**BEFORE THE PUBLIC UTILITIES COMMISSION**

**OF THE STATE OF CALIFORNIA**

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| Application of California-American Water Company (U210W) for Approval of the Monterey Peninsula Water Supply Project and Authorization to Recover All Present and Future Costs in Rates. | A.12-04-019<br>(Filed April 23, 2012) |

# REBUTTAL TESTIMONY OF RICHARD C. SVINDLAND


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March 8, 2013

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# REBUTTAL TESTIMONY OF RICHARD C. SVINDLAND

## I. WITNESS QUALIFICATIONS

Q1. Please provide your name, position, and business address.

A1. My name is Richard C. Svindland. I am the Vice President of Engineering for California American Water (California American Water). My business address is 4701 Beloit Drive, Sacramento, CA 95838.

Q2. Have you provided testimony in this proceeding?

A2. Yes, I have submitted both direct and supplemental testimony as part of this proceeding. My qualifications, prior testimony experience, and prior water and wastewater experience is included with my direct testimony.

## II. PURPOSE OF TESTIMONY

Q3. What is the purpose of your rebuttal testimony?

A3. The purpose of this rebuttal testimony is to address items raised by the various parties in the proceeding. Specifically I will be discussing the following areas:

(i) Slant intake wells, including configuration, layout and coastal erosion;

(ii) Desalination plant including costs assumption, partial second pass requirements, operations and maintenance (O&M) cost assumptions;

(iii) The Monterey Regional Water Pollution Control Agency (MRWPCA) outfall;

(iv) Table 13 water rights, operation during an outage, and desalination plant operating levels;

(v) Seaside Basin;

(vi) Approach to cost estimating;

(vii) Update on some of Monterey Peninsula Regional Water Authority (MPRWA) eight conditions;

(viii) Update of Pacific Grove projects; and

(ix) Lastly, address and clarify prior calculations used to compute various costs.

## III. SLANT INTAKE WELLS ITEMS

Q4. What is the current proposed location of the slant test well and the proposed slant wells?

A4. In the direct testimony of Lloyd Lowery on behalf of the Marina Coast Water District, Mr. Lowery indicates that California American Water proposes to "*construct and operate a series of wells on the Cemex (aka Lonestar) property.*"[1] As discussed in my supplemental testimony, we moved the location of both the slant test well and the proposed slant well field seaward in order to avoid the threatened snowy plover bird which has habitat on the dry portions of the beach. Please see Figure 5 of Attachment 11 to my supplemental testimony. Additionally attached to this rebuttal as Attachment 1 is the project description for the slant test well. Please note the location of the mean high tide line on Figures 4 and 5 of this attachment. This mean high tide line serves as the property line between the CEMEX property and the State Lands Commission (SLC) property. The location of the test slant well as it enters the ground is, as is the case with all wells planned, to be located on SLC land and not CEMEX property. California American Water will only need to use

[1] Direct Testimony of Lloyd Lowery, Q29, pg 14, line 9.

CEMEX property for access to the drilling locations. Furthermore, the screens located on the slant wells will all be located on SLC property and not CEMEX property. Thus we are not withdrawing any water from the CEMEX property.

Q5. Why is California American Water proposing a test slant well?

A5. California American Water firmly believes that it will be able to draw greater than 97% seawater from the formations located beneath the ocean floor. We believe that there is a location that can be reached by slant wells that will pull this seawater vertically downward from the ocean floor without disruption to other users in the formations. The purpose of the slant test well is to formally prove this concept and to further prove the capacity that each well can obtain, while also gaining water quality data that will benefit the design of the desalination plant. As pointed out in the direct testimony of Joe Geever on behalf of the Surfrider Foundation, "horizontally drilled slant wells" would eliminate the intake and mortality of marine life," and are likely to be included in the Ocean Plan Amendment.[2] Additionally, Kris Helms on behalf of the Monterey Peninsula Regional Water Authority concludes:

> We concluded that to permit a desalination project in Monterey County, the California Coastal Commission will likely require the least environmentally harmful feasible alternative for the source water intake. Subsurface water intake is likely to be viewed by the Coastal Commission as the least environmentally harmful alternative, and therefore, we anticipate that the Coastal Commission will require that subsurface intake be fully explored for feasibility before considering proposals for permitting of an open water intake. In other words, we anticipate that the Coastal Commission will not permit an open water intake unless subsurface intake options are proven to be infeasible or

[2] Direct Testimony of Joe Geever, page 4, line 26.

environmentally less desirable than the proposed open-water intake. The Cal-Am Project proposes to pursue subsurface intake in order to avoid significant environmental impacts and comply with permitting policies.[3]

Q6. Do you think the slant wells will work?

A6. Yes. Based on previous studies that apply to vertical wells, Joseph Oliver, on behalf of the Monterey Peninsula Water Management District (MPWMD) questions the specific capacity of our slant wells in the shallow dunes aquifer.[4] The major benefit of the slant well concept is the large amount of screened area relative to the vertical depth and thus the fact that a lot more screen area is exposed directly to the aquifer. Using a 22 to 28 degree slant well angle yields between 2.1 and 2.6 times more screen length and more importantly screen area per vertical foot. In terms of screen surface area, assuming a 12-inch diameter screen section, the slant well will have between 6.6 and 8.0 square feet (SF) per vertical foot vs. 3.1 SF per vertical foot for a vertical well. Additionally, the shape of the drawdown cone is different than a vertical well due to the large somewhat horizontal nature of the screen area. While the test results referenced by MPWMD indicate a specific capacity of 37 gpm/ft, the Dana Point slant well was able to achieve a discharge rate of 2,000 gpm with a well efficiency of 78% and a specific capacity of 69 gpm/ft,[5] which indicates the technology is capable of achieving the desired results. Please also refer to the rebuttal testimony of Peter M. Leffler, P.G., C.Hg, which also addresses this topic and reinforces the ability of the slant well to achieve the desired hydraulic results. Therefore, it is imprudent to assess the performance of our proposed slant wells using data from a report that assessed vertical wells.

Ultimately, the reason for the test well program is to prove out the performance of such a

[3] Direct Testimony of Kris Helm, Q&A 12, page 6.
[4] Direct Testimony of Joseph Oliver, Q8, pages 4 – 7.
[5] Report No. 152, Result of Drilling, Construction, Development, and Testing of Dana Point Ocean Desalination Project Test Well, U.S. Department of the Interior Bureau of Reclamation, January 2009, page 48.

well within the local geology and to determine the desired number of wells needed to achieve a reliable desalination plant feed rate. Based on California American Water's discussions with multiple California regulatory agencies,[6] we believe it is our burden to prove the feasibility of a sub surface intake system before we can consider other intake options.

Q7. Is 20 feet of driving head enough for a gravity intake system?

A7. Yes, but this will be determined and / or verified by the slant test well. Using the specific capacity values suggested by Joseph Oliver of MPWMD indicates that 20 feet is not enough; however, if we use values that were able to be achieved by the Dana Point slant test well, then 20 feet is within 30% of what is needed for full scale slant intake well system without groundwater replenishment (GWR) and is within 10% for what is needed with GWR. At this point, based on what we know, we believe this is a good starting point for our basis of design. Final depth and length for the slant test well will determined upon completion of the monitoring wells and final bury depth for the entire system will be based on the results of the full scale slant test well and ongoing coastal erosion review.

Q8. What options would be available if the 20 feet of driving head were not enough or if the gravity intake did not work?

A8. First, we would consider lowering the control vault that sets the driving head limit. There is not a technical reason why this could not be lowered another 10 to 15 feet, thus allowing additional driving head. The costs to lower this would be increased, so before making that decision we would consider two other options that are already a part of this project. Those options include the use of Ranney wells as identified in our November 1, 2012 Contingency Plan filing, by installing pumps into each slant well and moving back up the beach, or lastly using the "second best" options as discussed in the testimony of Joe Geever.

[6] Direct Testimony of Bradley Damitz, Exhibit 1, page 6

Q9. Should you permit multiple intake options at once as referenced by MPWRA & MPWMD?[7]

A9. As part of my supplemental testimony I have discussed the concerns of attempting to permit two differing items at the same time for the same project in parallel.[8] As an example, permitting an open ocean intake versus a subsurface intake could actually be slower than moving in a linear fashion because many agencies like National Marine Fisheries Services (NMFS or NOAA) have position papers showing preference for subsurface intake over open ocean intakes.[9] While we see certain advantages if the regulatory agencies would not object, it is important to note the design of an ocean open intake is relatively straightforward and could easily be designed within the time constraints of this project. The permitting of the open ocean intake is another matter and is likely to take much longer than the subsurface system; however, if the slant test well proves unsuccessful, then the regulatory agencies will need to be more receptive to open ocean intake because a subsurface intake was tested. Joe Geever of the Surfrider Foundation, indicates this when he discusses the option of using wedge wire screens as the "second best alternative."[10]

Q10. Larry Hampson with the MPWMD believes the project was not noticed correctly by the Commission CEQA staff.[11] Do you agree with this?

A10. No, we believe the notification that was used accurately described our intake system. which is comprised of slant wells located on the beach that extend out under the ocean floor. This has always been the case. The only change we have made is to move the location on the beach where the slant wells enter the ground.

[7] Direct Testimony of David Stoldt, Q&A8, item 6, page 7, line10.
[8] Supplemental Testimony of Richard C. Svindland, Q&A 27.
[9] Direct Testimony of Bradley Damitz, Exhibit 1, page 6.
[10] Direct Testimony of Joe Geever, page 5, line 1.
[11] Direct Testimony of Larry Hampson, Q&A8, page 9, line 8.

Q11. Several parties have concerns with coastal erosion and the affects of the slant test well on sand migration.[12] Can you address those concerns?

A11. Yes, as part of the work on the slant test well, California American Water through RBF Consulting has retained Dr. Scott A. Jenkins and David S. Skelly, P.E. to conduct a study titled "Littoral Sand Transport and Equilibrium Beach Profile Change at Updated Monterey Peninsula Water Supply Project Slant Test Well Site." A Technical Memorandum (TM) is attached as Attachment 2. In summary, this TM indicates that our proposed construction technique will not impact or change the migration of sand around the peninsula. Furthermore the TM provides some initial estimates of beach erosion which tends to be cyclic and provides a starting point for the design of the slant wells and appurtenances.

Q12. How will coastal erosion be accommodated in the design of the slant wells?

A12. To date we have not addressed the potential effects of long term coastal erosion on the slant wells. As previously discussed in a prior question, a TM analyzing short-term coastal erosion effects has been prepared and used in the preliminary design of the slant test well. Further studies will be performed to determine the extent to which the facilities must be buried such that they are not exposed by long-term coastal erosion.

California American Water's goal for the slant test wells is to design a system that will last as long as possible both in terms of hydraulic and water quality performance as well as in holding up to the effects of both sea level rise and coastal erosion. The previous Environmental Impact Report (EIR) for the Regional Desalination Project, which included a slant well project north of Marina, investigated coastal erosion, and it is our understanding that the current EIR will as well. California American Water will design these facilities with these erosion rates in mind and will expand upon the previous work as

[12] Direct Testimony of Larry Hampson Q&A8, page 9, line 9 and Direct Testimony of Bradley Damitz, page 6, line 6.

needed to be able to permit these facilities.

Q13. Can the well clusters be located closer together to reduce costs?

A13. The Division of Ratepayer Advocates (DRA) have suggested that the slant well "clusters" should be spaced closer together so as to reduce costs.[13] The graphics shown in the Project Description that was attached to my supplemental testimony show a north and a south well cluster which are separated by approximately 1,400 feet and a test well that is another 200 feet south of the south cluster. The cost estimate is actually based on use of the alternative well cluster shown between the north and south clusters and the south well cluster and the test well. Therefore, the total distance of beach well collector pipeline is 900 LF. It is not possible to space the well clusters at 450 feet because the tip of the northernmost well of the south cluster and southernmost well of the north cluster would overlap. Separation of the tips of these two wells by at least 150 feet is recommended in order to maximize the capacity of the wells. Further, should the north cluster be used for technical reasons in the final configuration instead of or in addition to the alternative cluster shown in the project description, the additional beach collector pipeline requirement would be 700 LF. This is an example of additional costs that could occur that would be covered by contingency.

Q14. Can the sheet piling amounts be reduced to save costs?

A14. DRA[14] used the figures in my supplemental testimony to estimate the sheet piling area requirements. These figures are not design drawings and do not provide information at "design accuracy." They are for illustrative purposes only. The preliminary dimensions of the sheet piling are as presented in the cost estimates. The final requirements and size of the sheet piling will be determined based on the slant test well program and permitting

[13] Direct Testimony of DRA, Ch. 3.C.1a.vi., page 3-12, line 10.
[14] Direct Testimony of DRA, Ch. 3.C.1a.iii., page 3-9, line 20.

requirements that are yet to be determined and as such it is premature to reduce these costs.

## IV. DESALINATION PLANT ITEMS

Q15. Why did California American Water purchase 46 acres for a 9.6 MGD desalination plant site, and is this property too big?

A15. George Riley in his direct testimony questions the purchase of California American Water's desalination property.[15] The parcel that California American Water purchased for the desalination plant is approximately 46 acres in size. This compares to the over 200 acre parcel Marina Coast Water District (MCWD) purchased for its desalination plant site. Our land includes a relatively flat 25 acres on top with the remaining acreage on a hill that extends down into the Salinas River flood plain. The purchase price for this tract was attractive at less than $15,000 per acre and this size parcel did not need to be split off or sub-divided from any other property. Basically, this purchase was a clean transaction with no issues and no site contaminations. If we compare this to a site around Moss Landing that is on the market for approximately $30 million[16] and is approximately 55 acres in size ($545,454 per acre), it is our belief that we have a superior site that was obtained for a more than reasonable price and is approximately seven miles closer to our existing customers.

Q16. Why is the desalination plant located north of Marina?

A16. The main three reasons are: (1) the geology for the slant wells is promising in that they are near the mouth of the Salinas River which has deposited large amounts of sands and gravels over thousands of years, (2) most importantly it is close to MRWPCA's existing outfall which allows for an efficient way to dispose of our brine discharge, and (3) it is next to the landfill which provides additional power options. For every mile we are to

[15] Direct Testimony of George Riley, Q&A 12, part b, line 23.
[16] Cost from website (http://www.thepeopleswater.com/costs.html)

locate the plant south we replace water pipe with brine pipe. Brine pipe must be non-corrosive and when pumping over large distance, it becomes more expensive to have thicker wall non-corrosive brine pipe than standard wall water pipe.

Q17. Is a partial second pass on the reverse osmosis (RO) system required?

A17. Yes. DRA recommends the elimination of the second pass so as to reduce costs.[17] Please see Attachment 3, which is a technical memorandum from Trussell Technologies that addresses the need to have a partial second pass. In summary, a single pass RO system can likely barely achieve the current California Department of Public Health (CDPH) goal in terms of boron rejection. Over time as membrane performance wanes, it will not be possible to meet the state's boron goal. Please also refer to the rebuttal testimony of Eric Sabolsice who discusses this issue as well and provides some perspective on how the Sand City Desalination plant operates in terms of boron rejection. Please also refer to Commission decision D10-12-016 where this issue was also deliberated.[18]

It is also important to note the recent study commissioned by the Monterey Peninsula Regional Water Authority (MPRWA) that retained SPI to evaluate our project in addition to two other projects at Moss Landing. Their report also recommended the use of a partial second pass to insure State water quality goals are met and to provide a water quality consistent to historical Carmel River supplies.

Q18. Do density differences between fresh water and seawater make a difference in terms of energy costs as discussed by DRA?[19]

A18. Yes. We have covered the effects of density based on how we estimated the pumping loads. As an example, we assumed the RO high pressure feed pump would operate at 970 psi. This is a typical value for the operating pressure needed to process seawater through

[17] Direct Testimony of DRA, -Ch. 3.C.1b.ii., page 3-14,
[18] D10-12-016, Section 12.1.1, page 124-126.
[19] Direct Testimony of DRA, -Ch. 4.C.1c.i., page 4-5.

a RO membrane and as such this pressure assumes a seawater density. Another example we looked at was the effect of pumping seawater from the intake wells to the desalination plant. Based on our calculations, the effect of density results in a difference of less than 5 feet or around 2 psi. Since we have yet to set the elevations of the raw water feed tanks at the desalination plant, we are well within the planning level estimates at this point in the design effort.

Q19. Can you delete the redundant calcite contactor?

A19. No. DRA suggests reducing the costs associated with Calcite Bed System by $200,000, claiming that calcite system was double counted.[20] The line item "Process Equipment" in E44 refers to chemical handling equipment. This equipment is in addition to the Calcite Contactors (cell E45 capital cost tab of the excel spreadsheet that is a part of the Finance Model) that houses the calcite for post treatment. Therefore, we disagree with the reduction request of $200,000.

Q20. Why is remineralization a critically important unit operation in desalination facilities and what are the short and long term implications of inappropriate design on water quality and distribution system assets?

A20. The American Water Works Association, Manual of Water Supply Practices, M61, 1st edition, page 37, offers the following in regards to post treatment:

> Because RO [reverse osmosis] treatment removes most of the hardness and alkalinity of the source seawater, RO permeate must be remineralized to prevent corrosion in the distribution system piping and to produce a finished water that is aesthetically acceptable to the customers. It is typically best to match existing distribution system water quality to the maximum extent possible to

[20] Direct Testimony of DRA, -Ch. 3.C.1c.i., page 3-15.

avoid customer complaints or problems with pipeline corrosion or release of scale in the distribution system. Such concerns are common to all RO design; however, unlike brackish RO systems, where a percentage of raw water can be bypassed around the RO for product water stabilization, seawater RO facilities must make use of an external source of hardness and alkalinity.

As stated above, RO permeate must be stabilized to insure that short term aesthetics are satisfied and long terms corrosion problems are abated. It is vital that the post treatment system have the same or better redundancy than the RO skids to avoid the above referenced problems. Therefore, we believe it is imprudent to reduce any costs associated with post treatment.

Q21. Should the backwash system be the same for both plant sizes?

A21. Yes, DRA suggests the backwash system should be the same for both desalination plant sizes.[21] We acknowledge an error in the cost estimate and agree that the filter backwash systems for both plant sizes should be the same because the flow rate to backwash the pretreatment filters is the same regardless of plant size. The difference of $50,000 between the two items disappears at the bottom of the cost estimate when a round off function is applied which rounds the total estimate to the nearest $100,000 and therefore corrects the error.

Q22. Do you agree with DRA that the raw water or feed water main should be a 36-inch diameter main?[22]

A22. No; however, we are talking about the same pipe size. Generally when discussing pipe size, the nominal dimension given is in reference to the inside pipe diameter. Previously,

[21] Direct Testimony of DRA, Ch. 3.C.1b.i., page 3-13.
[22] Direct Testimony of DRA, Ch. 3.C.1a.iv., page 3-10.

when we discussed the 36-inch diameter pipe we were referring to the inside diameter of the pipe which as indicated is the general standard when discussing ductile iron and steel pipe sizes. Subsequently, we have switched to the convention used for referring to the size of the high-density polyethylene (HDPE) which does not refer to the inner diameter because the wall thickness of HDPE pipe can be up to several inches in thickness. The actual inner diameter of the 42 inch HDPE that we are proposing is approximately 35-inches depending on pressure class. Therefore, a 42-inch HDPE pipe is recommended to limit velocity and thus headloss and transients in the pipe for the 9.6 MGD desalination plant.

## V. MRWPCA OUTFALL ITEMS

Q23. Do you believe a cost cap should be included for the Brine Discharge Facilities as suggested by DRA?[23]

A23. No. California American Water agrees that design and final decisions on brine discharge should consider and comply with the latest Ocean Plan. Further modeling and analysis on brine disposal through the MRWPCA outfall will be performed during the preparation of the EIR. Estimates of connection facilities and charges are based on discussions with MRWPCA that initially occurred in the 2009 time frame, and these discussions have not been finalized, therefore, California American Water does not agree with an arbitrary adjustment of this value in the cost estimate, especially considering the potential need to modify the outfall.

## VI. TABLE 13 WATER RIGHTS AND OPERATIONAL ITEMS

Q24. How was Table 13 accounted for in the sizing of the desalination plant?[24]

A24. Table 13 water rights on the Carmel River have yet to be approved by the State Water Resources Control Board, but it appears those rights will be subject to the similar Carmel

[23] Direct Testimony of DRA, -Ch. 3.C.1c.i., page 3-15

[24] Direct Testimony of David Stoldt, Q&A13, page 10, line 20.

River flow criteria as in the aquifer storage and recovery (ASR) water rights permits. Essentially this means that the Table 13 water will only be available at the same time of year as ASR water is available and is therefore limited to the actual number of river flow days in excess of the flow triggers and the existing production capacity of the wells and treatment plant on the Carmel River. Furthermore, Table 13 water rights can only be used within the Carmel River basin. We have analyzed the amount of water used by customers in the basin during the time of year when the river is sufficiently flowing and determined that an absolute best case scenario (i.e, wet year) would be for 500 to 600 AF / year to be available. In a dry year, we could expect 0 AF of Table 13 water rights. Thus, when we say we have sized the plant to accommodate Table 13 flows, we are saying that Table 13 does not affect the size of the plant because we have had to assume a 0 AF / year scenario. We do acknowledge, however, that should we be able to achieve 500 to 600 AF / year of Table 13 water rights, then we would be able to lower the operating level of the desalination plant by approximately 5% or conversely those rights could be used first in the year to allow other existing rights to be used later in the year for emergencies.

Q25. Please address concerns from Larry Hamspon with the MPWMD in regards to plant outages and pumping from the Carmel River during the summer?[25]

A25. In the event of an extended outage of the desalination plant, the existing production facilities within the Monterey System can physically produce enough water to meet system demands. Furthermore, with additional ASR wells constructed and permitted for extraction as planned for in this project, the Monterey System and specifically the Seaside Basin will have enough water to meet system demands for an extended period. The issue remains that all sources have regulatory constraints as to the amount of supply available each year. In the case of ASR and GWR, the annual supply quantity is constrained by amounts banked in the Seaside Basin. In the case of the Carmel River, the annual supply is constrained by water rights and certain flow criteria for many of those rights.

[25] Direct Testimony of Larry Hampson, Q&A7, page 5, line 23 to page 8, line 11.

While MPWMD is somewhat correct in their analysis that if a desalination plant outage were to occur in June (1,700 AF / month demand), California American Water may not be able to offset such an outage with increased production from the Carmel River alone without exceeding its legal water rights on the Carmel River (presuming that the actual production schedule is as presented in Tables 2 and 3 of Attachment 1 of my supplemental testimony), California American Water maintains that it has a diverse source of supply comprised of water from multiple sources that can be utilized. For example, in response to an extended outage of the desalination plant in June, a combination of the following solutions could be employed:

1. Increase Carmel River production to the extent possible without exceeding annual rights or causing the existing Begonia plant to completely shut down in later months of the year. This could provide approximately 500 to 700 gpm (60 to 100 AF/month) as is currently contemplated for normal summer years.

2. Increase production from the Seaside Basin whereby California American Water:
    a. Accelerates its use of native groundwater rights. Up to 1,474 AF per year or maximum of 300 to 400 AF / month with less usage for the rest of the year.
    b. Draws upon water banked from ASR, GWR, or banked desalinated water (through in-lieu use of desalination rather than native seaside water). This could be 800 - 1000 AF / month.
    c. Temporarily forgo Seaside replenishment and barrow from replenishment amount. This could be up to 100 - 200 AF / month

3. Institutes curtailments of demand using existing rules and tariffs. This could be 100 – 200 AF /month.

It is too speculative at this point to determine exactly how California American Water would modify its operations in response to a prolonged desalination plant outage. However, in all cases the system would benefit from a supply reserve built up in the Seaside Basin. With the proposed Project configuration, California American Water believes that over time such a reserve will be established in the Seaside Basin as ASR matures, prior to the Seaside Basin reduction, and during the period prior to additional demands such as the Pebble Beach allocation, lots-of-record, and tourism bounce back are fully realized.

It is also important to note that California American Water and American Water operate water treatment facilities of all types and complexity all across the country and an extended plant outage is an extremely rare event. In my nearly 23 years of working in the water industry across key states, I cannot recall ever hearing of or being involved with a water treatment plant facility that was off-line or down for more than a couple of days in a system where it was critically needed.

Q26. Please clarify the need for the desalination plant to operate at a level above 95%?[26]

A26. As I indicated in my direct testimony, it is uncommon to design a new facility to operate at such a high level as soon as it is constructed. Because this is a replacement supply, we need the size of the plant to be able to produce the desired outflow (9,752 AFY) 95% of the time so as to meet existing demands. This does not mean that the plant will be operating with all units on 95% of the time, because we will have redundant units. The redundant units are needed so we can achieve the 95% operating level. For cost estimating purposes, we assumed one extra unit per major process category; however, during detailed design, the engineer of record may choose to increase the number of redundant units for vital components so as to insure a 95% operating level.

[26] Direct Testimony of Mike Zimmerman, Q&A9, page 6.

## VII. SEASIDE BASIN ITEMS

Q27. Does California American Water agree that a Seaside Basin mixing study should be conducted?

A27. Yes, we believe it will be important to monitor and predict water quality in the Seaside Basin when native water, desalinated water, GWR and ASR from the Carmel River are all mixed within the basin. As the basin has been adjudicated, we believe the Seaside Basin Watermaster should lead this effort.

Q28. Should this mixing study be a part of the EIR?

A28. Yes; however, since the mixing of these waters will not occur for several years, we believe it will be difficult to fully review this item now. Therefore, considerations should be given to making this a part of the mitigation and monitoring plan that will be an outcome of the EIR.

## VIII. APPROACH TO COST ESTIMATING

Q29. Please explain how California American Water approached the mitigation, contingency, and implementation factors for its costs estimates on the desalination components and California American Water Only Facilities?[27]

A29. As discussed in DRA's testimony, the factors (percentages) used to establish allowances for estimating implementation and contingencies were discussed extensively in the cost workshops for the Regional Project in 2009. For implementation costs, the percentages used by California American Water for estimating the North Marina Alternative were 30 percent of base construction cost for design-bid-build components and 15 percent of base construction cost for design-build components. The lower percentage for design-build was used because some of the engineering costs are imbedded in the base construction cost estimate for design-build components.

[27] Direct Testimony of DRA, Chapters 2 and 5.

In the updated cost estimate, California American Water decided to use a uniform allowance of 20 percent for implementation costs, which is consistent with historical practice, as acknowledged by DRA in its testimony. The issue here is that DRA has recommended adjusting the implementation factor down to 15 percent, arguing that the slant test well program is an implementation cost and that the test well is a separately budgeted item that represents approximately 5 percent of the MPWSP base construction cost. We disagree with this approach. The major portion of the costs for slant test well are for construction, and these construction costs have always been carried as base construction costs in previous estimates and should not be considered as implementation costs. The slant test well construction costs require implementation costs, and these have historically been captured along with all other implementation costs when the implementation factor is applied to total base construction costs.

Regarding the allowance for contingency costs, California American Water did originally propose a factor of 20 percent in May 2009 prior to the Commission's workshops for purposes of estimating the costs of the Moss Landing and North Marina Alternatives. In the workshops, the Bureau of Reclamation (which was advising the DRA), stated an opinion that 20 percent was too low, and that a factor of 25 or 30 percent should have been used for a project that was at that state of definition and development. As a result, the contingency factor used in the final cost comparison tables for the Moss Landing and North Marina Alternatives was 25 percent.

DRA argues that the contingency factor should be adjusted back to the originally proposed 20 percent because the current MPWSP is more well-defined and does not have the same degree of uncertainty as existed in 2009, and cites a number of changes in project circumstance that have reduced uncertainty. Other than the fact that the land costs for the desalination plant site are now known, California American Water does not agree that any of the other changed circumstances cited by DRA have significantly changed the

uncertainty in the project to warrant a change in the contingency factor. We believe this determination is best made by the Bureau of Reclamation, who raised the issue in the first place.

On the Mitigation Allowance,[28] DRA maintains that the environmental impacts associated with a smaller intake system for the 6.4 MGD desalination option will be less than the environmental impacts associated with the intake system for the 9.6 MGD desalination option because there will be fewer intake wells. California American Water disagrees because the number of well clusters will be the same and the impact on snowy plover habitat, if any, will be the same. This is why California American Water used the same value for mitigation costs for both options.

Q30. Does California American Water agree with deleting the accuracy range factor for the desalination plant and California American Water Only Facilities?[29]

A30. No. At the time California American Water applies for a Certificate of Public Convenience and Necessity ("CPCN"), California American Water is obligated to notice its customers of the worse case bill impact. A part of determining this worse case bill impact is estimating the capital cost of the project. Because we bid out nearly every aspect of the project, almost every dollar is affected by market conditions at the time the different project components are procured. Thus, in our opinion and based on the decision by the Commission in the last project, the use of the 25% accuracy range is appropriate in order to estimate worse case bill impacts.

Q31. Does California American Water agree with cost cap amounts for the overall project?[30]

A31. No. The simply reality of the project is that California American Water is being ordered by the State Water Resources Control Board and by the Court that presided over the

[28] Direct Testimony of DRA Ch. 2 C.1, page 2-3.
[29] Direct Testimony of DRA, Chapters 2 and 5.
[30] Direct Testimony of DRA, Chapters 2 4.C.2b and 5.C.2.a.

Seaside Basin adjudication to replace nearly 70 percent of its water supply. We have done our due diligence to estimate the cost to implement such a project, but the fact remains the cost will be what they will be and California American Water will do everything it can do to bring the cost in lower than the estimate. We have signed a Governance Agreement that will ensure public agency representation in all the important aspects of the procurement. There is no need to impose a cost cap under these circumstances of transparency and multi-agency involvement.

Additionally, there are several permits which may have conditions which are beyond our control and we do not have special insight to what these conditions may require so a cost cap may mean the project cannot move forward due to a permit condition. The potential need for UV disinfection is an example where the cost cap would be problematic. In a response to a data request from DRA, California American Water indicated that it does not currently plan to install UV but, if required to do so, would cover the cost with the contingency funds for the project. DRA in their report recommended reducing the contingency funds and installing a cost cap on the project. Thus, in the event the California Department of Public Health does require UV disinfection as it did for the Sand City Desalination plant, and if the cost cap were in place with a reduced contingency fund, then there would be insufficient funds to cover an item required by a State agency and more importantly needed for an operating permit. We do not believe this is fair or practical.

In the last case, D10-12-016, we had a cost cap, but we were able come back to the Commission for reasonable and prudent expenses above the cap. That approach appears reasonable, but we believe the cost cap should be set at least at the amount set forth within our application.

## IX. UPDATE ON MPRWA'S EIGHT CONDITIONS

Q32. Can you provide an update on the eight conditions presented in the testimony of Jason Burnett of behalf of the MPRWA?[31]

A32. Yes, several items are being discussed by other witnesses but I can address conditions 2, 3, 5, 6, 7 & 8. Condition 1, which relates to a significant contribution of public funds, is discussed in the rebuttal testimony of Jeffrey Linam and other witnesses who provide further information on this subject. Condition 4, which relates to the limited use of the Surcharge, is discussed in the rebuttal testimony of David Stephenson. I will also comment on Condition 4.

Condition 2 relates to the Governance Agreement and that document was executed by California American Water's President Robert MacLean on March 7. See Attachment 4 for a copy of this Agreement. In addition, it is my understanding that the first meeting of the governance committee is scheduled to be held at the offices of the MPWMD on March 13th. Condition 3 relates to obtaining power at the lowest possible costs. California American Water will continue to work with all parties to seek lower power costs. We have recently met with representatives from the Monterey Peninsula Regional Waste Management District to continue our discussions in regards to the use of energy generated by land fill gas and plan to have additional meetings with PG&E to discuss how we can achieve E-20 Transmission Voltage service. We will also work with the Governance Committee to advance other options such as renewable energy initiatives.

Condition 4 relates to the use of Surcharge 2 funds to pay for "tangible assets."[32] The concern is that in the event of a failed project, monies paid under Surcharge 2 would be stranded. While I acknowledge this concern, it is important to note that the California American Water Only Facilities which have an estimated cost that is greater than the

[31] Direct Testimony of Jason Burnett, Q&A14, page 6

[32] Direct Testimony of Jason Burnett, Q&A14, Condition 4, page 6.

expected collection amount of Surcharge 2, are needed no matter what water supply solution is needed, and in fact at one time California American Water was petitioning to move forward with these facilities so as to improve the delivery of ASR water into and out of the Seaside basin. Thus, even if the desalination components of the MPWSP are delayed the surcharge could be used to fund the California American Water only facilities.

Condition 5 relates to the subsurface intake wells, and we have provided updated rebuttal testimony in this area and understand that the Commission is also reviewing these items as a part of its CEQA review for this proceeding. I do want to point out that our mission is to find the area under the ocean floor that has very high seawater component, while at the same time providing a reliable quantity of flow. Based on Dana Point, and knowing how Ranney wells function and where they have been used, we are confident this approach will work and that it will be viewed favorably by the regulatory agencies.

Condition 6 relates to alternative intake strategies. I have addressed some of the concerns with this condition earlier in this testimony, but wish to express our understanding of the need to have these contingencies. We are open to working with the MPRWA to address these concerns and develop an approach with the regulatory agencies that does not cause the permitting process to slow.

Condition 7 relates to providing written proof from the State demonstrating California American Water's ability to secure SRF funding. As discussed in our Application for this project, EPA sent a letter to the Division of Financial Assistance at the State Water Resources Control Board addressing this issue. California American Water is actively working on the credit review package of the SRF loan package and will let the parties know when it is achieved.

Condition 8 relates to sea level and coastal erosion issues which I have discussed earlier in

this testimony. It is our understanding that these items will be covered in the EIR for the project, but it is important to note that when California American Water purchased the desalination plant site, we did so after reviewing the tsunami maps for the region. The recent changes to the slant wells that were discussed in my supplemental testimony are actually more resistant to sea level rise, tsunami events and earthquakes because we have removed the mechanical portions of the well and have now proposed a gravity system where the intake pumps are protected by 2000 foot wide sand dunes that are over a hundred feet above sea level.

## X. CLARIFYING ITEMS

Q33. Did California American Water double count the energy estimates?[33]

A33. No. That is not the case. This issue has been discussed and described in a response to a data request (DRA-A.12-04-019-CAW). To further illustrate and clarify how the calculation is performed; a step-by-step explanation using the cells references in the capital cost spreadsheets found in the Finance Model for Filtrate Forwarding Pumps (cell E92) is described below. Please see Attachment 5 for examples of the spreadsheet.

1. The flow rate is converted to MGD by annualizing the 6-month production (in AF) by multiplying by 2 and dividing by 1120 in cells G93 and G94.
2. The flow rate is converted to gpm in cells H93 and H94.
3. The pressure requirement is entered in cell F95 in psi and converted to feet in G95.
4. The summer pump power requirement is calculated in hp in cells E96 and E97 and converted to KW in F96 and F97.
5. The total hours in the season is calculated by multiplying the number of days in the season times 24 hours in cells G96 and G97.
6. The energy use (kwh) requirement is calculated in H96 and H97 by multiplying F96 by cells G96 and G97.

[33] Direct Testimony of DRA Ch. 4 C.1.c,ii page 4-5, line 24.

7. Appropriate energy unit cost rates for each season (cells G35 and H35 in this case) are used to calculate the energy cost in I96 and I97 by multiplying the total energy use (H96 and H97) times the unit cost (G35 and H35).
8. Summer and winter subtotals for energy costs are added to calculate an annual energy cost.
9. To further describe the conversion, the method for AFY – MGD conversion is presented below.

$$\frac{Acre-Ft}{Year} \times \frac{325{,}851\ gallons}{Acre-Ft} \times \frac{Year}{365\ Days} \times \frac{MG}{1{,}000{,}000\ Gallons}$$

Per the above formula, AFY can be converted to MGD by dividing by 1120 [i.e. $\left(\frac{325{,}851}{365 \times 1{,}000{,}000}\right)$]. Similarly, the number of AF pumped in six months, can be converted to MGD by dividing by 560 (i.e., one half of 1120).

Q34. Does this conclude your supplemental testimony?

A34. Yes, it does.