“MPWMD”) to design and construct the Phase 1 ASR Wells. DRA recommends a cost adjustment of \$3.25 million which reduces the estimated cost from \$27 million to \$23.75 million,

**(f)** Reduce project cost contingency to a range of 10% - 15% at the time the conceptual Class 4 estimate becomes a Class 2 control or bid/tender estimate and to 5% at the Class 1 bid/tender or check

1 estimate.<sup>15</sup> DRA’s recommended cost adjustment reduces the total sum  
2 capital cost with contingency of all the CAW Facilities by as much as \$17  
3 million;

4 (g) Standardize the cost escalation rate to the DRA Energy  
5 Cost of Service Branch memorandum that provides a forecasted escalation  
6 rate based on the Consumer Price Index rather than using an across the  
7 board escalation of 4%. This recommendation results in a cost reduction of  
8 at least \$3 million, for example, by assuming that the forecasted escalation  
9 rate is 2.8% instead of 4%;

10 (h) Standardize the calculation of project cost contingency  
11 as a percentage of base construction and remove the additional contingency  
12 added onto the implementation costs because the implementation costs set  
13 at 30% are already generously estimated and do not require an additional  
14 contingency. This recommendation results in a DRA recommended cost  
15 adjustment about \$3.7 million,

16 (i) Remove “legal expenses” from the Implementation  
17 Costs since legal expenses are not typically a capitalized expenditure. This  
18 reduces Implementation Costs by 2% resulting in a savings of \$850,000.

19 (j) Commit Cal Am to pre-purchasing large quantities of  
20 pipe materials outside of awarded construction contracts, to capture  
21 American Water’s cost advantages and economies of scale as a volume  
22 purchaser of pipe.

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<sup>15</sup> Estimate levels of accuracy such as Class 1 through 5 are as defined by the Association for the Advancement of Cost Estimating, AACE.

1 **C. DISCUSSION**

2 **1) CAW Facilities**

3 (a) The Settlement Agreement specifies that the CAW  
4 Facilities include the three large diameter conveyance pipelines, two  
5 distribution storage reservoirs and aquifer storage and recovery facilities.<sup>16</sup>  
6 Using a range of target cost estimates (Low, Median, and High); the  
7 Settlement Agreement estimates the Median Scenario at \$95 million and  
8 proposes for purposes of setting an estimated cost cap that the mid-point  
9 between Median and High Scenarios, or \$106.9 million, be used.<sup>17</sup>

10 **2) DRA's Review and Recommended Adjustments**

11 **(a) Cal Am's proposed cost cap of \$106.9 million for Cal Am**  
12 **Only Facilities is excessive.**

13 The Settling Parties claim that they submitted a detailed and comprehensive  
14 summary supporting the cost estimates that support the reasonableness of the  
15 Settlement Agreement, and refer to that support as the August 14, 2009 Project  
16 Cost Comparison Exhibit and Technical Memorandum. According to that Project  
17 Cost Comparison Exhibit, the Most Probable Capital Cost with Contingency for  
18 CAW Facilities is estimated at \$73.2 million. However, Cal Am Testimony  
19 estimates these facilities at \$79.1 million.<sup>18</sup> Finally, Attachment 3 to the  
20 Settlement Agreement estimates the CAW Facilities at \$95 million. DRA  
21 recommends that based on its review of the CAW Facilities that the most probable  
22 cost with contingency should be set at \$70 million based on all the DRA  
23 recommended adjustments in this chapter.

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<sup>16</sup> Settlement Agreement, Section 8.1.1.

<sup>17</sup> SA, Section 8.1.3.

<sup>18</sup> Testimony of Mark Schubert, May 2009.

**Table 3-** Examples of CWP-Project Cost Comparisons

<b>Date of Estimate</b>	<b>Source Document</b>	<b>Most Probable Capital Cost with Contingency</b> <sup>4</sup>
22-May-09	Testimony of F. Mark Schubert, P.E.	\$ 79,100,000
14-Aug-09	CWP-Project Cost Comparison	\$ 73,200,000
7-Apr-10	Settlement Agreement, Attachment 3	\$ 95,000,000

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**(b) The Terminal Reservoirs should be constructed above-ground.**

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The FEIR proposes two 3-MG tanks that will each be 33-foot high, 130-foot diameter aboveground concrete tanks that will receive water from the desalination plant when production exceeds customer demand. The Terminal Reservoir would receive water from other sources, such as ASR or the Carmel River, as conditions require.<sup>19</sup> During Discovery, the Bureau of Reclamation learned that the cost estimates were calculated assuming that the Terminal Reservoir would be buried underground.<sup>20</sup> Consequently, the Bureau of Reclamation recommended that the project could be optimized if the parties were to investigate constructing the 6-MG Terminal reservoir structure above-ground in order to reduce estimated construction costs. This recommendation is further supported in the BOR report.<sup>21</sup> Accordingly, DRA concludes that this cost estimate may be unreasonably high and recommends that Cal Am construct the Terminal Reservoir storage tanks aboveground rather than burying them underground. This modification results in a DRA recommended cost adjustment of \$2.2 million to the base construction estimate, which reduces the Terminal

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<sup>19</sup> FEIR, p. 3-20, Section 3.2.5.2.

<sup>20</sup> Cal Am response to Coastal Water Project Data Request #50.

<sup>21</sup> Bureau of Reclamation Review Comments on Coastal Water Project and Alternatives Monterey, CA, March 11, 2010, page 25.

1 Reservoir total capital cost estimate with contingency by about \$4 million, from  
2 \$17 million to \$13 million.

3 **(c) The estimated cost for the ASR System should be reduced by \$3.25**  
4 **million.**

5 The FEIR describes the proposed ASR System that is part of the Coastal  
6 Water Project.<sup>22</sup> According to the FEIR, Monterey Peninsula Water Management  
7 System (“MPWMD”) and Cal Am are currently conducting an ASR program in  
8 the Seaside Groundwater Basin, and the Phase 1 ASR project began permanent  
9 operating status beginning in Water Year 2008. The Settlement Agreement states  
10 that the CAW Facilities includes ASR facilities and Attachment 3 to the  
11 Settlement describes an ASR project that would include construction of 2 ASR  
12 production wells, 13,000 feet of pipeline, a 400,000-gallon reclamation basin, and  
13 a monitoring well. DRA reviewed the proposed cost estimate for the ASR System  
14 and concludes that the cost estimate is unreasonable. Cal Am states that it  
15 developed the cost estimate based on information provided by an engineering  
16 consultant experienced in this type of well construction.<sup>23</sup> Contrary to that  
17 proposal, DRA recommends that the cost estimate for the ASR Wells should be  
18 based upon actual contractor costs associated with installation of the two ASR  
19 Wells that are part of the Phase 1 ASR Project in the Seaside Basin. Accordingly,  
20 DRA made its cost estimate of \$23.75 million using actual historical cost  
21 expenditures incurred by MPWMD to design and construct the Phase 1 ASR  
22 Wells. DRA recommends reducing the total capital cost with contingency for the  
23 ASR project by \$3.25 million.

24

25

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<sup>22</sup> FEIR, p. 3-25, Section 3.2.6.3.

<sup>23</sup> SA, Attachment 3, p.7.

1           **(d) The Project Contingency should be reduced as the projects' cost**  
2           **estimates evolve towards full project definition and maturity.**

3           Cal Am assumes a project contingency of 25% in the cost estimates  
4 provided in the CWP Project Cost Comparisons. DRA understands that this  
5 assumption was made based on the cost estimates presently being considered at  
6 the level of development comparable to a conceptual Class 4 estimate according to  
7 the Association for the Advancement of Cost Estimating. As the parties follow  
8 through with later stages of design and estimating, the cost estimate will progress  
9 to a higher level of accuracy and as the costs become more certain, the cost  
10 estimate may eventually become a Bid-Level 2 estimate. DRA recommends that  
11 the Commission require Cal Am to modify the project contingency as the costs  
12 become more certain and revise the project contingency to 5% at the final Class 1  
13 estimate as recommended by the Association for the Advancement of Cost  
14 Estimating. This DRA recommended cost adjustment could reduce about \$17  
15 million to the overall CAW Facilities capital cost estimate with contingency;

16           **(e) The Escalation Rate used for Annual Inflation is too high.**

17           Within its calculations, the Settling Parties have used Escalation Rates set  
18 at a constant 4% for Annual Inflation.<sup>24</sup> DRA concludes that this assumption is  
19 unreasonable because it differs from typical practices used in Commission  
20 proceedings for the water industry. Typically, parties standardize to the escalation  
21 rates or inflation factors provided in the Division of Ratepayer Advocates:  
22 “Estimates of Non-labor and Wage Escalation Rates for 2009 through 2013 from  
23 the IHS Global Insight U.S. Economic Outlook”. Provided by DRA’s Energy  
24 Cost of Service Branch on a monthly basis, the purpose of the monthly Escalation  
25 Memorandum is to inform division management of the trends in the general price  
26 level of utility non-labor expenses and wage contracts. Data are provided for 13  
27 years, which include eight historic years, the estimated current year, and four

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<sup>24</sup> Project Cost Comparison- Summary By Component (With Escalation to October 2012)

1 forecasted years. It has been a standard practice for DRA and water utilities to  
 2 standardize to these cost escalation rates rather than using a constant escalation of  
 3 4%, as recommended by the Settling Parties. As of the January 31, 2010  
 4 memorandum, it provided this information for Annual Inflation:

5 **Table 4 – Excerpt from DRA Energy Cost of Services Monthly**  
 6 **Memorandum**

	FORECASTED INFLATION			
	Labor		Non-labor	
	<u>12/09</u>	<u>01/10</u>	<u>12/09</u>	<u>01/10</u>
2009	3.8%	3.8%	(3.6)%	(3.6)%
2010	(0.3)%	(0.3)%	2.8%	2.8%
2011	1.7%	1.7%	2.3%	2.3%
2012	2.0%	2.0%	2.4%	2.4%
2013	1.9%	1.9%	2.3%	2.4%
2014	1.9%	2.0%	1.7%	1.6%

7  
 8 This DRA recommended cost adjustment would represent a cost reduction  
 9 of at least \$3 million<sup>25</sup> from the overall capital project cost with contingency  
 10 because the forecasted inflation values are lower than 4% over the next several  
 11 years 2010 – 2014;

12 **(f) Project Contingency is being calculated incorrectly and**  
 13 **inconsistently from Cal Am’s normal practice.**

14 The cost estimates for Cal Am Facilities include a 25% Project  
 15 Contingency that Cal Am applies to Base Construction Costs, Implementation  
 16 Costs, and ROW Easements and Land Acquisitions. DRA has reviewed these  
 17 calculations and concludes that the Project Contingency has been calculated  
 18 incorrectly and differently from the standard practice used by Cal Am during its  
 19 General Rate Cases. Typically, Cal Am has been calculating project contingency

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<sup>25</sup> For example, if the forecasted escalation rate were 2.8% instead of 4%, this would reduce the Most Probable Capital Cost with Contingency shown in the CWP-Project Cost Comparison by \$3 million.

1 based on Base Construction Costs. Implementation Costs for Cal Am are  
2 generally standardized at 30% for conceptual project cost estimates, and not  
3 compounded by an additional contingency. ROW Easements and Land  
4 Acquisitions do not see the same level of uncertainty as construction costs.  
5 Consequently, DRA recommends that the cost estimates should use a standardized  
6 calculation of project cost contingency as a percentage of base construction and  
7 remove the additional contingency added onto the implementation costs because  
8 the implementation costs set at 30% are already generously estimated and do not  
9 require an additional contingency. This recommendation results in a DRA  
10 recommended cost adjustment about \$3.7 million,

11 **(g) Implementation Costs should not include Legal Expenses.**

12 Cal Am estimates that Implementation Costs associated with all of the  
13 CAW Facilities projects will be 30% of the Base Construction Costs. Cal Am  
14 defines Implementation Costs to include: Program Management, Design, CEQA,  
15 Legal, and Construction Management. DRA disagrees with the inclusion of legal  
16 expenses as one of the Implementation Costs included in the CWP-Project Cost  
17 Comparison. However, for Cal Am capital projects, legal expenses are not  
18 typically a capitalized expenditure. DRA recommends that the Commission  
19 require Cal Am to reduce the Implementation Costs by 2% to eliminate the  
20 accounting for legal expenses. This DRA recommended adjustment will reduce  
21 Implementation costs by \$850,000.

22 **(h) Pre-purchase of Pipe Materials may yield cost savings.**

23 Cal Am and the Settling parties estimated that over 57,000 lineal feet of  
24 pipe will be installed to complete the construction of three large diameter  
25 conveyance pipelines.<sup>26</sup> Assuming almost 10.8 miles of pipeline will be laid, an  
26 opportunity exists for Cal Am to take advantage of its procurement activities

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<sup>26</sup> SA, p.10, Section 8.1.1.

1 within its parent company, American Water Works, which operates in 35 states.  
2 DRA recommends that the Commission require Cal Am to investigate the cost  
3 savings that may be possible by pre-purchasing large quantities of pipe materials  
4 outside of awarded construction contracts, to capture American Water’s cost  
5 advantages and economies of scale as a volume purchaser of pipe.

6 **3) Ratemaking and cost containment –**

7 (a) DRA recommends that Cal Am refine the cost  
8 estimates over time as they became more certain or precise, to ensure that  
9 the project cost contingencies do not fund scope creep nor unnecessarily  
10 inflate ratebase. To accomplish this, DRA recommends that Cal Am and  
11 DRA meet on a quarterly or other mutually agreeable frequency to review  
12 the project status to meet and confer regarding project design and cost  
13 estimating and construction.<sup>27</sup> Such meetings will provide DRA and Cal  
14 Am the opportunity to ensure that the project scopes conform to the intent  
15 of the FEIR and that as costs become more certain, the project scopes are  
16 not inadvertently or intentionally expanded beyond what is necessary,  
17 resulting in unnecessary or imprudent costs to Cal Am ratepayers.

18 **D. CONCLUSION**

19 DRA recommends that the Commission adopt DRA’s recommendations  
20 related to Cost Reductions for the Cal Am Only Facilities, as made by DRA in this  
21 Chapter.

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<sup>27</sup> The Settlement Agreement in A.09-01-013 proposes a similar framework to periodically review project status.

1                   **CHAPTER 3: COST AND RISK REDUCTION RECOMMENDATIONS**  
2                                   **BY THE UNITED STATES BUREAU OF**  
3                                   **RECLAMATION**

4                   **A. INTRODUCTION**

5           This chapter discusses recommendations made by the United States Bureau of  
6 Reclamation, Technical Services Center (“Reclamation”) to DRA on possible  
7 ways to reduce costs and mitigate risks for the Regional Project as envisioned by  
8 the Settlement Agreement (“Agreement”) by and among Cal Am, Marina Coast  
9 Water District (“MCWD”), Monterey County Water Resources Agency,  
10 (“MCWRA”), Monterey Regional Water Pollution Control Agency,  
11 (“MRWPCA”), Public Trust Alliance, (“PTA”) and Surfrider Foundation  
12 (“Surfrider”).

13           DRA reviewed Reclamation’s recommendations regarding the Coastal  
14 Water Project, North Marina Alternative and Regional Project and summarizes the  
15 most pertinent to the Agreement below.<sup>28</sup>

16                   **B. SUMMARY OF RECOMMENDATIONS**

17           DRA recommends that the Commission consider Reclamation’s recommendations  
18 to lower project costs and reduce uncertainties and project risk, in order that the  
19 Regional Project costs fall within the caps recommended by DRA.<sup>29</sup>

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<sup>28</sup> Reclamation made additional recommendations regarding Cal Am’s proposed Moss Landing Project which are not relevant to DRA’s recommendations regarding the Regional Project proposed by the Parties.

<sup>29</sup> DRA recommends a \$2200/AF cost cap on product water purchased by Cal Am under the Water Purchase Agreement in the testimony of Dr. Nihar Shah, and a Cal Am only facilities cost cap in the testimony of Joyce Steingass, among other recommendations.

1           **C. DISCUSSION**

2  
3           **1)           Reclamation’s Comments recommend cost and risk**  
4 **reduction methods.**

5 Reclamation reviewed information supplied by the Parties in testimony as well as  
6 in cost workshops by the Commission and submitted the review comments  
7 (“Reclamation’s Comments”) to DRA on March 11, 2010<sup>30</sup>, before Parties’  
8 submittal of the Settlement Agreement and Implementing Agreements.

9 Nevertheless, many of the recommendations<sup>31</sup> made by Reclamation pertain to the  
10 Regional Project as envisioned by the Settlement Agreement, and are summarized  
11 as follows: (Sections referenced below refer to Sections in Reclamation’s  
12 Comments)

- 13
- 14 • Drill and operate a test well before proceeding with either the North Marina
  - 15     Alternative or Regional Project. (Sections 2.1.1 and 2.1.2)
  - 16 • Perform a year-long pilot test of the proposed water treatment equipment using
  - 17     water obtained from the test well or wells. (Section 2.1)
  - 18 • Abandon the concept of a second pass for the RO systems as not necessary to
  - 19     meet existing CDPH notification level for Boron and secondary standards for
  - 20     sodium and chloride. (Sections 2.1.4 and 2.1.5)<sup>32</sup>
  - 21 • Shorten the estimated lifetime of RO elements to five years and develop
  - 22     membrane replacement criterion. (Section 2.3.1)

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<sup>30</sup> “Bureau of Reclamation Review Comments on Coastal Water Project and Alternatives  
Monterey, CA”, March 11, 2010.

<sup>31</sup> A summary of Reclamation’s recommendations appears on pages 4 and 5 of the report. The  
recommendations that DRA finds relevant to the Regional Project as envisioned by the Settlement  
Agreement are summarized here.

<sup>32</sup> DRA notes that a Seawater Reverse Osmosis Desalination Pilot Study for a 2.5 MGD desalination plant  
for the city of Santa Cruz north of the proposed Regional Project site was recently completed by the City of  
Santa Cruz and concluded that a second pass was not necessary for sufficient Boron removal. The pilot  
study report is available at:

[http://www.sewd2desal.org/documents/Reports/Pilot\\_Plant/FINAL%20Pilot%20Program%20Report\\_April\\_10.pdf](http://www.sewd2desal.org/documents/Reports/Pilot_Plant/FINAL%20Pilot%20Program%20Report_April_10.pdf)

- 1 • Develop a formal “work alone” policy for the proposed water treatment plant.  
2 (Section 2.3.3)
- 3 • Carry out stabilization tests on desalination plant product water (Section 2.4.1).
- 4 • Analyze chlorinated desalination plant product water for disinfection  
5 byproducts. (Section 2.4.2)
- 6 • Conduct the Brine Waste Disposal Study and further investigate the impact of  
7 possible brine corrosion issues of outfall system as recommended by Brown  
8 and Caldwell. In addition, investigate the potential formation of disinfection  
9 byproducts in the concentrate stream. (Section 2.5)
- 10 • Further investigate the feasibility and potential cost savings associated with  
11 base-loading the desalination plant. (Section 2.6.1)
- 12 • Obtain a second cost estimate for the proposed desalination plant from a  
13 potential bidder. (Section 2.6.1)
- 14 • Obtain desalination plant by competitive bid. (Section 2.6.1)
- 15 • Separate the cost of energy recovery equipment from cost of desalination plant.  
16 (Section 2.6.1)
- 17 • Investigate constructing the 6-MG Terminal reservoir structure above-ground  
18 in order to reduce estimated construction costs. (Section 3.4)
- 19 • Generate estimates for anticipated land purchases for the Regional Project  
20 desalination plant and source water wells in order to ascertain how much extra  
21 these will add to overall project costs. (Section 3.6.3)
- 22 • Obtain an independent estimate for Regional Project unit costs to provide a  
23 more accurate estimate of costs. (Section 3.7)
- 24 • Generate mitigation cost estimates based upon the FEIR impact and mitigation  
25 summary. (Section 3.11)
- 26

27           **2)           Reclamation’s Comments indicate that the Parties’ estimate**  
28 **is at an earlier stage of development than the stage of development used by**  
29 **Reclamation for Congressional Authorization.**

30 Reclamation states in comments that:

31           “All three estimates provide a High End of the Accuracy Range at +25% and  
32           a Low End at -15% of the Accuracy Range. As stated in the workshop, the  
33           estimates are considered Class 3/Class 4 based on the Association for  
34           Advancement of Cost Estimating (ACCE) Classifications. This would be  
35           similar to BOR’s feasibility level estimate, which can be used for  
36           Congressional Authorization. Based on the workshop’s<sup>33</sup> indication that

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<sup>33</sup> Reclamation’s use of “workshops” here refers to the cost workshops held by the Commission in July 2009.

1 very limited or no subsurface investigations have been performed for the  
2 water sources, the estimates appear to be at a lower level such as BOR's  
3 appraisal estimate level.”<sup>34</sup>

4 DRA therefore concludes that the estimates presented by the Parties, and used in  
5 the Settlement Agreement are at a lower level and an earlier stage of development  
6 than those used by Reclamation to obtain Congressional Authorization.

7 **3) Reclamation's Comments recommend a lower level of contingency than**  
8 **that used by Parties in the Settlement Agreement.**

9 Reclamation states in comments that:

10 “Reclamation utilizes two categories for contingencies, Design and  
11 Construction Contingencies. The Design Contingencies for an appraisal  
12 level estimate typically are included at least 10% (typically 15%), while  
13 the Construction Contingencies are included at 25%. These percentages  
14 are compounded when applied. Therefore, Reclamation contingencies  
15 (compounded) range from approximately 37.5% to 44% versus 25%  
16 shown in the estimates. For these projects (for which “preliminary and  
17 final designs” have not been initiated)<sup>35</sup> a higher percentage to cover  
18 contingencies appears warranted.”<sup>36</sup>

19 However, after Reclamation's Comments were submitted to DRA, Parties  
20 included a “High End Allowance of Design Development” of \$42,070,000 or  
21 17.5% compounded with their original 25% contingency, for a total compounded  
22 amount of 47%<sup>37</sup>

23 DRA therefore concludes that Reclamation recommends a contingency lower  
24 (37.5-44%) than that included by the Parties in their proposal (47%).

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<sup>34</sup> “Bureau of Reclamation Review Comments on Coastal Water Project and Alternatives  
Monterey, CA”, March 11, 2010, p. 29-30.

<sup>35</sup> Data Response CWP #30.

<sup>36</sup> Bureau of Reclamation Review Comments on Coastal Water Project and Alternatives  
Monterey, CA”, March 11, 2010, p. 29-30.

<sup>37</sup> Exhibit C to the Water Purchase Agreement. DRA calculates this as “High End Allowance of Design  
Development”/ “Project Capital Costs with Contingency”=\$42,070,000/ \$240,400,000=17.5%, and  
1.25x1.175=1.47 or 47%, compared to Reclamation's recommended 37.5% to 44%.

1                   **D. CONCLUSION**  
2   DRA recommends that the Commission consider Reclamation’s recommendations  
3   to lower project costs and reduce uncertainties and project risk, in order that the  
4   Regional Project costs fall within the caps recommended by DRA.<sup>38</sup>

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<sup>38</sup> DRA recommends a \$2200/AF cost cap on product water purchased by Cal Am under the Water Purchase Agreement in the testimony of Dr. Nihar Shah, and a Cal Am only facilities cost cap in the testimony of Joyce Steingass, among other recommendations.



**CHAPTER 4: ANALYSIS OF THE RATEMAKING ISSUES RELATED TO  
PROPOSED REGIONAL DESALINATION PROJECT**

**A. Estimated Revenue Requirement**

DRA estimates the revenue requirement for California American Water (“CAW”) that would be authorized by approval of the proposed Settlement Agreement to be \$69,010,000. As the annual revenue requirement for the Regional Project’s first full-year of operation, this revenue requirement would be in addition to CAW’s regular revenue requirement for the Monterey District, currently authorized at approximately \$42,700,000<sup>39</sup>. DRA’s estimate is based upon the Settling Parties agreed cost cap for CAW facilities (\$106,875,000) and the capital cost estimate presented in Exhibit C of the Water Purchase Agreement for the desalination plant (\$297,470,000). Because Parties have not included within the Settlement Agreement an estimate of the project’s total revenue requirement or the complete financial data necessary to support the calculation of a total revenue requirement, DRA independently developed and presents below the assumptions used to determine the potential rate implications of the proposed Settlement Agreement.

The total cost estimate presented in Exhibit C of the Water Purchase Agreement specifically excludes all costs associated with interest during construction and required debt coverage. DRA estimates these costs to contribute upwards of \$100,000,000 to the project’s total indebtedness. Without revenues being generated by the project during construction, the initial debt offering would need to be sized larger than the initial construction cost estimates in order to provide adequate reserves for meeting interest payments during construction and any required minimum debt reserves. DRA has assumed that the minimum amount remaining in a debt service account after all payments have been made

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<sup>39</sup> See testimony of DRA witness Ms. Lindsey Fransen, April 30, 2010.

1 will be equal to one year's debt service. As discussed below, DRA's estimate of  
2 the additional project costs associated with interest during construction and debt  
3 coverage is driven primarily by the estimated length of construction and the  
4 assumed aggregate financing rate of the indebtedness.

5 In response to DRA data request CWP-53 (Attachment A), Settling Parties  
6 indicated that the "interest rate for public bond financing was adjusted to 4.75% to  
7 reflect a conservative basis of the current bond market." DRA appreciates the  
8 difficulty and uncertainty involved in predicting bond rates in advance of an  
9 issuance. However, DRA has been provided with no support that an aggregate  
10 rate of 4.75% represents a conservative estimate of the current bond market's  
11 likely view of an issuance similar to that which would be required by the Regional  
12 Project. In developing its estimate, DRA assumed a financing rate of 6% for a  
13 municipal bond rated BBB. Selection by DRA of this rating was based upon the  
14 likeliness of rating agencies to evaluate both the strength of the project, as well as,  
15 all counterparties to the project. Guaranteeing close to 100% of total payments  
16 during different periods of the contract-term, California American Water would  
17 reasonably be classified as a primary counterparty. Accordingly, their financial  
18 strength and backing would likely be reviewed and relevant in determining the  
19 pricing of a debt issuance. In response to DRA data request CWP-54-2(c),  
20 California American Water indicated that American Water Works Company is  
21 currently rated BBB+ by Standard & Poor's and Baa2 by Moody's (Attachment  
22 B). Consistent with DRA's intention of providing the Commission with  
23 conservative estimates, the lower of these two ratings was used as an  
24 approximation for the rating that would be given to a tax-free debt issuance for the  
25 Regional Project.

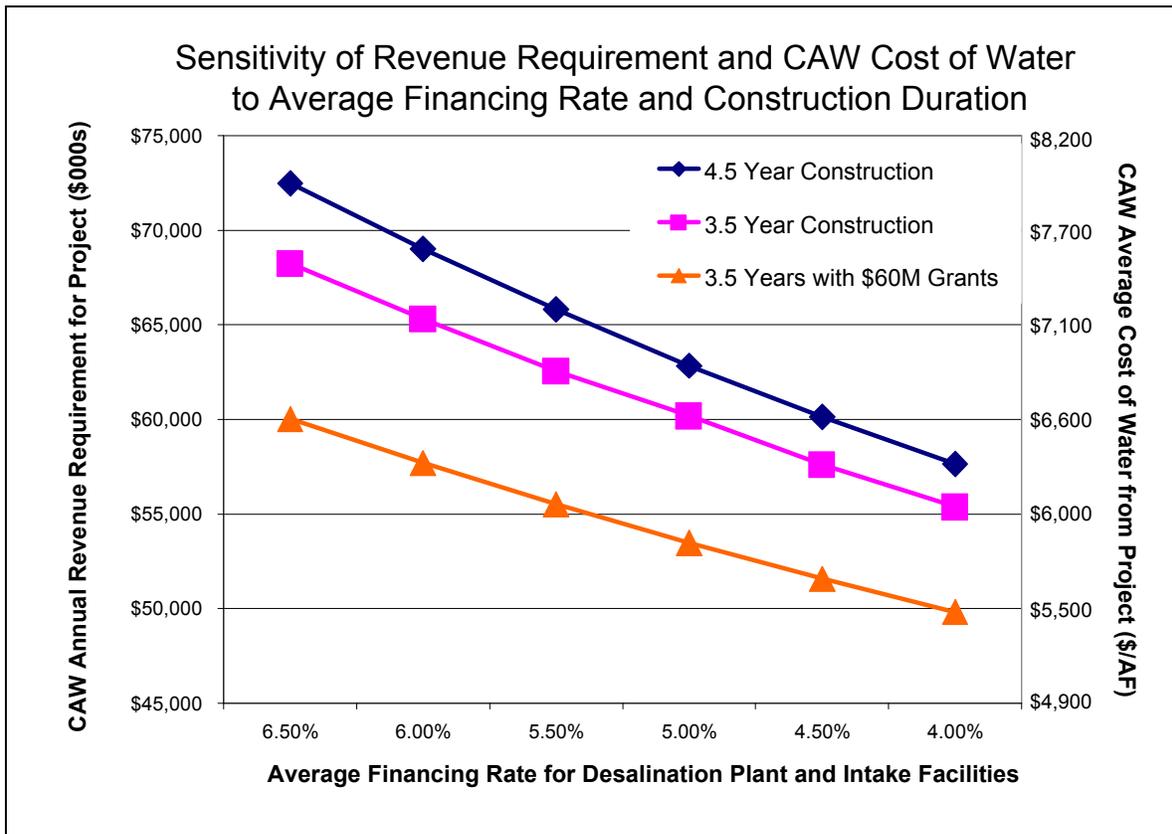
26 The second critical cost driver for interest during construction is the  
27 assumed construction duration. Settling Parties have not made available a clear  
28 estimate of this anticipated time period. Using information extrapolated from the

1 attachment to Data Response CWP-53, DRA concludes that Settling Parties are  
2 estimating the construction period to be 3.5 years. However, Section 4.9(b) of the  
3 Water Purchase Agreement (“WPA”) requires operational capability of the  
4 desalination plant no later than forty-five months (3.75 years) after the program  
5 initiation date, while Section 7.4 of the WPA provides an additional twenty-four  
6 months for a total of 5.75 years to achieve plant acceptance. DRA has used a  
7 construction period of 4.5 years as a conservative approximation of the time  
8 between debt obligations being incurred and full operational capability of the  
9 Regional Plant. DRA’s construction period of 4.5 years would also provide  
10 adequate time for a risk-mitigating and well-advised pilot project<sup>40</sup> while still  
11 meeting the deadline imposed by the State Water Resources Control Board’s  
12 Cease and Desist Order.

13 Graph 1A shows the sensitivity of CAW’s annual revenue requirement to  
14 different financing rates for both DRA’s estimated construction period (4.5 years)  
15 and DRA’s calculation of the Settling Parties’ construction estimate (3.5 years).  
16 An additional data set has been added to show the approximate effect of  
17 \$60,000,000 in grant funds upon the annual revenue requirement and the average  
18 cost of water to CAW under the terms of the Water Purchase Agreement.

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<sup>40</sup> “Bureau of Reclamation Review Comments on Coastal Water Project and Alternatives Monterey, CA”,  
March 11, 2010.



1 In addition to the lack of a cost estimate for interest during construction,  
 2 Settling Parties have not provided an estimate of the cost associated with  
 3 maintaining estimated debt service coverage. The necessity of such cost was  
 4 originally presented in the MCWD testimony of Thomas Gaffney<sup>41</sup>. As excerpted  
 5 from the Official Statement of MCWD’s 2006 Certificates of Participation  
 6 (Attachment C), existing bond covenants of MCWD require the district to  
 7 maintain net annual revenues at 125% of annual debt service. Without an  
 8 alternative mechanism proposed by Settling Parties to meet the required debt  
 9 coverage ratios, DRA calculated the additional payments necessary to maintain the  
 10 aforementioned debt-coverage ratio. The following table provides the annual

<sup>41</sup> Direct Testimony of Thomas E. Gaffney (Phase 2 Regional Project Cost Issues), June 24, 2009

1 amount necessary to meet these coverage requirements, as well as, all other  
 2 components and assumptions used in developing DRA’s estimated revenue  
 3 requirement.

Table 1A

DRA Assumptions for Calculating Revenue Requirement		Calculation of CAW 1 <sup>st</sup> Year Revenue Requirement	
Exhibit C Cost Estimate:	\$297,470,000	Total Bond Issuance:	\$399,630,000
CAW Facilities Estimate:	\$106,875,000		
Construction Term:	4.5 years	<u>1<sup>st</sup> Year Total CAW Project Costs</u>	
Avg. Bond Financing Rate:	6%	Annual Debt Service Payment:	\$30,990,000
Interest During Construction	\$107,900,000	Annual Plant O&M Expense:	\$14,270,000
CAW Rate of Return:	8.04%	Capital Reserve (3% of Debt):	\$930,000
CAW AFUDC Rate:	11.80%	Avg. Payment for 1.25 Coverage:	\$6,810,000
CAW Effective Tax Rate:	40.00%	Return on CAW Rate Base:	\$12,050,000
Total Water Production:	10,500 afy	Depreciation Expense:	\$4,260,000
CAW Allocation	8,800 afy	CAW Facilities O&M Expense <sup>(a)</sup>	(\$1,760,000)
Groundwater Offset to MCWD:	1700 afy	MCWD Payments <sup>(b)</sup>	(\$250,000)
MCWD Water Cost:	\$150/af	Gross-Up of Expenses <sup>(c)</sup>	<u>\$1,710,000</u>
		Total CAW Revenue Requirement:	<b>\$69,010,000</b>
(a) includes CAW avoided costs from reduced Carmel River pumping			
(b) MCWD payments based upon [(1700 acre-feet) x (\$148 per acre-foot)]			
(c) CAW estimates a gross-up total of 3% for uncollectibles, property and franchise taxes			

4 While some parties have characterized DRA estimates as representing the  
 5 worst-case scenario<sup>42</sup>, actual annual costs for CAW ratepayers could in fact be  
 6 greater than the \$69,010,000 figure presented by DRA, as the Water Purchase  
 7 Agreement explicitly allows for recovery of unbounded legal, operational, general  
 8 and administrative expenses, all pre-determined to be prudently incurred and  
 9 outside of Commission purview.<sup>43</sup> Moreover, as explained in DRA Comments

<sup>42</sup> “Analysis Ups the Cost of Desal Water” D.Lopez, Monterey Herald, 4/11/2010 (Attachment D)

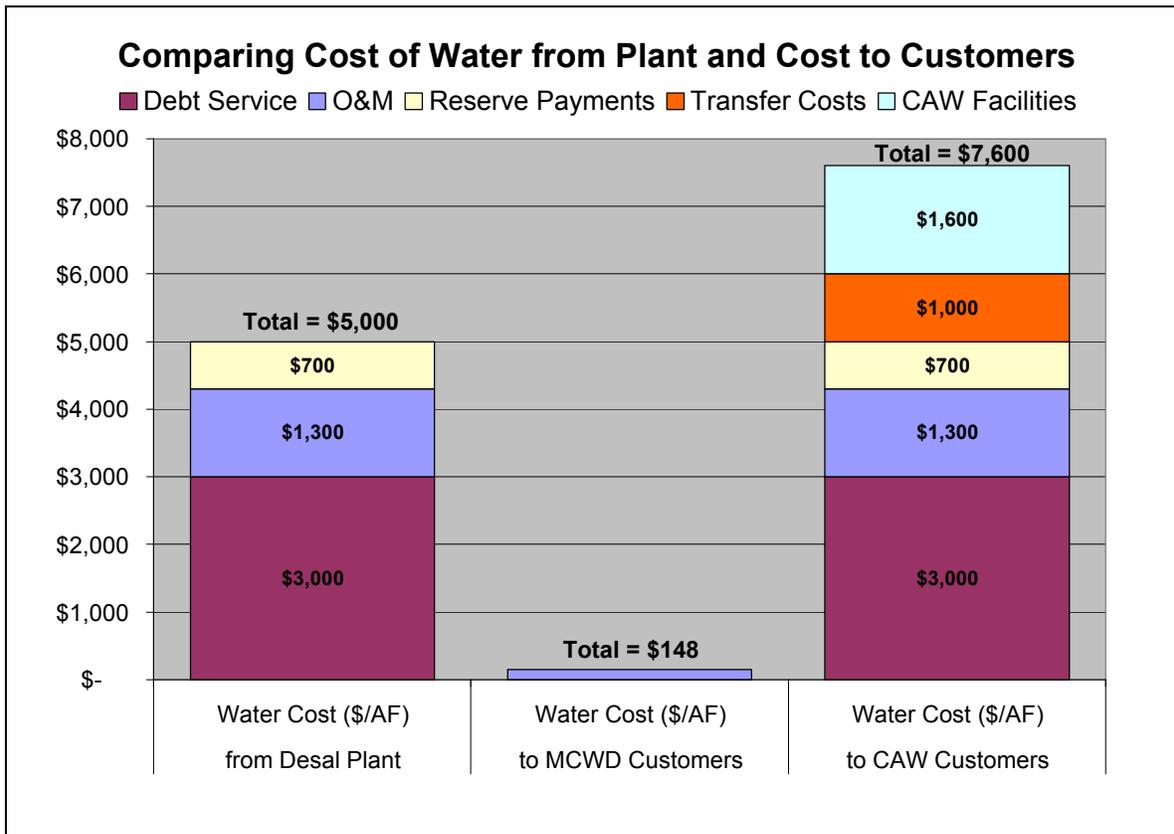
<sup>43</sup> See Comments of the Division of Ratepayer Advocates on the Proposed Settlement Agreement, April 30, 2010

1 regarding modeling of the groundwater, the ultimate cost of water delivered to  
2 CAW customers will further increase if the Regional Project's supply wells  
3 withdraw a greater average percentage of groundwater than what has been  
4 modeled. If such were to happen, CAW customers would pay either higher  
5 transfer costs<sup>44</sup> to offset the increased amount of water required to remain in the  
6 Salinas Basin or the higher costs of relocating supply wells – or in a truly worst-  
7 case scenario the higher-costs associated with both.

8 Combining the capital cost estimates that Settling Parties have provided  
9 with DRA's financing and construction assumptions presented in Table 1A, the  
10 potential first-year cost of water from the desalination plant is \$5,000 per acre-  
11 foot. Based upon the terms of the Water Purchase Agreement, MCWD would  
12 likely be responsible to pay \$148 per acre-foot. Adding the cost of CAW pipeline  
13 facilities and transfer costs, the first-year cost of water to CAW customers would  
14 be \$7,600 under this scenario. The following chart graphically depicts the  
15 difference between the cost of water produced by the desalination plant and the  
16 cost of water to parties in the agreement:

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<sup>44</sup> Transfer Costs represent the additional water costs that CAW customers will absorb to offset the lower price MCWD will pay (2009 estimate: \$148/AF) relative to the actual water cost from plant. If the percentage of groundwater increases and a greater percentage of product water must remain in the Salinas Basin, the total amount of these transfer costs will increase proportionately.



1            In addition to the numerous areas identified above where actual CAW  
 2 revenue requirements and water costs might exceed current estimates, DRA notes  
 3 Section 5 of the Settlement Agreement which recommends the Commission “take  
 4 steps to ensure CAW’s financial well-being,” which parties have determined to be  
 5 possibly impacted by the terms of the Settlement Agreement. Since Parties have  
 6 agreed to address this issue in a subsequent proceeding, DRA has not included an  
 7 estimate of the additional costs associated with what Settling Parties have titled  
 8 “Recognition of Financial Impacts of Settlement on CAW.” However, in  
 9 response to DRA Data Request CWP-54, CAW has provided a preliminary  
 10 estimate that “based on current assumptions, the additional revenue requirement

1 needed to offset these negative impacts is approximately \$14.3 million.”<sup>45</sup> This  
2 amount, if approved by the Commission, would add approximately \$1600 per  
3 acre-foot to the CAW-customer cost of water, extending the total cost of water to  
4 CAW customers beyond the scale of the above chart to approximately \$9200 per  
5 acre-foot.

## 6 **B. Ratemaking for CAW Facilities**

7 Section IV.B.5 of the Settling Parties’ Motion to Approve the Settlement  
8 Agreement indicates that “CAW will calculate its projected and actual revenue  
9 requirements using common ratemaking components.” Section 9 of the  
10 Settlement Agreement details the proposed ratemaking treatment. Although the  
11 components are in fact common to traditional ratemaking, DRA finds the creative  
12 definitions applied to these components and the proposed application of such  
13 components to be far from common.

14 Using the Settling Parties definition of “Equity Used” for CAW facilities,<sup>46</sup>  
15 CAW can independently determine the capital structure utilized for financing of  
16 the project facilities, thereby allowing CAW alone to determine the percentage of  
17 project facilities for which investors would earn an equity return. Absent of  
18 compelling evidence why such self-determined equity positions are warranted,  
19 DRA recommends the Commission require the project financing of CAW facilities  
20 to adhere to the company’s 58-42 debt-to-equity capital structure approved in D.  
21 09-05-019.

22 Settling Parties have proposed in Section 9.1.4 of the Settlement Agreement  
23 to allow CAW to move all project costs “including, but not limited to, all pre-  
24 construction costs and AFUDC”, associated with CAW facilities into customer  
25 rates semi-annually. Although DRA has concerns with any mechanism that allows

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<sup>45</sup> CAW Data Request Response CWP-54-2(a), April 24, 2010 (Attachment E)

<sup>46</sup> Section 9.1.7 of Settlement Agreement, April 6, 2010

1 customer pre-funding of construction costs, more troubling is the proposed interest  
2 rate (AFUDC) to be applied to such costs prior to these costs being recoverable in  
3 customer rates. Settling Parties have agreed to define the AFUDC percentage as  
4 CAW's pre-tax cost of capital. In the attachment provided for Data Response  
5 CWP-54-3 (Attachment F), CAW calculates and presents 11.8% as the company's  
6 pre-tax cost of capital.

7 DRA has been unable to find any decision by any public utility commission  
8 in any water utility rate proceeding which authorized the pre-tax weighted average  
9 cost of capital to serve as the appropriate AFUDC rate for recovery of a water  
10 utility's carrying costs. AFUDC by definition is the allowance for funds used  
11 during construction. Using the mechanism proposed by CAW where funds used  
12 during construction are transferrable into rates semi-annually, the maximum time  
13 period for which an allowance would be necessary is six months (or one year as  
14 DRA advocates below). As such, DRA recommends the Commission adopt an  
15 AFUDC percentage commensurate to CAW's actual short-term borrowing costs.  
16 For the Commission's consideration, DRA presents the current 2-year yield on  
17 BBB-rated corporate debt (2.46%)<sup>47</sup> as the upper-limit of its recommendation for  
18 what would be a reasonable allowance.

19 In regards to the proposed semi-annual transfer of applicable CAW-facility costs  
20 into customer rates, DRA recommends increasing this time period to one year.  
21 Avoiding the necessity of rate increases twice a year, an annual transfer of  
22 applicable costs would better balance utility and customer interests. While such a  
23 mechanism would still produce the inevitable customer pre-funding of certain  
24 construction costs—a concept with which DRA has strong reservations, a one-year  
25 accumulation period would still closely adhere to the Commission's past practice  
26 of allowing shorter-duration water projects (i.e. less than one year) into rates. This

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<sup>47</sup> Vanguard Corporate Bond Yields as of 4/20/2010

- 1 would be a reasonable compromise between waiting until the project is fully used-
- 2 and-useful and transferring construction costs into rates every six months.

1                   **CHAPTER 5: RATE AND BILL IMPACT ANALYSIS**

2                   **A. INTRODUCTION**

3                   The Phase II Scoping Memo indicates that cost allocation issues will be  
4 addressed in a separate phase of this proceeding.<sup>48</sup> However, the Settlement  
5 Agreement specifies that CAW shall utilize its current rate model to determine the  
6 rate design.<sup>49</sup> DRA has not taken a position on rate design in this phase of the  
7 proceeding. However, for the purpose of estimating the effects of the Regional  
8 Project on ratepayers, DRA has conducted a bill impact analysis based on the  
9 terms of the Settlement Agreement and DRA’s estimated revenue requirement.

10                  This section discusses DRA’s calculated changes in rates due to the  
11 proposed Regional Project, as well as sample bills showing the magnitude of  
12 increases that customers are likely to experience.

13                  **B. DISCUSSION**

14                  DRA used CAW’s existing rate model and DRA’s estimated revenue  
15 requirement of \$69,010,000<sup>50</sup> to determine rates and sample bills. DRA also  
16 conducted a bill impact analysis with a revenue requirement that incorporates the  
17 “Financial Impacts of Settlement on CAW,” as described in response to DRA Data  
18 Request CWP-54 and discussed in DRA testimony chapter “Analysis of the  
19 Ratemaking Issues related to Proposed Regional Desalination Project.” This  
20 alternative is included in attachment H to this testimony.

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<sup>48</sup> Joint Scoping Memo Ruling of Assigned Commissioner and Administrative Law Judge Setting Forth Scope and Schedule For Phase 2, p. 15.

<sup>49</sup> Settlement Agreement, Section 9.6. The existing rate design model was authorized in Decision (“D.”) 09-07-021.

<sup>50</sup> See DRA Testimony chapter “Analysis of the Ratemaking Issues related to Proposed Regional Desalination Project” for calculation of revenue requirement.

1 DRA added the additional \$69,010,000 to the current CAW Monterey  
2 revenue requirement of \$42,731,900.<sup>51</sup> The actual total revenue requirement, and  
3 therefore actual rates and bills, are likely to be higher than those calculated here  
4 because increases unrelated to the Regional Project may be authorized in General  
5 Rate Cases (“GRC”) in the interim. Due to the uncertainty regarding possible  
6 future rate increases, however, DRA did not include them in its analysis.

7 DRA used the same consumption patterns across blocks as those reported  
8 in AL 825, which implemented the current rate model. In line with the Settlement  
9 Agreement, DRA applied the revenue requirement resulting from the Regional  
10 Project entirely to quantity rates.<sup>52</sup> Also in line with the Settlement Agreement,  
11 DRA excluded Toro, Ambler Park, Chualar, and Ralph Lane from this analysis,  
12 since water from the desalination plant is not currently intended to be delivered to  
13 these service areas.<sup>53</sup>

14 The sample bills below do not include any of the surcharges that are  
15 currently included in customers’ bills. Some surcharges are on a per-meter basis,  
16 while others are based on consumption or a percentage of the bill. These  
17 surcharges include franchise taxes and business license fees; conservation  
18 surcharges for both CAW and MPWMD; a charge for rights to the Seaside Basin;  
19 and a charge for the Carmel River Dam and the Regional Project. Taken together,  
20 these surcharges amount to 10% - 25% of the sample residential bills provided  
21 below. An additional 10% volumetric surcharge may be reinstated for MPWMD,  
22 bringing the total surcharges to 20% - 35% of these sample bills.

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<sup>51</sup> A total water service revenue requirement of \$42,731,900 is found in the workpapers for Advice Letter 826, effective February 1, 2010.

<sup>52</sup> Section 10.3 of the Settlement Agreement states that CAW will recover the cost of the Product Water received under the WPA through rates by means of the authorized Modified Cost Balancing Account (“MCBA”).

<sup>53</sup> Settlement Agreement, Section 9.6.2.

1           The existing rate design model includes 5 price blocks for the residential  
2 sector. The size of these blocks is based on the number of people in the  
3 household; lot size (larger lots receive a higher allocation in blocks 3, 4, and 5 in  
4 the summer months); and number of large animals. The model also sets prices in  
5 each block relative to the base rate.<sup>54</sup> The settlement agreement authorized in  
6 D.09-07-021, which develops the current rate design, states that block 1 will be  
7 frozen at its current (2009) rate; however, it states elsewhere that block 1 will be  
8 half of the base rate. The Regional Project Settlement Agreement states that block  
9 1 will be frozen.<sup>55</sup> While DRA does not necessarily recommend this treatment,  
10 the analysis uses this approach so as to remain consistent with the Regional  
11 Project Settlement Agreement.

12           Non-residential blocks are determined by giving every customer an  
13 allotment based on water factors. A water factor is the annual amount of water, in  
14 acre-feet, allocated per a unit of measure such as square feet (retail, schools,  
15 churches, etc), seats (restaurants), or rooms (hotels). All consumption within a  
16 customer's allotment is charged at the non-residential block 1 price; additional  
17 consumption up to 15% of the allotment is charged at the non-residential block 2  
18 price; and any further consumption is charged at the non-residential block 3 price.  
19 This analysis uses the most recent water factors and allotments, as well as 2009  
20 consumption data, to develop the sample summer bills for a selection of non-  
21 residential customers.<sup>56</sup>

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<sup>54</sup> The base rate is the per-unit rate that would achieve revenue neutrality if every unit of water were sold at the same price; in other words, it is the quantity revenue requirement divided by the number of units sold.

<sup>55</sup> Settlement Agreement, Section 9.6.1.

<sup>56</sup> DRA used CAW billing data to select a mid-range customer in several categories – for example, for schools with a water factor based on square footage, DRA found the average square footage of CAW customers in this category, selected a school of approximately this size, calculated its allotment, and used its 2009 billing data to calculate average monthly summer consumption. In the absence of full-year data, DRA was not able to perform the annual true-up (since non-residential customers are given annual, rather than monthly, allotments), so adjusted monthly bills could vary somewhat from the samples presented here.

1           Block prices in this analysis, as in the current rate design, are as follows.

2   For residential customers:

3           Block 1: current rate (2009), including interim true-up

4           Block 2: 100% of base rate

5           Block 3: 200% of base rate

6           Block 4: 400% of base rate

7           Block 5: 700% of base rate.<sup>57</sup>

8   For non-residential customers:

9           Block 1: 100% of base rate;

10          Block 2: 300% of base rate;

11          Block 3: the same as the top block rate for residential customers.

12          The tables below show the rates with DRA's estimated revenue  
13 requirement under the terms of the Settlement Agreement, as well as sample  
14 residential and non-residential bills at different levels of consumption.

15

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<sup>57</sup> The settlement agreement in D.09-07-021 states that the Block 5 rate will be 600% of base rate; in a separate note, however, it states that the rate in block 5 would be limited to twice the current block rate in block 5 (\$14.737) or 700% of the base rate, whichever is lower at the time the conservation rates are implemented. While \$29,474 – twice the rate at the time of the settlement – is clearly lower than 700% of the base rate, this limitation would cause the rate in block 5 to be lower than block 4. Therefore DRA used 700% of base rate for the block 5 rate in this analysis.

1 **Table 1: Quantity Rates (\$/Ccf)**

	Block 1 Rate		Block 2 Rate		Block 3 Rate		Block 4 Rate		Block 5 Rate	
	2010	Reg. Project								
Monterey	\$2.75	\$2.75	\$4.01	\$11.80	\$8.01	\$23.59	\$16.03	\$47.18	\$28.05	\$82.57
Residential	\$2.75	\$2.75	\$4.01	\$11.80	\$8.01	\$23.59	\$16.03	\$47.18	\$28.05	\$82.57
Non-Res. (All)	\$4.01	\$11.80	\$12.02	\$35.39	\$28.05	\$82.57	-	-	-	-
Dedicated Irrig.	\$8.01	\$23.59	\$28.05	\$82.57	-	-	-	-	-	-
Ambler	\$2.49	\$2.49	\$3.32	\$3.32	\$8.30	\$8.30	-	-	-	-
Bishop	\$1.83	\$2.75	\$3.01	\$8.85	\$4.01	\$11.80	\$5.01	\$14.75	\$6.01	\$17.69
Hidden Hills	\$2.75	\$2.75	\$4.01	\$11.80	\$8.01	\$23.59	\$10.02	\$29.49	\$16.03	\$47.18

2

3 **Table 2: Service Charges<sup>58</sup>**

Meter Size (inches)	Charge
5/8 x 3/4	\$8.70
3/4	\$13.05
1	\$21.75
1 1/2	\$43.50
2	\$69.60
3	\$130.50
4	\$217.50
6	\$435.00
8	\$696.00

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<sup>58</sup> The service charge may change as a result of interim GRCs and inflation; DRA does not yet have information about such potential changes, so does not include them here. Based on CAW’s response to DR 57, meter charges will not be affected by the Regional Project.

1 **Table 3: Comparison of sample summer bills for a residential customer<sup>59</sup>**  
 2 **under current and Regional Project rates**

Monthly Use	With current (2010) rates	With Regional Project Rates	% Change
3 Ccf	\$16.96	\$16.96	0%
7 Ccf	\$36.99	\$75.94	105.28%
12 Ccf	\$85.08	\$217.49	155.63%
20 Ccf	\$261.40	\$736.52	181.76%

3

4 **Table 4: Comparison of sample summer bills for non-residential customers**  
 5 **under current and Regional Project rates<sup>60</sup>**

Type of Business	Monthly Allotment	Monthly Use	Bills under 2010 rates	Bills under Regional Project Rates	% Change
Hotel, 47 rooms	144 Ccf	225 Ccf	\$2,520.17	\$7,376.23	193%
Restaurant, 100 seats	69 Ccf	72 Ccf	\$334.56	\$942.55	182%
Retail, 6,500 sf	9 Ccf	43 Ccf	\$978.33	\$2,837.59	190%
School, 5,800 sf	15 Ccf	8 Ccf	\$53.81	\$116.12	116%

6 Attachment H to this testimony includes rates and sample bills for the  
 7 following alternative scenarios:

- 8 • Alternative 1: Revenue requirement of \$69,010,000, block 1 rate unfrozen
- 9 • Alternative 2: Revenue requirement of \$69,010,000, plus \$14,300,000  
 10 million to offset the impacts of Settlement on CAW, block 1 rate frozen
- 11 • Alternative 3: Revenue requirement of \$69,010,000, plus \$14,300,000  
 12 million to offset the effects of Settlement on CAW, block 1 rate unfrozen

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<sup>59</sup> The sample customer has 2 people in the household (this is the most common household size in the service area, representing 30% of customers); ¼ - ½ acre (this is the most common lot size in the service area, representing 63% of customers). Such a customer has a monthly allotment of 3 Ccf; in the summer, the monthly allotment is increased to 5 Ccf in blocks 3, 4, and 5.

<sup>60</sup> The total bill includes charges for a 1” meter.

1           **C. CONCLUSION**

2           Customers will be affected differently by the Regional Project, depending  
3 on customer class and water consumption patterns. Under the scenario described  
4 above, a residential customer that stays within its block 1 allotment could see no  
5 increase at all in their bills; customers consuming outside of block 1, however,  
6 would see increases on the scale of double to nearly triple current bills. Non-  
7 residential customers are likely to see their bills double even if they stay within  
8 their allotments; the sample customers who exceeded their allotments saw  
9 increases of nearly triple current bills in this analysis.

10           How CAW designs its rates under a Regional Project will influence how  
11 different customers are affected by the Regional Project and which customers  
12 carry the primary financial burden. The impact of the Regional Project on  
13 people’s bills could also affect customers’ consumption patterns and the overall  
14 quantity of water sold and revenue collected. The questions raised in this  
15 testimony regarding allocation of costs between meter charges and quantity rates  
16 and the retention of the block 1 cap will need to be carefully considered in a  
17 subsequent phase of this proceeding.

The following attachments are attached in Appendix B to DRA's testimony

**ATTACHMENT A:**

Joint Response To Data Request CWP #53

**ATTACHMENT B:**

CAW Data Request Response CWP 54-2(c)

**ATTACHMENT C:**

Excerpted Official Statement of MCWD's 2006 Certificates of Participation

**ATTACHMENT D:**

*"Analysis Ups the Cost of Desal Water"* D.Lopez, Monterey Herald, 4/11/2010

**ATTACHMENT E:**

CAW Data Request Response CWP-54-2(a)

**ATTACHMENT F:**

Attachment to Data Response #54

**ATTACHMENT G:**

Presentation to the State Water Resource Control Board by Mr. Steve Collins, Director and Mr. Curtis Weeks, General Manager of MCWRA, and Mr. Jim Heitzman, General Manager of MCWD, February 16, 2010, available at:

[http://www.waterboards.ca.gov/board\\_info/agendas/2010/feb/021610\\_6.pdf](http://www.waterboards.ca.gov/board_info/agendas/2010/feb/021610_6.pdf)

**ATTACHMENT H:**

Rates and Sample Bills for Alternative Scenarios.

**APPENDIX A: QUALIFICATIONS OF DRA WITNESSES**

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**QUALIFICATIONS AND PREPARED TESTIMONY  
OF  
NIHAR K. SHAH, Ph.D., P.E.**

Q.1. Please state your name and business address.

A.1. My name is Nihar K. Shah. My business address is 505 Van Ness Avenue, San Francisco, California.

Q.2. By whom are you employed and in what capacity?

A.2. I am employed by the California Public Utilities Commission - DRA Water Branch - as a Utilities Engineer.

Q.3. Please briefly describe your educational background.

A.3. I received my PhD in Mechanical Engineering, at the University of California Berkeley, with minors in Energy and Resources and Public Policy, in the December of 2008. I graduated at the top of my class of over 100 students with dual Bachelor and Master of Technology Degrees in Thermal and Fluids Engineering and Mechanical Engineering respectively from the Indian Institute of Technology, Bombay in 2002.

Q.4. Please briefly describe your professional experience.

A.4. From 2000-2001, I performed experimental work and analysis of Two-Phase Flow in a Boiling Water Nuclear Reactor for the Indian Ministry of Power. I worked as a Research Engineer for Radiant Engineers from 2001-2002, producing design software, designing, manufacturing, and testing the pressure, flow and heat exchange performance of Heat Exchangers for Indian Navy nuclear submarines and Indian Navy helicopters. My research experience at Berkeley from 2002-2004, involved experimental work for the US Department of Energy, and the Defence Advanced Research Projects Agency. I tested the thermal properties of Si-SiGe nanowires for Micro Electro Mechanical Systems. From 2004-2005, I developed safety goals for Generation IV nuclear power plants for the U.S. Nuclear

Regulatory Commission. I developed a new method of sustainable cost-benefit analysis of nuclear fuel cycles to include long-term nuclear waste disposal costs. From 2005 to 2007, I taught various engineering classes to undergraduate and graduate students at the University of California, Berkeley, including Thermodynamics, Manufacturing Processes, Composite Materials, Solid Mechanics, Introduction to Nanotechnology, and Business Ethics. In 2007, I co-authored an economic and technical feasibility report with Dr. Tim Lipman, co-Director of the Transportation Sustainability Research Center at Berkeley, examining the economic and technical feasibility of using Ammonia as a Low Carbon Energy Carrier in PEM hydrogen fuel cells, for the California Department of Transportation.

Q. 5. Are you a licensed Professional Engineer?

A.5. Yes. I am a licensed Professional Mechanical Engineer in the State of California (License No. M34969).

Q.5. Have you testified previously before this Commission?

A.5. Yes. I sponsored DRA's review of:

- \$97 million proposed plant additions in the recent A.08-01-027 General Rate Case, for California American Water Company's Monterey District,
- the \$40 million Sandhill Treatment Plant in Phase two of San Gabriel Water Company's last general rate case proceeding, A.08-07-009.
- \$130 million proposed plant additions in the ongoing A.09-01-013 General Rate Case, for California American Water Company's Sacramento District,
- \$50 million proposed plant additions in the ongoing A.09-07-001 statewide general rate case, for California Water Service Company's Bakersfield District.

Q.6. What are your responsibilities in this proceeding?

A.6. I am responsible for Chapter 1 discussing DRA's recommendation regarding a \$ per acre foot Product Water Cost Cap and Chapter 3 regarding Cost and Risk Reduction Recommendations made to DRA by the United States Bureau of Reclamation.

Q.7. Does this conclude your prepared testimony?

A.7. Yes, it does.

**QUALIFICATIONS AND PREPARED TESTIMONY  
OF  
Joyce Steingass, P.E.**

Q.1. Please state your name and business address.

A.1. My name is Joyce Steingass. My business address is 505 Van Ness Avenue, San Francisco, California.

Q.2. By whom are you employed and in what capacity?

A.2. I am employed by the California Public Utilities Commission - DRA Water Branch - as a Senior Utilities Engineer.

Q.3. Please briefly describe your educational background.

A.3. I received my Bachelor's of Science in Mechanical Engineering, at the University of California Berkeley.

Q.4. Please briefly describe your professional experience.

A.4. I have been employed by the Commission since 2005

Prior to the Commission, I was a Senior Associate for Barrington-Wellesley Group, Inc. a general management consulting firm serving electric, gas, water, and telecommunications industries. There I was engaged by public utility commissions to perform regulatory investigations related to utility operations. Earlier in my career, I was employed by Navigant Consulting Inc. As a senior engagement manager, I advised utility clients on asset management, infrastructure replacement, natural gas safety and regulatory compliance, electric reliability, metering and billing processes, and failure analysis.

Prior to 1999, I was employed for seventeen years by Pacific Gas and Electric Company. During my career with PG&E, I completed a six-year engagement with PG&E's gas pipeline replacement program. For three years, I was the pipeline replacement superintendent where I held overall

engineering and construction responsibility for San Francisco Division's \$20 million dollar annual gas pipeline replacement budget.

Q. 5. Are you a licensed Professional Engineer?

A.5. Yes. I am a licensed Professional Mechanical Engineer in the State of California (License No. M25178).

Q.5. Have you testified previously before this Commission?

A.5. Yes. I have testified in five General Rate Cases for Class A water companies and in the OII for water conservation, OII I.07-01-022. The subject matter for which I have testified includes utility plant in service, ratebase, water conservation programs, alternate regulatory mechanisms such as infrastructure system replacement surcharges.

Q.6. What are your responsibilities in this proceeding?

A.6. I am responsible for Chapter 2 discussing DRA's recommendations regarding the California American Water Company Facilities, "Cost Reductions in Cal Am Facilities".

Q.7. Does this conclude your prepared testimony?

A.7. Yes, it does.

**QUALIFICATIONS AND PREPARED TESTIMONY  
OF  
RICHARD RAUSCHMEIER**

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

A1. My name is Richard Rauschmeier and my business address is 505 Van Ness Avenue, San Francisco, California. I am a Financial Examiner in the Water Branch of the Division of Ratepayer Advocates.

Q2. Please summarize your educational background.

A2. I graduated from The Johns Hopkins University with a Bachelor's degree in Environmental Science, concentrating in chemistry and water treatment. In 2000, I earned a Masters of Science from Purdue University.

Q3. Briefly describe your professional experience.

A3. For more than 10 years, I have worked as an employee or consultant assisting organizations develop efficient and effective business practices and policies. In December of 2008, I joined the California Public Utilities Commission as an Auditor.

Q4. What is your responsibility in this proceeding?

A4. I am responsible for Chapter 4, which details DRA's estimates of the revenue requirements necessitated by the settlement agreements.

Q5. Does this conclude your prepared direct testimony?

A5. Yes, it does.

**QUALIFICATIONS AND PREPARED TESTIMONY  
OF  
LINDSEY FRANSEN**

Q.1 Please state your name, business address, and position with the California Public Utilities Commission (Commission).

A.1 My name is Lindsey Fransen and my business address is 505 Van Ness Avenue, San Francisco, California. I am a Public Utilities Regulatory Analyst IV in the Water Branch of the Division of Ratepayer Advocates.

Q.2 Please summarize your educational background and professional experience.

A.2 I received my Bachelor of Arts degree in Earth & Environmental Sciences from Wesleyan University in 2001 and a Master of Science from the Energy & Resources Group at U.C. Berkeley in 2008. From August 2006 to June 2008 I worked in the Water Branch of DRA as a graduate student intern. I have prepared testimony for several GRCs and conservation applications, including evaluating proposed conservation programs for Golden State Water Company, California Water Services, and San Gabriel Valley Water Company, consolidation requests in California American Water Company, and rate design for California American Water Company. Prior to graduate school and working for DRA, I was employed by the World Resources Institute in Washington, D.C. where I analyzed international natural resource policy.

Q.3 What is your responsibility in this proceeding?

A.3 I am responsible for Chapter 5 containing DRA's testimony on rate and bill impacts.

Q.4 Does this conclude your prepared direct testimony?

A.4 Yes, it does.