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A-4-MRA-19-0034 / 9-19-0918

California-American Water

OPPOSED LETTERS

Luster, Tom@Coastal

From:	MWChrislock <mwchrislock@redshift.com>
Sent:	Monday, August 24, 2020 6:57 PM
To:	Padilla, Stephen@Coastal; Bochco, Dayna@Coastal; Turnbull-Sanders, Effie@Coastal; Hart, Caryl@Coastal; Aminzadeh, Sara@Coastal; Brownsey, Donne@Coastal; Escalante, Linda@Coastal; Wilson, Mike@Coastal; Groom, Carole@Coastal; Rice, Katie@Coastal; Howell, Erik@Coastal; Uranga, Roberto@Coastal; Ainsworth, John@Coastal; Luster, Tom@Coastal; Dettmer, Alison@Coastal; Schwartz; Schwartz, Noaki@Coastal
Cc:	CalAmMonterey@coastal
Subject:	Monterey Herald Commentary on Cal Am's Desal

Hello Coastal Commissioners and Staff,

This was published August 23rd in the Monterey Herald. It has new information concerning the Carmel River and the state's CDO. It also explains what's going on with Castroville and Cal Am's desal. I hope you will find it valuable.

The numbers used in the article came from the Monterey Peninsula Water Management District. You can see the staff notes here https://www.mpwmd.net/wp-content/uploads/WSP-June-1-2020-Item-2-Revised.pdf

Melodie Chrislock
Managing Director
PUBLIC WATER NOW
http://www.publicwaternow.org
mwchrislock@redshift.com
831 624-2282

https://www.montereyherald.com/2020/08/22/commentary-cal-am-pits-castroville-against-the-peninsula/

Monterey Herald • August 23, 2020

Commentary: Cal Am Pits Castroville Against the Peninsula

By **MELODIE CHRISLOCK**

There's great news to report! The Pure Water Monterey project has injected the required 1,000 acre-feet of operating reserve into the Seaside Basin. This allows Cal Am to begin delivering water in September.

And Pure Water Monterey's start-up issues are quickly being resolved. A third injection

well is in process and will increase injection volume. The full 3,500 acre-feet that Pure Water Monterey was designed to provide will be available by December 2021.

How does this affect the Carmel River and the State's Cease and Desist Order? Our 5-year average draw from the river is 6,314 acre-feet. We are legally allowed to use 3,376 acre-feet. With the addition of 3,500 acre-feet from Pure Water Monterey, we will have a surplus of over 500 acre-feet by December 2021. There will be no fines and no rationing. The long-standing problem of overdrafting the Carmel River is very close to resolution. Due to our conservation and Pure Water Monterey, we have solved the problem. The numbers don't lie.

However, while we've solved the Carmel River problem, this will not give us the water we need for growth or lift the moratorium on new water hook-ups. And it will not allow payback of the Seaside Basin overdraft. That's why we need the additional 2,250 acre-feet from the expansion of Pure Water Monterey.

The expansion is more than enough water for decades of growth at a fraction of the cost of desal, and it could be completed in about 18 months. But Cal Am is blocking the expansion because it earns a 9.2% rate of return on capital investments like this desal plant.

But why is Castroville arguing for Cal Am's desal project? Wasn't this a water supply for the Peninsula?

The big problem is that the source water for Cal Am's desal is 100% groundwater, not ocean water. This desal would need to draw over 17,000 acre-feet per year from the Salinas Valley Groundwater Basin near Marina. But the Agency Act that governs this critically overdrafted Basin states, "For the purpose of preserving the balance, no groundwater from the basin may be exported for any use outside the basin."

So Cal Am came up with a scheme that gave Castroville 700 acre-feet as a trade-off to keep some water in the basin in an attempt to satisfy the Agency Act. How does putting back 700 acre-feet make up for illegally exporting 17,000 acre-feet?

You think that's crazy? Eric Tynan's recent letter "Reality Check" claims Castroville is doing the Peninsula a favor by taking this 700 acre-feet of desalinated water off our hands every year at $110 an acre-foot. But the cost of this water is estimated at $7,000 an acre-foot. Castroville is asking the Peninsula to pay $6,890 per acre-foot to subsidize their water. That's a subsidy of almost $5 million a year! Who came up with this plan? We can't afford that kind of generosity when Cal Am is already charging us a fortune for water. Our bills are already the highest in the nation, and this desal plant would double them.

No one argues that Castroville has a seawater intrusion problem. But whose

responsibility is it to solve this? Why aren't the growers in Castroville and the city of Salinas stepping up to solve a problem they helped create?

How can you ask Monterey Peninsula ratepayers to pay $1.2 billion for a desal plant they don't need to solve a seawater intrusion problem for Castroville?

This 700 acre-feet for Castroville is the reason that powerful Salinas Valley agricultural interests want to force this desal plant on the Peninsula. And Cal Am is using their influence on the Monterey One Water Board to block the Pure Water Monterey Expansion.

Melodie Chrislock is the Managing Director of Public Water Now.

Luster, Tom@Coastal

From: McCoy, Alexandra@Coastal
Sent: Monday, August 17, 2020 11:19 AM
To: Luster, Tom@Coastal
Subject: FW: Environmental Justice: Please Deny Cal Am Permit

See email from Marina resident advocating for denial of the cal-am permit

Please note that due to the current COVID-19 shelter in place orders throughout the State, all correspondence with Commission staff should be conveyed via email, in addition to other means if required by the Coastal Act or regulations.

Alexandra McCoy

California Coastal Commission
Coastal Planner | Central Coast District
alexandra.mccoy@coastal.ca.gov | (831) 427 - 4865

From: "CentralCoast@Coastal" <CentralCoast@coastal.ca.gov>
Date: Monday, August 17, 2020 at 9:39 AM
To: "McCoy, Alexandra@Coastal" <alexandra.mccoy@coastal.ca.gov>
Subject: Fwd: Environmental Justice: Please Deny Cal Am Permit

From: Margaret Davis <attnmargaret@gmail.com>
Sent: Wednesday, August 12, 2020 8:03:01 AM
To: CentralCoast@Coastal <CentralCoast@coastal.ca.gov>
Subject: Environmental Justice: Please Deny Cal Am Permit

August 12, 2020

California Coastal Commission

Commissioners and Staff

CentralCoast@coastal.ca.gov

Re: Deny Cal Am development permit for Monterey Peninsula Water Supply Project

Dear Members of the Coastal Commission and Staff,

Please reject Cal Am's application for a coastal-development permit for the Monterey Peninsula Water Supply Project (MPWSP).

The Cal Am's project would moot a technically superior, cheaper, and environmentally preferred alternative water supply project that avoids the serious problems of the MPWSP.

Cal Am seeks to exploit the Salinas Valley Groundwater Basin, the sole potable water source for the City of Marina and its diverse residents. The project will cause grave harm in this basin.

An independent analysis by licensed professional engineer of hydrogeology and modeling, Barbara Ford (paid for and distributed by Water Plus), found significant modeling errors in two studies funded by Cal Am as part of its EIR. These errors distorted the data in the studies and produced inaccuracies as to project feasibility and environmental safety.

This faulty modeling was nevertheless relied upon in Cal Am's draft EIRs and reported without correction to the CPUC.

As noted by Ford, the Cal Am hydrogeologist admits that Cal Am's project will ruin Marina's water source, stating,

> But the slant well pumping is designed to replace freshwater in the Dune Sand/A Aquifer unit and 180-ft aquifer with seawater over some unreliably quantified aquifer volume and timeframe based on the HydroFocus report excerpt presented below:
>
> > ... When the pumps are turned on, the wells initially extract the existing ambient mix of native groundwater in storage, but as pumping continues the wells extract increasing proportions of infiltrating recharge from the ocean. The ocean recharge gradually replaces the ambient water within the capture zone, and moves within the capture zone toward the well but does not spread beyond the capture zone. In map view, the capture zone is a 2-dimensional surface that delineates the underlying aquifer volume where *ocean water replaces ambient groundwater and ultimately becomes the primary water source to the wells* [emphasis added].
>
> Because the slant well pumping is designed to replace aquifer freshwater with seawater, *the pumping necessarily results in an increase in seawater intrusion into aquifer areas still containing freshwater* [emphasis added]. (Cal Am draft EIRs 2015, 2017, Appendix E-2, p. 36)

That is, the "aquifer areas still containing freshwater," vital to Marina's water supply, will inevitably be spoiled by seawater intrusion.

This admission by Cal Am's hydrogeologist is a startling walkback of the corporation's consistent claim that the project will not worsen seawater intrusion, but instead draw fresh water into Marina's upper aquifers.

Cal Am's aggressive hegemony into an aquifer to which it has no legal rights and its faulty, self-serving hydrogeological assertions have cost our local cities, agencies, and citizens tremendous time, money, anxiety, and doubt about the future.

Low-income Marina has been forced to defend its affordable water supply from deep-pocketed corporate interests that would destroy it.

As advocates for all California residents, charged to pursue equity and social justice as well as environmental integrity, please let justice be done.

Very truly yours,

Margaret Davis

Former Planning Commissioner

Marina, California

attnmargaret@gmail.com

Luster, Tom@Coastal

From: Jonas Minton <jminton@pcl.org>
Sent: Wednesday, August 12, 2020 9:55 AM
To: Luster, Tom@Coastal
Subject: Fwd: for the slide
Attachments: 00832022.PPTX; Coastal Commission Public comment August 11 2020.docx

Pleases share with Commissioners and the record the attached transcript of my public comment today re CALAM's desalination project. The slide refrenced in my comment is in the link below.

Carmel River Diversions Starting Dec. 31, 2020

CALAM average diversion last 5 years	6,313 acre-feet
CALAM legal entitlement	3,376 acre-feet
Pure Water Monterey Phase 1	3,500 acre-feet
Balance - surplus	563 acre-feet

Luster, Tom@Coastal

From: Jonas Minton <jminton@pcl.org>
Sent: Wednesday, August 12, 2020 9:55 AM
To: Luster, Tom@Coastal
Subject: Fwd: for the slide
Attachments: 00832022.PPTX; Coastal Commission Public comment August 11 2020.docx

Pleases share with Commissioners and the record the attached transcript of my public comment today re CALAM's desalination project. The slide refrenced in my comment is in the link below.

Coastal Commission Public comment August 11, 2020

Jonas Minton

I'm Jonas Minton with the Planning and Conservation League. I'm pleased to hear that Secretary Blumenfeld shares the goal of returning water to the Carmel River. That is a cause I have devoted myself to for the past 20 years. And in that time illegal diversions have been reduced 85%.

I do note that it was not CALEPA, not Fish and Game and not NMFS that got this started. I am the person who initiated and pursued the Cease and Desist Order calling CALAM into account. There is no person on the planet more dedicated to keeping water in the Carmel River.

However the desal project is not needed to accomplish the goal that Secretary Blumenfeld and I share. I have years of experience that allow me to cut to the bottom line for you. When I served as Deputy Director of the California Department of Water Resources a regular part of my responsibilities was to review supply and demand balances.

The key date in the Cease and Desist Order is December 31, 2021. That is when CALAM must stop all of its illegal diversions.

Slide please

Here is the bottom line balance sheet. CALAM reports that its average annual diversions over the past 5 years have been 6,313 acre feet. They have an undisputed legal right to 3,376 acre feet. Phase One of Pure Water Monterey will provide them 3,500 acre feet. That will leave CALAM with an actual surplus of 563 acre feet.

The bottom line is that CALAM's own data prove the desal project is not needed for CALAM to comply with the Cease and Desist Order and to achieve the goal Secretary Blumenfeld and I share. Thank you.

August 7, 2020

Tom Luster
California Coastal Commission

Re: Response to Cal Am's June 30, 2020 letter to Tom Luster

Dear Tom,

I hope it's clear to the Commission that Cal Am is the only obstacle to the expansion of Pure Water Monterey. Without a water purchase agreement from Cal Am, the project cannot obtain financing and move forward. Cal Am is blocking progress on this project.

The Pure Water Monterey Expansion would make Cal Am's proposed desal unnecessary. Killing the competition is a strategy we've all come to expect from corporate America, but this is a public water supply. For Cal Am to say that the PWM Expansion is wholly infeasible is an absolute lie.

What is true is that Cal Am asked the Monterey One Water Board NOT to certify the Expansion's SEIR in a last-minute letter to the Board.

There were no environmental reasons not to certify the SEIR. Any environmental impacts were mitigated. Remember this is the expansion of an already existing and permitted potable groundwater replenishment project with a state of the art water purification plant. The EPA said it was a model they wanted to use nationally.

Cal Am's June 30, 2020 letter to the Commission refuting the November, 2019 Coastal Commission staff report stated that your staff "severely understates the PWM Expansion's own potential environmental effects. Notably, the M1W Board denied certification of the PWM Expansion's SEIR based on inadequate analysis of that project's environmental impacts."

What environmental impacts? There was absolutely no basis not to certify the SEIR. There were no environmental issues, and Monterey One's CEQA attorney repeatedly and publicly reminded the Board of this fact. With no negative environmental impacts to cite, the issues the Board raised were not real. They were false concerns used as excuses to justify their refusal to certify the SEIR.

The PWM Expansion SEIR certification was clearly not denied on environmental grounds. In fact, certification was not denied at all. The SEIR has simply not yet been certified. This was a decision based on politics, not environmental issues. It was all political theater and false statements to give guilty board members cover for refusing to certify the SEIR. The whole point was to use the lack of certification against the Expansion to influence the Coastal Commission's upcoming decision. Cal Am's letter is clear evidence of this strategy.

But why would Monterey One board members back Cal Am's desal over the agency's own award-winning project? Agricultural interests on the Monterey One Board are sabotaging their project to secure 700 AFY of desalinated water that Cal Am has promised to the Castroville Community Services District.

Castroville has a seawater intrusion problem that is threatening its municipal wells. Farmers and the City of Salinas have overdrafted their groundwater resources creating this seawater intrusion problem in Castroville. Cal Am has given them a cheap solution, desalinated water for a $110 an acre-foot. That is the real reason the SEIR was not certified. But why should Monterey Peninsula ratepayers be asked to foot the bill for a $1.2 billion desal plant they don't need to solve a problem they didn't create?

Cal Am asked Monterey One not to certify the SEIR, essentially bribing vulnerable members with 700 AFY of cheap water. Now Cal Am turns around and uses the outcome of its manipulation to claim that the project is environmentally inadequate because the SEIR was not certified.

The reasons given for not certifying the Pure Water Monterey SEIR had nothing to do with environmental impacts, and they were simply not true. I want to set the record straight on the issues below.

- Monterey One can provide the promised volume of water. The full 3,500 AFY from Pure Water Monterey will be available by the State's CDO deadline of December 2021. Pure Water Monterey was designed with four deep injection wells to store this water in the Seaside Basin. To keep cost down, only two wells were built. It has become clear in the start-up phase that a third well is needed. Monterey One is in the process of adding this 3rd well to increase the injection volume to 3,500 AFY.

- Source water rights are secure. Monterey One has the legal rights to the source water needed for the Pure Water Expansion. Most of this is municipal wastewater. About 16% is polluted agricultural runoff from the Blanco Drain and Reclamation Ditch. This is the only agricultural water used. Monterey One has contractual rights to this. It has been made clear that the agricultural wash water from the City of Salinas is not needed and would not be used in the Expansion. This is another false argument that was raised and refuted by Monterey One staff.

- Water quality has been addressed. The Division of Drinking Water under the State Water Resources Control Board has already permitted the use of agricultural runoff as source water for Pure Water Monterey. It is already being used in the initial project. The inclusion of this source water would not result in lingering pesticides in the PWM Expansion product water.

- Cal Am continues to claim the Pure Water Monterey Expansion is not enough water. But three separate reports funded by three public agencies have all concluded that the Expansion can protect the Carmel River and provide a drought-proof water supply

sufficient to meet the Monterey Peninsula's current and future demands for decades. The CPUC with a little help from Cal Am got this wrong.

• Cal Am looks to the CPUC for past justification of its position on the PWM Expansion. After the CPUC asked Monterey One Water to provide a report on the Expansion, they decided it wasn't sufficiently developed for them to consider at that time, but they expressed interest in its potential. No analysis of environmental impacts was ever done. To say the CPUC concluded that the PWM Expansion was not a feasible alternative to desalination is misleading. Time has passed, and new information is available. The PWM Expansion now has a sound SEIR waiting to be certified.

In closing, on behalf of the 4,000 plus local members of Public Water Now, we hope you will see the wisdom in denying Cal Am's permit for this oversized, overpriced, environmentally damaging desal project. Our public agencies working together have solved our water supply problem with Pure Water Monterey and its Expansion.

The Monterey Peninsula wants the most affordable and environmentally conscious water supply project. In our view, that is the Pure Water Monterey Expansion.

Thank you,

Melodie Chrislock
Managing Director

PUBLIC WATER NOW
http://www.publicwaternow.org
mwchrislock@redshift.com
831 624-2282

July 21, 2020

California Coastal Commission

Commission Chair, Steve Padilla, Commissioners, Tom Luster and Staff

Subject: Request for Denial of California-American Water Company (CalAm) Coastal Development Permit Application

Dear Chair Padilla, Commissioners, Tom Luster and Staff,

With respect and gratitude to our Founding Fathers who created this great democratic republic for "We the People", I herein voice deep concern for the critical issue coming before you for decisive deliberations on September 17, 2020, namely, the California-American Water Company (CalAm) application for a coastal development permit in support of its Monterey Peninsula Water Supply Project (MPWSP).

As an original co-founder of Citizens for Just Water, a party to the CPUC MPWSP proceeding, I urgently bring to your attention essential facts that should inform your decision to deny the MPWSP coastal development permit on the basis that this project is environmentally unjust and, if approved, would supplant a much more viable and environmentally preferable alternative water supply project that is free of the many downside defects that invalidate the MPWSP.

In 2014 the State of California enacted the Sustainability Groundwater Management Act (SGMA) to restore, protect, and preserve the 21 critically over drafted groundwater basins and other potentially threatened water supply sources that worsened to the point that legislation became necessary to ensure water safety, conservation and reliability. The Salinas Valley Groundwater Basin is on this list, with the freshwater Perched Dune Sand and Dune Sand Aquifers being under siege due to the MPWSP slant well pumping of freshwater from these precious aquifers that provide the sole potable water supply source for the City of Marina and its citizens.

An independent licensed professional engineer specializing in hydrogeology and modeling has conducted an analysis of two separate studies CalAm funded as part of its two draft Environmental Impact Reports for the MPWSP, conducted by consultants Geoscience Support Services, Inc. (Geoscience) and HyrdroFocus Inc., respectively. These CalAm EIR analyses provided much erroneous modeling that distorted the data, providing inaccurate information pertaining to the feasibility and environmental safety of the MPWSP.

Dr. Ron Weitzman, President of Water Ratepayers of the Monterey Peninsula (aka Water Plus), conscious of the vital importance of accurate modeling, hired an independent licensed professional engineer specializing in hydrogeology and modeling, to conduct a thorough analysis of the two CalAm hydrogeological studies.

Dr. Ron Weitzman, a Princeton University statistician specializing in linear and stochastic modeling, contracted engineer firm, GeoHydroScience, llc's expert, Barbara Ford, to perform an objective, independent analysis of the slant well operations as well as assess the reliability of analysis in the CalAm reports. This study revealed the faulty modeling and erroneous,

inaccurate data contained in the two CalAm draft EIR's and modeling in Appendix E-2 from 2015 and 2017. Unfortunately, those reports comprised flawed analysis that became part of the official FEIR analysis reported to the CPUC. As Professional Engineer Barbara Ford stated in her final published report, Dr. Weitzman had understood that the MPWSP objective was that the test slant well would not cause additional seawater intrusion; he had requested that any available information from the consultants' (GeoScience and HydroFocus) reports that did not support his understanding be included in the report. Directly taken from the GeoHydroScience, llc report:

> "Review of the consultants' reports identifies that seawater intrusion would increase. The increase in inland extent due to creation of a cone of depression from pumping was not reliably determined in the consultants' model. But the slant well pumping is designed to replace freshwater in the Dune Sand/A Aquifer unit and 180-ft aquifer with seawater over some unreliably quantified aquifer volume and timeframe based on the HydroFocus report excerpt presented below (pg. 36):
>
> > 'A capture zone refers to the three-dimensional volume of aquifer that contributes the water extracted by the wells. When the pumps are turned on, the wells initially extract the existing ambient mix of native groundwater in storage, but as pumping continues the wells extract increasing proportions of infiltrating recharge from the ocean. The ocean recharge gradually replaces the ambient water within the capture zone, and moves within the capture zone toward the well but does not spread beyond the capture zone. In map view, the capture zone is a 2-dimensional surface that delineates the underlying aquifer volume where ocean water replaces ambient groundwater and ultimately becomes the primary water source to the wells.'
>
> Because the slant well pumping is designed to replace aquifer freshwater with seawater, the pumping necessarily results in an increase in seawater intrusion into aquifer areas still containing freshwater." Pp.24-25

Alarmingly, the CPUC failed to even mention the Dune Sand Aquifers in its certification approval document for the MPWSP. The HydroFocus report stands as the 'Achilles heel' of the MPWSP because its own hydrogeologist confirmed that the CalAm slant well was designed to "replace freshwater with seawater", which necessarily has the outcome that the Salinas Valley Groundwater Basin Dune Sand Aquifers and other aquifers will experience seawater intrusion into freshwater aquifers if the MPWSP is allowed to proceed. This gross oversight and failure to consider all the ramifications of the hydrogeological evaluations has cost our communities huge financial and emotional capital expended in citizen and city defense of its precious water supply source against an avaricious for-profit non-local corporation that has no compunction about blatantly depleting the freshwater supply belonging to a community outside its jurisdiction. This is the reason for the outrage and massive citizen investment in time, energy and funds to struggle against this environmental injustice.

In addition to SGMA, the State of California requires that all available water resources be used to ensure adequate drought-proof water supply and avoidance of wasting valuable water sources, such as rain and agriculture runoff. This is another justification for supporting Pure Water Monterey Expansion, that is the environmentally preferable water supply alternative to the MPWSP. Pure Water Monterey Expansion has solid confirmed studies attesting to its feasibility and viability as a water supply source for decades to come, without all the unreliable and destructive elements of the MPWSP.

I pray that finally our citizens' voices will be heard and environmental justice accorded. We regret that so much effort and repetition of input has had to be submitted, but our voices have to matter; our voices have to make a difference as the agencies involved must be responsible to "We the People".

Thank you for your invaluable work for our communities. We salute you for validating the public good and supporting environmental justice. We urge you to seriously support the environmentally preferable water supply alternative, Pure Water Monterey Expansion, and deny the CalAm MPWSP coastal development permit.

Very respectfully,

s//Margaret-Anne Coppernoll//

Margaret-Anne Coppernoll, Ph.D.
308 Costa Del Mar Road
Marina, California 93933
Email: mcopperma@aol.com

Luster, Tom@Coastal

From:	George Riley <georgetriley@gmail.com>
Sent:	Friday, July 03, 2020 2:58 PM
To:	Padilla, Stephen@Coastal; Brownsey, Donne@Coastal; Turnbull-Sanders, Effie@Coastal; Wilson, Mike@Coastal; Howell, Erik@Coastal; Uranga, Roberto@Coastal; Groom, Carole@Coastal; Mann, Zahirah@Coastal; Faustinos, Belinda@Coastal; Luce, Shelley@Coastal; Ward, Christopher@Coastal
Cc:	Ainsworth, John@Coastal; Luster, Tom@Coastal
Subject:	California American Desal CDP

This is going to email addresses of Commissioners and key staff, and by hard copy to all others.

I appreciate your patience and your service.

I'm George Riley. I am an elected member of the Monterey Peninsula Water Management District (MPWMD). Although I am on the Board, I am speaking as an individual. I speak for myself. I speak as a ratepayer.

Ocean desal is a water supply of last resort! Why? High cost, immense energy demands, unmitigated environmental impacts, no proven track record.

Cal Am has tried two desal proposals before this current one. Both failed. And left stranded costs of $32 million on ratepayers. (ML pilot desal - $12M; and REPOG - Regional Deal Project - $20M) The current desal is worse because of startling deficiencies. It lacks 3 infrastructure components – pump station, a pipeline bypass, brine discharge liner. It lacks water rights. It is located in a state-designated over-drafted basin. It relies on stale data. It faces litigation.

Current deficiencies show that Cal Am and its desal are not ready for approval.

I want to add two points:

First, the Water Management District, my District, is committed to the recycled water project, called Pure Water Monterey Expansion. a) My District advanced $1 million to complete the SEIR. b) My District adopted a professional and vetted water demand and supply report that factually states that Monterey Peninsula water needs are far less than Cal Am and the CPUC predicted. c) And my District recently officially endorsed the recycled water expansion over Cal Am's desal, and communicated this decision to this Commission. d) The Pure Water Monterey Expansion is very much alive with the District.

Second, less than one year ago, in September 2019, the US Dept of Energy announced a $100 million national research grant to advance desal technology and engineering. The lead agency is Berkeley Livermore Labs. The purpose is to make desal more affordable, more efficient and

more reliable. This is an indirect reminder that Cal Am's desal is not economically and environmentally ready for prime time.

Please, do not support a project of last resort ahead of other options. Please, wait for more desal options from the $100 million national research commitment before allowing Cal Am's experimental coastal desal project to proceed.

George T. Riley

1198 Castro Road, Monterey CA 93940

831-645-9914

Luster, Tom@Coastal

From: Jonas Minton <jminton@pcl.org>
Sent: Wednesday, June 10, 2020 9:50 AM
To: Luster, Tom@Coastal
Subject: Fwd: Powerpoint - final?
Attachments: 00830084.PPTX

Hello Tom. Below are my comments with two slides that I provided during the Public Comment period at today's Coastal Commission meeting. Please share them with Commission staff who advise the Commission on environmental justice issues.

Thank you.

Jonas Minton

Coastal Commission Public Comment June 10, 2020

Jonas Minton, Planning and Conservation League, (916) 719-4049 jminton@pcl.org

My comments are about systemic racism in the context of CALAM's proposed desalination project. Yes, there is a real nexus.

Systemic racism is not limited to policing. It extends to economic racism.

(Slide 1 please) Let's look at CALAM's customers. On this chart you can see the major difference in family income between CALAM's white customers and people of color. Pebble Beach is 91% white with a median family income of $99,788. Carmel is also 91% white with a median income of $90,734, On the other hand the City of Seaside is 77% NON WHITE with a median income of just $57,653. The City of Marina would receive no water from the project but would suffer the greatest impacts. Its population is 65% NON WHITE, with median family income of $60,410.

(Slide 2 please) CALAM ratepayers already have some of the highest rates in the entire nation. If you approve the desal plant their water costs rates would skyrocket to more than $147 per month.

Although these are major rate increases, many predominantly white customers in affluent areas like Pebble Beach and Carmel would be able to afford it. But for many people of color in Seaside this could be a straw that breaks their back.

The Monterey Peninsula has water supply alternatives that will not impose such huge economic burdens on disadvantaged people. The desal project is not one of them.

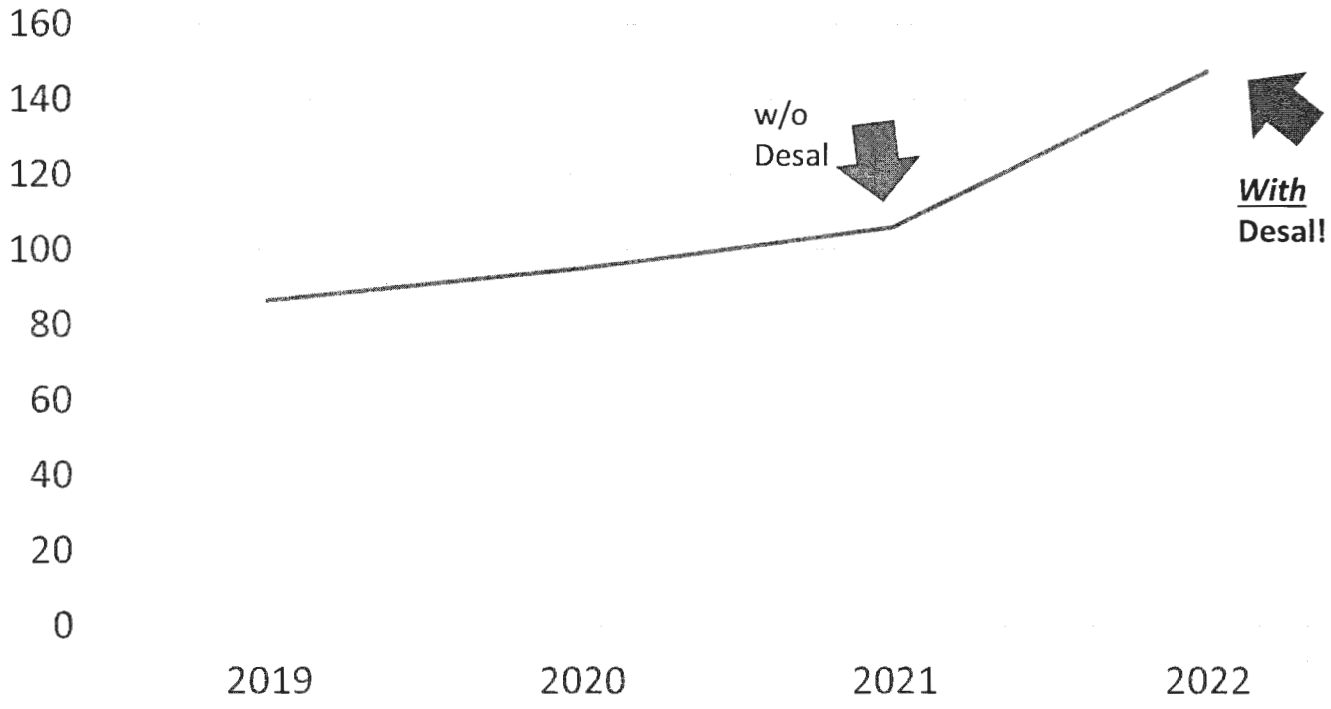
George Floyd, may you rest in peace. Now it's our responsibility to fight for peace and economic Justice.

Thank you.

Racial and Economic Inequality

	% White	% Non-white	Median Annual Family Income
Pebble Beach	91	9	$99,788
Carmel-by-the-Sea	91	9	$90,734
Marina	35	65	$60,410
Seaside	23	77	$57,653

Rate Spike if Desal is Approved



Luster, Tom@Coastal

From: Mike <mgk333@sbcglobal.net>
Sent: Monday, June 08, 2020 9:43 PM
To: CalAmMonterey@coastal
Subject: Fwd: Please Support the Monterey One Pure Water Recycling Project

Dear California Coastal Commission and Staff,
I am forwarding my comments to you that were sent to the State Water Resources Control Board earlier today.

Michael Kennedy
Marina, CA

Begin forwarded message:

> **From:** Mike <mgk333@sbcglobal.net>
> **Date:** June 8, 2020 at 2:27:35 PM PDT
> **To:** Joaquin Esquivel <joaquin.esquivel@waterboards.ca.gov>, Sean Maguire <sean.maguire@waterboards.ca.gov>, Dorene D'Adamo <dorene.dadamo@waterboards.ca.gov>, Laurel Firestone <laurel.firestone@waterboards.ca.gov>, tam.doduc@waterboards.ca.gov
> **Cc:** Thomas Gibson <Thomas.Gibson@resources.ca.gov>, Mark Gold <mark.gold@resources.ca.gov>, Scott Morgan <scott.morgan@water.ca.gov>, David Sandino <David.Sandino@water.ca.gov>, Mathew Dumloa <Matthew.Dumlao@ltg.ca.gov>
> **Subject: Please Support the Monterey One Pure Water Recycling Project**
>
> Mr. Esquivel and State Water Resources Control Board Members,
>
> As a proposed remedy to the water situation on the Monterey Peninsula, Cal Am is pushing for industrial slant wells on the soon-to-be-closed CEMEX sand mining site in Marina.
>
> The proposed slant wells have three perilous concerns -- legal, environmental and economic:
>
> 1. Legally - Cal Am has absolutely no water rights in Marina
> 2. Environmentally - Cal Am's illegal water grab will permanently harm Marina's groundwater aquifers and coastal ecosystem.
> 3. Economically - The experimental slant wells will commit the Cal Am ratepayers to even higher water bills
>
> But there is clearly a win-win solution that will satisfy both the Peninsula ratepayers *and* the people of Marina and the Ord communities that is worthy of serious consideration:
>
> Expansion of the Monterey One Pure Water Recycling Project.
>
> The current Monterey One Pure Water Recycling Project already involves Cal Am and will create necessary water and replenishment of the Seaside Basin.
>
> Expansion of the Pure Water Recycling Project is a win-win because:
>
> - Expansion of the Pure Water Recycling Project will be much less expensive than the harmful and illegal slant wells. Over 30 years, Cal Am's desal will cost an estimated **$1.2 billion**; the Pure Water Monterey Expansion will cost exponentially less, only $190 million.

- With the Pure Water Monterey Recycling Project, there will be no intrusion into -- and no permanent damage of -- Marina's sole source of water.

- The Cal Am slant wells desalination project uses **6.5 times more energy** than the Pure Water Monterey Expansion project.

- The Cal Am slant well desalination will produce **six to seven million gallons per day** of brine discharged into the Monterey Bay, while the Pure Water Monterey project will produce **only 0.5 million gallons per day**of concentrate (much less dense than brine) discharged into the bay.

- The Cal Am slant wells create permanent damage to environmentally sensitive habitat areas; the Pure Water Monterey project is not on the shoreline and has no ESHA impacts.

Please reject the unproven, experimental slant wells and focus on the expansion of Pure Water Monterey that is a viable remedy with regional cooperation and support.

Respectfully,
Michael Kennedy
Marina, CA

Luster, Tom@Coastal

From: Ron Weitzman <ronweitzman@redshift.com>

Sent: Saturday, June 06, 2020 9:42 AM
To: Esquivel, Joaquin@Waterboards; Maguire, Sean@Waterboards; Dadamo, Dorene@Waterboards; Firestone, Laurel@Waterboards; Doduc, Tam@Waterboards; Sobeck, Eileen@Waterboards; Lauffer, Michael@Waterboards; Westhoff, Steven@Waterboards; Luster, Tom@Coastal; Groom, Carole@Coastal; Hart, Caryl@Coastal; Bochco, Dayna@Coastal; Brownsey, Donne@Coastal; Turnbull-Sanders, Effie@Coastal; Howell, Erik@Coastal; Ainsworth, John@Coastal; Rice, Katie@Coastal; Escalante, Linda@Coastal; Wilson, Mike@Coastal; Uranga, Roberto@Coastal; Aminzadeh, Sara@Coastal; Padilla, Stephen@Coastal; Luster, Tom@Coastal
Cc: Kathy Biala; 'Alvin Edwards'; 'Chuck Cech'; 'Dan Presser'; 'David Beech'; 'Dixk Rotter'; 'Flora Anderson'; 'George Riley'; 'Janice Parise'; 'Judi Lehman'; 'Marc Jeffrey Del Piero'; 'Margaret-Anne Coppernoll'; 'Michael Baer'; 'Morley Brown'; 'Mryleen Fisher'; 'Nader Agha'; 'Nancy Selfridge'; 'Ray Stevenson'; 'Ron Weitzman'; 'Stephen Collins'
Subject: Support for Kathy Biala's 5 June 2020 Letter to the State Water Board & Others

To: State Water Resources Control Board and Others Addressed in Kathy Biala's 5 June 2020 Letter
From: Ron Weitzman, President, Water Ratepayers Association of the Monterey Peninsula (aka Water Plus)
Subject: Support for Kathy Biala's 5 June 2020 Letter re Cal Am's Lack of Water Rights in the Salinas Valley
Date: 6 June 2020

The following excerpt on the issue of water rights from the 26 May 2020 Application for a Rehearing on the Denial of Intervenor Compensation to Water Plus provides strong support for Kathy Biala's letter:

V. CAL AM HAS NO GROUNDWATER RIGHTS IN THE SALINAS VALLEY

Here are the comments ALJ Haga made on this issue: "Water Plus failed to make a significant contribution to the Water Rights issue. Water Plus did not substantially contribute to the issue of water rights because the Commission did not adopt any portion of any argument made by Water Plus." Only the last part of the last sentence (underlined by me) of these comments is true, and that is truly unfortunate. Water Plus in fact made a significant contribution on this issue. In filings prior to D.18-09-017, it showed why the

beneficial-use doctrine[1] and the return-water provision could not make up for the lack of water rights (see 12 November 2019 Claim). The 6 March 2020 Comments by Water Plus provides a succinct summary:

"Adjudication has provided the CEMEX site of the MPWSP [Monterey Peninsula Water Supply Project] with water rights to only 500 acre-feet per year[2] but, until CEMEX is gone, Cal Am does not have even those water rights in the Salinas Valley. Nor does the beneficial-use doctrine substitute for the lack of water rights when applied to the Dune Sands freshwater aquifer, which supplies much of the MPWSP source water.

"The MPWSP was one of three options considered for a desalination project in 2010 when the choice made was not for that option, but for the RDP [Regional Desalination Project]. Though both were to be located in the City of Marina, the two projects differed in important respects. The most impactful difference is that Cal Am was to own the desalination plant in the MPWSP and the Marina Coast Water District ("Marina Coast') was to be the owner in the RDP. With Marina Coast's having and Cal Am's not having water rights in the valley, that difference was a primary reason for the choice of Marina Coast's project over Cal Am's.

"Having water rights in the valley made it possible for Marina Coast to satisfy the Agency Act[3] without a requirement for return water. Instead of return water, Marina Coast agreed to forgo the use of one of its freshwater wells in the Salinas Valley and to export only desalinated seawater while retaining all freshwater obtained from brackish project wells.

"Yet another difference stemming from the ownership difference between the two projects is that Marina Coast could use subsurface intake via vertical wells to avoid the entrapment of sea life whereas Cal Am, because of its lack of groundwater rights, had to use slant wells under the sea or the shore which could enable the entrapment of sea life [in aquifers between their well-intake site and their terminus at sea].

"Because of these and other differences [including the cost of water, $2,250 per acre-foot for the RDP vs. $$7,688 per acre-foot for the MPWSP], Water Plus since 2010 has supported the RDP and since 2012 has opposed the MPWSP."

VII. ALTERNATIVE PROJECTS

Here are ALJ Haga's comments on this issue: "None of Water Plus's recommendations regarding alternatives or claims regarding contaminated source water was adopted by the Commission in any ruling or decision in this proceeding." That assertion is true, but it is an unfortunate truth that has confounded the MPWSP from its very beginning. This is why.

The MPWSP and all the alternative projects considered in the EIR are inferior to one that was explicitly and unaccountably excluded from consideration. That is the RDP, which in 2010 swiftly, in less than a year, traversed all hurdles that have hobbled the MPWSP for eight years now. Different from the MPWSP, the RDP:

(1) being publicly owned, satisfied the Monterey County desalination ordinance;

(2) did not violate the state Agency Act because it retained within the valley the freshwater component of brackish groundwater while exporting only desalinated seawater;

(3) for the same reason, did not require highly controversial return water;

(4) did not require unlawful exacerbation of seawater intrusion into valley aquifers to provide project source water, its owner Marina Coast having groundwater rights in the Salinas Valley;

(5) for the same reason, did not require the use of costly and unproven slant wells to extract mostly or solely seawater;

(6) did not have to entertain the partial and currently- disputed [though also currently necessary] expanded use of recycled water to control costs; and,

(7) not having to surmount all these and other[4] hurdles [e..g., higher capital costs], could charge ratepayers $2,250/$7,688 or 29 percent of what the MPWSP could charge per unit of desalinated water.

The RDP obviously had not been excluded from consideration for reasons of merit. This is the alternative project that Water Plus strongly preferred, but its exclusion from consideration by Cal Am has made moot any focused argument Water Plus might make in its favor.

[1] California Water Code, Article 4. Beneficial Use, Section 1240
[2] Fort Ord Annexation Agreement (1996), Section 7.2 (page 17)
[3] Monterey County Water Resources Agency Act (1990), Chapter 52-21, prohibiting groundwater exportation from the Salinas Valley
[4] including higher capital costs

Luster, Tom@Coastal

From: Judy Strojny <judystrojny@hotmail.com>
Sent: Saturday, June 06, 2020 5:40 PM
To: Esquivel, Joaquin@Waterboards; Maguire, Sean@Waterboards; Dadamo, Dorene@Waterboards; Firestone, Laurel@Waterboards; Doduc, Tam@Waterboards
Cc: Sobeck, Eileen@Waterboards; Epp, Jennifer@Waterboards; Lauffer, Michael@Waterboards; Westhoff, Steven@Waterboards; Ainsworth, John@Coastal; Luster, Tom@Coastal; Dettmer, Alison@Coastal; Gibson, Thomas@CNRA; Gold, Mark@CNRA; Morgan, Scott@DWR; Sandino, David@DWR; Mathew Dumloa
Subject: Support the Pure Water Monterey (PWM) Expansion; Oppose Cal Am's desal

Attention: California Coastal Commissioners:

Please resist the State Water Resources Control Board (SWRCB) and their current pressure on you (CCC) to grant the Coastal Development Permit for Cal Am's slant well desal project.

The City of Marina and the Marina Coast Water District should be commended for their sensible decision to support the Pure Water Monterey Expansion Project rather than CalAm's proposed construction of a slant well desalination plant because the pure water project affordably secures clean water for the coastal area. We oppose the CalAm desalination plant because it:

- Puts the Salinas Valley Groundwater Basin at risk according to a Stanford University and Marina Coast Water District Study.
- Permanently damages sensitive habitat, which violates environmental justice policies of the CCC and EPA.
- Violates the city of Marina's certified Local Coastal Program and Coastal Act Policies related to: public access, marine/ocean resources, recreation, prevention of erosion and geological instability concerns.

The problems listed above can be avoided by implementing the Pure Water Monterey Expansion Project, which has Sierra Club endorsement and avoids expensive construction.

We urge the Commission to:

- Deny the CalAm proposed construction of a desalination plant.
- Give thoughtful consideration to the more environmentally friendly and cost effective Pure Water Monterey Expansion Project.

Sincerely,

William and Judy Strojny,
Residents of Monterey County

Luster, Tom@Coastal

From: Elisabeth Billingsley <ebillingsley@redshift.com>
Sent: Saturday, June 06, 2020 11:41 AM
To: "eileen Sobeck"@waterboards.ca.gov; Epp, Jennifer@Waterboards; Michael Lauffer; Steven Westhoff; California CoastalCommission; Thomas Gibson; Mark Gold; Scott Morgan; David Sandino; Mathew Dumloa
Subject: Water, Water

Dear Commissioner and Board

As a 59 Year resident of Marina I'm very upset about what Cal Am is trying to do to our coast line what is left of it. I have pictures of it when it was great and plenty full of sand , but Cimex plant took care of that , and now we have almost no beach. Here comes Cal Am and they now want to rake away what we have left, by building Slant Wells and taking our Water also from our Aquifers. Marina Citizens are mainly middle class folks and a mixer of the world around us. You name it and we have that nationality in this city.

Here comes your Executive Director Eileen Sobeck's letter of May 8th. 2020. was quoted in our local papers implying that your agency only sees one Solution to meeting the CDO and wants the CCC to approve Cal AM's desal plant.

Sobeck's comment of the Coastal Commission reinforced this, . Her whole argument is based on the FALSE assumption that Cal Am's desal must be build to meet the CDO.

Please Support the project that can lift the moratorium sooner and at a LESS Environmental and ECONOMIC COST. Pure Water Monterey Expansion.

This way No creatures are deprived of their habitat and Marina Citizens are not losing they WATER , to a company that is just out to make MONEY FOR THEIR SHARE HOLDERS on the Back of minorities and Seniors.

Please look at everything with a new vision.

Thank you

Sincerely

Mrs. Elisabeth M. Billingsley

401 Sunset Pl.

Marina, CA 93933-3314

Luster, Tom@Coastal

From:	tbharris146@aol.com
Sent:	Thursday, June 04, 2020 10:25 PM
To:	Esquivel, Joaquin@Waterboards; Maguire, Sean@Waterboards; Dadamo, Dorene@Waterboards; Firestone, Laurel@Waterboards; Doduc, Tam@Waterboards
Subject:	No desal please

To the members the California Costal Commission:

Whew, we are still working on this issue. Please don't get tired of our persistence and **do** understand that most people/customers in the Monterey area do not want Cal Am to build a desal plant. We don't want to pay for something that is **not necessary** to our health and safety in order to exaggerate Cal Am's worth. It is an **extremely expensive** solution.

We **do support expansion** of Pure Water Monterey.

I have collected signatures on petitions, attended meetings, donated money to efforts, and even attended the November 2019 meeting in Half Moon Bay, in support of ending Cal Am's choke hold on our water supply. My most recent bill was over $500.00.

You have sufficient information, staff reports, and by now understand the underlying components of local, citizen efforts to put the desal plant request on a shelf until actually needed. **It is not needed now or for a very long time, if ever.**

Thank you,
Tamara Harris, Monterey Ca.

Luster, Tom@Coastal

From: Ron Weitzman <ronweitzman@redshift.com>
Sent: Saturday, May 16, 2020 10:41 AM
To: Groom, Carole@Coastal; Hart, Caryl@Coastal; Bochco, Dayna@Coastal; Brownsey, Donne@Coastal; Turnbull-Sanders, Effie@Coastal; Howell, Erik@Coastal; Ainsworth, John@Coastal; Rice, Katie@Coastal; Escalante, Linda@Coastal; Wilson, Mike@Coastal; Uranga, Roberto@Coastal; Aminzadeh, Sara@Coastal; Padilla, Stephen@Coastal; Luster, Tom@Coastal
Subject: FW: Water Letter in Saturday's Herald

FYI,

From: Ron Weitzman [mailto:ronweitzman@redshift.com]
Sent: Friday, May 15, 2020 9:42 PM
To: waterplus@redshift.com
Cc: 'Dorene D'Adamo'; 'Eileen Sobeck'; 'Joaquin Esquivel'; Laurel Firestone; Sean Maguire; 'Tam Doduc'; Alvin Edwards; David Potter; David Stoldt; Gary Hoffmann; George Riley; Jeanne Byrne; 'Mary Adams'; Molly Evans; Alison Kerr; Bill Peake; 'Clyde Roberson'; Don Freeman; Ian Oglesby; maryann@sandcityca.org; Chris Lopez; Jane Parker; John Phillips; Luis Alejo; Asaf Shalev; 'Carmel Pine Cone'; 'Cedar Street Times'; 'Channel 11'; 'Herald City Editor'; 'Jim Johnson'; 'KION TV'; 'KSBW'; 'Sara Rubin'; 'Shanna McCord'; Adam Urrutia; 'Bruce Delgado'; 'David Brown'; 'Frank O'Connell'; 'Gail Morton'; 'Layne Long'; Lisa Berkley; 'Nancy Amadeo'; SSMyers@att.net; SSpaulding@fbm.com; Bill Lee; Herbart Cortez; Howard Gustafson ; Jan Shriner; Keith Van Der Maaten; Matt Zefferman; Peter Le; Tom Moore
Subject: Water Letter in Saturday's Herald

Desal project has two big holes in proposal

In all of its 242 pages, the Public Utility Commission's decision certifying Cal Am's proposed desalination project does not even once mention the freshwater Dune Sand Aquifer which, according to the project's Environmental Impact Report, is the source of almost half the water required for desalination even though Cal Am has no rights to any fresh groundwater in the Salinas Valley.

Although the 180-foot aquifer is to provide only the remainder of the source water, according to the EIR, the PUC's certifying document considers that aquifer to be the sole source of water for the project.

Despite the likely occurrence of entrapment of minute sea life in the seawater-intruded 180-foot aquifer between its well-intake site and its terminus at sea, the project's EIR fails even once in all of its 12,590 pages to examine whether the project would cause any possible sea life entrapment though avoidance of entrapment is the very reason for the project's use of costly subsurface rather than common open-ocean intake,

These two killer holes should be sufficient to sink Cal Am's desal ship.

— Ron Weitzman, Carmel

Luster, Tom@Coastal

From: mcopperma@aol.com
Sent: Friday, May 08, 2020 3:04 PM
To: Luster, Tom@Coastal; Padilla, Stephen@Coastal; Brownsey, Donne@Coastal; Sanders@coastal.ca.gov; Wilson, Mike@Coastal; Howell, Erik@Coastal; Uranga, Roberto@Coastal; Groom, Carole@Coastal; Mann, Zahirah@Coastal; Faustinos, Belinda@Coastal; Ward, Christopher@Coastal
Subject: Letter Requesting Denial of the California American Water Company's Coastal Development Permit for Monterey Peninsuala Water Supply Project
Attachments: Coppernoll CCC Letter Final #18 to Tom Luster and CCC Commissioners Ex Parte re Request to Deny CalAm Coastal Development Permit May 8 2020-1.docx

Dear California Coastal Commission Chair Steve Padilla, Vice-Chair Donne Brownsey, Commissioners, Tom Luster, and Staff:

Please accept the attached letter for your consideration. It contains extensive history and background information pertaining to my request that the California Coastal Commission deny California American Water Company's Coastal Development Permit for its Monterey Peninsula Water Supply Project. There are substantive reasons for this request that are outlined in detail in the attached letter.

Thank you very much for your thoughtful review of the information and your superb work for all our communities.

I wish that you and yours all remain safe and well during this difficult shelter-in place period, and long afterwards as well.

Very respectfully,
Margaret-Anne Coppernoll, Ph.D,

May 8, 2020

California Coastal Commission Chair Stephen Padilla, Vice-Chair Donne Brownsey, Commissioners (Ex Parte), Tom Luster and Staff

SUBJECT: Request Denial of California American Water Company's Application for Monterey Peninsula Water Supply Project (MPWSP) Coastal Development Permit

Dear Commission Chair Padilla, Vice-Chair Brownsey, Commissioners (Ex Parte), Tom Luster, and Staff:

It is with a heavy heart that I write this letter to you. At issue is the future of our local water supply, but the concern is much deeper. Please bear with me as this lengthy discussion is meant to aid understanding of the dire, complex situation our communities are facing. It is not an exaggeration to say that our survival is at risk. I take this time to explain details because this California Coastal Commission (CCC) hearing is a most important one for our future existence. Your patience and support are significant factors in our quest for justice, truth, and fairness. You have a most grave responsibility to ensure this public right is upheld.

During the most recent Monterey One Water (M1W) board of directors meeting on April 27, 2020, the M1W board of directors held a "weighted" population-based vote 11-10 in favor of denying certification of the Final Supplemental Environmental Impact Report for the Pure Water Monterey (PWM) Expansion recycled water project, which was officially designated a back-up plan to the California American Water Company (CalAm) Monterey Peninsula Water Supply Project (MPWSP).

This vote came after both the M1W board of directors and the Monterey Peninsula Water Management District (MPWMD) board of directors had unanimously voted to proceed with hiring consultants and staff to work on finalizing the Supplemental Environmental Impact Report (SEIR) for the PWM Expansion water recycling project with an expenditure of one million dollars from taxpayer dollars. The FSEIR took more than a year to complete, to include public reviews and extended review periods.

After what has been considered a monumental step in the right direction to provide a viable, less expensive, and more environmentally safe potable water supply resource for our area, which has long been under the pressure of a California State Water Resources Control Board (SWRCB) Cease and Desist Order (CDO) to limit draw from the Carmel River, CalAm suddenly demanded that FSEIR certification be denied. This surprise turnabout came despite more than 170 citizens having submitted letters to the M1W board urging certification to ensure PWM and its PWM Expansion would be ready to go should CalAm not be successful in obtaining its coastal development permit from the California Coastal Commission (CCC), or in building its desalination facility. More citizens spoke at public comment also to urge FSEIR certification. Our local elected state legislature and city public officials likewise submitted letters supporting FSEIR certification as did many businesses and nonprofit organizations. Certification was a very

big deal. Approval would have brought much deserved relief after a long, strenuous journey to find a sufficient, sustainable and affordable water supply solution with little or no adverse environmental impacts. This denial was a crushing, painful disappointment.

After CalAm realized the CCC wanted to conduct further investigations into serious MPWSP issues that were brought to light during staff research and public input, CalAm began a campaign to discredit the PWM Expansion water recycling project because it surmised that this water recycling expansion project would indeed be a more viable, timely, less expensive, and more environmentally safe water supply shortage solution than its desalination project. CalAm consistently insisted on moving forward with its MPWSP, at great cost to its ratepayers, because it had secured from the California Public Utilities Commission (CPUC) approval to charge its customers capital asset surcharges at 9.2 %, providing a very handsome profit for CalAm and its shareholders. This lucrative opportunity emboldened CalAm to exert much pressure, both politically and financially, on the public as well as M1W board members who could ensure MPWSP success. While the PWM Expansion would provide future water security and a means to lift the State CDO, thus avoiding water rationing and high penalty fees for failing to meet the 31 December 2021 deadline to limit draw from the Carmel River, the PWM Expansion would have the added advantage of removing the moratorium on new water hook-ups and housing developments. To solidify its position, CalAm accorded lower special pricing to the hospitality sector as a way to ensure loyal support.

Another prong in this complex saga is the disregard, indeed the disrespect, CalAm consistently displays for citizens' legal and constitutional rights. Political machinations behind the scenes have been driving certain nefarious actions to undermine this invaluable new water supply source. These activities serve to demoralize whole communities that constantly struggle to bring to fruition what Monterey Peninsula residents have been seeking for decades – a drought-proof, secure potable water supply source that protects both the Carmel River and the Seaside Basin, but also the Salinas Valley Groundwater Basin (SVGB) that is on California's critically over drafted groundwater basin list. This basin, just as the Carmel River, is home to many species that depend on it, such as the South-Central Coast Steelhead trout, an endangered species. The state now requires communities seek alternate methods to preserve all water resources, such as wastewater, reclamation water, and agriculture runoff, as a way to protect the Monterey Bay Marine Sanctuary, preserve freshwater aquifers, and provide drought-proofing.

Certain sectors refuse to accept these and other scientific sources showing there is sufficient source water for agriculture interests and for the Castroville Community Services District's Castroville Seawater Intrusion Project (CSIP), as well as ample water for future growth, that is, approximately 3,700 acre-feet surplus to the PWM Expansion's 2,250 acre-feet needed for the Monterey Peninsula. The staff reports, consultant reports, and confirmation facts from experts, all are to no avail due to CalAm's efforts to move forward at all and any cost with its desalination plant. The desalination plant will deposit brine in the Monterey Bay Sanctuary; it

will deplete and contaminate the precious freshwater Dune Sand Aquifers, in violation of the Sustainable Groundwater Management Act (SGMA), and greatly increase green gas emissions, exacerbating climate change.

All these unfavorable situations can be avoided by implementing the PWM Expansion recycled water project, which will provide 2,250 additional acre-feet (PWM, prior to expansion, supplies 3,500 acre-feet) at vastly lower prices for ratepayers, creating a plentiful water supply until 2043. This is a win-win for our communities.

CalAm could have chosen to be part of this win-win scenario had it agreed to negotiate a reasonable water purchase agreement for the PWM Expansion water recycling project. CalAm is still in charge of the core PWM recycled water project, along with its M1W and co-partner, MPWMD, so it could have provided rock-solid options for its customers, relieving much anxiety over water security. Instead it chooses a rancorous, divisive one. This is the direct result of a wrong-headed motive. Leadership demands caring about those entrusted to its organization, in this case, water customers and Peninsula citizens.

MPWMD General Manager, David Stoldt, conducted extensive research and rigorous analysis to produce a top-notch report on water supply and demand status to support initiation of the PWM Expansion water recycling project SEIR, which received unanimous approval from both M1W and MPWMD boards, to proceed to the SEIR process and completion.

After the CCC's staff recommendation to deny the CalAm Coastal Development Permit became known, CalAm began publicly excoriating David Stoldt and his supply and demand report that upheld data and evidence showing ample water supply through 2043. To placate the highly public CalAm criticism, David Stoldt went back to the drawing board to revise the report, yet the results for future water supply calculations remained the same, affirming the original report findings. PWM Expansion would indeed satisfy water demand through 2043. Still, CalAm, desperate to build an excessively priced, highly shareholder profitable, and aquifer depleting and contaminating desalination plant, continued to undermine the PWM Expansion project.

This CalAm campaign to sabotage its own approved back-up plan, came to a combative head at the M1W board meeting on April 27, 2020. CalAm supporters and loyal board members succeeded in denying FSEIR certification, as stated above. This was a terrible miscarriage of justice and a disregard for taxpayers'/ratepayers' dollars. During the meeting, CalAm and its supporters publicly rebuked staff and both M1W and MPWMD general managers, shamelessly accusing them of failing to do adequate research or answer questions. While the criticisms were patently untrue, this scathing public reproof was part of the CalAm strategy to defeat PWM Expansion because it fears CCC permit denial.

CalAm had convinced the M1W board to change the PWM Expansion designation from "replacement plan" to "back-up plan", for the same reason. On face value this appears to be merely a linguistic or semantics play on words, but CalAm obdurately insisted on swapping "replacement" with "back-up", precisely because CalAm fears the PWM Expansion project will

necessarily replace the MPWSP if the CCC denies its permit application. Making it a back-up plan gives the impression that the MPWSP remains the principal attraction that cannot be replaced.

Killing the PWM Expansion water recycling project's chances to move forward would make CalAm's desalination plan the one and only water supply shortage solution available. Ironically, the PWM Expansion project, coupled with the core PWM project, is the only water supply option that can realistically meet the State CDO, thus saving much future travail and costs. It is the most cost-effective option, likely saving ratepayers approximately $1 billion. For CalAm to risk there being no option at all is not only reckless, but also selfish and short-sighted. It is certainly unseemly to attempt to coerce the CCC into an untenable position. Plus, it is unkind to underestimate the integrity, wisdom, and well-researched staff efforts to produce the best recommendation, which is the CCC's fiduciary responsibility for our coastal resources.

One reason for the anti-FSEIR certification position was that the FSEIR failed to address cumulative impacts of its operation together with the entire MPWSP, another disingenuous point to derail the FSEIR. There was never a goal to operate both the PWM Expansion project and the MPWSP simultaneously. That action would be foolhardy and prohibitively expensive and wasteful. Other CalAm anti-FSEIR arguments included claiming questions were not answered or items covered already in the approved PWM original EIR had not been addressed in the FSEIR. Bringing up such points at this juncture is misleading to the public and hypocritical. The M1W board had sufficient time to examine the SEIR (over a year) and the FSEIR was based on extensive review of all aspects prior to the meeting of April 27, 2020. Logically, and legally, the FSEIR had no requirement to address items already examined and approved in the original PWM EIR. Overturning or defeating the PWM Expansion water recycling project was CalAm's key objective. This was CalAm's "do-or-die" ambush action to safeguard the MPWSP and guarantee success.

Why would CalAm change course to denounce the PWM Expansion project after having praised and approved it as a back-up plan for its desal plant? Because the CCC staff had based, in part, its recommendation to deny the CalAm coastal development permit on the meticulously researched Stoldt "Water Supply and Demand Report" that confirmed a plentiful water supply for the Monterey Peninsula, projected to last until at least 2043 with the PWM Expansion. During this timeframe, other new water technologies and water sources could be explored and hopefully developed.

MPWMD General Manager, David Stoldt, has received public acclaim for his brilliant analysis and dedication to evaluating all aspects of our water issues in order to find a solid solution under stressful conditions. His counterpart at M1W, General Manager, Paul Sciuto, has been similarly respected and appreciated. Both M1W and MPWMD boards of directors received public praise for their significant and productive work, to include exemplary role modeling of harmonious collaboration and cooperation. Their staffs received kudos at every turn for their excellent work ethic. This exceptional example was an amazing inspirational paradigm for our

community, giving much hope for the future. Incredibly, under CalAm's influence, the April 27, 2020 M1W board meeting nightmare dashed dreams and broke hearts. It shocked meeting participants and shattered self-esteem of dedicated staff. In a word, it was a brutal experience, a reprehensible breach of the public faith, that included the flouting of a legal contract to accord a deserved and earned expanded representation on the M1W board for Marina citizens. Again, this episode speaks to CalAm's fear that Marina's additional vote could influence the next agenda item to discuss the FSEIR certification. Marina was in favor of certification. Under obvious CalAm influence, the Marina vote was wrongly contested and shot down.

The extreme politicization of our water system is unacceptable as it violates our citizens' constitutional rights and deprives them of legitimate, responsible representation.

After accepting the work for the first phase of PWM, which is in the process of providing 3,500 acre-feet of recycled water to the Seaside Basin where it will be stored for later use, CalAm now criticizes and denounces PWM Expansion that it earlier agreed to have as a back-up plan. The back-up plan came about due to multiple problematic issues related to the MPWSP, with a lack of water rights, overestimation of demand, and the critically over drafted SVGB being high on the list.

The CEMEX property location for CalAm's planned future MPWSP additional six slant wells is important to the CalAm coastal development permit application deliberations. The CCC co-signed the tri-party resolution with the City of Marina and the State Lands Commission to preserve the CEMEX property for conservation and recreational use only, thus precluding any further industrial development after the CEMEX sand-mining operations close this year. This action was in accordance with the City of Marina's Local Coastal Plan. In addition to its lack of water rights to the SVGB aquifers, CalAm cannot proceed to build a desalination plant on the CEMEX property where its test slant well is currently located, and where it plans, according to its FEIR, to install six more slant wells. Furthermore, slant well technology has not been successfully used anywhere in the world for desalination, to my understanding. Sadly, CalAm is, and has been, using Marina as an expensive experimental "guinea pig".

It is significant that the CalAm EIR expressly noted that if CalAm could not prove it had water rights, then its MPWSP would be deemed "infeasible", resulting in demolition of its test slant well, project decommissioning, and project demise. The California Public Utilities Commission (CPUC) has paid minimal attention to this critical aspect of the test slant well experiment, even providing misinformation in its MPWSP Decision document, more than likely because its charter pertains to utility pricing; water rights do not come under its purview or authority, despite water rights having been explicitly included in the EIR (chapter 2 and/or 4).

Actually, MPWSP's validity and legitimacy depend on the crucial pivotal issue of water rights. The EIR states that the issue of water rights is an integral component of the feasibility of the MPWSP, a fact confirmed in the CPUC MPWSP Certification Decision, 18-09-017 dated September 13, 2019. In a manifest stunning omission in its MPWSP certification process, the

CPUC shockingly left out any reference to the Dune Sand Aquifer, despite this freshwater aquifer's paramount importance to the certification analysis and CEQA guideline requirements. This dismissive attitude and serious error alone should disqualify that MPWSP certification. Where is the oversight for agency actions? For such an urgent matter to only be discussed over a few cursory pages, without any substantive legal backup, is astounding. The specious argument the CPUC gives to justify the desalination plant and slant wells is a cause for dismay and much worry about the integrity of this governmental body that holds so much power over our lives.

The water rights issue is a major reason CalAm devised the return water plan to circumvent the Monterey County Water Resources Agency Act that prohibits exporting aquifer water out of the Salinas Valley Groundwater Basin (SVGB). A biting contention for Marina and Ord Community citizens is that the water CalAm plans to extract from Marina's SVGB aquifers would not be returned to Marina's aquifers. Instead, Marina's water would be extracted from its SVGB aquifers only to then be transported over to Castroville and the CSIP (Castroville Seawater Intrusion Project) in the Castroville Community Services District. Castroville, in the meantime, has already started receiving recycled water from Marina Coast Water District and Pure Water Monterey, making, in my humble opinion, these two agencies helpful neighbors. Unsurprisingly, Marina and the Ord Communities find this CalAm return water plan to be most inequitable.

CalAm has consistently alluded to its ability to acquire appropriative water rights, but that is absolutely not the case, as CalAm cannot usurp the water rights from overlying groundwater rights owners and users. Also, there is no permit for appropriative water rights. The SVGB is critically over drafted, thus it precludes CalAm acquiring any permitted water rights as well. As stipulated in the CUPC MPWSP Decision, referenced above, "For CalAm to possess appropriative water rights to the brackish water under a 'developed water' legal basis, whereby project essentially created a new water source, CalAm would need to demonstrate that its extraction and beneficial use of the water source would not harm other legal users of water." (page 81). First, the MCWD, Marina, the Ord Communities, and other users, are without a doubt already being "injured and harmed" by the CalAm taking of their sole potable water supply source, the SVGB, via its test slant well. CalAm's experimental test slant well has been persistently causing seawater intrusion during its operations, thus also injuring and harming the Ag Land Trust Armstrong Ranch, that is adjacent to Marina and the CEMEX property. Second, this fallacious reasoning that CalAm can possess "appropriative water rights to the brackish water under a 'developed water' legal basis" is another "abracadabra" way to feign water rights. To use this water as part of its "return water" plan, claim it as a beneficial use, and then assert brackish water (groundwater) is a new "developed water" source, is part of CalAm's bizarre linguistic games, its invalid, baseless claims, and its arrogant posturing to obtain support for the MPWSP. "Mother Nature" gifts us our groundwater. CalAm cannot create or "develop" groundwater, neither brackish nor fresh, ergo, CalAm has no legal basis either. The CPUC statement also confounds California Constitution law with Agency Act law. Third, CalAm is

acting as though we are living in the Wild West days, when "jumping gold mine claims" was rampant. But our groundwater is much more precious than gold. The CalAm "water grab" is all the more despicable because Marina's and the Ord Communities' very survival depends on the Salinas Valley Groundwater Basin water - it is their only potable water supply source.

Furthermore, the CPUC discussion on water rights is inherently contradictory. The ocean water percentage (OWP) will be such that there will hardly be any freshwater left at all in the SVGB aquifers in less than a few years' time due to the continual slant well pumping, even more so with the addition of six more slant wells. Moreover, the CPUC water rights section describes subsurface ocean intake, whereas in reality CalAm repositioned the slant well, moving it inland to the CEMEX property, where CalAm then inserted it into the freshwater Dune Sand Aquifers and the 180-Foot Aquifer. While there is brackish groundwater in the 180-Foot aquifer, all brackish water is still State-defined as groundwater and contains chemical composition as such. Brackish groundwater can be treated and has beneficial use, a use that should be reserved for SVGB overlying water rights owners.

As the CPUC Decision asserts, water rights is a project feasibility issue, as was also stated in the project EIR/EIS, as previously noted. While this CPUC Decision states that the CalAm return water will "ultimately benefit the SVGB, so CalAm will perfect legal water rights for the project", the discussion below proves without any doubt that the exact opposite is the case: CalAm will not by any stretch of the imagination be able to perfect any water rights. Instead of benefiting the SVGB, CalAm's MPWSP will do devastatingly irreversible harm to the SVGB. This is a major reason negatively affected Marina citizens, and others, are fighting so valiantly and forthrightly to protect the SVGB and their water rights, as the legal owners of the overlying water rights to the SVGB aquifers. This is an uncontestable proven fact. No where in its project certification decision document does the CPUC even allude to the Dune Sand Aquifer that the MPWSP fully intends to completely contaminate and deplete of its freshwater. Contradicting itself from statements made on pages 80-82 and 151, the CPUC states: "The cost of the MPWSP desalinated water is relatively expensive and becomes more so the greater the return water obligation. The authorized plant is reasonable as long as the desalination plant does not become a vehicle for unreasonable amounts of return water at increasing costs to CalAm ratepayers." Accounting for Dune Sand Aquifer freshwater in the early years of the project, that will be true, but later the need for return water will theoretically diminish to near zero, because, as cannot be emphasized enough, CalAm slant wells will totally eliminate all freshwater but a tiny fraction existing in the aquifers, unless serious remediation takes place, which would disqualify the MPWSP per the CPUC stipulation above that the cost to ratepayers must not be excessively high due to unreasonable amounts of return water. To replenish the aquifers would be monumentally expensive, but by that time, CalAm would have claimed total control of the SVGB aquifers via seawater intrusion, its intended design. The following below stated facts reveal the undeniable harm CalAm's MPWSP intends to inflict on Marina and Monterey Peninsula citizens and ratepayers, and the conniving methodology CalAm created to mislead the CPUC and all decision makers and stakeholders in our water issue struggles.

To diminish the amount of calculated return water it must legally return to the SVGB, CalAm placed its electrical conductivity sensor monitoring device, which measures total dissolved solids (TDS) from the test slant well intake volume, at the top of the 180-Foot aquifer. This placement avoids any freshwater measurement intake from the higher elevation Dune Sand Aquifer, which sits above the 180-Foot aquifer. This measuring technique allows CalAm to falsify the true amount of freshwater that it must return to the SVGB because the freshwater is not mixed in with and measured along with the brackish water TDS intake volume from the 180-Foot aquifer. CalAm can take much more freshwater from the Dune Sand Aquifer without including it in any of the test slant well intake TDS volume measurements, thus using data that greatly reduces the amount of return water it must put back into the SVGB, thereby decreasing costs.

This perfidious aquifer freshwater TDS volume component data falsification allows CalAm, in the future, to extract a massive amount of freshwater from the SVGB because six additional slant wells would dramatically increase the freshwater volume extracted from the Dune Sand Aquifers, which includes the Perched Dune Sand Aquifer. However, as revealed later on, the projected additional six slant wells will in time tragically completely obliterate the majority of aquifer freshwater due to seawater intrusion. Slant wells, as the AEM scientific survey discussed below proved, cause seawater intrusion. This "return water" is a masterful ruse to dupe Monterey County residents. The so-called "generous" act of returning aquifer water extracted is in reality a means to promote CalAm's desalination plant to Salinas Valley residents and growers: if all aquifer water is seawater intruded, then desalination becomes a "Cartier Must." Like the wolf in sheep's clothing, CalAm is not shy about its plan to "devour" Marina Coast Water District (MCWD). Once the SVGB aquifers are hopelessly seawater intruded, MCWD will cease to exist, as it is a public water company delivering SVGB potable water to its communities. Once this groundwater is totally contaminated, CalAm will be the sole purveyor of desalinated water to the entire region, making MCWD's business obsolete, tragically ending its invaluable affordable SVGB potable water supply to Marina and the Ord Communities. CalAm has unabashedly admitted that this is its ultimate goal. We urge the CCC to act before such tragic "injury and harm" can occur.

Most importantly, the new state mandate, the Sustainable Groundwater Management Act (SGMA), enacted into law in September 2014, requires groundwater level changes to stop seawater intrusion. This means groundwater levels have to be high enough so that seawater cannot sweep into aquifers, thereby respecting natural separation boundaries. Slant wells cause subsidence, or a lowering of groundwater levels. The California Department of Water Resources (DWR) found that subsidence is particularly bad in parts of the Central Valley. This SGMA law protects the critically over drafted SVGB and provides support for opposing CalAm's return water plan. The return water project would continue to deplete freshwater reserves from the SVGB; it would be detrimental to the health of the SVGB and should not be implemented.

CalAm mismanaged its assets in the Carmel River, and later abused its water privileges In the Seaside Basin to the point court adjudication became necessary. There is every reason to believe, based on CalAm history, that the SVGB will suffer a similar fate. Of the two basins, only the SVGB is already on the California critically over drafted groundwater basin list, a very salient fact, thereby making the SVGB particularly vulnerable to CalAm's slant well pumping. Despite CalAm's insistence that it takes brackish water only from the SVGB aquifers at the CEMEX property location, CalAm's faulty measuring of aquifer freshwater for future return water purposes belies the CalAm "fact" that it is only taking brackish water from the aquifers. CalAm purposely placed its electrical conductivity monitoring device such that it avoids Dune Sand Aquifer freshwater TDS measurements, as noted above, which accounts for this deception and alteration of reality.

It is important to restate that all groundwater, brackish included, is defined as groundwater. Groundwater total dissolved solids (TDS) have a chemical composition different from seawater, which is mostly sodium chloride or table salt, while, in the absence of seawater intrusion, groundwater's TDS have a chemical composition of calcium, instead of sodium, chloride. This chemical composition differential was discussed in hydrogeologist Hopkins's technical memorandum, which is part of the CCC public record. This example of CalAm's methodology for measuring TDS for SVGB return water purposes is yet another poignant illustration of CalAm's deceitful practices, malevolent intentions towards its ratepayers, and its discourtesy towards our communities and concomitant precious natural resources alike. CalAm's "return water concept" plan serves to underscore its suspect objectives. Even the contrived concept of "return water" is a CalAm admission that it is taking aquifer water, not ocean water. The test slant well pulled in water from the CEMEX wash ponds, which are ocean water mounded inland from the ocean. This occurrence allowed CalAm to strengthen its claim it was taking ocean water. With CalAm, duplicity seems to be unending.

An additional problem for Calam Peninsula ratepayers is that Castroville and the CSIP, the beneficiary of the return groundwater plan, will receive approximately 700 acre-feet while paying a mere $110 an acre-foot. Compare that to the price tag for Peninsula ratepayers: a whopping $6,000 - $8,000 an acre-foot or approximately $4 million per year. That is one fundamental reason the Salinas Valley agriculture industry representatives on the M1W board are against certification of the FSEIR. Perhaps these board members scream too loudly that "they must have their 700 acre-feet of desal water or the Peninsula will not get any water." Their "no" vote on the PWM Expansion water recycling project FSEIR is a reflection of CalAm's, and their fear that the desalination plant coastal development permit will fail as a result of the latest CCC staff recommendation to deny the CalAm Coastal Development Permit application, and its recommendation to CalAm to withdraw, and perhaps later resubmit, its application. In response, CalAm requested a ninety-day extension, for which the CCC graciously scheduled a hearing in August 2020.

Based on grave concerns about the CalAm test slant well, in addition to the tri-party resolution cited above (page 5, para 4), the City of Marina Planning Commission denied CalAm's permit request for its MPWSP, admonishing CalAm for its past record of deceit, faulty data and modeling, misinformation, lack of transparency, and untrustworthiness. CalAm then applied to Marina City Council for a permit, but then withdrew its application, accusing Marina of prejudicial bias on the part of certain council members. CalAm deceived the City of Marina when it presented faulty data and modeling for its test slant well; it deceived the City of Marina when it said the slant well would extract water from subsurface ocean intake, even though it had moved the slant well further inward to be placed directly into the 180-Foot and the Dune Sand Aquifers, blowing freshwater out into the Monterey Bay in violation of the California Constitution, Article X, Section 2. Then CalAm, to circumvent the Agency Act, as indicated above, and to Marina's chagrin, devised a plan to extract aquifer water from the SVGB expressly to deliver it over to Castroville and its CSIP, a most important act for agricultural interests due to the exceptionally low price of $110 an acre-foot, a point worth repeating due to its essential unfairness to Peninsula ratepayers, whose disadvantageous water bill would be a significantly higher $6,000 - $8,000 an acre-foot. This CalAm return water plan represents a crucial advantage to the Salinas Valley area businesses and residents. Naturally, board members representing Castroville and Monterey North County were easily swayed to go along with CalAm's specious claim that the PWM Expansion water recycling project cannot provide sufficient water, therefore, the MPWSP is absolutely indispensable. Having the prospect of such a good deal at the expense of CalAm ratepayers is hard to pass up.

What is more, it is unneighborly that CalAm and its supporters do not mention the fact that the Marina Coast Water District (MCWD) and PWM have already been supplying Castroville with 1,700 acre-feet of recycled water annually. Nor do they acknowledge the support received from MCWD and Marina and Seaside citizens who endured disruptions to streets and vehicle circulation movement for the installation of new water delivery conveyance pipelines to transport water to the Seaside Basin, to the benefit of CalAm. Then again, CalAm has an agenda: desalination for high profit. To publicly denigrate PWM, and to deny Marina its lawful additional vote for citizen representation on the M1W board, are part of that agenda to achieve CCC permit approval for the MPWSP, partly by preventing PWM Expansion proponents from proceeding to FSEIR certification. In CalAm's viewpoint, certification is one step closer to approval of PWM Expansion and/or water purchase agreement negotiations for the project with CalAm. These M1W and MPWMD accomplishments, from CalAm's perspective, would reduce chances for CCC permit approval. Destroying chances for an alternative water supply solution brings CalAm closer to being the only game in town, the main attraction. Therefore, for CalAm, it is essential to eliminate, in a pre-emptive manner, all obstacles that threaten CalAm's success.

Another false CalAm claim is that the PWM Expansion takes water from agriculture interests, which would be unfair to Salinas growers and residents. Both claims are untrue. PWM Expansion will not touch source water reserved for residents, agriculture, SVGB, and SGMA, a

fact made clear in the FSEIR. CalAm disrespected Marina's inherent right to protect its sole water supply resource. After the City of Marina denied CalAm's permit application to install its test slant well at the Marina CEMEX property, CalAm brazenly invaded Marina's legal city jurisdiction without permission to violate Marina citizens' water rights and its Local Coastal Plan that protects endangered species' nesting habitats, like that of the Western Snowy Plover bird, the City of Marina's Mascot.

CalAm had also publicly undercut the current core PWM water recycling project, accusing PWM of missing water purchase agreement milestones for water delivery to the Seaside Basin. To adamantly be so vocally critical of PWM for a few hiccups in an operations schedule does strike a bitter chord of ungratefulness. As it turned out, this was another CalAm tactic to divert attention away from the fact that CalAm had neglected to install critical pumping stations for Carmel Valley, thus making any PWM water delivery to that area impossible. This CalAm failure to provide the necessary water delivery infrastructure for Carmel Valley is another glaring example of CalAm negligence and incompetence, two traits that continue to dishearten ratepayers. Covering up this deficiency revealed yet another negative aspect of CalAm's dishonesty and lack of transparency: its tendency to insincerely blame others to deflect focus on its own misdeeds.

The sudden switching of horses in mid-stream is directly related to CalAm's new founded fear that its permit will be denied. CalAm has had decades to create alternative water sources, but being a monopoly, it did not have to try very hard. It was able to cover up its many deficiencies and inefficiencies, but the looming State CDO deadline pressure brought many factors to light. Ratepayer outrage over unfair hidden costs, fees, and surcharges boiled to the surface. This crisis is the root cause of the current public water debacle.

As mentioned above, permit denial would deprive CalAm of massive future profits it envisions for its shareholders through high percentage surcharges on its capital assets, e.g., buildings and other structures, such as a desalination plant, extensive pipelines, pumping stations, construction equipment and vehicles, and slant wells. Those profits are in addition to the high water rates it charges residents, as opposed to the lower rates charged to the businesses in the hospitality sector. CalAm charged residential ratepayers for water they did not use when water conservation measures required water use restrictions during the extensive drought period. The Monterey Peninsula has the highest water rates in the United States, according to published studies on nation-wide water rates. Those benefiting from the residential tiered water rate system, the hospitality industry, are naturally supportive of CalAm. CalAm's bottom line is, regrettably, greed, which should never have a role in a public service utility that provides an essential-for-life product like water.

The cost of the MPWSP to Monterey Peninsula ratepayers and the residents of Marina and the Ord Communities would be staggering and life threatening. Marina and the Ord Communities would be at risk to lose their only potable freshwater supply source, the Salinas Valley

Groundwater Basin's Dune Sand Aquifer (including its perched part), the 180-Foot aquifer, and the 400-Foot aquifer, with the 900-Foot ancient aquifer being also at risk.

I urgently bring this challenging situation before you because many lives depend on your wisdom and visionary leadership. It takes courage, back bone, to withstand the pressures being brought to bear now, but human lives are far more valuable than one corporation's financial gain. That is what is at stake. The CalAm ravages endured so far are unsustainable and unjust. CalAm disregards citizen constitutional rights and basic human rights, such as affordable water; the higher the cost of water, the higher the cost of food production systems. With greater green gas emissions emanating from a desalination plant, the greater the climate change damage.

Whether or not Monterey Peninsula citizens can effectively challenge the FSEIR certification denial before the CCC August 2020 hearing, it is certain that the FSEIR can in the future gain certification because it has met all CEQA guideline requirements and passed environmental scrutiny. Both the M1W and MPWMD boards unanimously approved conducting the SEIR, which is simply a broadening of the approved core PWM EIR. Both boards unanimously approved spending $1 million of taxpayer funds for the FSEIR process. CalAm spent $350,000 of ratepayer funds on the SEIR. To deny FSEIR certification was an unconscionable act of betrayal of taxpayer and ratepayer rights, finances, and trust.

It is irresponsible and indefensible that the M1W board disregarded the MPWMD's request to approve FSEIR certification. While the MPWMD board vote was not unanimous (it was a 6-1 vote), a board majority urged certification approval. MPWMD invested $750,000 while M1W invested $250,000 in the FSEIR. It was only after receiving the CCC staff recommendation for CalAm permit denial last year that the trouble intensified, with CalAm heavily lobbying against its own recycled water project in order to ensure success, and avoid defeat, for its desalination plant at the scheduled CCC August 2020 hearing.

For this purpose, CalAm has steadfastly refused to sign a water purchase agreement for PWM Expansion. It primarily works to promote and reinforce its financial profit goal to build the desalination plant, no matter the risk to ratepayers. To this end, it was vital that CalAm discredit the Stoldt "Water Supply and Demand Report" because this report revealed, and definitely proved, that the proposed PWM Expansion water recycling project is a first-rate, feasible, ecologically sustainable alternative to desalination; and because the Stoldt report provided a basis for CCC recognition of the PWM Expansion water recycling project as a logical, prudent answer to the Peninsula's water shortage and State CDO challenges: Thus, the CCC's staff recommendation for CalAm permit denial.

There were, I believe, other significant MPWSP issues associated with the CCC staff recommendation, such as the new scientific data and information contained in the latest Stanford Aerial Electromagnetic (AEM) scientific study on seawater intrusion levels in the SVGB, with a focus on the CEMEX test slant well area. The AEM conclusively demonstrated, via actual

visual scientific evidence, that slant wells cause sea water intrusion. It is relevant to point out that in the past, CalAm had refused to allow an AEM survey in the vicinity of its test slant well. When the new AEM technology via helicopter became available, MCWD was able to deploy an AEM survey over the CEMEX property. That is the scientific study that demonstrated extensive and deliberate slant well seawater intrusion into SVGB aquifers. CalAm and its attorneys, as in the past, obstinately dismissed AEM scientific evidence, authenticated by highly respected scientific experts. CalAm publicly denigrated the AEM science at the last CCC hearing on the MPSWP, attempting to refute MCWD's public comment input that the latest AEM study provides new, important information. That information included scientific documentation on the location and amounts of freshwater existing in the SVGB aquifers.

There is now no doubt that a new, alternate water supply resource exists in the PWM Expansion project, which CalAm is so vehemently resisting. This is unfortunate because the PWM Expansion recycled water project is superior in every way to the MPWSP.

The very issues that plague the Carmel River basin would be the same for the SVGB, especially since this basin is on the state's critically over drafted groundwater basin list, and the steelhead trout is an endangered species in both the Carmel and Salinas rivers. This means if a permit is granted to CalAm, and CalAm succeeds in overcoming the seemingly insurmountable obstacles it faces, then the state surely will issue a Cease and Desist Order for the SVGB, putting the Monterey Peninsula in an even worse situation than the already precarious present one. In fact, as emphasized earlier, the State of California has enacted the Sustainable Groundwater Management Act (SGMA) to mandate aquifer protection, preservation, and replenishment.

CalAm's anticipated additional six new slant well water pumping stations would deplete SVGB aquifers at an alarming rate, contaminating them via forced seawater intrusion. This fact is behind the CalAm drive to install its desalination plant. Fatally seawater intruded aquifers would provide undeniable justification for desalination. I hope it is perfectly clear that CalAm's motives are directly contrary to the purpose of SGMA, that is, precisely, to protect SVGB aquifers from seawater intrusion! Furthermore, it should be brought to your attention that the CalAm hydrogeologist hired to evaluate the test slant well, Dennis Williams, is the inventor and patent holder of the technology used in the same test slant well that CalAm intends to replicate six times at the CEMEX property. This conflict of interest, another sly CalAm maneuver, seems to have been shrewdly and conveniently "overlooked."

Even worse than seawater intrusion is the political corrosive corruption that permeates and distorts perspectives in this entire water system history.

For all the cogent reasons stated herein, I ask that you stand firm in your staff's recommendation to deny CalAm's Coastal Development Permit application. The CCC staff deserve high praise for acting with integrity and faithful diligence in conducting their research, analysis, and findings, but also for the insightfulness and incisive ability to "see" the truth.

The crux of the matter at hand is that CalAm, having fooled so many decision makers up until this hugely important CCC staff recommendation and commission decision, is exactly this: CalAm has already signed a water purchase agreement with M1W for the existing, well-functioning PWM water recycling project, to the great joy of our citizens, and the satisfaction of the State of California mandate to use all water resources available as part of drought prevention measures, endangered species and sensitive habitats protection, and ocean-life preservation (Monterey Bay Marine Sanctuary). To clinch the water deal and solve once and for all the decades long agonizing search for answers, CalAm needs to use only one stroke of a pen: Sign the PWM Expansion water recycling project's water purchase agreement!!!

Why won't CalAm sign it??? Duh! Because it stands to make so much more money by fleecing ratepayers and stealing or contaminating Marina's sole potable water source, while providing at least for a while, cheap desalinated water to Castroville and agriculture industry interests in Salinas Valley, while also at the same time saddling Monterey Peninsula ratepayers with the hugely more expensive desalinated water. Giving the deal of the century to Castroville provides the "Achilles heel" key answer: Salinas Valley gets the ridiculously inexpensive recycled water. The cheaper promised future desal water deal for Castroville appears to be a ploy to lure Salinas Valley agriculture interests to CalAm's side. In the meantime, as said above, Castroville is already receiving the less expensive recycled water from MCWD and PWM.

Quoting the CPUC Decision referenced above, "Within 180 days of the date of this decision CalAm shall file a Tier 2 advice letter providing specific additional information and its assessment as to whether it intends to file an application with the Commission to pursue a Water Purchase Agreement (WPA) for additional water supply to be provided by a PWM expansion...for an amount no greater than 2,250 afy (above the 3,500 afy already approved)." CalAm waited until March 19, 2019 to respond, a few days beyond the 180 day CPUC deadline. In essence, CalAm stated in the Advice Tier 2 reply that even if it had sufficient information on hand, it did not have intentions to pursue a Water Purchase Agreement (WPA) for additional water supply to be provided by a PWM expansion, or file an application for such with the CPUC because it was securely confident that the MPWSP was on schedule and would have no difficulty meeting the SWRCB CDO deadline of December 31, 2021. For this reason, no PWM Expansion would be necessary. This CalAm Advice Tier 2 response letter confirms that CalAm does not have any intention, plan, or desire to negotiate or apply for a PWM Expansion or contemplate negotiations for a water purchase agreement with PWM or MPWMD, at least prior to a CCC decision on its coastal development permit in August.

Already desperate from the excruciating CalAm intransient push for desalination, distraught Monterey Peninsula citizens are planning to depart the area because they fear becoming homeless. Many already are. Fear inculcates CalAm's every move, and in turn, it infects the entire Monterey County. Now the only answer is to deny the CalAm permit. A water purchase agreement will naturally follow, whether it be with CalAm or a wiser, kinder enterprise.

The CCC, to its great credit, figured it out. The answer lies in requiring CalAm to sign the water purchase agreement for the PWM Expansion water recycling project. In the meantime, we just have to bar CalAm's wielding the money club, and keep its scandalous scams, "stab 'em in the back", mafia-like swindles of the century, from operating; no more bullying, no more profiteering at ratepayer expense. This sounds harsh, but it is the manifestly obvious truth that CalAm has succeeded in covering up its lies and "smoke and mirrors" circus tricks for way too long. The CCC staff gets it. "They got it right." I am so elated, and proud of the CCC, Tom Luster and his staff, that I can hardly finish writing this letter. Hip, Hip Hoorah, and countless Kudos for the CCC and its staff!

Strongly supporting opposition to the MPWSP, the CalAm EIR/EIS, coupled with the CPUC's own statements, provides the necessary information to conclusively demonstrate the infeasibility of the MPWSP, a fact that is absolutely vital to the case at hand: no obtainable water rights means no project feasibility. Additionally, in its attempt to avoid the need for water rights, the MPWSP will cause cumulative adverse impacts with irreversible seawater intrusion into potable groundwater resources and aquifers. The MPWSP will assuredly bring immitigable permanent harm and injury to our overlying water rights owners in Marina, the Ord Communities, Marina Coast Water District, and others, and, in general, be a continuing nuisance to our communities.

The conclusion should be that the MPWSP will not install any environmentally destructive slant wells or build an exorbitantly unaffordable desalination plant to ruin Monterey Peninsula water ratepayers, along with Marina's coastline and groundwater basin. The MPWSP will not extract any SVGB aquifer water, nor will it implement a return water plan. In other words, the MPWSP should not move forward.

CalAm's inapt objections vis-à-vis the FSEIR, and its contrariness towards its customers and Monterey Peninsula and Marina citizens, cannot obfuscate the truth. The truth remains that the FSEIR for the PWM Expansion water recycling project is solid and can pass muster. The PWM Expansion water recycling project, that augments the existing core PWM water recycling project, is a reliable, sound, worthwhile, and pragmatic potable recycled water resource for the Monterey Peninsula. It is a sustainable, safer, more cost-effective and far more environmentally friendly water project than the hugely expensive ($1.2 billion, including interest over the years), climate change exacerbating, and hydrologic cycle disruptive desalination plant.

In sum, the PWM Expansion recycled water project stands out as the best and far superior choice to meet the CDO and Monterey Peninsula water requirements for years to come.

Let's face facts. These "water wars" are akin to those early gold rush days, where in the end, there were no gold nuggets to be found in 'dem 'der hills, just as there will be no freshwater to be found in 'dem 'der aquifers! This letter is a Call to Action.

Please fulfill your duty for the public good. Unconditionally deny the CalAm MPWSP Coastal Development Permit. It is the ethically and environmentally right decision. The Monterey

Peninsula and Marina citizens will be forever grateful that you are good stewards of their trust. Our future survival heavily depends on your decision to do the right thing. You are our Hero! May God abundantly bless you all, and keep you safe and well during this COVID-19 pandemic crisis, and beyond.

Very respectfully,

s//Margaret-Anne Coppernoll//s

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From:	MWChrislock <mwchrislock@redshift.com>
Sent:	Tuesday, March 10, 2020 7:13 PM
To:	Bochco, Dayna@Coastal; Turnbull-Sanders, Effie@Coastal; Hart, Caryl@Coastal; Aminzadeh, Sara@Coastal; Brownsey, Donne@Coastal; Escalante, Linda@Coastal; Wilson, Mike@Coastal; Groom, Carole@Coastal; Rice, Katie@Coastal; Howell, Erik@Coastal; Uranga, Roberto@Coastal; Padilla, Stephen@Coastal; Mann, Zahirah@Coastal; Gold, Mark@CNRA
Cc:	CalAmMonterey@coastal; Luster, Tom@Coastal; Ainsworth, John@Coastal; Staben, Jeff@Coastal
Subject:	Article on Pure Water Monterey

Hello CC Commissioners and Staff,

We thought you would find this article on Pure Water Monterey (PWM) informative. PWM just recently began producing and storing 3,500 AF of potable water annually. Cal Am will begin delivering this water to its Peninsula customers in May 2020.

The Monterey Peninsula has waited decades for a new water supply, but it wasn't Cal Am who delivered it. Thanks to Monterey One Water this project will supply more than one third of the 9,700 AF we currently use. Only another 800 AF is needed to satisfy the state's CDO on the Carmel River. Cal Am customers on the Peninsula want to see this state-of-the-art water project expanded in place of the proposed desal plant.

The PWM Expansion is the most environmentally intelligent, cost effective solution to the Peninsula's water shortage. Its source waters are secure and drought proof. It does not adversely affect any groundwater basin or agriculture water. It tapes an unutilized water resource. It reduces wastewater discharge into the Monterey Bay Marine Sanctuary. The PWM Expansion uses 4 to 6 times less energy than desal. It's powered by renewable energy from landfill gas and emits a fraction of the greenhouse gas. It's appropriately sized to meet the Peninsula's current and future demand and it would cost us $1 billion less than Cal Am's proposed desal.

We hope you will consider this sound alternative to Cal Am's desal when it comes before you in June.

Enjoy the article.

Melodie Chrislock
Managing Director
PUBLIC WATER NOW
http://www.publicwaternow.org
mwchrislock@redshift.com

831 624-2282

GOVERNING | MARCH 9, 2020

California's 'Salad Bowl' Recharges Depleted Aquifer

A multi-partner water recycling project is helping Monterey, Calif., stabilize and replenish its dwindling groundwater supply. The project could serve as a model for shrinking aquifers in other regions of the country.

CARL SMITH, SENIOR STAFF WRITER

https://www.governing.com/next/Californias-Salad-Bowl-Recharges-Depleted-Aquifer.html

Luster, Tom@Coastal

From: Douglas Deitch <ddeitch@got.net>
Sent: Friday, November 15, 2019 6:46 AM
To: Turnbull-Sanders, Effie@Coastal; Hart, Caryl@Coastal; Brownsey, Donne@Coastal; Aminzadeh, Sara@Coastal; Escalante, Linda@Coastal; Wilson, Mike@Coastal; Rice, Katie@Coastal; Groom, Carole@Coastal; Howell, Erik@Coastal; Uranga, Roberto@Coastal; Padilla, Stephen@Coastal; Faustinos, Belinda@Coastal; Luce, Shelley@Coastal; Ward, Christopher@Coastal; doug@lawandorderliberal.com; Energy@Coastal
Subject: INVITATION TO TOUR 'Monterey Bay Regional Water Fixx" aka 21000 acre "Monterey Bay Estuarine Monument" ...
Attachments: sichuanreclaim.jpeg

Dear Chair Bochco and Commissioners,

Congratulations on your very successful, informative, innovative, and constructive "desal/PWM" public hearing yesterday!
Sorry I was unable to attend but listened and learned.

Wednesday morning I spoke to you very briefly about my 2 coastal related proposals/projects, the 21000 acre Monterey Bay Estuarine Monument (@ ww.dougdeitch.info) and consideration of possible Golden Gate damming (@ www.sipodemos.democrat) to address SLR risks and possible devastation to/of our statewide water, food, and real estate resources in the many trillions of dollars and worse.

In reference to possible Golden Gate damming, I have just recently made a submittal to the Google Bay Area Impact Challenge, for your information and review, @ https://www.facebook.com/photo.php?fbid=2489646811083674&set=a.154433724605006&type=3&theater (also included below)

In reference to the Monterey Bay Estuarine Monument, some highlights:
1. Creates 21000 acres of new ESHA
2. Includes a fully completed, operational, a very underutilized and both drought and SLR proof 31,000+/- acre foot per year water recycle plant in Castroville with it's water repurposed from ag to urban use (from actually this 31000 a/y/fr originated in the first place) to provide all urban water needed, now and in the future, SLR or no (because a closed loop system will be engineered and consructed, in/for the entire Monterey Bay regtion
3. Provide best possible ground water SLR, recharge, conservation, and overdraft protection conceivably possible with no new desal, recycling, slant wells etc, et al(?).
4. Fully opm (other people's money) funded by Prop 1 and reallocated rail bond funding.
5. 25 year old plus perfectly sucessful 43 acre "Pilot Project" to prove the concept "Farmlands back to wetlands ..." @ www.dougdeitch.com and www.dougdeitch.info (fb pages)

In the year 2000, I conducted a very informative and fun tour for the Sichuan Water Conservancy of the PRC (see attached and run down @ http://www.pogonip.org/sichuan.htm).

I would be very honored to extend this same invitation to both both the CCC and it's staff at any convenient time for you to take a tour and hear a more complete presentation of my two projects which, actually, is essentially a proposal with coastal nexus which affects and hopefully might provide the answers to the future keys in this era of SLR to water, food and real estate security, sustainability, and social justice and equity for our entire state.

Respectfully,
Best/health/tikkun olam
Douglas Deitch
ED/MBC
"The best that money can't buy..."
www.lomejorqueeldineronopuedecomprar.org
www.lomejorqueeldineronopuedecomprar.com
www.lomejorqueeldineronopuedecomprar.net

****
****

Food, water, and real estate security for our Golden State in this era of escalating and perhaps massive, rapid, and inexorable climate change and SLR ...

Who you gonna call?

Google Impact Challenge

Thank you for submitting an application to the Google.org Impact Challenge Bay Area. You'll find a copy of the submitted application below. We look forward to reviewing it and will be in touch as per the timeline on the website.

Overview: Please explain your project in one sentence. The vast majority of California's 36 million residents' water, food, and real estate resources/assets are inextricably connected to our Sierra snowpack, Delta, and San Francisco Bay. Without adequate and appropriate measures being taken in this era of unknown and perhaps future massive SLR, all these resources and the entire state 's ecology, economy, society, and people will be irretrievably devastated unless/until there are one or more Golden Gate dams constructed...

Impact: Who or what will your project impact and how? The water for 36 million state residents. The 8% Central Valley produced food on 1% of USA's arable acreage. The now unknown trillion$ in otherwise inundated/lost real estate assets resources...

Reach: How many people will be affected if successful and to what extent? The food/water/real estate resource, human, and other protections afforded by the Golden Gate dam(s) will very beneficially protect/positively affect the lives of hundreds of millions in California, USA, and Worldwide...

Innovation: What's innovative about your proposal and how does it differ from existing solutions? My approach unlike any others assumes our efforts at halting/perhaps even slowing climate change/SLR will be unsuccessful and that our only feasible survival strategy will be to adapt to it...

Scale: If successful, what will your project achieve in 5 years? My project will definitively determine if, when, and how many Golden Gate dams must/will be built to protect the vast majority of water, food, and real estate resources of California.

Feasibility: Have you identified the right team and plan for execution? A core team of scientists/experts such as Drs. Rignot, Mount, Englander, Griggs, Lund, Nichols, Earl, Postel, et al, and a few "civilians" such as myself, will determine team balance/plan...

Opportunity: How is your idea equitably impacting opportunities for healthy, playful, and thriving lives? "opportunities

for healthy, playful, and thriving lives", living with and adapting to SLR and climate change not being successful at changing it, are manifestly self evident? Imagine the alternative... www.sipodemos.democrat

What is the full, registered name of your organization? Pogonip Foundation, INC

In case your application is selected for a possible Award as part of the Challenge, how would you like us to refer to your organization on promotional materials and the Google.org Impact Challenge Bay Area website?
"Monterey Bay Conservancy" (a 501c California & Monterey Bay Water Policy Thinktank)

I certify Yes
I certify X

If your organization has a website, please provide the URL: http://www.facebook.com/MontereyBayConservancy

Impact: What would the impact of this project be, if successful? Please quantify the potential impact, and explain how you calculated your estimate. I already have in your initial questions ...

Stage: In what stage is your project presently? Is it an idea? Do you have a detailed plan? Have you developed a prototype or proof-of-concept? Have you received feedback on the idea from your intended beneficiaries? Is the product or project already implemented? At what scale? Conceptual stage, Introduced to SWRCB 10/16/2019 meeting. Please see www.sipodemos.democrat and view my comments ...

Problem: Tell us more about the problem you propose to address. Why did you choose to take it on? Approximately how many people are affected? How does it impact their lives? I watched this video clip in 2106 @ https://www.youtube.com/watch?v=DsjtEpAptVo and Dr. Eric Rignot @ https://vimeo.com/332486918

Innovation: Contextualize your idea: what other approaches have been tried in the past? What is the insight or innovation that differentiates your project, and how is it better than what already exists? None. Our local transhumanists think they are stronger than the forces of Mother Nature and our other "mothers", but they will eventually find out they are not and cannot control climate change and SLR. That's where people like I come in?

Usage: Why would a potential beneficiary or user choose to engage with your product or service? Simple logic, science, bundled with common sense, imho...

Team: What makes your core team best suited to tackle this project? We/I am the only one taking my approach and even looking at this probability(?) at all !!!

Growth: How could your project and its impact grow beyond what you've proposed in this application? By being the "Pilot Project" for the eventual damming of the Straights of Gibraltar due to SLR for the same rationales ...

Risks: What are the 1-2 most significant risks you anticipate in this project? How has your team planned to address them?
Risk 1. Salmon/Environmental extremism Plan to address: "Faith" ... please see "Salmon Fishing in the Yemen" clip @ https://www.youtube.com/watch?v=AGb4OT3Oiew
Risk 2. We will be too late ... Plan to address: Being megaproactive and out in front of all others, as one can already readily see that I am and have been for decades (eg. www.lawandorderliberal.org 1996) ... expedited by $1 million google grant to pay the best team of experts, technical minds, and other civilians, such as I ... egs: www.ourinconvenienttruth.com , www.douglasdeitch.com , www.douglasdeitch.net , www.thinkocalactlocal.com ; www.sanfranciscorealestate.com , and @ 11:25 @ www.thebestthatmoneycantbuy.org @ SWRCB 4/19/2016, etc

Partners: Organization-wide, who are your major partners or funders from the last 3 years, and how have you engaged with them? 0

Project Partners: On this project specifically, which partnerships are most critical for your success? What is the incentive for those organizations to partner with you? Have you worked with any of them before? State, Federal, and local government and eco and otherwise ngos and citizen groups/individuals and yes, I have extensive experience in dealing with them (eg: please see www.lawandorderliberal.net

Budget: If selected as a winner, how would your project utilize $500,000 in funding? Please provide an overview of your anticipated budget. If selected as the People's Choice winner, how would you use a $1,000,000 in funding? All for compensation for experts, studies, and other ancillary related and necessary expenses ... I have not developed a budget but would do so to be reviewed and accepted by google as a condition of receiving any grant.
How many full-time employees does your organization have? [N/A]

Recap: Final Elevator Pitch! You're riding the elevator and someone asks you about your project and why they should fund it. How do you respond? Remember, you're on the elevator so you don't have much time, but you do want them to understand what your project is, who it impacts and how, why it's innovative and why your organization is the best to implement it.
(San Francisco elevator?) My pitch: Have you ever heard of SLR? No? It's for sea level rise. How about climate change? Yes? They say it's getting warmer, the ice is melting, and the sea level is rising? Yes? Do you believe this? Yes? If the sea level rises just one foot and comes back in the Golden Gate, do you realize that the City, San Francisco Bay, and our entire state water system in the Bay, Delta, and our largest state water reservoir, our Sierra snowpack, along with trillions in inundated real estate assets would be burnt toast? No? Please do yourself a favor? Please watch the video at the bottom right corner on the page of any of my websites and think about the effect of a Golden Gate dam(s)?

Please include links to up to 3 articles, publications, videos, or other resources that support your proposal. (Optional)
1. https://www.youtube.com/watch?v=DsjtEpAptVo ,
2. https://vimeo.com/332486918
3. https://www.youtube.com/watch?v=plkkfEY9cGs ?
https://www.facebook.com/MontereyBayConservancy/photos/p.1335863846435709/1335863846435709/?type=3&theater

Is there anything else we should know? (Optional) I am the best that money can't buy ... because I have never taken any. This google grant will be my first ... as in www.thebestthatmoneycantbuy.org @ 11:25 ,
www.thebestthatmoneycantbuy.com , www.thebestthatmoneycantbuy.net ,
www.lomejorqueeldineronopuedecomprar.com , www.lomejorqueeldineronopuedecomprar.net ,
www.lomejorqueeldineronopuedecomprar.org

What is the official, registered address of your organization? 501 Mission Street, #1
City , Santa Cruz, California
Postal code 95060
When was your organization founded? 12/1996
What is your organization's mission statement? OUR MISSION-ESTABLISH SUSTAINABLE AND ENVIRONMENTALLY REPONSIBLE WATER POLICY IN THE MONTEREY BAY REGION AND CALIFORNIA:The Monterey Bay Conservancy's mission is to heighten awareness about our regional and state water situation and to assist government and our community in the establishment and maintenance of a socio/economically responsible and self sustaining use of all our regional water resources, with a focus on the self sustainable use of the Monterey Bay Area's, California's, and Santa Cruz's vital and seriously abused ground water.
The name of the person completing this application is: Douglas Deitch
What is your title? Founder/Executive Director
What is your email address? ddeitch@got.net
What is your contact telephone number? 831.476.7662
Is this a fiscally-sponsored project? No
Have any Google staff, officers or directors (or to your knowledge, immediate family members thereof) been members

of your organization's board or officer group within the last 12 months? No
If you answered "yes" to the above question, explain here: [N/A]
Does your organisation have any ongoing commercial contracts or negotiations with Google that are directly related to the project detailed in this application? (For the sake of clarity, this does not include Google's standard product offerings like G Suite, Google Ads, etc.) No
If you answered "yes" to the above question, explain here: [N/A]
To your knowledge, are any current government officials, employees or civil servants employed by your organization or are they members of your organization's board or officer group? No
If you answered "yes" to the above question, explain here: [N/A]
Does your organization have any business dealings or programs involving entities located in countries under U.S. export controls or sanctions? No
If you answered "yes" to the above question, explain here: [N/A]
Annual operating expenses 2018 (USD): 1,000
Annual operating expenses 2017 (USD): 1,000
Annual operating expenses 2016 (USD): 1,000
Annual revenues 2018 (USD): 1,000
Annual revenues 2017 (USD): 1,000
Annual revenues 2016 (USD): 1,000
Total assets 2018 (USD): [N/A]
Total assets 2017 (USD): [N/A]
Total assets 2016 (USD): [N/A]
Total liabilities 2018 (USD): [N/A]
Total liabilities 2017 (USD): [N/A]
Total liabilities 2016 (USD): [N/A]
How did you hear about the Google.org Impact Challenge Bay Area? (Optional; select all that apply)

Other

Please elaborate on how you heard about the Google.org Impact Challenge Bay Area. (Optional) showed up online on linkedin, I believe?
taq

Luster, Tom@Coastal

From: Ruth Muzzin <rmuzzin@friedmanspring.com>
Sent: Friday, December 27, 2019 3:35 PM
To: Luster, Tom@Coastal
Cc: Sara Wan; Keith Van Der Maaten (KVanDerMaaten@mcwd.org); 'cwilkins@rmmenvirolaw.com'
Subject: MCWD Post-Hearing Comments - Cal-Am MPWSP CDP applications/appeal
Attachments: MCWD Post-Hearing Comments to Coastal Commission re MPWSP (00825340xA6BE4).pdf

Dear Mr. Luster:

On behalf of our client, the Marina Coast Water District, attached please find Post-Hearing Comments on Cal-Am's continued CDP proceeding, with attachments numbered 29-34.

Please do not hesitate to contact me or Sara Wan, copied here, if you have any questions or need additional information.

Sincerely,

Ruth Stoner Muzzin
Friedman & Springwater LLP*
350 Sansome Street, Suite 210 | San Francisco, CA 94104
O 415.834.3805
F 415.834.1044
rmuzzin@friedmanspring.com | **www.friedmanspring.com**

* *Jane Springwater, Retired*

Marina Coast Water District -

Post-Hearing Comments, Continued Support for Denial

on Appeal No. A-3-MRA-19-0034 by Cal-Am

Tentative Continued Hearing Date: **March 12, 2020**

Agenda: **TBD**

The MPWSP, as described in the FEIR and Cal-Am's CDP application, is infeasible; it cannot meet the objective of compliance with the SWRCB's CDO without additional infrastructure not identified in the Project description or the CPUC FEIR.

Cal-Am is required to curtail its Carmel River diversions for direct use in its Monterey District to 3,376 AFY starting January 1, 2022, while at the same time meeting its Monterey District's water demands. Prior to January 1, 2022, Cal-Am has operated a water system with the Carmel River being the primary water source so that Cal-Am's main water supply would historically flow from the south to the north, supplemented to a much lesser degree by Seaside Basin groundwater pumping in the north. Starting January 1, 2022, Cal-Am's predominant water supplies will come from the north and flow south. Shifting a water system's main supply from south to the north requires thorough planning and designs. Several existing Monterey District physical system limitations have now come to light.

During the CPUC's EIR process and at other times, Cal-Am has not been required to fully demonstrate how it intended to implement this major system flow change from south to north beginning on January 1, 2022. The emphasis has been on obtaining approval for the Monterey Peninsula Water Supply Project (MPWSP or Project), without considering how that major new water supply source would require Cal-Am to substantially change its water operations by the CDO deadline, which is now 2022. Marina Coast Water District (MCWD) has prepared the following schematics to illustrate the south to north shift and the way that shift away from almost total dependence on Carmel River flows will profoundly change Cal-Am's Monterey District operations beginning in 2022:

- **Schematic 1** (**Attachment 33**, p. 1) shows Cal-Am's existing conveyance system during the December through May time period ("winter" or "ASR Injection" period)[1] but with MPWSP desal flows added.

  What is important to note about Schematic 1 is that if the MPWSP is removed, the schematic shows the existing Cal-Am south-to-north operation in all months when there is no ASR water to be injected and the Carmel River supplies most of Cal-Am's Monterey District. The existing Forest Lake Reservoir tanks are used to re-regulate variable diversions from the Carmel River to meet demands to the north that are not served from the Seaside Basin.

- **Schematic 2** (**Attachment 33**, p. 2) shows Cal-Am's existing conveyance system during the December through May time period ("winter" or "ASR Injection" period) with MPWSP desal flows added, and with the addition of a 36" Cal-Am pipeline that actually appears to be a part of the MPWSP even though it is proposed to be built as a part of the Pure Water Monterey Expansion Project (PWM Expansion), which Cal-Am apparently

[1] State Water Resources Control Board ASR Water Right Permits 20808A and 20808C (**Attachment 34**) prescribe, at ¶ 5 of each permit, the injection or "Storage Season" for Carmel River water "to be collected to underground storage in Seaside Groundwater Basin" and the extraction period for the ASR water to be withdrawn from storage and used for direct use within the Monterey District.

otherwise opposes. See **Attachment 1**, Cal-Am Advice Letter 1231 informing the CPUC Cal-Am does not intend to pursue additional water supply from PWM Expansion.[2]

Schematic 2 also includes additional Cal-Am extraction wells that are proposed as part of PWM Expansion.

- **Schematic 3** (**Attachment 33**, p. 3) shows Cal-Am's existing conveyance system during the June through November time period ("summer" or "ASR Extraction" period) but with MPWSP desal flows added.

- **Schematic 4** (**Attachment 33**, p. 4) shows Cal-Am's existing conveyance system during the June through November time period ("summer" or "ASR Extraction" period) but with MPWSP desal flows added, and with the addition of a 36" Cal-Am pipeline that is proposed to be built as a part of the PWM Expansion.

  Schematic 4 includes additional Cal-Am extraction wells that are proposed as part of PWM Expansion, but which appear to be necessary for the MPWSP, along with the new Forest Lake Pump Station that Cal-Am is seeking to fund through its latest general rate case application to the CPUC.

  Importantly, Schematic 4 shows the new way that Cal-Am's system will apparently operate post-2021, with its primary water sources flowing from the north instead of from the south.

Comparing Schematic 4 with Schematic 1 reveals the dramatic shift in the majority of Cal-Am's water supply from south to north that will occur in 2022. As described below, Cal-Am has failed to adequately plan and design its distribution system to service this dramatic shift in water supply sources.

As the October 28, 2019 Staff Report correctly observed, Marina Coast Water District's determination that MCWD's potable water pipeline has insufficient unused pipeline capacity to convey MWPSP flows for the life of the Project presents an obstacle to Project feasibility. (Staff Report, pp. 81, 93.) Other feasibility issues include the lack of groundwater rights (see Staff Report, p. 98) as well as the groundwater pumping limitations of the 1996 Annexation Agreement among MCWD, the City of Marina, the owner of the CEMEX property and others (FEIR § 2.6.4, p. 2-43 ["it appears that the 500 afy groundwater withdrawal limitation may currently apply. . . "]). Comparing Schematics 1 and 3 with Schematics 2 and 4, makes it very evident that without the new 36" pipeline, proposed to be part of the PWM Expansion, the MPWSP is not feasible. In addition, it now also appears that a lack of pumping infrastructure in Cal-Am's Monterey District system **will make distribution of MPWSP flows throughout the full system infeasible without new infrastructure**. MCWD recently learned of this lack of pumping infrastructure through its litigation with Monterey County and Cal-Am over Monterey County's approval of certain MPWSP-related permits.

[2] Attachments 1-28 accompanied MCWD's comments on the application, dated Sept. 17, 2019, Oct. 7, 2019 and Oct. 15, 2019. MCWD also submitted preliminary comments in August of 2019 and comments in support of the Staff Report recommendation on Nov. 6, 2019.

(**Attachment 29**, excerpt of Sept. 5, 2019 Declaration of Ian Crooks, p. 13, lines 17-21 ["current physical system limitations are such that Cal Am cannot deliver water from all of its sources to all of its customers at the same time"].) A recent analysis of the system's daily and hourly peak demands by the Monterey Peninsula Water Management District (MPWMD) indicates that it is, and has been, also aware of this distribution obstacle. (Staff Report, Ex. 9, p. 1 [referencing the need for the Forest Lake Pump Station].)

Upon investigation, MCWD has discovered that demand in the southern portion of Cal-Am's Monterey District system will apparently exceed Cal-Am's legal limit on summer diversions from its southern-most and historically greatest water source, the Carmel River. For this reason, no amount of water from the MPWSP – or any water source to the north – can possibly bring Cal-Am into compliance with the SWRCB's orders ***unless*** additional facilities to move water from north to south are added to Cal-Am's system. Evidently Cal-Am never intended to fully comply with the CDO. Otherwise, for example, it would have included at least the newly-proposed Forest Lake Pump Station in its MPWSP plans.

In any event, Cal-Am seems to now acknowledge its major pipeline and pumping infrastructure problems. It now appears to be attempting to remedy the deficiencies. But Cal-Am's recently-developed fixes for the conveyance and pumping inadequacies of its Monterey District system – at least one of which appears to be necessary to achieve CDO compliance – were not included in its CDP application nor analyzed in the FEIR for the MPWSP, which merely relied upon Cal-Am's capacity assessment for the MCWD pipeline without response from MCWD. FEIR § 8.5.2, pp. 662, 771-712. The Project, as described, is infeasible for purposes of meeting the primary project objective of CDO compliance by eliminating Cal-Am's illegal Carmel River diversions while at the same time meeting the Monterey District's water demands.

A. Necessary Project Components were Omitted from the Project Description.

The CPUC's FEIR for the MPWSP does not appear to include all of the Project's necessary components. Specifically, components needed for operation of the MPWSP in order to comply with the SWRCB's decades-old limitation on Carmel River pumping that were not addressed in the FEIR consist of, at a minimum:

> (1) a new 36-inch conveyance pipeline proposed *as a part of PWM Expansion* to bring MPWSP desalinated water to Cal-Am's system for delivery to its customers or for storage in the Seaside Basin;
>
> (2) four additional new extraction wells proposed *as a part of PWM Expansion*, located outside the Coastal Zone within the adjudicated Seaside Subbasin, that would enable withdrawal of greater volumes of excess produced MPWSP desalinated water after storage in the Seaside Basin; and
>
> (3) a new pump station – the Forest Lake Pump Station – that would provide Cal-Am the pumping capacity needed to deliver desalinated and Seaside Basin-stored water from the north to customers in Carmel and Carmel Valley, particularly during the summer months

when Cal-Am's authorized Carmel River water diversion rates are at their lowest. (**Attachment 30**, PWM Expansion Draft SEIR, Figure 2-8; **Attachment 31**, excerpt of Direct Testimony of Ian C. Crooks in CPUC Application 19-07-004, pp. 194 and 211-212, referencing Forest Lake Pump Station.)

Cal-Am is now improperly attempting to remedy the design and operational deficiencies of its Project, as described in the FEIR, by seeking to implement these essential components of the Project through alternate means, i.e., PWM Expansion and Cal-Am's current general rate case. Such an "end-run" would thwart the transparency and public disclosure and analysis requirements of CEQA and the Coastal Act. It would also impermissibly piecemeal environmental review of the Project, which is prohibited under CEQA.

To the extent these new components are essential for implementation and proper operation of the desalination project, the new components must go through supplemental environmental review and approval before the CPUC as lead agency. This is regardless of whether the new components are also required in part for operation of other projects such as PWM Expansion. At least one of the new components – the Forest Lake Pump Station – will be required for Cal-Am to achieve timely CDO compliance while still meeting Carmel and Carmel Valley water demands, with or without the MPWSP. However, the Commission cannot approve the MPWSP based upon a project description that does not include essential Project components in the description of baseline conditions or in the cumulative impacts analysis. Without these components, the Project is infeasible at this time, and review at this time is premature.

The primary purpose of the MPWSP is to enable Cal-Am to comply with the SWRCB's CDO, enforcing water rights diversion limits that were established in 1995, while still providing a sufficient water supply to its Monterey District. There has been disagreement as to whether the excessive volume of water the MPWSP would produce is required in order to do so. (Staff Report, pp. 82-92, concluding PWM Expansion can provide sufficient supplies.) Cal-Am has continually and correctly emphasized the importance of the ASR Project to its water supply from 2022 on, yet as shown in MCWD's Schematic 2, when Carmel River ASR water must be delivered to storage in the Seaside Basin in compliance with the SWRCB water right permits, Cal-Am has not addressed how it will operate its MPWSP flows south at the same time ASR water needs to move north for injection. Building a new 36" pipeline as part of PWM Expansion does not solve the substantial pipeline congestion problem that would appear to be created in Cal-Am's New Monterey Pipeline. In addition, it appears Cal-Am does not dispute that without additional infrastructure components that were ***not analyzed in the FEIR***, Cal-Am will be unable to deliver, at the very least, sufficient water from non-Carmel River sources to its customers in Carmel and Carmel Valley. In the Monterey County Superior Court, responding to MCWD's request for a preliminary injunction to halt work on the MPWSP, Cal-Am submitted a declaration under penalty of perjury by its Vice President of Engineering stating that even if Cal-Am had additional water supplies available "current physical system limitations are such that Cal Am cannot deliver water from all of its sources to all of its customers at the same time." (**Attachment 29**, p. 13.) In other words, no matter how much water Cal-Am has access to

from sources to the north of its Monterey District, Cal-Am cannot presently deliver that water to the southern most areas of its Monterey District as required after December 31, 2021, when the existing Carmel River diversions drop substantially.

B. The Carmel/Carmel Valley Plumbing Problem – Need for New Forest Lake Pump Station.

Starting January 1, 2022, Cal-Am's annual limit on Carmel River withdrawals is 3,376 AFY. MCWD understands that summer demand for water in the southern areas of the service territory could then exceed this amount and/or be incompatible with seasonal pumping constraints on Cal-Am's Carmel River sources. The Commission must ask Cal-Am to explain how its various sources of water are conveyed and utilized seasonally throughout its system, and how Cal-Am intends to fully comply with the CDO by implementing a Project that, as described in its FEIR, is incomplete. Cal-Am has not been transparent with the Commission or any agency before which it has sought MPWSP approval, because it never disclosed the need for, or sought approval of, the Forest Lake Pump Station in connection with its attempts to comply with the CDO. Instead, funding for this piece of critical MPWSP infrastructure is buried in Cal-Am's latest general rate case application before the CPUC, with no explanation of when – if ever – the facility will undergo environmental review. (**Attachment 31**.)

Despite these absolute system operational impediments to Cal-Am's ability to comply with the CDO, it never included in the MPWSP project description the infrastructure necessary to overcome 1) its system water conveyance and distribution problems or 2) the lack of unused capacity available in MCWD's potable water pipeline for MPWSP desalinated water, after other priority uses. None of the new components – 36" pipeline, four extraction wells, Forest Lake pump station – were even mentioned, let alone analyzed, in the CPUC's FEIR for the MPWSP. Therefore, the CPUC has not authorized them under its Certificate of Public Convenience and Necessity (CPCN), nor were they included in the Project description. Consequently, the application is incomplete and it must be denied, if it is not withdrawn before the March 2020 Commission meeting.

C. With or Without the MPWSP, Cal-Am Requires the Forest Lake Pump Station to Achieve CDO Compliance.

With its latest three-year general rate case proceeding before the CPUC, Cal-Am is seeking approval of the expenditure of $2,470,000 and collection of that amount in rates for a new Forest Lake Pump Station to "raise the pressure in the transmission main from Forest Lake to Carmel Valley." (**Attachment 31**, p. 211.) The stated purpose of this new pump facility is to eliminate low-pressure areas and increase available fire flows. (Id. at pp. 211-212.) The Commission should verify whether Cal-Am has an existing pump at the Forest Lake Reservoir that can pump water from the Forest Lake Reservoir to Carmel and the Carmel Valley. Cal-Am's rationale of installing the new Forest Lake Pump Station to eliminate low-pressure areas and low fire flows would appear to indicate that those conditions currently exist at times when there are

insufficient flows coming downhill from the Carmel Valley. When Cal-Am is required to reduce Carmel River pumping to 3,376 AFY and the water supply sources shift from the south to the north, this new pumping station would appear to be needed during most of the year, as shown in Schematics 3 and 4. (**Attachment 33**, pp. 3-4.)

As far as MCWD has been able to determine, the proposed Forest Lake Pump Station is ***the first time*** since Cal-Am initially proposed a desalination facility in 2004 that Cal-Am is proposing to build any infrastructure that would relieve this plumbing problem and allow Cal-Am to reduce its Carmel River system pumping to the legal limit of 3,376 AFY that the SWRCB established in 1995. The more the Commission and others drill down to closely examine the details of Cal-Am's proposed MPWSP, the more flaws in Cal-Am's assumptions, plans, and designs are revealed. The MPWSP as described in the FEIR and as approved by the CPUC is not feasible and cannot be built and operational by the CDO deadline.

On the other hand, PWM Expansion is a feasible alternative that can provide a sufficient source of water for CDO compliance, provided the Forest Lake Pump Station is installed, and PWM Expansion can do so sooner and at far less cost than the MPWSP.

D. Cal-Am's New Fix for its Inability to Use the MCWD Potable Water Pipeline – Build a New PWM Expansion Pipeline to Parallel the MCWD Pipeline.

When Cal-Am applied to the CPUC for permission to construct the MPWSP, it originally proposed to construct a new conveyance pipeline along Highway 1 to the City of Monterey; however, Cal-Am later elected to eliminate the southern portion of that pipeline. Without prior notice or consultation with MCWD, Cal-Am assumed it could utilize MCWD's existing potable water pipeline to move desalinated water into Cal-Am's Monterey District as part of the MPWSP. Cal-Am amended its project map by showing a blank space where the MCWD pipeline is located and then later changed its project map by adding an "existing pipeline" without identifying that the pipeline is 100% owned by MCWD and subject to other priority uses. (**Attachments 18 and 19** to MCWD's Sept. 17, 2019 comments.) The end result was that Cal-Am was wrong in its assumption that it could use MCWD's pipeline for the MPWSP. As MCWD has determined pursuant to the Joint Use of Capacity in Water Conveyance Facilities Statute (Water Code Section 1810 – 1814), there is not sufficient unused capacity in the existing MCWD pipeline to accommodate all of the pipeline's priority uses *and* full production from the MPWSP for the life of the Project. (See Staff Report, pp. 81, 93.) Cal-Am proposed no solution to this problem when it submitted its application to the Commission.

It appears Cal-Am now seeks to solve the MPWSP's lack of sufficient conveyance pipeline capacity by using a new potable water pipeline analyzed by Monterey One Water (M1W) as part of its Supplemental Environmental Impact Report (SEIR) for the PWM Expansion. Figure 2-8 of the Draft SEIR provides a schematic rendering of a proposed 36-inch conveyance pipeline for potable water to be installed parallel to and in the same right of way as the existing MCWD pipeline. (**Attachment 30.**) Aerial views of the

proposed pipeline location, as well as proposed locations for new extraction wells, are available at Draft SEIR Figures 2-2, 2-7 and Figure 1 of Appendix D. (**Attachment 32.**)

Based upon review of the SEIR, MCWD has concluded that the proposed 36-inch pipeline shown in Figure 2-8 of the ***PWM Expansion Draft SEIR*** would provide a substitute conveyance for Cal-Am's prior proposal to use MCWD's pipeline to ***convey potable water from the MPWSP to the Monterey Peninsula*** **during June through November. However, the new 36" pipeline only appears to shift Cal-Am's pipeline congestion problem further south during December through May when ASR water is moving north to be injected in the Seaside Basin at the same time MPWSP water would be trying to move south**. See MCWD's schematics illustrating seasonal system flows in the current Cal-Am system with the proposed MPWSP, versus system flows in the current Cal-Am system with the proposed MPWSP *and* with the PWM Expansion wells and pipeline. (**Attachment 33**, pp. 1-4 [Schematic 4 includes the new Forest Lake Pump Station].) This pipeline congestion problem could result in Cal-Am needing to inject much more desalinated water into the Seaside Basin than described in the FEIR. This greater volume of injected desalinated water appears to necessitate Cal-Am's four new proposed extraction wells, which are not needed for the PWM Expansion alone. Notably, the proposed new pipeline is greatly oversized if it was actually intended to convey solely PWM Expansion water, and the four new extraction wells are not required for that project either, as the Draft SEIR includes analysis of an environmentally superior alternative that eliminates two of the proposed wells. (Draft SEIR at Summary § S.5 and at § 6.2.2.[3]) Moreover, the new pipeline and wells are referred to by M1W as "Cal-Am Facilities." (See Draft SEIR at Summary § S.3 and at § 2.6.5.) The Commission should require Cal-Am to explain why these facilities that appear to be required for the MPWSP, but not for PWM Expansion, were omitted from the MPWSP proposal.

Importantly, none of the proposed PWM Expansion facilities were included as a part of the CPUC's environmental review for the MPWSP. If, as it appears, the proposed 36-inch potable water pipeline and/or the new extraction wells shown on Figure 2-8 of the PWM Expansion SEIR are components of infrastructure that are actually necessary for operation of the MPWSP, rather than PWM Expansion, then the FEIR for the MPWSP must be revised or supplemented to include review of the additional project components. For present purposes of the Commission's review, Cal-Am's application is incomplete and therefore the Commission should deny the application based on failure to fully describe the necessary components of the project and their collective cumulative impacts.

[3] Available at https://purewatermonterey.org/wp/wp-content/uploads/Main-Body-of-M1W-Draft-Supplemental-EIR-Nov-7-2019.pdf.

Attachment 29, excerpt of Sept. 5, 2019 Declaration of Ian Crooks, p. 13

Attachment 30, PWM Expansion Draft SEIR, Figure 2-8

Attachment 31, excerpt of Direct Testimony of Ian C. Crooks in CPUC Application 19-07-004, pp. 194, 211-212

Attachment 32, PWM Expansion Draft SEIR Figures 2-2, 2-7 and Figure 1 of Appendix D

Attachment 33, MCWD schematics

Attachment 34, ASR Water Rights Permits 20808A, 20808C

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Attorneys for Real Party in Interest
California-American Water Company

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF MONTEREY

MARINA COAST WATER DISTRICT, and DOES 1-100,

Petitioner and Plaintiff,

v.

COUNTY OF MONTEREY, MONTEREY COUNTY BOARD OF SUPERVISORS, and DOES 101-110,

Respondents and Defendants.

CALIFORNIA-AMERICAN WATER COMPANY, a California water corporation, and DOES 111-120,

Real Party in Interest.

CASE NO. 19CV003305

Assigned to: Hon. Lydia Villarreal, Dept. 13

DECLARATION OF IAN CROOKS IN SUPPORT OF REAL PARTY IN INTEREST CALIFORNIA-AMERICAN WATER COMPANY'S OPPOSITION TO *EX PARTE* APPLICATION FOR ORDER TO SHOW CAUSE, IMMEDIATE STAY OR, TEMPORARY RESTRAINING ORDER

[Opposition to Ex Parte Application for Stay filed concurrently herewith]

Hearing re *Ex Parte* Application:
Date: September 5, 2019
Time: 10:00 a.m.
Dept.: 15A

Action Filed: August 15, 2019

DECLARATION OF IAN C. CROOKS

I, Ian C. Crooks, declare:

1. I am the Vice President - Engineering at California-American Water Company ("Cal-Am"). I have personal knowledge of the facts set forth in this Declaration and, if called as a witness, could and would testify competently to such facts under oath.

2. In my capacity as Vice President - Engineering at Cal-Am, I am one of the individuals charged with the responsibility of designing and implementing Cal-Am's Monterey Peninsula Water Supply Project (the "MPWSP" or "Project"). Since August 2013, I have been involved in all day-to-day aspects of planning the Project. As such, I am extremely familiar with the requirements of the project, the timetable for the Project, and with all matters contained herein.

3. Cal-Am is a California water corporation and is regulated by the California Public Utilities Commission ("CPUC"). Cal-Am provides water and wastewater services to approximately 600,000 people throughout the State of California. Cal-Am has served the Monterey Peninsula since it took over the operation of California Water and Telephone Company in 1966. Cal-Am presently provides water service to approximately 100,000 businesses and residential customers in its Monterey County service area.

4. On July 6, 1995, the State Water Resources Control Board ("State Board") issued Order No. WR 95-10, which requires Cal-Am to eliminate certain unauthorized water diversions from the Carmel River. In 2009, the State Board issued Order No. WR 2009-0060, which requires Cal-Am to take additional measures to cease unauthorized diversions from the Carmel River and to terminate such diversions by December 31, 2016. In 2016, the State Board, through Order No. WR 2016-0016 ("Amended CDO"), extended Cal-Am's deadline to cease unauthorized diversions to December 31, 2021. The amended CDO requires the development of an alternative water supply project—such as the MPWSP—in order to replace Carmel River supplies. It includes several milestones for developing the MPWSP, with the intent of having the Project operational by the end of 2021. In particular, the CDO requires "[s]tart of construction for any of the CalAm Components of the [MPWSP] Desalination Plant"—defined as "source

Peninsula Water Management District ("MPWMD") and Monterey One Water, Monterey One Water missed the first contractual requirement of July 1, 2019, to begin producing water from PWM. A true and correct copy of the Notice of Default is attached hereto as **Exhibit J**. It is likely that Monterey One Water will not meet its second contractual milestone for Cal-Am to begin delivering water to its customers by January 1, 2020 due to the delays in achieving the first milestone.

45. MCWD cites to a statement from an MPWMD representative alleging that failure to meet the Amended CDO's September 30, 2019, milestone would have no impact. (TRO App., at p. 10.) I disagree with the statement from the MPWMD representative. Failure to meet the September 30, 2019, milestone would result in a 1,000 afy reduction in Cal-Am's allowed Carmel River diversions, not only in the current year, but in 2020 and 2021. (Wilkins Decl., Ex. 18, p. 1428.) Moreover, failure to meet the September 30, 2019, milestone will likely mean that mandatory milestones in 2020 and 2021 will also be missed, given construction timeframes. Missing such milestones will result in additional 1,000 afy reductions on top of the reduction imposed for missing the 2019 milestone. And, as noted, the MPWSP would not be completed in time to meet the 2021 deadline to cease unauthorized diversions. Alternate water supplies simply are not available to replace such reductions. Moreover, even if temporary replacement supplies are available to offset missed milestone penalties, current physical system limitations are such that Cal Am cannot deliver water from all of its sources to all of its customers at the same time, making the supply available at certain times less than a simple sum of potentially available sources. My conclusion as Vice President - Engineering is that missing a milestone would have the potential to result in significant harm to our customers.

46. In addition, the CPUC found that failure to meet a CDO milestone would result in negative consequences for the Peninsula, due to the corresponding reduction in Cal-Am's allowable withdrawals from the Carmel River. (See Wilkins Decl., Ex. 16, p. 1294.)

47. Further, MCWD complains of the costs of the MPWSP. As explained in the testimony of Mr. Chris Cook before the County Board of Supervisors, Cal-Am is in the process of obtaining State Revolving Funds funding that will help to mitigate the future costs of

desalination for the Peninsula, and the Project has recently been accepted for funding by the Drinking Water State Revolving Fund program by recommendation of the State Board. We therefore expect total Project costs to be lower as a result of this low cost financing. A true and correct copy of Mr. Cook's testimony is attached hereto as **Exhibit K**.

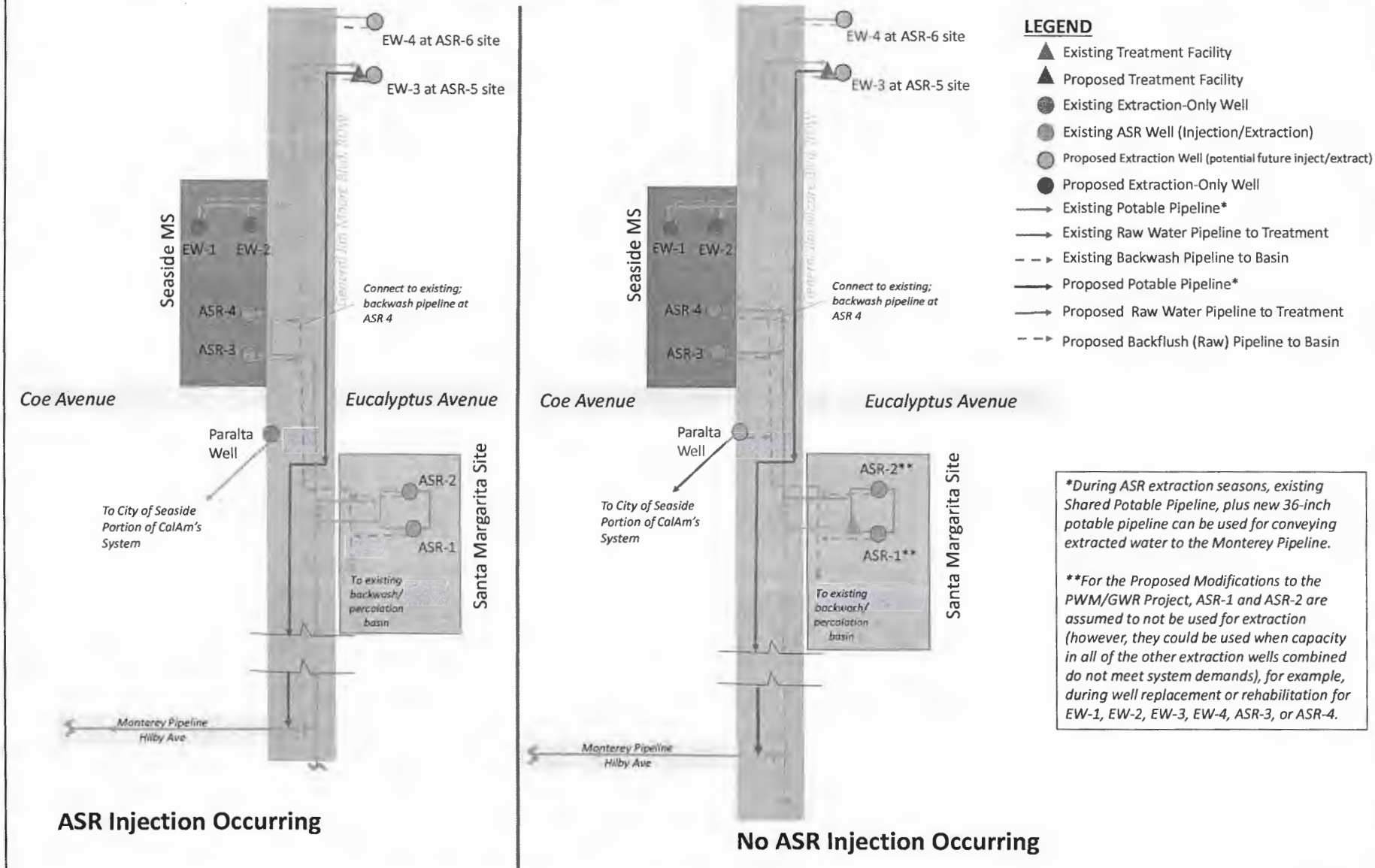
48. Pursuant to the CPUC's Decision, Cal-Am wholly bears the risk of constructing the Project, and if Cal-Am fails to construct the Project, its costs will not be passed on to ratepayers. As stated in the CPUC's Decision, "If the project is not finished, or does not go online, it will not be placed in ratebase." (Wilkins Decl., Ex. 16, p. 1315.)

49. Any further delay in the Project's construction will significantly impair Cal-Am's ability to eliminate unauthorized diversions from the Carmel River, as construction needs to commence near term in order to make the 2021 deadline. If Cal-Am misses the CDO's 2021 deadline, serious fines and penalties could result, including administrative penalties of up to $10,000 per day for CDO noncompliance in certain drought years, and penalties for unlawful diversion of up to $1,000 per day and $2,500 per acre-feet of unlawfully diverted water in certain drought years. (See Wilkins Decl., Ex. 18, p. 1417.) Cal-Am could face over $4 million per year of violation in per-diem penalties, in addition to up to $2.5 million in penalties for every 1,000 acre-feet of unlawfully diverted water. (*Ibid.*)

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed this 5th day of September, 2019, at San Diego, California.

Ian C. Crooks



Source: M1W, MPWMD, and CalAm, October 2019

Extraction Well Facilities Flow Schematic

November 2019

Expanded PWM/GWR Project
Supplemental EIR

Figure
2-8

Attachment 31

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Application of California-American Water Company (U210W) for Authorization to Increase its Revenues for Water Service by $25,999,900 or 10.60% in the year 2021, by $9,752,500 or 3.59% in the year 2022, and by $10,754,500 or 3.82% in the year 2023.	Application 19-07-XXX (Filed July 1, 2019)

DIRECT TESTIMONY OF IAN C. CROOKS

(FINAL APPLICATION)

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Attorneys for Applicant California-American Water Company

Dated: July 1, 2019

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Application of California-American Water Company (U210W) for Authorization to Increase its Revenues for Water Service by $25,999,900 or 10.60% in the year 2021, by $9,752,500 or 3.59% in the year 2022, and by $10,754,500 or 3.82% in the year 2023.	Application 19-07-XXX (Filed July 1, 2019)

DIRECT TESTIMONY OF IAN C. CROOKS

(FINAL APPLICATION)

I. INTRODUCTION

Q1. Please state your name and business address.

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

Q2. By whom are you employed and in what capacity?

A2. I have been employed by California-American Water Company ("California American Water" or the "Company") since August 2013. In November 2016, I began serving as Vice-President of Engineering with responsibility for overseeing the Company's statewide engineering functions.

Q3. What are your responsibilities?

A3. I oversee the planning, programming, and implementation of the company's capital improvement program, and may provide guidance on the planning and budgeting of projects, and oversight of project administration, design, permitting and construction to ensure compliance with budgets, schedules, and regulations. Most recently, I have been

Table XV-D - Central Division Proposed New Capital Investment Projects

Project Code	Project Description	3-Yr Total	2021 Plant Expend.	2022 Plant Expend.	2023 Plant Expend.
I15-400138	13. Rancho Fiesta Tanks and Pump Station	$1,440,000	$0	$440,000	$1,000,000
I15-400141	14. New Carmel Valley Well	$1,500,000	$500,000	$1,000,000	$0
I15-400143	15. Forest Lake Pump Station	$2,470,000	$1,000,000	$1,470,000	$0
	Total Investment Projects	**$32,772,500**	**$8,750,000**	**$11,875,000**	**$12,147,500**

1. Project Code I15-400125, Main Replacement Program (2021-2026) (PROPOSED PROJECT)

Q208. Please describe this program.

A208. The Central Division has approximately 630 miles of water main in its distribution system. A large percentage of this pipe is nearing the end of its expected useful life. Much of this pipe has a smaller diameter than current standards and therefore impedes the ability of the system to deliver adequate fire flow; this pipe is also experiencing a higher rate of breaks and leaks, leading to water loss and disruption to customers.

In 2019, California American Water completed a Buried Infrastructure CBA and a CPS that included development of a detailed hydraulic model of the distribution system. A risk score was calculated for each pipe segment based on its physical condition, leak history, and hydraulic constraints (such as the ability to deliver recommended fire flow amounts). Based on these risk scores, a number of main replacement projects were recommended for inclusion in this program. The CBA identified 22 miles of main for replacement, as well as 10,500 feet for abandonment and 24,000 feet for lining to mitigate water age issues.

15. Project Code I15-400143, Forest Lake Pump Station (PROPOSED PROJECT)

Q222. Please describe.

A222. An existing pipeline, with diameters ranging from 24 to 30 inches, has historically conveyed water from Carmel Valley west to the Forest Lake Tanks. There are four high spots in Carmel where the pressure in this pipeline can drop below 20 psi, the normal lower operating limit for pipelines without customer service connections. California American Water has performed hydraulic modeling of this pipeline to evaluate the extent and severity of the low pressures. California American Water also installed field data loggers during February and March of 2019 to measure pressure over an extended period. Data from the model runs and the data loggers showed pressures as low as 4 psi during this test period. These conditions were observed while the water level in the Forest Lake Tanks was approximately 18 feet, or slightly more than half full. If the level in the tanks were 10 feet lower, which can occur during some conditions, the gauge pressure in the pipeline would have dropped to 0 psi. These pressures are extremely low and can lead to damage to the pipeline or the connecting valves and fixtures. The low pressures in this portion of the pipeline contribute to the low available fire flow in portions of Carmel. The low pressures can also lead to water quality contamination events if backflow devices are not working properly.

California American Water plans to construct a new pump station to raise the pressure in the transmission main from Forest Lake to Carmel Valley. The recommended location is at or near the site of the Forest Lake Tanks. By raising the HGL in the transmission main, this pump station would also raise the HGL for customers in this area. To prevent problems due to high pressure, the pump station should be designed to raise the pressure only high enough to address the critical low-pressure areas. Raising the HGL approximately 50 feet would allow the system to maintain 20 psi in the transmission main

even when the level in the Forest Lake tanks is at the lower end of the normal operating range.

The addition of this pump station would raise the water pressure in the transmission main above the 20-psi level that is normally considered a minimum operating level for pipelines without customer connections. Eliminating the existing low-pressure areas would increase the safety and reliability of the pipeline and would reduce the potential for contaminants to enter the distribution system. Addressing these low-pressure areas would also increase the available fire flow at hydrants in Carmel, particularly along Ocean Avenue at the upper end of the Forest Lake pressure zone. By maintaining a higher HGL in the transmission main, the pump station would increase the flow that could be delivered to these hydrants while maintaining a 20-psi residual pressure.

This project was identified in the 2019 Monterey County CPS. Additional information, justification, and documentation can be found in the Capital Investment Project Work Papers for this specific project.

E. Monterey County Wastewater District Proposed New Projects

Q223. Please provide summary of new projects.

A223. Below is a table summarizing the estimate expenditures by project and year.

Table XV-E – Monterey County Wastewater District Proposed New Capital Investment Projects

Project Code	Project Description	3-Yr Total	2021 Plant Expend.	2022 Plant Expend.	2023 Plant Expend.
I15-420004	1. Spreckels Boulevard Main Replacement	$310,000	$110,000	$200,000	

CEQA-Approved PWM/GWR Project Facilities

November 2019

Expanded PWM/GWR Project Supplemental EIR

Figure 2-2

Proposed Modifications to CalAm Distribution System

November 2019

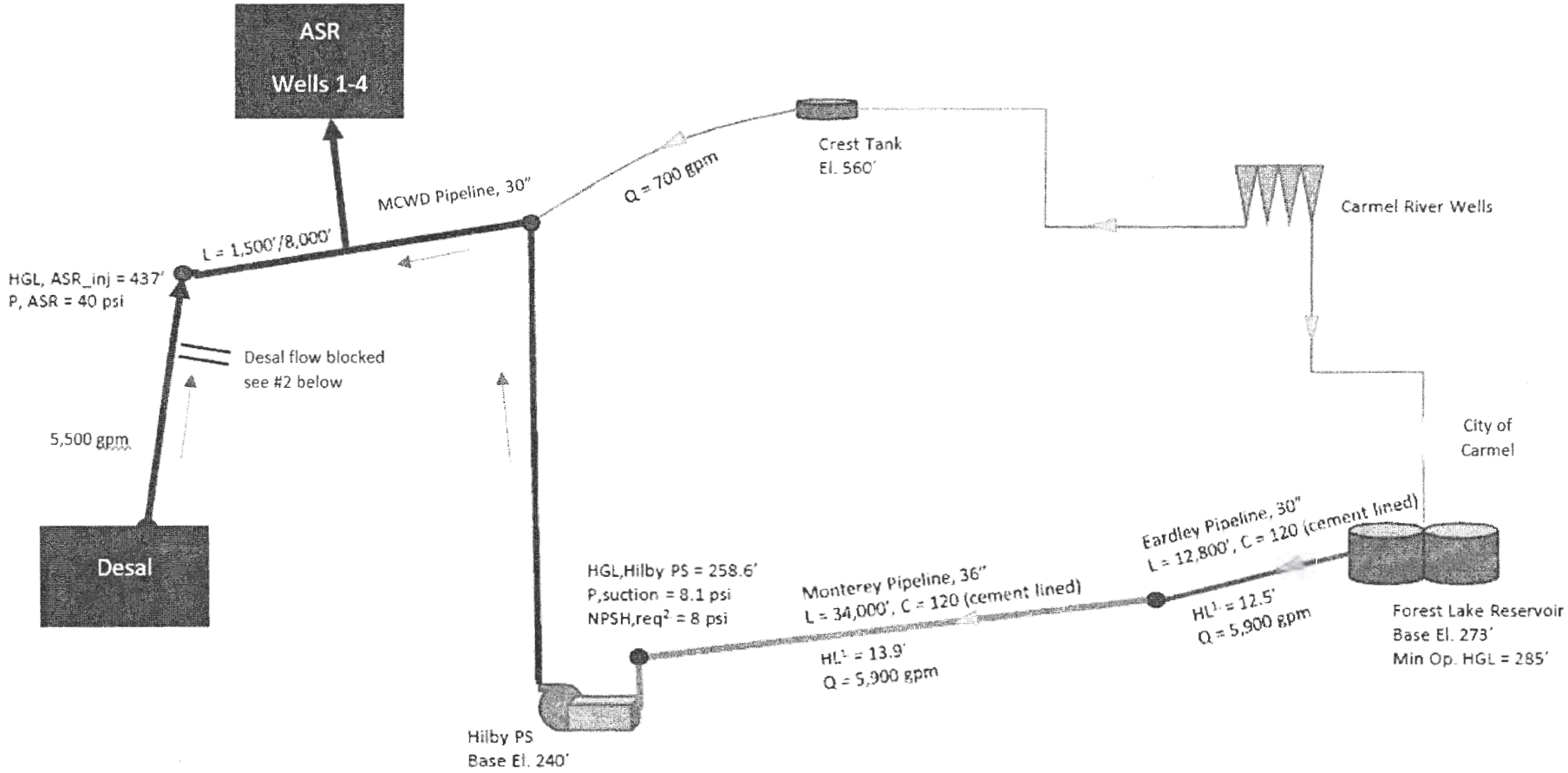
Expanded PWM/GWR Project
Supplemental EIR

Figure
2-7

Figure 1. Production wells and existing and proposed Modified PWM Injection Locations

Attachment 33

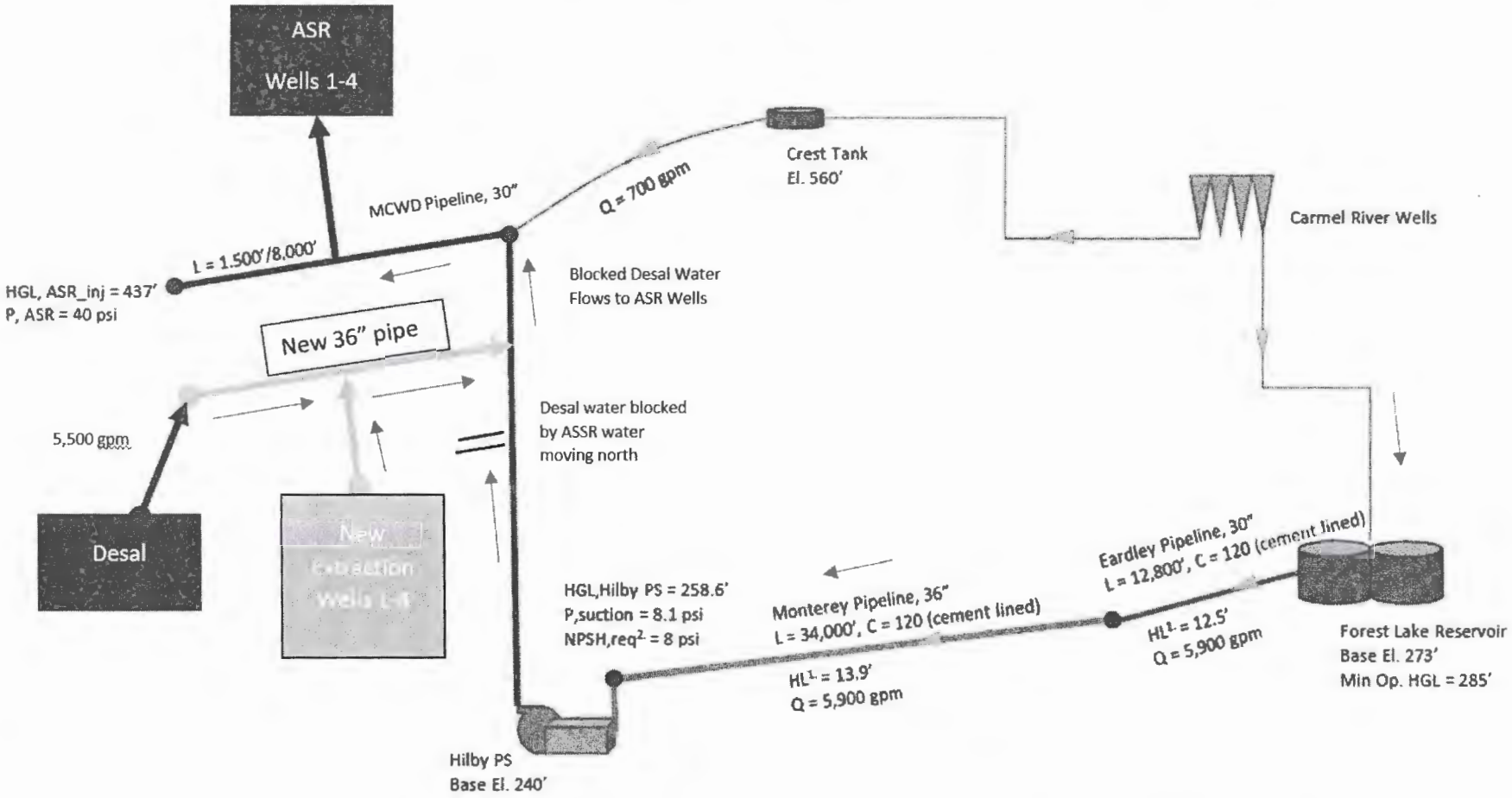
SCHEMATIC 1: **Existing Conveyance** Plan with current MPWSP approval for **every December through May** time period ("Winter" or "ASR Injection" Period) starting 1/1/2022
Note: During December through May in drier water years, there may be no Carmel River water conveyed for injection in the Seaside Basin so then refer to the ASR Extraction Period schematic.



Existing Issues not Addressed in MPWSP approval:

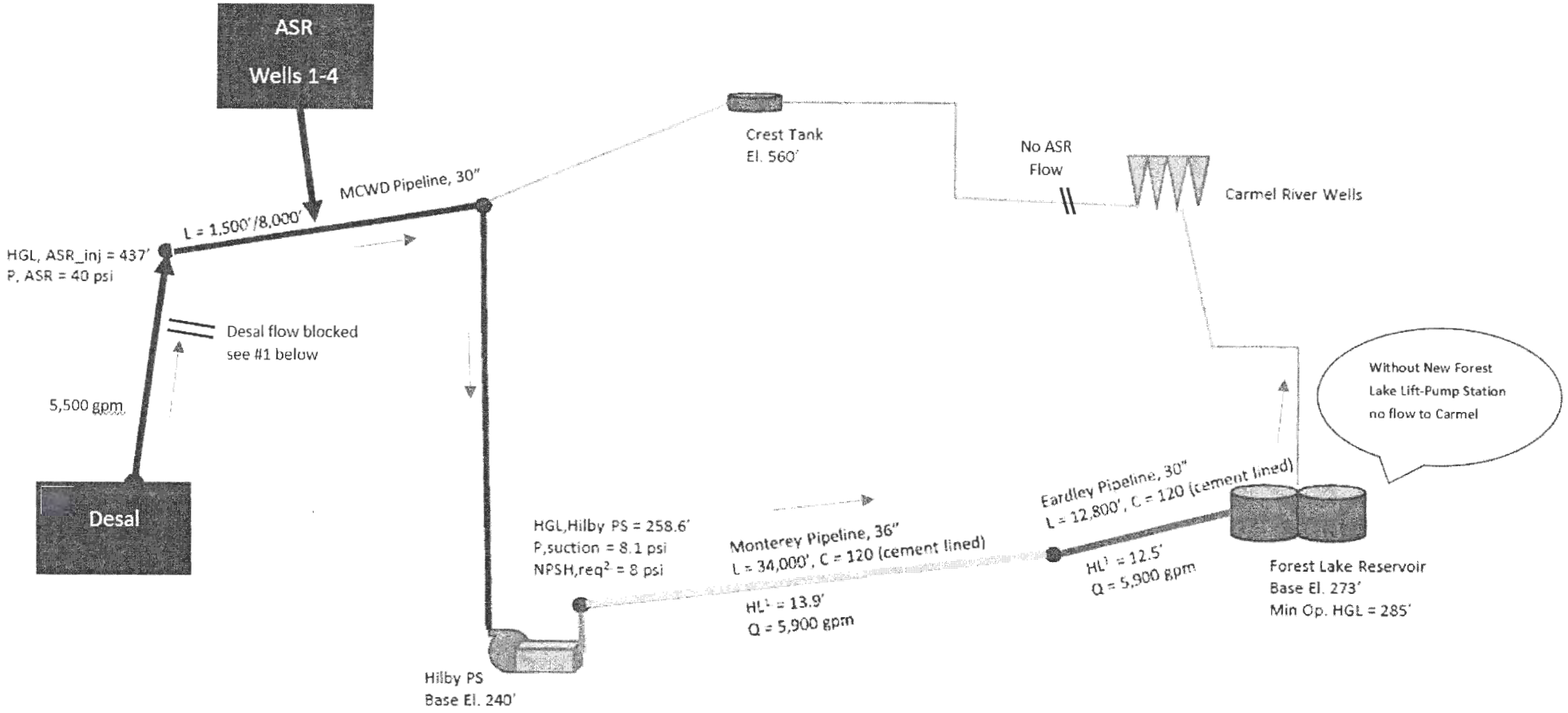
1) No authorized Capacity for Desal water through 30" MCWD potable water pipeline – projected unused capacity not sufficient to convey desal water 24/7/365
2) Desal water cannot move south because (a) ASR water is moving north in the MCWD pipeline to be injected into the Seaside Basin via ASR Wells 1-4 and (b) not sufficient unused capacity in MCWD's pipeline [#1 above]. SWRCB ASR water rights permits requires all Carmel River water diverted for ASR must first be injected into the Seaside Basin and not for direct use by Cal Am customers.

SCHEMATIC 2: **New** if PWME Project approved and New Forest Lake Pump/Lift Station CPUC GRC approved) for **every December through May** time period ("Winter" or "ASR Injection" Period) starting 1/1/2022. Note: During December through May in drier water years, there may be no Carmel River water conveyed for injection in the Seaside Basin so then refer to the ASR Extraction Period schematic.



1) New 36" pipeline allows Desal water to bypass 30" MCWD potable water pipeline
2) New 36" pipeline allows ASR winter injection water to flow north at same time Desal water is flowing south. But Desal water flow blocked in New Monterey Pipeline by ASR water moving north in New Monterey Pipeline. Hilby Pump Station cannot pump Desal water south and ASR water north at the same time. That blockage also causes Desal water to do U turn and flow to ASR Wells 1-4.
3) Cal Am has not explained how excess Desal water will be injected into Seaside Basin via ASR Wells.
4) Four new extraction wells connected to new 36" pipe provide excess extraction capacity to tap into Seaside Basin (ASR, PWM, PWME, and Desal injected water)

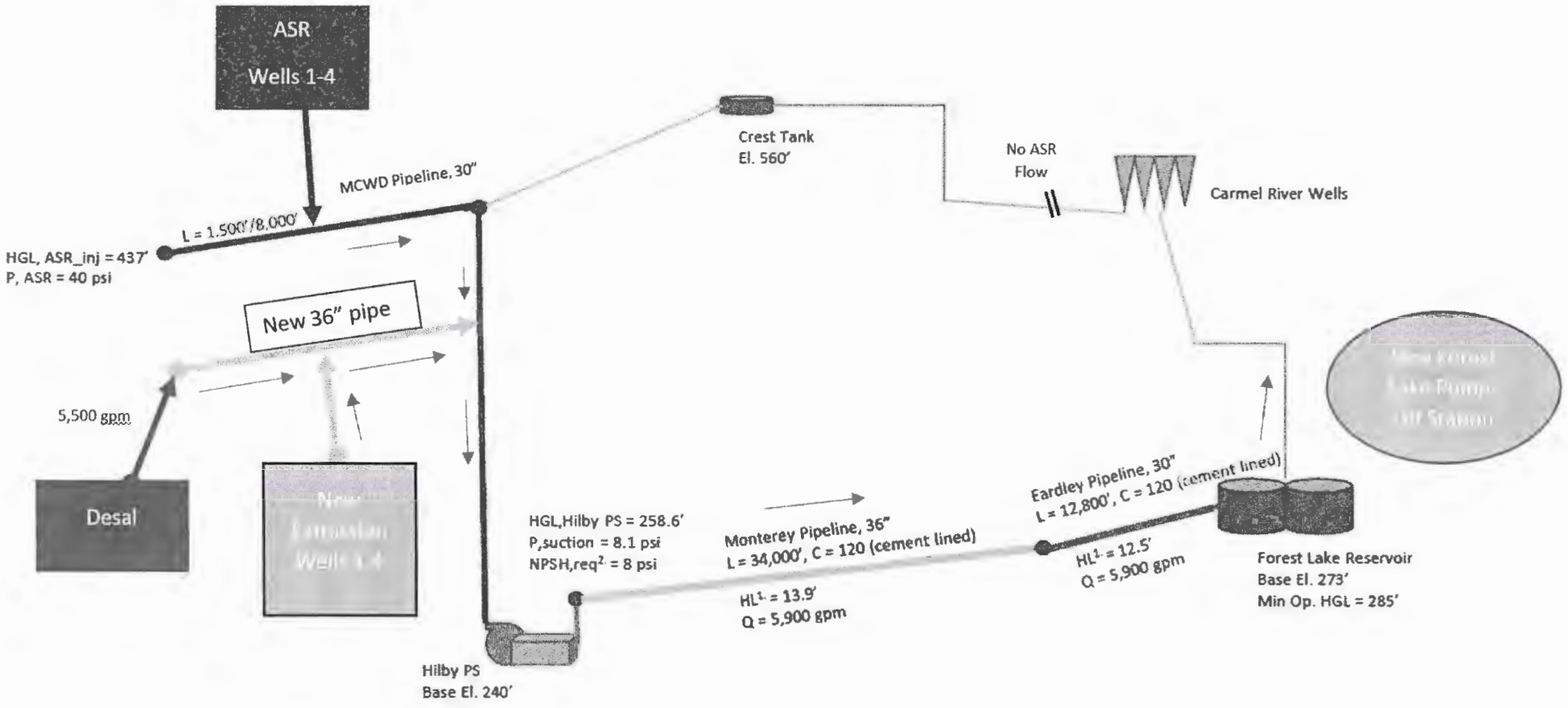
SCHEMATIC 3: **Existing Conveyance** Plan with current MPWSP approval for **every June through November** time period ("Summer" or "ASR Extraction" Period) starting 1/1/2022



Existing Issues not Addressed in MPWSP approval:

1) No authorized Capacity for Desal water through 30" MCWD potable water pipe
2) Desal/Seaside Basin Water cannot flow past Forest Lake Reservoir to serve Carmel and Carmel Valley
3) Insufficient extraction capacity to tap into Seaside Basin for ASR, PWM, PWME, and Desal injected water

SCHEMATIC 4: **New** if PWME Project approved and New Forest Lake Pump/Lift Station CPUC GRC approved) for **every June through November** time period ("Summer" or "ASR Extraction" Period) starting 1/1/2022



1) New 36" pipeline allows Desal Water to bypass 30" MCWD potable water pipeline
2) New Forest Lake Pump-Lift Station allows Desal/Seaside Basin Water to move south past Forest Lake Reservoir to Carmel and Carmel Valley
3) Four new extraction wells connected to new 36" pipe provide excess extraction capacity to tap into Seaside Basin (ASR, PWM, PWME, and Desal injected water)

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

PERMIT FOR DIVERSION AND USE OF WATER

AMENDED PERMIT 20808A

Application 27614A of

Monterey Peninsula Water Management District and
California American Water
c/o Monterey Peninsula Water Management District
P.O. Box 85
Monterey, CA 93942-0085

filed on **December 16, 1982**, has been approved by the State Water Resources Control Board (State Water Board, Board or SWRCB) SUBJECT TO PRIOR RIGHTS and to the limitations and conditions of this permit.

Permittees are hereby authorized to divert and use water as follows:

1. Source of water

Source:	Tributary to:
(1) Carmel River	**Pacific Ocean**
(5-32) Carmel River Subterranean Stream	**Pacific Ocean**

within the County of **Monterey.**

2. Location of points of diversion, points of injection and points of recovery.

Points of Diversion to Offstream Storage (By California Coordinate System of 1983-Zone 4)	40-acre subdivision of public land survey or projection thereof	Section (Projected)	Township	Range	Base and Meridian
(1) San Clemente Dam: North 2,053,010 feet and East 5,765,040 feet	NW¼ of SW¼	24	17S	2E	MD
(5) Canada Well: North 2,092,010 feet and East 5,715,190 feet	NE¼ of SW¼	17	16S	1E	MD
(6) San Carlos Well: North 2,091,660 feet and East 5,717,990 feet	NE¼ of SE¼	17	16S	1E	MD
(7) Cypress Well: North 2,087,610 feet and East 5,724,640 feet	SW¼ of NW¼	22	16S	1E	MD
(8) Pearce Well: North 2,087,360 feet and East 5,726,140 feet	SE¼ of NW¼	22	16S	1E	MD
(9) Schulte Well: North 2,087,410 feet and East 5,729,240 feet	SW¼ of NW¼	23	16S	1E	MD

(10) Manor #2 Well: North 2,086,460 feet and East 5,731,340 feet	NE¼ of SW¼	23	16S	1E	MD
(11) Begonia #2 Well: North 2,085,510 feet and East 5,734,740 feet	NW¼ of SW¼	24	16S	1E	MD
(12) Berwick #7 Well: North 2,084,460 feet and East 5,735,290 feet	SW¼ of SW¼	24	16S	1E	MD
(13) Berwick #8 Well: North 2,084,510 feet and East 5,736,090 feet	SE¼ of SW¼	24	16S	1E	MD
(15) Scarlett #8 Well: North 2,084,510 feet and East 5,740,590 feet	SW¼ of SW¼	19	16S	2E	MD
(17) Los Laureles #5 Well: North 2,080,310 feet and East 5,748,590 feet	NW¼ of SE¼	29	16S	2E	MD
(18) Los Laureles #6 Well: North 2,079,510 feet and East 5,749,440 feet	SE¼ of SE¼	29	16S	2E	MD
(19) West Garzas #4 Well: North 2,075,260 feet and East 5,752,190 feet	NE¼ of SW¼	33	16S	2E	MD
(20) Garzas Creek #3 Well: North 2,073,610 feet and East 5,753,040 feet	SW¼ of SE¼	33	16S	2E	MD
(21) Panetta #2 Well: North 2,072,110 feet and East 5,754,740 feet	NW¼ of NW¼	3	17S	2E	MD
(22) Panetta #1 Well: North 2,071,960 feet and East 5,754,640 feet	NW¼ of NW¼	3	17S	2E	MD
(23) Robles #3 Well: North 2,067,110 feet and East 5,759,490 feet	NE¼ of NE¼	10	17S	2E	MD
(24) Russell #4 Well: North 2,061,810 feet and East 5,764,040 feet	SW¼ of SE¼	14	17S	2E	MD
(25) Russell #2 Well: North 2,061,410 feet and East 5,764,040 feet	SE¼ of SE¼	14	17S	2E	MD
(26) A Well: North 2,091,070 feet and East 5,706,020 feet	SE ¼ of SE ¼	13	16S	1W	MD
(27) B Well: North 2,091,970 feet and East 5,709,420 feet	NE ¼ of SW ¼	18	16S	1E	MD
(28) C Well: North 2,087,220 feet and East 5,724,470 feet	SW ¼ of NW ¼	22	16S	1E	MD
(29) D Well: North 2,087,370 feet and East 5,729,270 feet	SW ¼ of NW ¼	23	16S	1E	MD

(30) E Well: North 2,084,920 feet and East 5,737,320 feet	SW ¼ of SE ¼	24	16S	1E	MD
(31) F Well: North 2,072,120 feet and East 5,754,670 feet	NW ¼ of NW ¼	3	17S	2E	MD
(32) G Well: North 2,070,270 feet and East 5,755,270 feet	SW ¼ of NW ¼	3	17S	2E	MD

Points of Injection and Recovery (By California Coordinate System of 1983-Zone 4)	40-acre subdivision of public land survey or projection thereof	Section (Projected)	Township	Range	Base and Meridian
ASR-1 Injection & Recovery Well North 2,120,840 feet and East 5,734,970 feet	NE¼ of NE¼	23	15S	1E	MD
ASR-2 Injection & Recovery Well North 2,121,080 feet and East 5,735,250 feet	SE¼ of SE¼	14	15S	1E	MD

3. Purpose of use	4. Place of use	Section (Projected)	Township	Range	Base and Meridian	Acres
Municipal	Within the boundaries of Monterey Peninsula Water Management District					110,000

The points of diversion and place of use are shown on maps dated September 12, 2003 and filed with the State Water Board.

5. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed **two thousand four hundred and twenty-six (2,426) acre-feet per annum** to be collected to underground storage in Seaside Groundwater Basin at a maximum instantaneous rate of **six and seven tenths (6.7) cubic feet per second** from **December 1** of each year to **May 31** of the succeeding year.

(0000005H)

6. The amount authorized for appropriation may be reduced in the license if investigation warrants.

(0000006)

7. Permittees' rights under this permit are junior to the rights of persons diverting water for reasonable beneficial use under valid and properly exercised riparian, overlying, and pre- and post-1914 appropriative claims of right which have a priority which is superior to the priority of Application 27614A.

(050T001)

8. Complete application of the water to the authorized use shall be made by December 1, 2020.

(0000009)

9. Progress reports shall be submitted promptly by Permittees when requested by the State Water Board until a license is issued.

(0000010)

10. Permittees shall allow representatives of the State Water Board and other parties, as may be authorized from time to time by said State Water Board, reasonable access to project works to determine compliance with the terms of this permit.

(0000011)

11. Pursuant to California Water Code sections 100 and 275, and the common law public trust doctrine, all rights and privileges under this permit and under any license issued pursuant thereto, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of the State Water Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

The continuing authority of the State Water Board may be exercised by imposing specific requirements over and above those contained in this permit with a view to eliminating waste of water and to meeting the reasonable water requirements of Permittees without unreasonable draft on the source. Permittees may be required to implement a water conservation plan, features of which may include but not necessarily be limited to (1) reusing or reclaiming the water allocated; (2) using water reclaimed by another entity instead of all or part of the water allocated; (3) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (4) suppressing evaporation losses from water surfaces; (5) controlling phreatophytic growth; and (6) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this permit and to determine accurately water use as against reasonable water requirements for the authorized project. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation.

The continuing authority of the State Water Board also may be exercised by imposing further limitations on the diversion and use of water by the Permittees in order to protect public trust uses. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such action is consistent with California Constitution Article X, Section 2; is consistent with the public interest; and is necessary to preserve or restore the uses protected by the public trust.

(0000012)

12. The quantity of water diverted under this permit and under any license issued pursuant thereto is subject to modification by the State Water Board if, after notice to the Permittees and an opportunity for hearing, the State Water Board finds that such modification is necessary to meet water quality objectives in water quality control plans which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken pursuant to this paragraph unless the State Water Board finds that (1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges.

(0000013)

13. This permit does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish & G. Code, §§ 2050 - 2097) or the federal Endangered Species Act (16 U.S.C.A. §§ 1531 - 1544). If a "take" will result from any act authorized under this water right, the Permittees shall obtain authorization for an incidental take prior to construction or operation of the project. Permittees shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this permit.

(0000014)

14. Permittees shall maintain records of the amount of water diverted and used to enable the State Water Board to determine the amount of water that has been applied to beneficial use pursuant to Water Code Section 1605.

(0000015)

15. This permit shall not be construed as conferring upon the Permittees right of access to the points of diversion.

(0000022)

16. Permittees shall consult with the Division of Water Rights and, within one year from the date of this permit, shall submit to the State Water Board their Urban Water Management Plan as prepared and adopted in conformance with Section 10610, et seq. of the California Water Code, supplemented by any additional information that may be required by the Board.

    All cost-effective measures identified in the Urban Water Management Plan and any supplements thereto shall be implemented in accordance with the schedule for implementation found therein.

(0000029A)

17. If it is determined after permit issuance that the as-built conditions of the project are not correctly represented by the map(s) prepared to accompany the application, Permittees shall, at their expense, have the subject map(s) updated or replaced with equivalent as-built maps(s). Said revision(s) or new map(s) shall be prepared by a civil engineer or land surveyor registered or licensed in the State of California and shall meet the requirements prescribed in section 715 and sections 717 through 723 of the California Code of Regulations, Title 23. Said revision(s) or map(s) shall be furnished upon request of the Chief, Division of Water Rights.

(0000030)

18. Permittees shall (1) install devices to measure the instantaneous rate and cumulative quantity of water diverted from the Carmel River and placed into underground storage and (2) install devices to measure the cumulative quantity of Carmel River water recovered from underground storage and placed to beneficial use. All measuring devices and the method of determining the quantity of water recovered from underground storage shall be approved by the State Water Board. All measuring devices shall be properly maintained.

(0060900) (0080900)

19. Permittees shall install, calibrate and maintain continuous flow measurement devices, satisfactory to the State Water Board, at the following locations in the Carmel River:

    a. Carmel River at the Highway 1 Bridge (River Mile (RM) 1.1)
    b. USGS Carmel River Near Carmel Gage (USGS 11143250; RM 3.2), maintained by USGS
    c. Carmel River at Sleepy Hollow Weir (RM 17.6)

    If any measuring device is rendered inoperative for any reason, all diversions under this permit shall cease until such time as the device is restored to service.

    In the event that the streamflow gage maintained by USGS is no longer available for streamflow measurements, Permittees (or successors-in-interest) are responsible for installing and maintaining an equivalent gage, satisfactory to the Chief, Division of Water Rights, as near as practicable to the present location of USGS near Carmel Gage. In the absence of such equivalent gage, all diversions must cease. These requirements shall remain in force as long as water is diverted by Permittees (or successors-in-interest) under any permit or license issued pursuant to Application 27614A.

(0060062BP) (0000204)

20. Within six months of the issuance of this permit, the Permittees shall submit a Compliance Plan for approval by the Chief of the Division of Water Rights that will demonstrate compliance with the flow bypass terms specified in this permit. The Compliance Plan shall include the following:

    a. A description of the gages and monitoring devices that have been or will be installed to measure streamflow and diversion to underground storage.
    b. A time schedule for the installation of these facilities.
    c. A description of the frequency of data collection and the methods for recording diversions, bypass flows and storage levels.
    d. An operation and maintenance plan that will be used to maintain gages and monitoring devices in good condition.

    The Permittees shall be responsible for all costs associated with developing the Compliance Plan, and installing and maintaining all monitoring facilities described in the Compliance Plan.

    The monitoring data shall be maintained by the Permittees for ten years from the date of collection and made available to the Chief of the Division of Water Rights upon request. Any non-compliance with the terms of the permit shall be reported by the Permittees promptly to the Chief of the Division of Water Rights.

    (0000070)

21. The priority of this permit shall be junior to any permit issued on the applications set forth in Table 13 of Decision 1632 or for the persons named in Table 13 of Decision 1632 for an amount of water not to exceed the quantity set forth in the column titled *"Quantity Reserved by SWRCB For Future Appropriations"*, or as modified in accordance with the procedures set forth in Decision 1632, Permit Condition 10.

    (0500800)

22. Permittees shall implement the Riparian Corridor Management Program outlined in the Monterey Peninsula Water Management District's November 1990 Water Allocation Mitigation Program until Application 27614A is licensed. Survey data and analysis of results shall be submitted annually to the California Department of Fish and Game for review and comment.

    (0490500)

23. For the protection of fisheries, wildlife, and other instream uses in the Carmel River, diversions under this permit shall be subject to maintenance of minimum mean daily instream flows, as agreed upon by the Permittees and the California Department of Fish and Game and National Marine Fisheries Service and stated in the document entitled, "Proposed Changes to Current Permit Conditions". Minimum mean daily instream flows are specified in Table A, required Ramp-Down flows are specified in Table B, and water year types for use with Tables A and B are specified in Table C. No water shall be diverted under this permit if the instream flows determined using Tables A, B and C are or would be reduced by such diversion below the designated rates. To ensure compliance with these conditions, by September 30 of each year, Permittees shall file a report with the Chief, Division of Water Rights, California Department of Fish and Game and National Marine Fisheries Service containing the following information:

    a. Dates during the previous period of December 1 to May 31 of the succeeding year when water was diverted under this permit; and
    b. Mean daily flows recorded at the three monitoring locations specified in Condition 20 during the same period.

    Water year types defined in Table C, Carmel River Water Supply Index, may be amended from time to time to include the most recent available hydrologic data. For the purpose of amending water year types in Table C, Permittees shall submit to the Chief, Division of Water Rights, a request to approve revisions to criteria to define normal or better, below normal, dry and critically dry year types.

    (0400500)

24. Until the project authorized by this permit becomes fully operational, Permittees shall continue to negotiate with California Department of Fish and Game to maintain, insofar as possible a minimum 5 cfs bypass flow below San Clemente Dam as measured at the Sleepy Hollow Weir.

(0400500)

25. To prevent stranding of spring and fall steelhead juveniles and smolts during critically dry conditions, Permittees shall continue to implement the Fisheries Mitigation Measure 4 outlined in the Monterey Peninsula Water Management District's November 1990 Water Allocation Mitigation Program ("Rescue juveniles downstream of Robles del Rio in Summer").

(0400500)

26. Permittees shall, in consultation with California Department of Fish and Game conduct studies to determine the effectiveness of fish rescue operations specified in the Monterey Peninsula Water Management District's November 1990 Water Allocation Mitigation Program. The results shall be submitted to the Chief, Division of Water Rights, for review and approval.

(0400500)

27. Permittees shall implement the Lagoon Mitigation Program outlined in the Monterey Peninsula Water Management District's November 1990 Water Allocation Mitigation Program. Annual reports shall be submitted to the California Department of Parks and Recreation, California Department of Fish and Game, and the Chief, Division of Water Rights for review.

(0400500)

28. No work shall commence and no water shall be diverted, stored or used under this permit until a copy of a stream or lake alteration agreement between the State Department of Fish and Game and the Permittees is filed with the Division of Water Rights. Compliance with the terms and conditions of the agreement is the responsibility of the Permittees. If a stream or lake agreement is not necessary for this permitted project, the Permittees shall provide the Division of Water Rights a copy of a waiver signed by the California Department of Fish and Game.

(0000063)

29. Permittees shall maintain in good working order all riparian irrigation systems owned or operated by Permittees under the Monterey Peninsula Water Management District's Water Allocation Program Environmental Impact Report, 5-Year Mitigation Program (November 1990) for use as needed during dry and critically dry water years.

(0400500)

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This permit is issued and Permittees take it subject to the following provisions of the Water Code:

Section 1390. A permit shall be effective for such time as the water actually appropriated under it is used for a useful and beneficial purpose in conformity with this division (of the Water Code), but no longer.

Section 1391. Every permit shall include the enumeration of conditions therein which in substance shall include all of the provisions of this article and the statement that any appropriator of water to whom a permit is issued takes it subject to the conditions therein expressed.

Section 1392. Every permittee, if he accepts a permit, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefore shall at any time be assigned to or claimed for any permit granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any permittee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any permittee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).

STATE WATER RESOURCES CONTROL BOARD

for James W. Kassel
Victoria A. Whitney, Chief
Division of Water Rights

Date: NOV 30 2007

TABLE A

MINIMUM MEAN DAILY INSTREAM FLOW REQUIREMENTS *(see Condition 23)*

Fall December 1- December 15	Winter December 16-April 15	Spring April 16-May 31
All Water Year Types[1] May divert with minimum bypass of 40 cfs at the Highway 1 gage.	Normal or Better and Below Normal Water Years[1] **For Normal or Better and Below Normal Water Years, an Attraction Day is defined as:** Estimated unimpaired flow[2] at the Highway 1 gage of 200 cfs or greater. **Prior to First Attraction Day:** Continue December 1-15 bypass flows. **During Attraction Day(s):** Bypass sufficient flow to maintain 200 cfs at the Highway 1 gage. **Following Attraction Day(s):** Ramp down bypass flows as indicated on Table B. Following the ramp-down period, bypass 90 cfs throughout the reach[3] between the Sleepy Hollow Weir gage and the USGS Near Carmel gage, and 60 cfs throughout the reach[3] between the USGS Near Carmel gage and the Highway 1 gage.	All Water Year Types[1] Bypass 80 cfs throughout the reach[3] between Sleepy Hollow Weir gage and the Highway 1 gage.
	Dry and Critically Dry Water Years[1] **For Dry and Critically Dry Water Years, an Attraction Day is defined as:** Estimated unimpaired flow[2] at the Highway 1 gage of 200 cfs or greater in January, 100 cfs or greater in February, and 75 cfs or greater in March. **Prior to First Attraction Day:** Continue December 1-15 bypass flows. **During Attraction Day(s):** Bypass sufficient flow to maintain 150 cfs at the Highway 1 gage. **Following Attraction Day(s):** Ramp down bypass flows as indicated on Table B. Following the ramp-down period, bypass the same as for wet, normal, and below normal water years.	

1 Water Year types are as specified in Table C.

2 For purposes of Table A, "estimated unimpaired flow" shall be defined as the measured mean daily flow at the specified gage plus the mean daily diversion by California American Water from the Carmel River and underlying alluvial aquifer upstream of that gage during the preceding five days.

3 Maintaining the specified flow at both the upper and lower gage associated with the specified reach is sufficient evidence that the rate is maintained throughout the entire reach. In the case of bypass flow required throughout the reach between the Sleepy Hollow Weir and Highway 1 gages from April 16 to May 31, the required bypass flow must also be maintained at the USGS near Carmel gage.

Source: Table A is based on Table 9 in Instream Flow Needs for Steelhead in the Carmel River, Bypass Flow Recommendations for Water Supply Projects Using Carmel River Waters, National Marine Fisheries Service, Southwest Region – Santa Rosa Field Office, June 3, 2002, page 32.

TABLE B
Carmel River Bypass Flows - "Ramp-Down" Flows

Minimum Mean Daily Instream Flows Following an Attraction Day or Days
(All Values in Cubic Feet Per Second)

	Between MPWMD Sleepy Hollow Gage and USGS Near Carmel Gage		Between USGS Near Carmel Gage and MPWMD Highway 1 Gage	
Days	Normal or Better and Below Normal Water Years	Dry and Critically Dry Water Years	Normal or Better and Below Normal Water Years	Dry and Critically Dry Water Years
0	200	150	200	150
1	175	125	175	125
2	150	100	150	100
3	125	90	125	80
4	90	90	100	60
5	90	90	80	60
6	90	90	60	60

Source: *Instream Flow Needs for Steelhead in the Carmel River, Bypass Flow Recommendations for Water Supply Projects Using Carmel River Waters*, National Marine Fisheries Service, Southwest Region - Santa Rosa Field Office, June 3, 2002, page 15.

Note: "Day 0" refers to an Attraction Day or Days. "Day 1" refers to the first day after an Attraction Day or Days. See Table A for the definition of an Attraction Day.

TABLE C
Carmel River Water Supply Index

Cumulative Unimpaired Carmel River Flow at the Sleepy Hollow Weir Site in Acre-Feet

Period	Water Year Type: Normal or Better	Below Normal	Dry	Critically-Dry
Oct	> 300	300 - 100	99 - 1	0
Oct - Nov	> 1,000	1,000 - 500	499 - 300	< 300
Oct - Dec	> 4,000	4,000 - 1,700	1,699 - 1,200	< 1,200
Oct - Jan	> 11,700	11,700 - 5,700	5,699 - 3,200	< 3,200
Oct - Feb	> 28,800	28,800 - 11,800	11,799 - 7,300	< 7,300
Oct - Mar	> 40,600	40,600 - 21,300	21,299 - 10,700	< 10,700
Oct - Apr	> 47,600	47,600 - 24,300	24,299 - 13,200	< 13,200
Oct - May	> 49,500	49,500 - 26,000	25,999 - 13,900	< 13,900
Oct - Jun	> 49,900	49,900 - 26,800	26,799 - 14,600	< 14,600
Oct - Jul	> 50,000	50,000 - 27,200	27,199 - 14,700	< 14,700
Oct - Aug	> 50,300	50,300 - 27,300	27,299 - 14,800	< 14,800
Oct - Sep	> 50,700	50,700 - 27,400	27,399 - 14,900	< 14,900

Expected Unimpaired Carmel River Flow at the Sleepy Hollow Weir Site in Acre-Feet Assuming 75% Reliability

Period	Water Year Type: Normal or Better	Below Normal	Dry	Critically-Dry
Nov - Sep	50,400	34,000	25,000	21,000
Dec - Sep	43,000	27,000	17,500	14,900
Jan - Sep	36,000	22,300	12,200	10,000
Feb - Sep	29,000	17,300	9,000	7,000
Mar - Sep	21,500	11,275	6,000	3,400
Apr - Sep	13,000	5,850	3,250	1,575
May - Sep	5,000	2,500	1,425	800
Jun - Sep	2,000	900	625	400
Jul - Sep	600	300	300	300
Aug - Sep	200	200	200	200
Sep	100	100	100	100

Notes:

1. "Cumulative" and "Expected" water year types are derived from the daily unimpaired flow record at the Sleepy Hollow Weir site simulated by the Monterey Peninsula Water Management District for Water Years 1902 through 1996.
2. Water Year types are based on selected exceedance frequencies. "Normal or Better" refers to flows that are equaled or exceeded 50% of the time. "Below Normal" refers to flows that are exceeded between 50% and 75% of the time. "Dry" refers to flows that are exceeded between 75% and 87.5% of the time. "Critically Dry" refers to flows that are exceeded 87.5% of the time.
3. The Water Supply Index shall incorporate a daily timestep so that it can be updated on a daily basis.

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

AMENDED PERMIT FOR DIVERSION AND USE OF WATER

APPLICATION 27614C PERMIT 20808C

of: Monterey Peninsula Water Management District and
California American Water
c/o Monterey Peninsula Water Management District
P.O. Box 85
Monterey, CA 93942-0085

The amended permit is being issued in accordance with the redelegations of authority (Resolution No. 2007-0057.) Therefore, an amended permit on **Application 27614C** filed on **December 16, 1982** has been approved by the State Water Board SUBJECT TO PRIOR RIGHTS and to the limitations and conditions of this amended permit

Permittees are hereby authorized to divert and use water as follows:

1. Source of water

Source:	Tributary to:
(1) Carmel River	**Pacific Ocean**
(5-32) Carmel River Subterranean Stream	**Pacific Ocean**

within the County of **Monterey.**

2. Location of points of diversion, points of injection and points of recovery.

Points of Diversion to Offstream Storage (By California Coordinate System of 1983-Zone 4)	40-acre subdivision of public land survey or projection thereof	Section (Projected)	Township	Range	Base and Meridian
(1) San Clemente Dam: North 2,053,010 feet and East 5,765,040 feet	**NW¼ of SW¼**	**24**	**17S**	**2E**	**MD**
(5) Canada Well: North 2,092,010 feet and East 5,715,190 feet	**NE¼ of SW¼**	**17**	**16S**	**1E**	**MD**
(6) San Carlos Well: North 2,091,660 feet and East 5,717,990 feet	**NE¼ of SE¼**	**17**	**16S**	**1E**	**MD**
(7) Cypress Well: North 2,087,610 feet and East 5,724,640 feet	**SW¼ of NW¼**	**22**	**16S**	**1E**	**MD**

(8) Pearce Well: North 2,087,360 feet and East 5,726,140 feet	SE¼ of NW¼	22	16S	1E	MD
(9) Schulte Well: North 2,087,410 feet and East 5,729,240 feet	SW¼ of NW¼	23	16S	1E	MD
(10) Manor #2 Well: North 2,086,460 feet and East 5,731,340 feet	NE¼ of SW¼	23	16S	1E	MD
(11) Begonia #2 Well: North 2,085,510 feet and East 5,734,740 feet	NW¼ of SW¼	24	16S	1E	MD
(12) Berwick #7 Well: North 2,084,460 feet and East 5,735,290 feet	SW¼ of SW¼	24	16S	1E	MD
(13) Berwick #8 Well: North 2,084,510 feet and East 5,736,090 feet	SE¼ of SW¼	24	16S	1E	MD
(15) Scarlett #8 Well: North 2,084,510 feet and East 5,740,590 feet	SW¼ of SW¼	19	16S	2E	MD
(17) Los Laureles #5 Well: North 2,080,310 feet and East 5,748,590 feet	NW¼ of SE¼	29	16S	2E	MD
(18) Los Laureles #6 Well: North 2,079,510 feet and East 5,749,440 feet	SE¼ of SE¼	29	16S	2E	MD
(19) West Garzas #4 Well: North 2,075,260 feet and East 5,752,190 feet	NE¼ of SW¼	33	16S	2E	MD
(20) Garzas Creek #3: North 2,073,610 feet and East 5,753,040 feet	SW¼ of SE¼	33	16S	2E	MD
(21) Panetta #2 Well: North 2,072,110 feet and East 5,754,740 feet	NW¼ of NW¼	3	17S	2E	MD
(22) Panetta #1 Well: North 2,071,960 feet and East 5,754,640 feet	NW¼ of NW¼	3	17S	2E	MD
(17) Robles #3 Well: North 2,067,110 feet and East 5759,490 feet	NE¼ of NE¼	10	17S	2E	MD
(24) Russell #4 Well: North 2,061,810 feet and East 5,764,040 feet	SW¼ of SE¼	14	17S	2E	MD
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(26) A Well: North 2,091,070 feet and East 5,706,020 feet	SE ¼ of SE ¼	13	16S	1W	MD

(27) B Well: North 2,091,970 feet and East 5,709,420 feet	**NE ¼ of SW ¼**	**18**	**16S**	**1E**	**MD**
(28) C Well: North 2,087,220 feet and East 5,724,470 feet	**SW ¼ of NW ¼**	**22**	**16S**	**1E**	**MD**
(29) D Well: North 2,087,370 feet and East 5,7729,270 feet	**SW ¼ of NW ¼**	**23**	**16S**	**1E**	**MD**
(30) E Well: North 2,084,920 feet and East 5,737,320 feet	**SW ¼ of SE ¼**	**24**	**16S**	**1E**	**MD**
(31) F Well: North 2,072,120 feet and East 5,754,670 feet	**NW ¼ of NW ¼**	**3**	**17S**	**2E**	**MD**
(32) G Well: North 2,070,270 feet and East 5,755,270 feet	**SW ¼ of NW ¼**	**3**	**17S**	**2E**	**MD**

Points of Injection and Recovery (By California Coordinate System of 1983-Zone 4)	40-acre subdivision of public land survey or projection thereof	Section (Projected)	Township	Range	Base and Meridian
Seaside Middle School #1 Injection & Recovery Well North 2,122,180 feet and East 5,735,150 feet	**SE¼ of SE¼**	**13**	**15S**	**1E**	**MD**
Seaside Middle School #2 Injection & Recovery Well North 2,122,530 feet and East 5,735,250 feet	**SE¼ of SE¼**	**13**	**15S**	**1E**	**MD**
ASR-1 Injection & Recovery Well North 2,120,840 feet and East 5,734,970 feet	**NE¼ of NE¼**	**23**	**15S**	**1E**	**MD**
ASR-2 Injection & Recovery Well North 2,121,080 feet and East 5,735,250 feet	**SE¼ of SE¼**	**14**	**15S**	**1E**	**MC**

3. Purpose of use	4. Place of use	Section (Projected)	Township	Range	Base and Meridian	Acres
Municipal	**Within the boundaries of Monterey Peninsula Water Management District**					**110,000**

The points of diversion and place of use are shown on maps dated June 2008 and filed with the State Water Board.

The following acronyms are used in this permit:

Monterey Peninsula Water Management District – MPWMD or Permittee
National Marine Fisheries Service – NMFS
California Department of Fish and Game – DFG
California American Water – Cal-Am

5. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed **two thousand nine hundred (2,900) acre-feet per a**nnum to be collected to underground storage in Seaside Groundwater Basin at a maximum instantaneous rate of **eight (8.0) cubic feet per second** from December 1 of each year to May 31 of the succeeding year.

(0000005H)

6. Permittees' rights under this permit are junior to the rights of persons diverting water for reasonable beneficial use under valid and properly exercised riparian, overlying, and pre- and post-1914 appropriative claims of right which have a priority which is superior to the priority of Application 27614C.

(050T001)

7. Complete application of the water to the authorized use shall be made by December 1, 2020.

(0000009)

8. This permit shall not be construed as conferring upon the permittees right of access to the points of diversion.

(0000022)

9. Cal-Am shall consult with the Division of Water Rights and, within one year from the date of this permit, shall submit to the State Water Board its Urban Water Management Plan as prepared and adopted in conformance with Section 10610, et seq. of the California Water Code, supplemented by any additional information that may be required by the Board.

   All cost-effective measures identified in the Urban Water Management Plan and any supplements thereto shall be implemented in accordance with the schedule for implementation found therein.

(0000029A)

10. If it is determined after permit issuance that the as-built conditions of the project are not correctly represented by the map(s) prepared to accompany the application, permittees shall, at their expense, have the subject map(s) updated or replaced with equivalent as-built maps(s). Said revision(s) or new map(s) shall be prepared by a civil engineer or land surveyor registered or licensed in the State of California and shall meet the requirements prescribed in section 715 and sections 717 through 723 of the California Code of Regulations, Title 23. Said revision(s) or map(s) shall be furnished upon request of the Deputy Director for Water Rights.

(0000030)

11. Permittees shall (1) install devices to measure the instantaneous rate and cumulative quantity of water diverted from the Carmel River and placed into underground storage and (2) install devices to measure the cumulative quantity of Carmel River water recovered from underground storage and placed to beneficial use. All measuring devices and the method of determining the quantity of water recovered from underground storage shall be approved by the State Water Board. All measuring devices shall be properly maintained.

(0060900) (0080900)

12. Permittees shall calibrate and maintain, a continuous flow measurement device, satisfactory to the State Water Board, at Carmel River at Highway 1 Bridge (River Mile 1.1)

    If any measuring device is rendered inoperative for any reason, all diversions under this permit shall cease until such time as the device is restored to service.

    These requirements shall remain in force as long as water is diverted by permittees (or successors-in-interest) under any permit or license issued pursuant to Application 27614C.

    (0060062BP) (0000204)

13. Within six months of the issuance of this permit, the permittees shall submit a Compliance Plan for approval by the Deputy Director for Water Rights that will demonstrate compliance with the flow bypass terms specified in this permit. The Compliance Plan shall include the following:

    a. A description of the gages and monitoring devices that will be installed or have been installed to measure stream flow and diversion to underground storage.
    b. A time schedule for installation of these facilities.
    c. A description of the frequency of data collection and the methods for recording diversions, bypass flows and storage levels.
    d. An operation and maintenance plan that will be used to maintain gages and monitoring devices in good condition.

    The permittees shall be responsible for all costs associated with developing the Compliance Plan, and installing and maintaining all monitoring facilities described in the Compliance Plan.

    The monitoring data shall be maintained by the permittees for ten years from the date of collection and made available to the Deputy Director for Water Rights, upon request. Any non-compliance with the terms of the permit shall be reported by the permittees promptly to the Deputy Director for Water Rights.

    (0000070)

14. The priority of this permit shall be junior to any permit issued on the applications set forth in Table 13 of Decision 1632 or for the persons named in Table 13 of Decision 1632 for an amount of water not to exceed the quantity set forth in the column titled *"Quantity Reserved by SWRCB for Future Appropriations,"* or as modified in accordance with the procedures set forth in Decision 1632, Permit Condition 10.

    (0500800)

15. Permittees shall implement the Riparian Corridor Management Program outlined in the MPWMD's November 1990 Water Allocation Mitigation Program until Application 27614C is licensed. Survey data and analysis of results shall be submitted annually to DFG for review and comment.

    (0490500)

16. For the protection of fisheries, wildlife, and other instream uses in the Carmel River, diversions under this permit shall be subject to maintenance of minimum mean daily instream flows as specified in Table A, Minimum Mean Daily Instream Flow Requirements. No water shall be diverted under this permit if the instream flows would be reduced by such diversion below the minimum mean daily flows specified in Table A. To ensure compliance with these conditions, by September 30 of each year, Permittees shall file a report with the Deputy Director for Water Rights, DFG and NMFS containing the following information:

    a. Dates during the previous period of December 1 to May 31 of the succeeding year when water was diverted under this permit; and
    b. Mean daily flows recorded at the Carmel River at Highway 1 Bridge gage.

TABLE A	
MINIMUM MEAN DAILY INSTREAM FLOW REQUIREMENTS	
December 1-April 15	**April 16-May 31**
Prior to Carmel River lagoon opening to the ocean [1]: May divert with minimum bypass of **40 cfs** at the Carmel River at Highway 1 Bridge gage. **Following Carmel River lagoon opening to the ocean:** May divert with minimum bypass of **120 cfs** at the Carmel River at Highway 1 Bridge gage.	May divert with minimum bypass of **80 cfs** at the Carmel River at Highway 1 Bridge gage.

[1] On December 1, if water in the lagoon is flowing to the ocean, the lagoon shall be deemed to be open to the ocean. If on December 1 water in the lagoon is not flowing to the ocean, the lagoon shall be deemed to be open to the ocean when the lagoon level drops rapidly from a stable elevation to a lower elevation as evidenced by the water surface elevation gage located at the Carmel Area Wastewater District effluent pipeline across the south arm of the lagoon. This elevation gage is operated by Monterey Peninsula Water Management District.

(0400500)

17. Until the project authorized by this permit becomes fully operational, permittees shall continue to negotiate with DFG to maintain, insofar as possible, a minimum 5 cubic feet per second bypass flow below San Clemente Dam as measured at the Sleepy Hollow weir.

(0400500)

18. To prevent stranding of spring and fall steelhead juveniles and smolts during critically dry conditions, permittees shall continue to implement Fisheries Mitigation Measure 3 as outlined in the MPWMD's November 1990 Water Allocation Mitigation Program ("Rescue juveniles downstream of Robles del Rio in summer").

(0400500)

19. Permittees shall, in consultation with DFG, conduct studies to determine the effectiveness of fish rescue operations specified in the MPWMD's November 1990 Water Allocation Mitigation Program. The results shall be submitted to the Deputy Director for Water Rights, for review and approval.

(0400500)

20. Permittees shall implement the Lagoon Mitigation Program outlined in the MPWMD's November 1990 Water Allocation Mitigation Program. Annual reports shall be submitted to the Department of Parks and Recreation, DFG, and the Deputy Director for Water Rights for review.

(0400500)

21. Permittees shall maintain in good working order all riparian irrigation systems owned or operated by permittees under the MPWMD's November 1990 Water Allocation Mitigation Program for use as needed during dry and critically dry water years.

(0400500)

22. Recovery of Stored Water: Not later than June 1 of each year, the amount of water to be recovered from groundwater storage during that year's June 1 through November 30 period shall be determined by permittees, in consultation with DFG and NMFS, using the following procedures.

    a. The maximum amount for recovery each year (pumping of water previously diverted from the Carmel River and injected in the Seaside Groundwater Basin) was determined to be 1,500 acre-feet, using the logic developed for the computer simulation made by MPWMD's Carmel Valley Simulation (CVSIM) model. In any year, an alternative recovery amount may be agreed upon by permittees, DFG, and NMFS. The selected recovery amount shall be deemed the "Determined Recovery Amount."

    b. To the maximum extent operationally feasible, during each recovery season, permittees shall use their best efforts to recover the Determined Recovery Amount.

    c. Each year at the end of the injection season, the amount of water injected into the Seaside Basin during the current injection season shall be calculated. If this amount equals or exceeds the Determined Recovery Amount, then the Determined Recovery Amount shall be recovered. Any water injected during the current injection season that is in excess of the Determined Recovery Amount shall be added to "Carryover Storage."

    d. If the total amount of water injected during the current injection season is less than the Determined Recovery Amount, and the Carryover Storage from previous injection seasons is sufficient to make up the difference, then the Determined Recovery Amount shall be recovered. In this case, water from Carryover Storage shall be produced to supplement water injected during the current injection season to meet the Determined Recovery Amount. Any water that is produced from Carryover Storage to meet the Determined Recovery Amount shall be subtracted from Carryover Storage.

    e. If the total amount of water injected during the current injection season is less than the Determined Recovery Amount, and the Carryover Storage from previous injection seasons is insufficient to make up the difference, then the Determined Recovery Amount cannot be met. Instead, the amount of water recovered that year will be the total amount injected during the current injection season plus the total amount of Carryover Storage, if any, from previous injection seasons.

    f. Following the above decisions, if the amount of water stored by injection in the Seaside Groundwater Basin exceeds 7,200 acre-feet on June 1, the amount in excess of 7,200 acre-feet shall be added to the amount available for recovery that year.

    g. The actual amount of water produced from storage for recovery each year shall be uniformly distributed over the recovery season, unless modified and agreed upon by permittees, DFG, and NMFS.

    h. The water produced by permittees from the Aquifer Storage and Recovery (ASR) wells will be used to offset production from the Carmel River that would otherwise occur during the low-flow season. In any year that ASR water is recovered and delivered to the California American Water Company (Cal-Am) distribution system, Cal-Am shall, to the maximum extent operationally feasible, reduce water diversion from its Carmel River sources. The amount of ASR water that is recovered each year shall be subtracted from Cal-Am's total annual diversion allowance from its Carmel River sources in excess of Cal-Am's recognized rights. This condition shall sunset when the Deputy Director of Water Rights concurs in writing that Cal-Am has obtained a permanent supply of water that has been substituted for water diverted in excess of Cal-Am's recognized rights pursuant to Condition No. 11 of Order WR 2009-0060.

i. The following procedures will be implemented to facilitate cooperative compliance monitoring of the reductions in dry season (June-November) diversions from the Carmel River Aquifer that will be offset by utilizing water recovered from the ASR wells:

1) Cal-Am will provide copies by e-mail of its weekly "Carmel Valley & Seaside Production Report" to one designated contact each for DFG and NMFS.
2) This e-mail report will show daily values in acre-feet of the water produced from each source, vs. daily targets. These daily targets are derived from the monthly production targets developed as part of the Cal-Am/MPWMD Quarterly Water Budget process.
3) If the amount of water produced differs significantly from daily targets for more than two weeks, the designated DFG or NMFS contact can choose to call for the four parties to meet and confer on ongoing Cal-Am operations during the first five business days of the succeeding month.

In any case, these production numbers are and will continue to be reviewed as part of the Cal-Am/MPWMD Quarterly Water Budget process, which includes two regularly scheduled quarterly meetings during the dry season between permittees, DFG, and NMFS. DFG's and NMFS' ability to call for a monthly meeting to review Cal-Am's patterns of production for compliance with the intended offset of Carmel River Aquifer diversions by production from the ASR wells, will be in addition to the regularly-scheduled Quarterly Water Budget Meetings.

(0080900)

ALL PERMITS ISSUED BY THE STATE WATER BOARD ARE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

A. The amount authorized for appropriation may be reduced in the license if investigation warrants.

(0000006)

B. Progress reports shall be submitted promptly by permittees when requested by the State Water Board until a license is issued.

(0000010)

C. Permittees shall allow representatives of the State Water Board and other parties, as may be authorized from time to time by said State Water Board, reasonable access to project works to determine compliance with the terms of this permit.

(0000011)

D. Pursuant to California Water Code sections 100 and 275, and the common law public trust doctrine, all rights and privileges under this permit and under any license issued pursuant thereto, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of State Water Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

The continuing authority of the State Water Board may be exercised by imposing specific requirements over and above those contained in this permit with a view to eliminating waste of water and to meeting the reasonable water requirements of permittees without unreasonable draft on the source. Permittees may be required to implement a water conservation plan, features of which may include but not necessarily be limited to (1) reusing or reclaiming the water allocated; (2) using water reclaimed by another entity instead of all or part of the water allocated; (3) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (4) suppressing evaporation losses from water surfaces; (5) controlling phreatophytic growth; and (6) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this permit and to determine accurately water use as against reasonable water requirements for the authorized project. No action will be taken pursuant to this

paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation.

The continuing authority of the State Water Board also may be exercised by imposing further limitations on the diversion and use of water by the permittees in order to protect public trust uses. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such action is consistent with California Constitution Article X, Section 2; is consistent with the public interest; and is necessary to preserve or restore the uses protected by the public trust.

(0000012)

E. The quantity of water diverted under this permit and under any license issued pursuant thereto is subject to modification by the State Water Board if, after notice to the permittees and an opportunity for hearing, the State Water Board finds that such modification is necessary to meet water quality objectives in water quality control plans which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken pursuant to this paragraph unless the State Water Board finds that (1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges.

(0000013)

F. This permit does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish & G. Code, §§ 2050 - 2097) or the federal Endangered Species Act (16 U.S.C.A. §§ 1531 - 1544). If a "take" will result from any act authorized under this water right, the permittees shall obtain authorization for an incidental take prior to construction or operation of the project. Permittees shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this permit.

(0000014)

G. Permittees shall maintain records of the amount of water diverted and used to enable the State Water Board to determine the amount of water that has been applied to beneficial use pursuant to Water Code Section 1605.

(0000015)

H. No work shall commence and no water shall be diverted, stored or used under this permit until a copy of a stream or lake alteration agreement between the State Department of Fish and Game and the permittees is filed with the Division of Water Rights. Compliance with the terms and conditions of the agreement is the responsibility of the permittees. If a stream or lake agreement is not necessary for this permitted project, the permittees shall provide the Division of Water Rights a copy of a waiver signed by the State Department of Fish and Game.

(0000063)

This permit is issued and permittees take it subject to the following provisions of the Water Code:

Section 1390. A permit shall be effective for such time as the water actually appropriated under it is used for a useful and beneficial purpose in conformity with this division (of the Water Code), but no longer.

Section 1391. Every permit shall include the enumeration of conditions therein which in substance shall include all of the provisions of this article and the statement that any appropriator of water to whom a permit is issued takes it subject to the conditions therein expressed.

Section 1392. Every permittee, if he accepts a permit, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefor shall at any time be assigned to or claimed for any permit granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any permittee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any permittee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).

STATE WATER RESOURCES CONTROL BOARD

James W. Kassel

for *Barbara Evoy, Deputy Director*
Division of Water Rights

Dated: NOV 30 2011

Open Letter to Tom Luster and the California Coastal Commission

Dear Mr. Luster:

As you may know, Water Plus has hosted weekly meetings since 2010 on our local water-supply problems. In addition to Water Plus, attendees at these meetings include members of Public Water Now and Citizens for Just Water. Because of the pandemic, we are now meeting by conference call every other week. At this morning's meeting, one of our major concerns was the possibility that your staff might recommend a 4.8 mgd desal project instead of the expansion of Pure Water Monterey. I am writing you now to address that concern.

We perceive the California Coastal Commission, the California Public Utilities Commission, and the State Water Resources Control Board as three state behemoths that might reach a settlement leaving each one a little unhappy but the powerless Monterey Peninsula residential ratepayers extremely unhappy, particularly if the settlement is for the 4.8 mgd over the Pure Water Monterey Expansion option. I hardly need to say that the choice of 4.8 mgd would not resolve the issue of environmental injustice, which is of great concern to the Coastal Commission. That being said, we seldom know whether our voices are seriously heard.

Our experience with the Coastal Commission in this regard has been more positive than it has been with the other two state agencies. I particularly thank you for your evident acceptance of our local argumenta on supply and demand, a smaller desal option being considered in the updated Weiss report. Now, I ask that you consider impacts on the environment of the 4.8 mgd option.

The MPWSP EIR does not include that option as one of its alternative projects. That is important because the exclusion of PWM Expansion as an alternative in the EIR is a reason the CPUC has resisted its consideration as a supply option. If a supplemental EIR includes one of the two options, it should also include the other, and in that event PWM Expansion would prevail on the issue of environmental justice.

It would also prevail on the issue of environmental impact. Perhaps the strongest argument I could make in support of that assertion is to share with you the report made by the hydrogeological consultant I hired to help me, as a statistician, locate the source of statistical data anomalies I found in the MPWSP EIR.

The source was the alteration of "parameter" values, especially horizontal and vertical conductivity, to improve the fit of the NMGWM model to data. The alteration of these parameters was so extreme that, according to my consultant, it made the model all but impervious to the recharge effects of the Salinas River and other surface-water sources, particularly on the Dune Sand Aquifer, perhaps the primary source of water for the MPWSP.

My consultant begins the conclusion of her report with this statement: "The MPWSP proposes slant well pumping to replace freshwater aquifers with seawater as a supply for the desalination plant. " That statement applies equally to the 4.8 mgd and the 6.4 mgd options. That statement alone should disqualify both of them.

If Geoscience or HydroFocus had used an inversion process in its model calibration, the result would not have produced the -.45 correlation (which should have been zero) between estimates and errors that alerted me to the data problem. I do not know whether Weiss used an inversion process in model calibration though his report mentions a number of them. I hope he did. Its use would have avoided many of the problems of the Geoscience and HydroFocus versions of the NMGWM model.

I trust this information proves helpful to you as you revise your staff recommendations to the Coastal Commission.

Respectfully,

Ron Weitzman

President, Water Ratepayers Association of the Monterey Peninsula (aka Water Plus)

1.0 Introduction

1.1 GeoHydroScience Objective

Modeling is essential for accurate prediction of the environmental impact of proposed slant well pumping in the California-American Water Company (Cal Am) Monterey Peninsula Water Supply Project (MPWSP). That project underwent two draft environmental impact reports (EIRs), one in 2015 and one in 2017.[1] Each report contained an appendix on modeling identified as Appendix E2. The first was prepared by Geoscience Support Services, Inc. (Geoscience) and the second by HydroFocus Inc. (HydroFocus), collectively referred to as the consultants. I have been informed by Dr. Ron Weitzman, president of Water Plus, a party to the proceeding on MPWSP, of the following:[2]

> The second Appendix E2 (H-E2) was created at least partly in response to critical comments on the first (G-E2) by Dr. Weitzman. The final project EIR contained H-E2 and a chapter (Chapter 6) consisting of responses to critical comments on the second draft, including comments by Dr. Weitzman on H-E2. According to Dr. Weitzman, the California Public Utilities Commission has not held any evidentiary hearings on the second draft or the Chapter 6 responses in the final EIR. Because Dr. Weitzman considers the EIR modeling to be seriously inadequate, as well as professionally uncontested, he has filed a lawsuit challenging the usefulness of the EIR to determine the environmental impact of MPWSP.

Under these circumstances, for assistance in that suit, Dr Ron Weitzman has hired Barbara Ford, PE[3] of GeoHydroScience llc, as an expert in hydrogeology and modeling to review both G-E2 and H-E2, and write a report critiquing the modeling described in them.

1.2 Information Reviewed

Because of the short timeframe as a consequence of Dr. Weitzman's communicated difficulty in acquiring assistance in California due to conflicts of interest, my review was necessarily limited to only the documents identified below:

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[1] Communication with Dr. Weitzman on August 8, 2019.

[2] Ibid.

[3] Barbara Ford, author of this report, is a licensed Professional Engineer in Colorado.

- Water Ratepayers Association of the Monterey Peninsula and the State of California Amended Complaint for Damages and Civil Penalty and Demand for Jury Trial, Case No.:16CV001561, Draft April 12, 2019.
- Geoscience Support Services, Inc. April 17, 2015. Appendix E2 Monterey Peninsula Water Supply Project Groundwater Modeling and Analysis. Prepared for California American Water and Environmental Science Associates. It includes Appendix A - Luhdorff and Scalmanini, Consulting Engineers, March 2015. Monterey Peninsula Water Supply Project Using the Salinas Valley Integrated Ground and Surface Water Model. Prepared for Geoscience.

- HydroFocus, Inc., August 31, 2017. Appendix E2 North Marina Groundwater Model Review, Revision, and Implementation for Slant Well Pumping Scenarios. Prepared for Cal Am Monterey Peninsula Water Supply Project.

1.3 Information Not Reviewed

Of significance to this review, there is additional information that has not been reviewed for the reason stated. The following is a partial list of items not reviewed.

- Data and data analysis reports
- Source data
- Model files
- CEMEX model report and files
- Responses to Comments to the Final Environmental Impact Report

Accordingly, my report can only assess the model based on the information reviewed, together with weighing that information across the reports and against standard modeling practice, as appropriate.

The last item in the list, Responses to Comments, was made available to me on July 26, late in my review and only just prior to report preparation. While time did not allow for sufficient review of that document, I was able to identify that some concerns by other reviewers similar to my own were addressed to an unknown extent by the consultants (because of my limited time not allowing for a comprehensive review). To the extent that the consultants' comments have not adequately addressed, mitigated or corrected each of the items described in this report, my opinions on that particular item remain relevant.

2.0 Model

2.1 Reliance on Salinas Valley Integrated Ground and Surface Water model (SVIGSM)

The Geoscience modeling relied on an updated calibration of the SVIGSM model by its subcontractor, Luhdorff and Scalmanani, Consulting Engineers (LSCE). Geoscience extracted a portion of the area of the SVIGSM model to construct the North Marina Ground Water Model (NMGWM) and adapted it to estimate the drawdown impacts to the aquifer system resulting from proposed slant well pumping along the coast at the CEMEX site and the Potrero Road site. HydroFocus adopted the Geoscience model, adjusted parameter values among other revisions to produce a calibrated model, concluded that the NMGWM boundary conditions, pumping and recharge were in error and instead relied on superposition to predict drawdown from proposed slant well pumping.

The LSCE focus was as follows (excerpt from LSCE, p.1):

> This report focuses on documenting the extension and recalibration of the SVIGSM along with the predictive scenario results of the MPWSP generated by the SVIGSM with a focus on the influence the MPWSP has on Salinas River streamflow and interaction with underlying groundwater aquifers in the Pressure and East Side subareas of the Salinas Valley.

2.2 Limitations in SVIGSM Calibration

LSCE identified the methodology employed to update the SVIGSM calibration. Of significance, primarily because of the subsequent reliance on SVIGSM water levels for assignment of boundary conditions in NMGWM, the LSCE calibration was necessarily limited to only revising and updating system stresses including aquifer recharge and discharge, but excluded updating of the aquifer properties[4] because elements of the existing SVIGSM were inaccessible (see excerpt below, LSCE pg.2):

> The intent of the recalibration effort was to retain the existing model framework and aquifer properties as originally conceptualized by Water Resource and Information Management Engineering, Inc. (WRIME) and MCWRA due to the inability to obtain the SVIGSM source modeling code.

[4] such as hydraulic conductivity (K)/transmissivity (T), and specific storage (Ss)/storage coefficient (S); T and S reflect the K and Ss across the aquifer thickness.

Also from LSCE (pg. 11; underline added for emphasis):

> The intent of the model extension and recalibration effort was to retain the existing modeling framework and aquifer properties and <u>any adjustments that were necessary to recalibrate the model focused on recharge and discharge input values</u>.

Presumably LSCE would have chosen to update aquifer properties to capitalize on the new data available since the last SVIGSM calibration. LSCE provided the following SVIGSM output for the NMGWM model (excerpt, pg. 13):

> SVIGSM calibration outputs were provided to Geosciences for incorporation into the NMGWM. These outputs included monthly output of groundwater levels at SVIGSM nodes located along the edge of the NMGWM domain, groundwater pumping by element, deep percolation by element, and streambed infiltration by stream node. These data were incorporated into the NMGWM for use in model calibration.

LSCE modified the pumping in each model layer based on observed water level data, as described in the following excerpt (LSCE pg. 11):

> During the model calibration, the vertical distribution of groundwater pumping was adjusted to more closely simulate the observed conditions within all three (3) model layers based on water levels at calibration wells. Groundwater levels in each calibration well individually reflect conditions in distinct depth intervals corresponding with different model layers. Accordingly, the hydrographs of simulated and observed water levels for calibration wells were used as guidance in making adjustments to the vertical distribution of pumping for different time periods during the updated model calibration period.

While much of the LSCE data preparation for the model update was reasonable, this re-allocation of pumping during the calibration is problematic. It is not clear that this practice was done model-wide or only for select wells as the report did not provide sufficient information. If the justification for this application was for only wells which spanned multiple aquifers (multi-completion wells), a more defensible approach would have been to employ an equivalent method as that available in the Modflow multimode package, which dynamically allocates pumping depending on the layer water level (head), the transmissivity and the storage characteristics (if a transient model). Reallocation by using only the observed water level presumes the aquifer properties are known and correct in the model. If not, the pumping reallocation based on the observed water level as the guidance is incorrect. Because the NMGWM calibration would subsequently revise aquifer properties, while retaining the SVIGSM pumping allocation, but also in accordance with the observed water levels, the pumping allocation would be erroneous. Not only that, the calibrated aquifer properties would also be potentially erroneous, because of their dependence on the erroneous stress.

LSCE presented no stream gain-loss data in its report to support its estimation of the streambed infiltration used in the calibrated model, but like the pumping, it was a calibration parameter. But because stream gain-loss data was not presented, it is indeterminate if the calibrated recharge distribution was accurate. Sensitivity analysis of calibrated values was not presented, so the uncertainty is unquantified.

2.3 SVIGSM and NMGWM Inconsistencies

NMGWM is reliant on the recharge and discharge distributions from the updated SVIGSM calibration. Geoscience explicitly states adoption of those stresses, consistent with the LSCE report, as follows (excerpt from Geoscience report pg. 27):

> Monthly data for deep percolation from precipitation, stream recharge and groundwater pumping in the NMGWM area as well as the water levels assigned for the general head boundaries during the calibration period were obtained from the SVIGSM.

Geoscience describes the following calibration process (excerpt pg. 28):

> The calibration process involved adjusting model parameters until the model provided a reasonable match between the simulated and measured parameters. These aquifer parameters included horizontal hydraulic conductivity, vertical hydraulic conductivity, effective porosity, and the storage coefficient.

A side-by-side comparison of the aquifer properties in the two models (SVIGSM and NMGWM) is not presented by Geoscience or HydroFocus, and because LSCE did not present the aquifer properties in SVIGSM, I am unable to identify and evaluate the differences.

The properties are presumably different between SVIGSM and NMGWM as a consequence of subsequent parameter revisions during calibration by Geoscience and HydroFocus. Because of inadequate documentation in the Geoscience report, however, the extent to which a feedback loop between Geoscience and LSCE existed is not evident. It is possible that such feedback was employed and the water levels assigned at the NMGWM boundaries were consistent with the SVIGSM output, but, if employed, that process may have led to other errors, potentially of great relevance to the reliability of the model results. Only because HydroFocus included water level data in the southern area of the model (south of the Salinas River), was a major discrepancy revealed between the SVIGSM calculated water level elevations and those assigned by Geoscience along the boundary conditions. HydroFocus identified the error but did not correct it, and chose instead to abandon use of the calibrated head model for predictions of drawdown from slant well pumping, and employ superposition in its place.

2.3.1 Boundary Conditions

The consultants relied on the updated SVIGSM model-calculated water level distributions associated with an unknown set[5] of SVIGSM aquifer property values in order to assign the water level elevations along the general head boundaries (GHB) in the NMGWM model.

The GHB includes assignment of water levels and conductance terms to perimeter boundary cells, and its function is simulation of a head distribution and prevailing gradient at the NMGWM model boundary. Accurate representation of the GHB ensures that the water level elevations in the aquifer layers are equivalent between the parent SVIGSM and NMGWM models at the boundaries. But the consultants do not report the water level elevations at the GHB. LSCE included figures of the simulated potentiometric surface showing contours of the model-calculated spatial water level elevation in the 180-ft aquifer and the 400-ft aquifer, but did not include the Dune Sand/A Aquifer/Salinas Valley aquitard potentiometric surface (SVIGSM model layer 1a). Geoscience and HydroFocus included no figures of the interpreted or simulated potentiometric surfaces for any aquifer in NMGWM so the head assigned along the boundaries could not be determined. The failure to include these interpretations is contrary to standard model (conceptual and numerical) reporting.[6] Also contrary to standard model reporting was the absence of a conceptual water budget, how well the model adhered to that budget, and definition of the method used to calculate the GHB conductance terms.

Subsequent to boundary assignment using the SVIGSM results, Geoscience and HydroFocus[7] revised the aquifer properties inside of the model area, including along the boundaries. This likely resulted in a disparity between the water level elevation assigned at the boundary per SVIGSM and that inside of the NMGWM. But the disparity at the boundary would result in erroneous flow rates at the boundaries and, to an unquantified extent, erroneous water levels inside the boundary. HydroFocus concluded the error was significant, and, rather than correct the erroneous boundaries, abandoned the NMGWM physically-based head model in favor of a superposition model, where only the change to the water level (not the water level elevation or head) is calculated. The predictive modeling is described in Section 4.0 of this report.

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[5] not included in the LSCE report appended to the Geoscience report

[6] Anderson, MP, WW Woessner and RJ Hunt 2015. Applied Groundwater Modeling Simulation of Flow and Advective Transport. Elsevier/Academic Press.

[7] It is assumed Geoscience altered the parameter values after importing the SVIGSM boundary water levels because the report does not distinguish otherwise. HydroFocus did alter the Geoscience NMGWM parameter values.

Pumping

The errors in pumping introduced during SVIGSM calibration described in the previous section were compounded in the Geoscience and HydroFocus calibrations.

Recharge

In order to accurately quantify the impacts during predictive modeling, there must first be an understanding of the stream-aquifer interaction for the conceptual model based on gain-loss data, followed by estimation of the stream-aquifer parameter values during calibration using that data, and, finally, quantification of the uncertainty in the calibrated parameter values based on sensitivity analysis. But the consultants do not present this data and analysis.

Stream gain-loss estimates were not presented in the Geoscience or HydroFocus reports. The reports do not present adequate information for the conceptual model pertaining to the stream aquifer interaction, nor where or how SVIGSM stream infiltration is assigned in the NMGWM model, and how well the NMGWM represents that relationship.

It appears[8] that historic gaged flow data along the Salinas River within the SVIGSM and NMGWM areas is available, but an explanation as to why gain-loss estimates have not been estimated and utilized in calibration of the respective ground water models was not provided. If such data is available, it is of high value because it reduces uncertainty in the estimated parameter values and reduces the non-uniqueness commonly confounding optimization. Non-uniqueness occurs when different combinations of parameter values match the observations equally well.[9] Furthermore, the predictions of drawdown from slant well pumping and the impact to the stream gain-loss is of critical interest, as identified in both the Geoscience and HydroFocus reports. The Geoscience and HydroFocus reports did not include a demonstration that the models accurately simulate the stream-aquifer interaction.

2.3.2 Model Layering

NMGWM includes a layer for the Dune Sand/Aquifer A aquifer[10] (layer 2), and a layer (layer 3) representing the Salinas Valley aquitard, where present. In contrast, SVIGSM combines the typically highly transmissive Dune Sand/Aquifer A unit and the very low

[8] on only a cursory review of USGS online data

[9] Hill, MC and CR Tiedeman 2007. Effective Groundwater Model Calibration. John Wiley & Sons, Inc.

[10] Layer 2 also houses Perched Aquifer, the Perched "A" Aquifer, the 35-ft Aquifer and the -2 ft Aquifer (HydroFocus report pg. 9) but in this report I will refer to the "Dune Sand/A Aquifer unit" for simplicity.

permeability aquitard into only one layer (1a), even where both occur vertically in the project area. Because LSCE did not present the aquifer properties of this lumped layer, the disparity in the SVIGSM and NMGWM cannot be evaluated.[11] Accurate representation of this uppermost aquifer layer including the Dune Sand/A Aquifer unit is critical to the calibration and predictions made using the model, including subsequent superposition modeling. The uppermost layer has expectedly the most (if not all) interaction with the recharge stresses, including stream gains and losses, precipitation recharge and other deep percolation.[12] Because SVIGSM revised the recharge distribution in its calibration, it is not evident that the inconsistent representation of the uppermost aquifer unit did not result in inaccurate representation of the recharge distribution. This may be another reason HydroFocus concluded the recharge distribution was erroneous, but this was not specified in its conclusion.

Geoscience and LSCE presented no calibration data for the Dune Sand/A Aquifer unit, although Geoscience was apparently aware of the existence of this data as shown in its Figure 96. Because Geoscience and LSCE did not include any calibration data in the Dune Sand/A Aquifer unit, the level of error remains unquantified.

3.0 Model Calibration

The description of the methodology employed for model calibration in the Geoscience and HydroFocus reports is incomplete. It is not possible to determine if Modflow 2000 was used for parameter estimation using inverse techniques, or was instead used deterministically. Parameter estimation using inverse techniques includes minimization of the objective function, consisting of the sum of the squared residual values, in order to optimize the coefficients of the independent variables, the parameters. (Note by Dr. Weitzman, who is a statistician: In statistics, the coefficients are called parameters; in hydrogeology, the independent variables are called parameters, its meaning here.) A residual (also called an error) is the difference between an observed and estimated value of the dependent (in statistics) or response (in hydrogeology) variable, which in this report is the water elevation in a well.

Modflow 2000 can be used for either approach. In hydrogeology, parameter estimation is the "calibration" process which adjusts aquifer and stress variables (typically including

[11] LSCE presented no information on the aquifer property values in the SVIGSM model so that a comparison could be made with that presented in the Geoscience and HydroFocus reports.

[12] Based on HydroFocus figures however, there may be stream infiltration to the 180-ft aquifer, although there was inadequate information in the report to make a conclusion.

the aquifer hydraulic conductivity, transmissivity, storage properties and recharge, among others) within reasonable ranges, to minimize the residuals in the observed and calculated response variables (i.e. the water level, also referred to as the head, and flux/flow of the water). Industry standard calibration was historically done deterministically, but for approximately the past 15 years, inverse techniques have become more commonly employed because of the benefits of the inverse methodology, including quantification of the parameter uncertainty and the sensitivities (coefficients of the parameters in the estimation equation determined during parameter estimation to reduce the difference between the observed and estimated or calculated values[13]) , as well as quantification of the uncertainty in predictions, among other documented benefits.[14]

Neither consultant states which of the two, or whether a combination of the two, was used to calibrate the models, critical to my review. It would have been assumed that the models were calibrated using inverse techniques in that the model is expectedly amenable to inversion.[15] The absence of enormous amounts of information generated by inverse modeling from the reports suggests that perhaps only deterministic methods were employed, sacrificing a valuable opportunity to better define the system through parameter optimization and uncertainty analysis. At a minimum, the identification of which calibration method was employed and, if not employed, a legitimate reason for not using inverse methods should have been included in the report.

The objective of the NMGWM model stated in the Geoscience report (pg.8) was to "evaluate the impacts of the proposed MPWSP on the Salinas Valley Groundwater Basin. Groundwater modeling was conducted to assess the impacts of MPWSP on the groundwater levels and the seawater intrusion".

Geoscience identified the following tasks to be completed in its scope of work (pg. 8):

- Collecting and analyzing historical geohydrologic data,
- Updating and recalibrating the North Marina Groundwater Model (NMGWM), including data gathered during the exploratory borehole work (GEOSCIENCE, 2014),
- Updating and recalibrating the Salinas Valley Integrated Ground and Surface Water Model (SVIGSM; see Appendix A)
- Developing a focused CEMEX Model for the CEMEX Site,
- Developing and running various MPWSP scenarios, and
- Preparing the modeling report.

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[13] Doherty, J. 2015. PEST Calibration and Uncertainty Analysis for Complex Environmental Models, pg. 62.

[14] Hill, MC and CR Tiedeman 2007. Effective Groundwater Model Calibration. John Wiley & Sons, Inc.

[15] Dry cells in modeling can present difficulties for inverse modeling, but this model expectedly did not incur this difficulty to the extent that inverse methods would have been rejected *a priori*.

3.1 Data Deficiencies and Exclusion

While additional data collection was part of the task, Geoscience included no water level data for the Dune Sand/A Aquifer unit across the entire model area. But the Dune Sand/A Aquifer unit is one of the two primary units intended for pumping in the MPWSP. Geoscience did identify the existence of well data at Fort Ord (Figure 96), but excluded it from the calibration results in the model report. Because the expanse of this unit as represented in model layer 2 excluded water level data, the Geoscience NMGWM calibration for the Dune Sand/A Aquifer unit is associated with significant uncertainty, and predictions relying on the Geoscience calibrated model are concluded to be unreliable. Model bias is also evident in the 180-ft aquifer. Only when HydroFocus included the water level data (but only in the Fort Ord area south of the Salinas River), a poor calibration was revealed. But the calibration may be poor across other areas of the model where no water level data was available to inform the calibration. HydroFocus is correct in its assertion that the model in its current condition was unacceptable for its intended objective.

Geoscience described the CEMEX modeling in its report (April 17, 2015) but monitoring and testing of the CEMEX wells was initiated at nearly the same time as the report in early to mid-April 2015. It is unfortunate that the Geoscience CEMEX modeling was not delayed until after the testing which presumably would provide significantly better data for the model.[16] Because this data was not yet available, Geoscience relied on lower quality information from sediment texture curves, which included significant and untested assumptions, to derive the aquifer parameter starting values for calibration. But equipped with no water level data and no stream gain-loss data for calibration, the model representation of the Dune Sand/A Aquifer unit remained uncalibrated, so the presumably highly uncertain values used as initial values reasonably remained equivalent or nearly so to the final values.

HydroFocus presented calibration results using the CEMEX testing in which observed and calculated drawdown was presented for its model, the Geoscience model and the CEMEX model. But HydroFocus did not report the CEMEX test estimates of hydraulic conductivity (K); horizontal (Kh) or vertical (Kv)), or the estimated specific yield/storage estimate (Sy/S), or that the model used those values.[17] The model K and S values for either the HydroFocus model or the Geoscience model are not compared with the

[16] I am unfamiliar with potential constraints on the project schedule but the nearly contemporaneous report submittal and data acquisition is noted.

[17] See Figure 3.3d

valuable test-derived estimates. Of the three models, the CEMEX model most accurately simulated the test drawdown, which HydroFocus attributed to the better resolution in the CEMEX model.

The source data was not included in the reports. Neither consultant posted actual K or storage values from testing in their parameter zone maps. While HydroFocus did prepare a list of sources for its basis in the model parameter zone values, those sources are most often other modeling efforts. It is not known if the source K values are model-estimated or estimates from testing. Model-derived estimates of K through calibration, for instance, are of less reliability than a hydraulic conductivity (K) value derived from pumping tests. The consultants require that the reviewer must gather and review all source documents to extract the information that should be reported in the model report. Standard model reporting includes a description of the method used to estimate each aquifer parameter[18], which is absent in the reports.

3.2 Parameter Adjustment During Calibration

HydroFocus and Geoscience adjusted parameter values to minimize the difference between the observed and model-calculated (estimated))water levels during calibration. This minimization of the objective function (water level or head residuals (errors)) is but one measure of many in determination of the calibration quality and whether the model is a sufficiently accurate representation of the aquifer system. Calibration quality determination by assessing only the error in the water level residuals considers only a portion of the error information, and in this case likely a small portion of the error information. The NMGWM objective function is dependent on the water level data available, and, as described in previous sections, insufficient data was acquired, utilized and presented for the NMGWM model calibrations. Furthermore, the calibration process must only adjust parameters within reasonable ranges based on available data, and quantify the uncertainty in those parameter estimates during a sensitivity analysis.

But the NMGWM calibration is concluded to have significant errors besides those already presented, and they include unreasonable parameter values, insufficient data, and inadequate sensitivity analysis.

Because of these errors, the model is not concluded to be representative of the aquifer system. The model will be unreliable for predictions of impacts from slant well pumping, regardless of its ability to minimize the objective function.

[18] Anderson, MP, WW Woessner and RJ Hunt 2015. Applied Groundwater Modeling Simulation of Flow and Advective Transport. Elsevier/Academic Press.

3.2.1 Hydraulic Conductivity

Sensitivity analysis and confidence intervals for the calibrated parameter values are not reported in the consultants' reports. The uncertainty in the calibrated parameter estimates is not quantified.

Geoscience updated the CEMEX model subsequently in 2016, prior to the HydroFocus NMGWM calibration (2017), and presumably reflective of the high quality data from the pumping test performed in April 2015.[19] But HydroFocus did not identify the CEMEX aquifer test estimates of the horizontal (Kh) and vertical hydraulic conductivity (Kv) values in the report, and instead relied on other (often older) reports which appear to include predominantly modeling estimates of Kh and Kv.[20] The CEMEX monitoring well network for the test appears to have been particularly well suited for determination of Kh and Kv values.

In the CEMEX and Potrero Road sites, the Geoscience initial estimates of Kh and Kv were based on an assumed relationship between sediment texture and horizontal and vertical hydraulic conductivity. The method assumptions were not subsequently validated with the CEMEX aquifer test parameter estimates. Had the assumptions been subsequently validated, an opportunity would have existed to extend that demonstrated correlative relationship to other areas of the model. HydroFocus did not provide a post-audit of the validity of the approach and assumptions, or appear to rely on that method.

In the model area primarily east, south and southeast of CEMEX, the Kh and Kv values in the Geoscience and HydroFocus models are substantially different for the Dune Sand/A Aquifer unit, the Salinas Valley aquitard (SVA), and the 180-ft aquifer. The Kv changes include up to seven orders of magnitude reduction in the newly-interpreted low conductivity material in the HydroFocus model in layer 3 (SVA).

The mapped SVA (Salinas Valley aquitard) north of the Salinas River has a Kv value five orders of magnitude larger than this anomalous low Kv zone south of the river. Because this change was not associated with a defined lithologic reinterpretation in the HydroFocus report, the value appears to be unreasonable. The Kh and Kv of the Dune Sand/A Aquifer unit are also generally lower in this anomalous zone, although the Kh value is identical between the Dune Sand unit and the low conductivity zone, also

[19] The pumping test at CEMEX is concluded to have been performed in April 2015 based on the hydrographs presented in the HydroFocus report.
[20] See Figure 3.3d

potentially reflecting an unreasonable Kh value for the Dune Sand unit if it is permeable material.

This area is partially traversed and bordered by the Salinas River.[21] The low Kh and Kv will limit the hydrologic connection between the river and the aquifer. Because the stream-aquifer interaction along the Salinas River may be affected by the erroneous model values, and because stream gain-loss data were not presented for the calibration, the predicted impact to the River from slant well pumping is unreliable. HydroFocus excluded explicit representation of a portion of the Salinas River in this area of the model in its predictive modeling, as will be described in Section 4.0.

The Kh and Kv values in the 180-ft aquifer were also revised between the Geoscience and HydroFocus models significantly south of the Salinas River and near the southern boundary. The Geoscience Kh of 160 feet per day (ft/d) was revised to 50 ft/d (western half) and 425 ft/d (eastern half) so that a much higher Kh value is assigned inland as compared to the coast. The Kv was increased more than an order of magnitude above the Geoscience model values. HydroFocus did not post/identify the specific K values used to support this set of values, so it is not possible to make a conclusion about its accuracy.

HydroFocus incorporated more water level data along the southern boundary than Geoscience, which allowed for better calibration in this area of the model. However, calibration must also reflect reasonable aquifer properties, while also minimizing the residuals between observed and calculated water levels. Some of the significant parameter changes made in the HydroFocus model may have been to compensate for anomalous boundary and initial water levels prior to the evident conclusion that the water levels were erroneous and disregarded in subsequent superposition modeling.

3.2.2 Storage Values

Only a cursory review of the model storage properties has been accomplished. I did not identify any source data values in the reports to which I can compare the model values. HydroFocus referred primarily to SVIGSM, but the LSCE model report did not include S estimates. HydroFocus had not included estimates from the CEMEX aquifer test so a comparison with model values could be made.[22]

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[21] Because Geoscience and HydroFocus do not show the Salinas River on its respective parameter zone maps, I can only estimate based on a comparison across multiple figures.

[22] It is unknown whether the CEMEX testing yielded an estimate of specific yield and storage coefficient because the CEMEX report was not reviewed, and HydroFocus did not identify the values in its model report.

Accurate representation of the specific yield (effective porosity) and the storage coefficient is required for accurate predictions of the drawdown distribution and seawater intrusion. The HydroFocus values of specific storage (representing the storage coefficient divided by the aquifer thickness) as presented in Figure 3.3c appear to indicate an average model value of 0.001/ft, which seems high for a confined aquifer where that exists.[23] Without any independent estimates made available by the consultants, it is not possible to conclude that the model storage values are reasonable. The model reports did not present interpreted or calculated potentiometric surface maps so areas where aquifers are confined or unconfined could not be distinguished and weighed against the storage estimates. The potentiometric surface is an imaginary surface passing through all points to which water will rise in wells penetrating a confined aquifer, and the surface is described by a series of contour lines along which the potential head is equal. The ground water flow direction is perpendicular to the contours. For an unconfined aquifer, the potentiometric surface is referred to as the water table, which defines the surface upon which the water pressure is equal to atmospheric pressure[24]. Definition of the potentiometric surface/water table is integral to understanding the hydrogeologic system.

3.2.3 Model Budget

The NMGSM hydrographs show that the initial model heads and heads at the boundaries were inaccurate for a significant portion of the simulation period.[25] The HydroFocus model flow budget presented in Figure 4.5 is inaccurate because it appears to use an average based on the inaccurate heads, as well as the erroneous pumping and recharge components. The model flow budget represents the model balance of each flow component simulated explicitly in the model, with some of the components positive (water into model area), precipitation recharge for example, and the others negative (water out of model area), including pumping as an example. Modflow numerically balances the positive and negative components with a balanced model showing a near zero difference between the two. Unbalanced or excessive flow budget error would be an indication that the flow components are not balanced, and the model is not concluded to be numerically precise. A model flow budget for the Geoscience model calibration is not included in the report. It is standard modeling practice to compare the model budget with that estimated independently depending on available

[23] Without review of source data, it is indeterminate whether 0.001/ft is an accurate value for the aquifer specific storage.

[24] McWhorter, DB and DK Sunada 1977. Ground-Water Hydrology and Hydraulics. Water Resources Publications, LLC.

[25] See HydroFocus Figure 4.1A layer 2 hydrographs.

historic data. LSCE had provided a detailed basis for some components, but the consultants did not incorporate this as part of the model calibration evaluation.

3.3 Sensitivity Analysis

HydroFocus stated the objective of its sensitivity analysis (pg. 42):

> The objective of the sensitivity analysis is to address the question: "If the assumptions adopted in developing the model were changed, would the model predictions change so as to change the conclusions regarding proposed slant well operation?"

For its sensitivity analysis, the HydroFocus report included an evaluation of the changes in drawdown in the predictive scenarios with alteration of five of nearly 50 conductivity model parameter zones.[26,27] Evaluation of the predictive uncertainty is valuable but not without an evaluation of the uncertainty in the parameter values estimated in calibration, upon which predictive uncertainty also depends. Standard reporting includes reporting the parameter sensitivity for all parameters, not only 10 percent, and from the calibration, not only from the predictive scenarios. While it was not made clear in either report whether inverse modeling was used for parameter estimation, Modflow 2000 allows for calculation of the sensitivities, as do other freely-available, coupled softwares to Modflow. Corroboration of the methodology and software is not possible without more information.

3.4 Analysis of the Residual Error

Geoscience and HydroFocus presented various report figures describing the residual error between the observed and model-calculated water level (head) values. The following observations are made based on my review of the report figures.

Dune Sand/A Aquifer unit

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[26] HydroFocus report Figure 6.1.

[27] Sensitivity is defined as the change in the model calculated response variable (for NMGWM, the water level, or derived drawdown) associated with the change in the parameter value (i.e. K; Anderson, MP, WW Woessner and RJ Hunt 2015. Applied Groundwater Modeling Simulation of Flow and Advective Transport. Elsevier/Academic Press.), although typically in inverse modeling perturbation of the parameter value over a small range more accurately reflects the parameter sensitivity because the parameter sensitivity is not always linear (Hill, MC and CR Tiedeman 2007. Effective Groundwater Model Calibration. John Wiley & Sons, Inc.). HydroFocus changes to the parameter values were large, assuming linearity, and done to demonstrate only the change in extent of drawdown away from the slant pumping.

Of the eight wells, seven show that the model underestimates the observed water levels in the Dune Sand/A Aquifer unit. The model shows a biased low water level distribution. Four of the wells[28] show that the starting head in the model was as great as 70 to 80 ft in error, as compared to the observed values. While there is convergence of the observed and simulated water levels late in the simulation period at three of the wells, it is not evident that error magnitude is not increasing with time,[29] or that application of an extremely low and likely unreasonable Kv is justified and has not been applied to specifically to reduce the residuals.

At monitoring wells MW-OU2-29-A and MW-BW-01-A, the erroneous starting head as applied at or near the boundaries is shown to rise more than 70 ft during the simulation period at the (latter) well farther in from the boundary, and 35 ft at the (former) well more proximal to the boundary, possibly distinguishing error contributions.[30] Despite the significant rise in model water levels, concluded in the report to be erroneous, the observed water levels range similarly between the wells over a 10-15-ft interval. Rather than a localized perched condition, as HydroFocus concludes without presentation of adequate data[31], the four wells collectively support instead a laterally extensive (of a few miles at least) saturated unit possibly above the Dune Sand/A Aquifer unit. It is possible that an additional aquifer above or within the Dune Sand/A Aquifer unit is present south of the Salinas River and is not the seemingly insignificant localized perched zone HydroFocus concludes. Additional data should have been collected to determine if this apparent upper aquifer unit is in hydrologic connection to the Dune Sand/A Aquifer unit. If it is, the evident vertical gradient warranted better vertical resolution (increased layering). This, among other expanses of model layer 2 where the absence of water level data could not allow for similar revelation may be an indication that the layering is too coarse for accurate representation of the uppermost aquifer units, including the Dune Sand/A Aquifer unit, thereby preventing evaluation of the full impacts from slant well pumping. Because the consultants provided no interpretation of the potentiometric surface or the model-simulated potentiometric surface for any aquifer in their reports, contrary to model reporting standards, the extent to which this

[28] MW-OU2-07-A, MW-BW-31-A, MW-OU2-29-A and MW-BW-01-A

[29] MW-OU2-07-A hydrograph Figure 4.1a shows an approximate 90% increase in the error between the beginning and end of the correlated portion of the record. MW-BW-31-A observed values show an anomalous step in the record which prevents a determination of the change in errors before the simulation period ends in Sept 2011.

[30] Errors in starting head and errors in the boundary conditions represent different error impacts in the model.

[31] Review of lithologic logs and interpretation of the potentiometric surface would have helped to distinguish whether the area may be in hydrologic communication with the aquifer or is perched, but Geoscience excluded the water level data, and HydroFocus concluded, in my opinion without adequate analysis completed, that the area was likely perched and that Modflow limitations prevented accurate representation of the water levels. Both consultants failed to adequately characterize this area, among others in NMGWM, as a consequence of not collecting additional data in the uppermost unit.

area may be in hydrologic communication with the Dune Sand unit at CEMEX has not been investigated or described by the consultants. The model does not allow for this communication as evidenced in the calibration results.

The extremely low Kv applied to the Dune Sand/A Aquifer unit, and particularly in the underlying layer 3[32] appears to have resulted in eventually reducing the residual at three of the wells. The extremely low Kv was applied to reduce the residuals at the wells, but because the value seems unreasonable, its use as a mechanism (prop up the head in layer 2) to improve the appearance of the calibration instead reduces the confidence in the calibration.

Geoscience included no data for calibration of this unit. Because of the errors revealed in the HydroFocus calibration and report, the Geoscience calibration is expectedly also poo, as likely would have been concluded had the data been included.

For the CEMEX modeling as presented in Figure 4.2, the comparison between the observed and model-calculated values indicates low error in the water level residuals. However, the basis provided by HydroFocus on its improvement to well MS-5S[33] consists of the changes made to the SVA Kv. The Kv changes are described above and are considered unreasonable but applied as a mechanism to prop up the head in the model. An acceptable calibration achieves low magnitude, spatially and temporally random error, using reasonable parameter values. Because a sensitivity analysis of the calibrated parameter values was not presented in the report, the influence of the low Kv on the CEMEX area model-calculated water levels is unknown. The extent to which the model water level distribution in the Dune Sand/A-Aquifer unit in the CEMEX area depends on the seemingly unreasonable low Kv value of the nearby underlying SVA has not been assessed due to the consultants' not including a sensitivity analysis of the calibrated parameter values.

The calibration is poor for the Dune Sand/A Aquifer unit and is affected to an unquantified extent by erroneous boundary conditions, erroneous starting heads, unreasonable parameter values and insufficient data. Based on the reports, the interpretation is also insufficient and fails to characterize the impact of these errors on the accuracy of the calibrated parameter values. Model predictions relying on a model with these errors are unreliable.

180-ft Aquifer

[32] as described in Section 3.2.1

[33] The CEMEX test was simulated in the Geoscience and HydroFocus NMGWM, but MW-5S available for monitoring and calibration during the slant well testing was excluded from Figure 4.6 without explanation.

The HydroFocus calibration included 10 wells with time-series data. The match between the observed and calibrated water levels at six of the wells is excellent in both timing and magnitude. However, five of the six wells are proximal to rivers (streams slough, etc; unlabeled in the HydroFocus report). It cannot be concluded that aquifer property values are accurate because the good fit between observed and calculated values may be a consequence of the unreported streamflow infiltration values provided by SVIGSM. It is not even clear from the reports if streamflow infiltration is applied in layer 3. Furthermore, because a sensitivity analysis was not presented for the calibrated parameter values, the sensitivity of these observations to recharge is unknown.

Two of the model-calculated water level hydrographs exhibit too much variability in the model response as compared to the observed response, and the remaining two show too little variability in the magnitude as compared to the observed values. But the extent to which this is significant depends on the problematic LSCE treatment of pumping in its calibration as described in Section 2.2 of this report. The LSCE calibration included allocation of pumping rates vertically across the aquifers based on observed water level data; water level data also used in the subsequent Geoscience and HydroFocus calibrations.[34] The LSCE practice resulted in what may be considered a contamination of the independence of the water level dataset because of the explicit correlation made between water levels and pumping in SVIGSM. If the pumping is inaccurate (as concluded by HydroFocus and this review), but a reasonable fit between observed and calculated water levels has been achieved due to parameter (K,S) adjustment, as is shown to be the case to an extent in the consultants' respective calibrations, then the aquifer properties are likely inaccurate also. Use of the observed water levels to allocate pumping results in lower confidence in the aquifer parameter values.

The calibration results indicating low error are not an indication that the underlying parameter values are reasonable, only that they have compensated for unquantified error in pumping, recharge, boundary conditions and initial heads. The extremely low Kv values are a demonstration of exactly this. The confidence in the calibrated model is low, and reliable predictions of drawdown cannot be calculated.

Geoscience presented only four hydrographs for the 180-ft aquifer, and nine for the 400-ft aquifer, even though the 180-ft aquifer is of prime interest, and more data was available. LSCE presented seven hydrographs for the 180-ft aquifer. HydroFocus presented 10 hydrographs. Why the available data was excluded was not addressed in

[34] Approximately the same datasets, as Geoscience only presented four of the wells in its report with its appended LSCE report showing only seven as compared to HydroFocus' presenting 10 hydrographs.

the Geoscience report. The Geoscience 180-ft aquifer residuals range from low magnitude to as high as approximately 18 ft. The two three? remaining wells show an acceptable match to observations, but this statement is qualified in the preceding paragraphs. Even where low residuals have been calculated, there is low confidence in the calibrated aquifer parameters.

The CEMEX modeling based on the Geoscience and HydroFocus calibrated models shows low magnitude error but a bias in the model-calculated water levels indicating that the model cannot reproduce the variability exhibited in the observed values. HydroFocus did not provide an explanation for this effect.[35]

Another anomaly in the HydroFocus and Geoscience calibrations was the ambiguous placement of observation well 14S/2E-14L01 which according to the Monterey County Water Resources Agency is a 180-ft aquifer monitoring well. But because of seemingly similar water levels, it was instead placed in the 400-ft aquifer layer. Sufficient information was not presented to discern that the consultants assigned the well to the correct aquifer. The well construction details were apparently not reviewed although that review may have resolved the ambiguous placement with more confidence. HydroFocus did not identify that Geoscience undertook this effort either.[36]

400-ft Aquifer

The HydroFocus model generally underestimates the observed response in this aquifer, and generally simulates too high a head compared to the observations. The Geoscience model achieved a poor calibration over most of the 400-ft aquifer with the largest residuals calculated along the eastern and northern boundaries. Residuals of greater than 50 ft are prevalent in proximity to the eastern boundary. This result shows that the eastern boundary water levels were significantly erroneous and influenced the water level distribution inside the model, including, expectedly, the predictions of drawdown made by Geoscience from slant well pumping. No observations near the southern boundary were included so the extent to which the southern boundary water levels were erroneous cannot be determined.

For the CEMEX modeling as presented in Figure 4.2, evident bias is shown for the 400-ft aquifer with all simulated water levels higher than the corresponding observed values. This indicates that the model underestimated the impact to the 400-ft aquifer during

[35] Although the report does identify that pumping and recharge changed after September 2011, but also identified that hydrologic conditions have not likely changed substantially between the model timeframe and the water level data period.

[36] Geoscience prepared a communication for HydroFocus on the matter, but I have not reviewed that document.

CEMEX pumping from the overlying aquifers. It is not evident from the report if the calibration sought to resolve this. If not, the predicted impact to this aquifer will be underestimated for the MPWSP.

900-ft Aquifer

During half of the simulated period, the observed water level response at all of the monitoring wells varies over a narrow range of approximately two feet. The model simulates a 10-ft range.

3.5 Analysis of the Model Error

Insufficient data was used for model calibration as described. The error evaluated by the consultants only reflects as much error as the calibration dataset allows, which is limited most notably in the Dune Sand/A Aquifer unit, a primary aquifer targeted for slant well pumping, as well as by the absence of stream gain-loss data. Error along model boundaries is largely unquantified owing to limited data in those areas. The impact of this error on calculated water levels across the model is unquantified. Because sensitivity analysis of the calibrated values and estimation of parameter uncertainty were not performed, the model error has not been thoroughly evaluated for calibration or prediction.

The structural error due to elements including layering and zonation has not been evaluated. It is possible that an additional aquifer above or within the Dune Sand/A Aquifer unit is present south of the Salinas River and is not the (insignificant) localized perched zone HydroFocus concludes. This, among other expanses of model layer 2 where the absence of water level data could not allow for similar revelation, may be an indication that the layering is too coarse for accurate representation of the upper aquifer unit, thereby preventing evaluation of the full impacts from slant well pumping.

But model error in the form of bias is evident in the calibration results. Model error is reflected in the non-randomness of the residuals as demonstrated by the correlation between residual error and calculated water levels, by non-randomness in space and, to the extent it could be determined, unreasonable parameter values.[37] Sensitivity analysis of calibrated parameter values and of the SVIGSM-adopted errors in pumping and recharge was not accomplished. Without this, the uncertainty in the parameter values is unknown.

[37] Because specific values of K and S from aquifer testing were not reported, the extent to which the model values adhered to reasonable values as determined independently of the model cannot be determined. In some cases however, the calibrated values do not appear to be reasonable based on other indicators.

Rather than rectify the model bias error, HydroFocus employed superposition to predict the drawdown associated with proposed slant well pumping. But the model error, the revelation of which was limited by the dataset, was inherent in the calibration, and superposition relied on the calibrated parameter values. So the error was transferred and potentially compounded for the superposition modeling.

Geoscience and HydroFocus present other error measures in their respective reports including the relative error, concluded by HydroFocus to be acceptable based on the following excerpt (pg. E-1):

> The relative error calculated from the standard deviation of the model errors and range of measured water levels in the model meets calibration criteria and ensures that model errors are only a small part of the overall model response.
>
> The results provide confidence that the model calculations are reliable estimates of the groundwater response to pumping, which was confirmed by simulating measured drawdown during test slant well pumping.

The statements are ambiguous, but, importantly, HydroFocus correctly concludes that other model measures, including the identified bias, renders the calibrated head model unacceptable for use in predictions of drawdown from slant well pumping. This set of conclusions, that the residual error is low, but the model bias is significant and the calibrated model cannot accomplish what it was designed for, is a good demonstration that an acceptable calibration must consider bias as an integral measure of model utility. Geoscience did not include sufficient data or analysis to make the correct conclusion that HydroFocus was able to make. The model was not calibrated to an acceptable standard, but instead of improving the calibration, admittedly not a simple undertaking in this case, HydroFocus employed superposition for predictive modeling.

4.0 Predictive Modeling

4.1 Uncertainty in Calibrated Parameter Values

HydroFocus and Geoscience did not evaluate the uncertainty in the calibrated parameter estimates, and its impact to the calculated water levels. HydroFocus evaluated only the sensitivity of a few parameters near CEMEX and Potrero Road sites during predictive modeling. From its limited sensitivity analysis for predictions, HydroFocus concluded (pg. 42):

> Increasing the anisotropy (increasing horizontal conductivity and decreasing vertical conductivity) minimizes the area of the cone of depression. Conversely, decreasing the anisotropy (decreasing horizontal conductivity and increasing vertical conductivity) maximizes the area of the cone of depression.".[38]

Hydraulic conductivity often exhibits characteristic anisotropy, meaning that it is directionally dependent[39] and in the NMGWM, anisotropy is used to reflect that Kh is not equal to Kv.[40] The HydroFocus conclusion stated above regarding the effect of anisotropy on the drawdown cone extent is counterintuitive to the expected result. For clarification, higher anisotropy indicates that the Kh is *much* larger than the Kv. For such a situation, among other variables[41], one would expect a laterally extensive drawdown in the horizontal direction (high Kh) and limited drawdown vertically (low Kv). The conclusion HydroFocus derived based on its modeling does not make sense.[42] Reducing the anisotropy (making Kh and Kv less dissimilar, or more equivalent in magnitude) and allowing for increased vertical flow should result in a cone of depression that is less laterally extensive. The HydroFocus model calibration included apparent unreasonable values of Kh and Kv east and south of the CEMEX site, and the remainder of the model includes parameter values of unquantified uncertainty because of inadequate sensitivity analysis.

HydroFocus presented three scenarios varying the pumping allocation between the Dune Sand/A Aquifer unit and the 180-ft aquifer. However, HydroFocus elects to present results for the scenario which is apparently not based on the most likely allocation between the two aquifers. Based on the CEMEX model calibration, more of the pumping is derived from the Dune Sand as opposed to the 180-ft aquifer (worse-case scenario?). While it is unclear why HydroFocus presented the results of this apparently less likely scenario, it may be that increased pumping from Dune Sand would have calculated a greater drawdown extent and increased leakage from the Salinas River and other modeled surface water drainages.[43]

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[38] Pg 42 in HydroFocus report

[39] Anisotropy is defined as a property that varies with direction (Driscoll, FG 1986. Groundwater and Wells. Johnson Filtration Systems, Inc.)

[40] Kh can also be directionally dependent along the x and y tensors. But NMGWM does not reflect this particular anisotropy.

[41] Storage characteristics, transmissivity values, well completion, initial head and head differences across layers, boundary effects, etc.

[42] Because I do not have access to the model files, I cannot confirm that this is accurate. It is possible that sufficient numerical precision was not achieved, or the flow budget was associated with excess error. Or it is possible that the statement is correct but not intuitive.

[43] However, this can only be surmised without access to the model files.

HydroFocus adapted the NMGWM superposition model to include explicit representation of a portion of the Salinas River and Tembladero Slough/Reclamation Ditch using the Modflow river package so that the stream-aquifer interaction along these drainages is represented in order to quantify the impacts from slant well pumping. A large reach of the Salinas River and several other streams are not included in the analysis. No explanation for this is provided.

Because the calibration does not incorporate evaluation of stream gain-loss data, and the conceptual model does not include adequate information or analysis of the stream-aquifer interaction, the superposition model-predicted depletion impacts to the surface water system are concluded to be unreliable. The uncertain MPSWP predicted impacts to the streams may exceed allowable limits of established minimum streamflow standards. The results did not address this possibility.

4.2 Superposition

HydroFocus abandoned use of the calibrated head model, and instead relied on superposition to quantify the drawdown impacts from slant well pumping. But superposition relied on a set of calibrated parameter values which are concluded to also range from unreasonable to exhibiting significant but unquantified uncertainty. As a consequence, the superposition modeling produced unreliable predictions of drawdown from slant well pumping.

Superposition requires that the model be linear[44], or nearly so. But the degree of potential nonlinearity was not investigated by HydroFocus. It is not concluded that the thinning and unconfined Dune Sand/A Aquifer or the reduction in transmissivity from slant well pumping or the boundary conditions did not present significant nonlinearities in the system causing the application of superposition to calculate erroneous drawdown values. This same criticism may be applicable to the Salinas Valley Aquitard where it may become unconfined during predictive simulations.

Superposition, as applied in the HydroFocus work, did not include dynamic updating of the boundaries which may have incurred drawdown, although the presentation style of reporting only drawdown greater than one foot does not show the full drawdown extent.[45] The zero/near zero drawdown contour should have been included in the Geoscience and HydroFocus analyses and figures to identify areas where the boundaries affected the model-calculated drawdown extent. The boundary inflow with and without

[44] Reilly TE, OL Franke, and GD Bennett, 1984. The Principle of Superposition and its Application in Ground-Water Hydraulics, U. S. Geological Survey Open-File Report 84-459.
[45] This was the presentation form in both the Geoscience and HydroFocus reports.

slant well pumping should have been presented to discern any changes in inflow mitigating drawdown. A prevailing gradient is simulated at the General Head Boundary (GHB). If pumping inside the model results in drawdown reaching the GHB, inflow at the boundary will continue at a biased high rate resulting in an erroneous calculation of the drawdown extent. Insufficient analysis and reporting do not demonstrate that this was not a factor.

Application of superposition to isolate the impact from only the slant well pumping may be inconsistent with the model purpose as defined by Geoscience (pg. 8):

> The purpose of this study was to evaluate the impacts of the proposed MPWSP on the Salinas Valley Groundwater Basin. Groundwater modeling was conducted to assess the impacts of MPWSP on the groundwater levels and the seawater intrusion.

The Salinas Groundwater Basin includes multiple complex variables (recharge and discharge) changing in time and space which affect the groundwater levels and rate and extent of seawater intrusion. The success of the slant well pumping to expectedly not exceed seawater intrusion thresholds, among other measures, is dependent on the effects from these other complex and dynamic stresses. In the superposition analysis, these other relevant stresses are omitted, thereby making system response predictions unreliable. It is insufficient to predict only slant well pumping impacts in a dynamic system integrally defined by many other complex impacts which, in turn, affect the slant well pumping.

The application of superposition, intended by HydroFocus to diminish the error and uncertainty in many aspects of the calibrated head model, did not alleviate the errors or quantitatively demonstrate a reduction in error, and possibly introduced new and different errors in that aspects of the superposition model were not calibrated (i.e. stream gain-loss; boundary inflow, etc.).

4.3 Slant Wells Designed to Replace Freshwater with Saltwater

Dr. Weitzman indicated that, according to his understanding of the project objective, that the slant wells would not cause additional seawater intrusion and requested that, if available, I include information from the consultants' reports which did not support this understanding.

Review of the consultants reports identifies that seawater intrusion would increase. The increase in inland extent due to creation of a cone of depression from pumping was not reliably determined in the consultants' model. But the slant well pumping is designed to replace freshwater in the Dune Sand/A Aquifer unit and 180-ft aquifer with seawater

over some unreliably quantified aquifer volume and timeframe based on the HydroFocus report excerpt presented below (pg. 36):

> A capture zone refers to the three-dimensional volume of aquifer that contributes the water extracted by the wells. When the pumps are turned on, the wells initially extract the existing ambient mix of native groundwater in storage, but as pumping continues the wells extract increasing proportions of infiltrating recharge from the ocean. The ocean recharge gradually replaces the ambient water within the capture zone, and moves within the capture zone toward the well but does not spread beyond the capture zone. In map view, the capture zone is a 2-dimensional surface that delineates the underlying aquifer volume where ocean water replaces ambient groundwater and ultimately becomes the primary water source to the wells.

Because the slant well pumping is designed to replace aquifer freshwater with seawater, the pumping necessarily results in an increase in seawater intrusion into aquifer areas still containing freshwater.

5.0 Conclusions

The MPWSP proposes slant well pumping to replace freshwater aquifers with seawater as a supply for the desalination plant. A calibrated model was needed to make accurate predictions of drawdown and seawater intrusion resulting from slant well pumping. To accomplish this, the existing SVIGSM model was updated. The model results were adopted for use in the better resolution NMGWM. Geoscience calibrated the NMGWM as described in its 2015 report. HydroFocus provided an alternate calibration starting with the Geoscience model as described in its 2016 report, and used superposition for its predictions of drawdown.

Based on my review of the reports, it is concluded that:

- Insufficient data was collected/evaluated for the model calibrations:
    - including, but not limited to, inadequate (to no) water level data in particular for the Dune Sand/A Aquifer unit, one of two primary units targeted for slant well pumping,
    - and stream gain-loss data which would have improved the model and aided in parameter optimization.

- SVIGSM produced unreliable estimates of the pumping, recharge and initial water levels for use in NMGWM.

- NMGWM calibration included adjustment of model parameters based on unreliable values from SVIGSM.
- Geoscience was aware of Dune Sand/A Aquifer unit data but excluded it from the calibration without explanation. Geoscience also excluded water level data available for the 180-ft aquifer, also without explanation.
- Inadequate information was presented in the reports contrary to standard model report documentation and included:
    - Interpretations of the potentiometric surface for each aquifer in the NMGWM area were not included in the reports.[46] Recall that the potentiometric surface is described by a series of contour lines along which the potential head is equal. The ground water flow direction is perpendicular to the contours. Standard model reporting includes representation of the interpreted and model-simulated surfaces to show that the model is consistent with the hydrogeologic understanding of head and flow directions derived from the conceptual model. No such demonstration was made in either consultant's report for the NMGWM area.
    - Simulated potentiometric surface maps from the NMGWM area were not presented in the consultants' reports.
        - It is possible that an additional aquifer above or within the Dune Sand/A Aquifer unit is present south of the Salinas River and is not the (insignificant) localized perched zone HydroFocus concluded. This, among other expanses of model layer 2 where the absence of water level data could not allow for similar revelation, may be an indication that the layering is too coarse for accurate representation of the uppermost aquifer units, including the Dune Sand/A Aquifer unit, thereby preventing evaluation of the full impacts from slant well pumping. Because the consultants provided no interpretation of the potentiometric surface or the model-simulated potentiometric surface for any aquifer in their reports, contrary to model reporting standards, the extent to which this area may be in hydrologic communication with the Dune Sand unit at CEMEX, for example, has not been adequately investigated or described by the consultants. The model does not allow for this communication as evidenced in the calibration results.

[46] although the Geoscience model report did append the LSCE interpretations and simulations from SVIGSM of the 180-ft and 400-ft aquifers

- Inadequate specific information was reported for the source data including K and S values that were relied upon for parameter adjustment.
- Inadequate explanation for the recharge distribution including the characteristics associated with streamflow infiltration rates along unnamed rivers in NMGWM.
- HydroFocus did not report the K and S values estimated from the CEMEX testing, and without explanation, did not rely on those for calibration of NMGWM (Figure 3.3d).
- The Geoscience model report did not include an interpreted model water budget or a simulated water budget. HydroFocus presented a simulated budget but it is concluded to be incorrect for many reasons described in this report.
- A comparison between the SVIGSM aquifer properties and model calculated heads upon which NMGWM relied was not presented in the Geoscience model report. Evaluation of evident model bias was not included in the report, and therefore could not be used to improve the model. Because of this, erroneous initial heads and erroneous heads along the boundaries were not revealed until the HydroFocus report, which included data for the Dune Sand/A Aquifer unit and additional data in the 180-ft aquifer. The Geoscience model was considered a poorly calibrated model despite the calibration results presented which showed a low error in the residuals.
- The HydroFocus report revealed the existence of unacceptable error from model pumping, model recharge, initial model heads, and model boundary heads, but failed to provide detailed information to support its conclusions. Instead of correcting these errors (probably a major undertaking), HydroFocus subsequently relied on superposition for prediction of drawdown impacts from slant well pumping so that some of the identified error was eliminated to achieve accuracy in the predictions.
- HydroFocus simulated stream-aquifer interaction with the Modflow river package but did not provide an explanation why some NMGWM area streams/rivers were excluded from the predictive analysis.
- HydroFocus did not present a comparison of model-calculated gain-loss estimates against estimated values and therefore did not demonstrate that their assumptions and assigned properties were accurate.

- It was indeterminate whether the model calibration was accomplished using inverse methods, considered an industry standard at this time[47], or was accomplished deterministically. At a minimum, an explanation for not using inverse techniques should have been included in the report.
- HydroFocus and Geoscience did not include the NMGWM calibrated parameter sensitivity and parameter uncertainty. Sensitivity analysis is considered an industry standard. If inverse modeling was done, enormous information generated by that process was excluded from the reports, including among other output:
  - Sensitivity of parameters
  - Sensitivity of water level observations
  - Sensitivity of boundaries
  - Parameter correlation
  - Parameter confidence intervals
  - Degree of nonlinearity

- Because of inadequate data, analysis, reporting and the use of parameter values ranging from unreasonable to unquantified uncertainty, and known and unknown error, the NMGWM is concluded to be poorly calibrated and not representative of the aquifer system.
- HydroFocus, in recognition of some of these elements, rejected use of the NMGWM head model and instead used superposition based on NMGWM calibrated parameter values to predict drawdown from slant well pumping.
- Because superposition relies on parameters from a poorly calibrated model with known and unknown/unquantified errors, the error in the parameter estimates contributes unquantified error to the predictions.
- Superposition did not produce reliable estimates of drawdown from slant well pumping, and is not concluded to have been the appropriate methodology to employ to meet the project goals.

[47] My opinion stating that inverse modeling is the industry standard for approximately 15 years now is based on the techniques in model calibration presented at the Colorado School of Mines Integrated Ground Water Modeling Center's biannual conference (over the past 20 years) with inverse modeling being the most common approach among modelers presenting at the conference. Also at least three public domain codes are available for use. All models are not necessarily amenable to inverse modeling if dry cells are calculated but because NMGWM did not incur this effect according to the absence of information in the reports, it seems it would have been calibrated using this standard technique.

Luster, Tom@Coastal

From: Charles Cech <ccech1@gmail.com>
Sent: Saturday, November 30, 2019 11:25 AM
To: CalAmMonterey@coastal; Luster, Tom@Coastal
Subject: Geoscience TDS measurements questioned
Attachments: TSW DSA measurement.doc; img20191123_09100591.pdf

I believe that thousands of Test Slant Well Intake Water Conductivity/TDS measurements are incorrect. Please see my attached document and graph.

Chuck Cech
Monterey
831-594-6117

The attached graph comes from the November 2019 Monterey Peninsula Water Supply Project Test Slant Well (TSW) Long Term Pumping Monitoring Report No. 166. The Illustration is a plot of the Specific Conductivity measurements of the water being drawn by the TSW from 4/22/15 to October 18, 2019. Specific conductivity is a measurement taken by a sensor (transducer) placed in the TSW intake water. The intake water electrical conductivity is proportional to the amount of Total Dissolved Solids (TDS) in the water being measured.

The TSW conductivity data when multiplied by 0.66 provides an accurate TDS equivalent. According to Google ocean water is typically 35,000 milligrams per liter (mg/l) TDS. During the period from February 2015 to March 2017 the TSW ran 24/7 drawing 2100 gallons per minute with an average drawn water TDS of 30,000 mg/l or about 86% of average seawater. This TDS level could require Cal Am to return approximately 14% of the desalinated product water to the city of Castroville due to the return water proposal. However the TDS sensor making these measurements was placed 305 feet from the top of the slant well and is not exposed to the mix of Dune Sand Aquifer (DSA) fresh water and 180 foot aquifer brackish water. The data recoded during the 2 year test period are primarily 180 foot aquifer brackish water measurements.

In March 2017 the TSW 24/7 test was terminated, but the TSW was not deconstructed as required by prior agreement. TSW operations continue one day a week for six hour on that day. Tests are run and measurements are plotted and documented in the Monterey Peninsula Water Supply Project Test Slant Well Long Term Pumping Monitoring Reports. The weekly 6 hour plots start in March 2017 and continue to date.

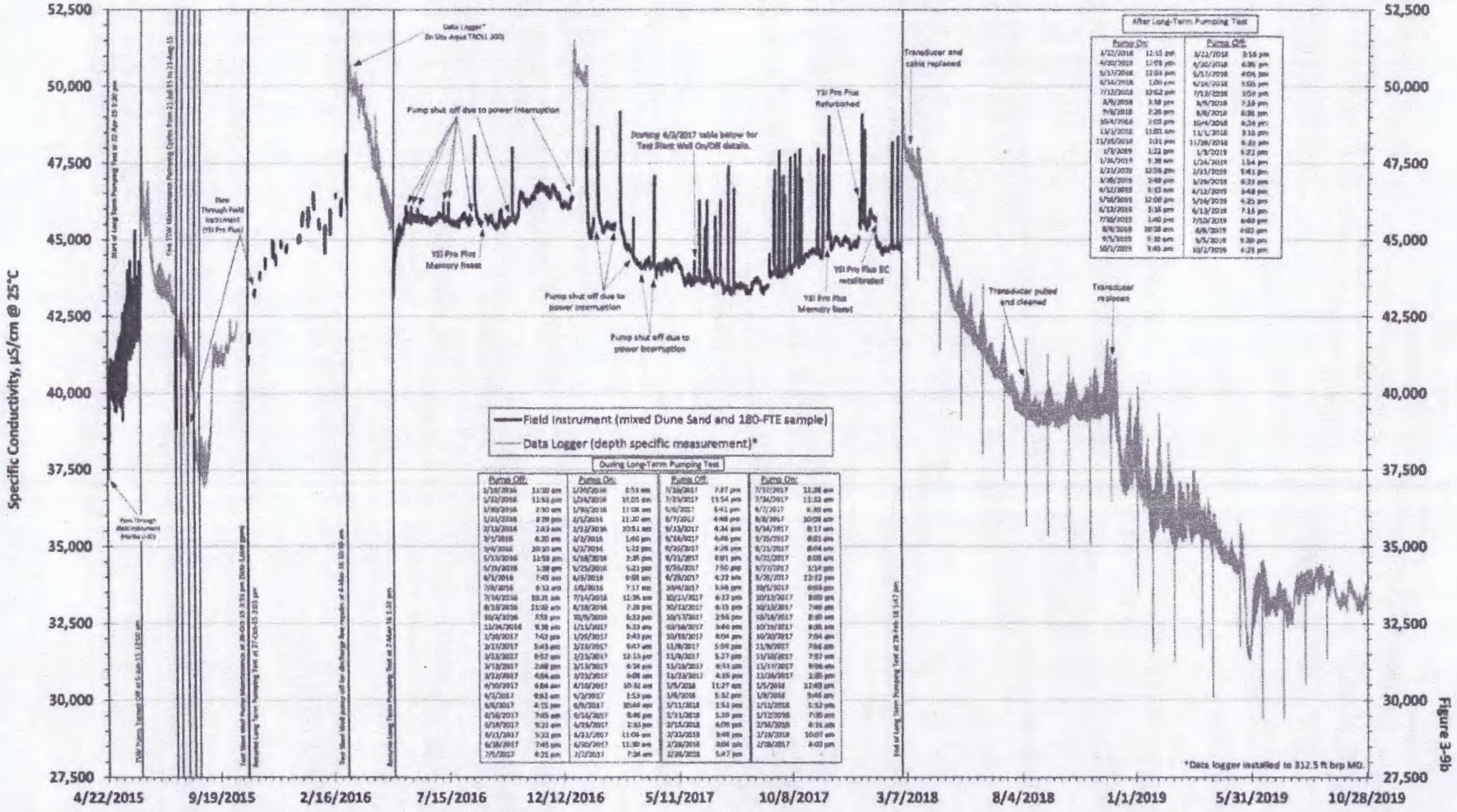
Starting on March 7, 2018 the green plot indicates that because of the reduction in TSW pumping time, fresh DSA water is percolating down to the TSW sensor and is now influencing the TDS readings. This plot indicates 22,000 mg/l which is a 37% reduction of the 3.5% average TDS on October 28, 2019. Fresh DSA water is obviously moderating the brackish water drawn by the TSW. This is important because Cal Am has no rights to fresh DSA water and the return water proposal becomes unworkable. This graph is also an indication that DSA water plays a significant part in reducing seawater intrusion in the Salinas River Basin. As long as Cal Am draws DSA fresh water, the slant well intake water will never be 100% seawater as originally speculated!

THE BIG QUESTIONS ARE:

Was the conductivity sensor intentionally placed in a location that minimized the effects of DSA fresh water on conductivity/TDS measurements?

Will Cal Am Monterey District customers be billed $20 million for erroneous TSW conductivity/TDS sensor measurements?

Specific Conductivity in MPWSP Test Slant Well During and After Long-Term Pumping Test



During Long-Term Pumping Test

Pump Off:		Pump On:		Pump Off:		Pump On:	
1/28/2016	11:30 am	1/29/2016	0:53 am	7/26/2017	7:37 pm	7/31/2017	11:28 am
1/29/2016	11:55 pm	1/24/2016	11:25 am	7/29/2017	11:54 pm	7/24/2017	11:33 am
1/30/2016	2:30 am	1/30/2016	11:58 am	8/6/2017	8:41 pm	8/7/2017	8:30 am
1/31/2016	8:39 pm	2/1/2016	11:30 am	8/7/2017	4:48 pm	8/8/2017	10:08 am
2/12/2016	2:49 am	2/12/2016	10:51 am	8/13/2017	4:34 pm	8/14/2017	8:17 am
3/1/2016	6:30 am	3/2/2016	1:06 pm	8/24/2017	6:06 pm	8/25/2017	8:01 am
5/4/2016	10:10 am	5/3/2016	1:22 pm	8/26/2017	4:04 pm	8/31/2017	8:04 am
5/31/2016	11:58 pm	6/18/2016	2:35 pm	8/31/2017	6:01 pm	9/21/2017	8:05 am
6/25/2016	1:38 pm	9/25/2016	5:21 pm	9/26/2017	7:50 pm	9/27/2017	1:14 pm
8/1/2016	7:45 am	8/8/2016	9:08 am	9/28/2017	4:23 am	9/28/2017	12:12 pm
7/8/2016	6:12 am	1/8/2016	7:17 am	10/4/2017	5:48 pm	10/5/2017	6:58 pm
7/14/2016	10:21 am	7/14/2016	11:36 am	10/11/2017	6:27 pm	10/13/2017	8:00 pm
8/18/2016	11:02 am	8/18/2016	7:28 pm	10/12/2017	6:15 pm	10/13/2017	7:00 pm
10/4/2016	5:59 pm	10/5/2016	6:33 pm	10/17/2017	2:56 pm	10/18/2017	8:00 am
11/26/2016	9:36 pm	1/11/2017	9:33 am	10/26/2017	3:46 pm	10/29/2017	9:00 am
1/20/2017	7:42 pm	1/25/2017	2:43 pm	10/31/2017	8:04 pm	10/30/2017	7:04 am
2/13/2017	5:43 pm	2/28/2017	9:47 am	11/8/2017	5:06 pm	11/9/2017	7:04 am
3/13/2017	9:57 am	3/13/2017	10:13 pm	11/8/2017	5:27 pm	11/10/2017	7:07 am
3/13/2017	2:48 pm	3/13/2017	6:34 pm	11/16/2017	6:51 pm	11/17/2017	9:06 am
3/13/2017	4:54 am	3/23/2017	9:08 am	11/23/2017	4:15 pm	11/24/2017	1:05 pm
4/10/2017	6:04 am	4/16/2017	10:32 am	1/5/2018	11:27 am	1/5/2018	12:40 pm
4/1/2017	6:41 am	4/3/2017	1:53 pm	1/8/2018	8:32 am	1/8/2018	9:46 am
5/4/2017	4:15 pm	5/9/2017	10:40 am	1/11/2018	1:51 pm	1/12/2018	1:52 pm
6/16/2017	7:05 am	6/16/2017	8:46 pm	1/31/2018	1:39 pm	1/12/2018	7:00 am
6/18/2017	9:23 am	6/19/2017	2:53 pm	2/15/2018	6:09 pm	2/16/2018	8:16 am
6/21/2017	5:22 pm	6/22/2017	11:06 am	2/22/2018	9:48 pm	2/28/2018	10:07 am
6/28/2017	7:45 pm	6/30/2017	11:30 am	2/28/2018	8:04 pm	2/28/2017	4:02 pm
7/5/2017	4:21 pm	7/7/2017	7:24 am	3/28/2018	5:47 pm		

After Long-Term Pumping Test

Pump On:		Pump Off:	
4/22/2015	11:15 pm	3/22/2018	3:16 pm
4/30/2018	12:03 pm	4/30/2018	4:35 pm
5/17/2018	12:04 pm	5/17/2018	4:04 pm
6/14/2018	1:00 pm	6/14/2018	5:05 pm
7/12/2018	12:52 pm	7/12/2018	3:59 pm
8/9/2018	1:58 pm	8/9/2018	7:16 pm
9/6/2018	2:26 pm	9/6/2018	6:36 pm
10/4/2018	2:03 pm	10/4/2018	6:24 pm
11/1/2018	11:01 am	11/1/2018	3:16 pm
11/15/2018	1:01 pm	11/28/2018	6:31 pm
1/3/2019	1:22 pm	1/3/2019	6:21 pm
1/24/2019	9:30 am	1/24/2019	1:54 pm
2/21/2019	12:56 pm	2/21/2019	5:41 pm
3/28/2019	2:40 pm	3/29/2019	6:23 am
4/12/2019	8:53 am	4/12/2019	6:48 pm
5/26/2019	12:00 pm	5/24/2019	4:25 pm
6/13/2019	3:36 pm	6/13/2019	7:15 pm
7/10/2019	1:40 pm	7/10/2019	6:40 pm
8/8/2019	10:38 am	8/8/2019	6:02 pm
9/5/2019	9:10 am	9/5/2019	5:30 pm
10/2/2019	9:45 am	10/2/2019	4:25 pm

Figure 3-9b