

SEASIDE GROUNDWATER BASIN WATERMASTER

Wednesday, June 5, 2019 – 2:00pm

**Monterey One Water Board Room, 5 Harris Court, Building “D”
Ryan Ranch, Monterey, California**

Watermaster Board

- Coastal Subarea Landowner – Director Paul Bruno, Chair
- City of Seaside – Mayor Ian Oglesby
- California American Water – Director Christopher Cook
- City of Sand City – Mayor Mary Ann Carbone
- Monterey Peninsula Water Management District – Director George Riley
- Laguna Seca Subarea Landowner – TBD
- City of Monterey – Councilmember Dan Albert
- City of Del Rey Oaks – Councilmember Kristin Clark
- Monterey County/Monterey County Water Resources Agency – Supervisor Mary Adams, District 5

I. CALL TO ORDER

II. ROLL CALL

III. PUBLIC COMMUNICATIONS

Oral communications is on each meeting agenda in order to provide members of the public an opportunity to address the Watermaster on matters within its jurisdiction. Matters not appearing on the agenda will not receive action at this meeting but may be referred to the Watermaster Administrator or may be set for a future meeting. Presentations will be limited to three minutes or as otherwise established by the Watermaster. In order that the speaker may be identified in the minutes of the meeting, it is helpful if speakers would use the microphone and state their names. Oral communications are now open.

IV. REVIEW OF AGENDA

If there are any items that arose after the 72-hour posting deadline, a vote may be taken to add the item to the agenda pursuant to the requirements of Government Code Section 54954.2(b). (A 2/3-majority vote is required).

V. MINUTES - Approve Minutes of Regular Board meeting held January 2, 20193

VI. CONSENT CALENDAR

- A. Consider approval of Summary for Payments made during January – May, 2019 totaling **\$81,859.99**.....7
- B. Consider Approving Fiscal Year 2018 Financial Reports through December 31, 201811
- C. Consider Approving Fiscal Year 2019 Financial Reports through April 30, 201913

VII. ORAL PRESENTATION – Backup Expanded Pure Water Monterey Groundwater Replenishment Project. The Notice of Preparation (NOP) describing the project concept is available online at <http://purewatermonterey.org/wp/wp-content/uploads/Final-NOP-Expansion-Project-14May2019.pdf>

VIII. NEW BUSINESS

- A. Consider Approving Updated Basin Management Action Plan17
- B. Discussion and Possible Approval of Allocation of Water Rights After Decision-Required Pumping Ramp-Downs Have Been Completed.....33
- C. Discussion of the Pros and Cons of Using the Sustainable Yield Approach in Place of the Natural Safe Yield Approach for Basin Management47
- D. Discuss/Consider Approving California American Water’s request to allow a Credit for actual expenditures incurred October 2016 through January 2019 for the Monterey Pipeline and Pump Station amounting to \$49,382,196 to be used to offset the Seaside Basin Water Year 2018 Overproduction Replenishment Assessment65
- E. Discuss/Consider Authorizing Watermaster Legal Counsel Services77

IX. OLD BUSINESS - None

X. INFORMATIONAL REPORTS (No Action Required)

- A. Technical Advisory Committee (TAC) minutes from meetings held January 9, February 13, March 13, and May 8, 201979
- B. Watermaster report of production of the Seaside Basin October 1, 2018 – March 31, 201997
- C. MPWMD 2018 Annual Report.....99
- D. The Salinas Valley Basin Groundwater Sustainability Agency agenda for the May 16 meeting is available for viewing at <http://svbgsa.org> and includes minutes of the April 18th meeting.

XI. DIRECTOR’S REPORTS

XII. STAFF COMMENTS – No response from Judge O’Farrell regarding 2018 Watermaster Annual Report and no request for a 2019 Case Management Conference

XIII. NEXT REGULAR MEETING DATE – Wednesday, July 3, 2019 - 2:00 P.M.

XIV. ADJOURNMENT

This agenda was forwarded via e-mail to the City Clerks of Seaside, Monterey, Sand City and Del Rey Oaks; the Clerk of the Monterey Board of Supervisors, the Clerk to the Monterey Peninsula Water Management District; the Clerk at the Monterey County Water Resources Agency, Monterey One Water and the California American Water Company for posting on May 30, 2019 per the Ralph M. Brown Act, Government Code Section 54954.2(a).

**SEASIDE GROUNDWATER BASIN WATERMASTER (Watermaster)
REGULAR MEETING MINUTES**

Monterey One Water Board Room, 5 Harris Court, Building “D”
Ryan Ranch, Monterey, California
January 2, 2019

I. CALL TO ORDER – The meeting was called to order at 2:00 p.m.

II. ROLL CALL

City of Seaside – Mayor Ian Oglesby
Coastal Subarea Landowner – Director Paul Bruno - Chair
City of Del Rey Oaks – Council Member Kristin Clark
City of Sand City – Mayor Mary Ann Carbone
California American Water (CAW) –Director Christopher Cook
Laguna Seca Subarea Landowner – Director Bob Costa – Vice Chair
City of Monterey – Council Member Dan Albert
Monterey Peninsula Water Management District (MPWMD) – Director Molly Evans
Monterey County/Monterey County Water Resources Agency – Supervisor Mary Adams

Absent: None

Others Present

Watermaster Technical Program Manager – Robert Jaques
Watermaster Administrative Officer – Laura Paxton
Lori Girard, CAW Legal Counsel
Jonathan Lear, MPWMD
Don Freeman, City of Seaside City Attorney
Roelof Wijbrandus, Upper Seaside Resident

III. ELECTION OF OFFICERS

Moved by Council Member Albert, seconded by Mayor Carbone and unanimously carried to elect Director Bruno as 2019 chair of the Watermaster Board of Directors.

Moved by Director Bruno, seconded by Supervisor Adams and unanimously carried to elect Director Costa as 2019 vice chair of the Watermaster Board of Directors.

Moved by Council Member Albert, seconded by Mayor Carbone and unanimously carried to elect Kimberly Drabner as Treasurer and Laura Paxton as Secretary to the Watermaster Board of Directors for 2019.

IV. PUBLIC COMMUNICATIONS: None

V. REVIEW OF AGENDA: There were no requested changes to the agenda.

VI. APPROVAL OF MINUTES

It was moved by Supervisor Adams, seconded by Councilmember Albert and unanimously carried to approve the minutes of the Regular Board meeting held October 3, 2018, with correction to VIII. A. A. d. wording to read “The board requested Watermaster staff contact Lori Girard, CAW legal counsel regarding legal issues that arise prior to engaging Mr. McGlothlin.”

VII. CONSENT CALENDAR

- A.** Consider approving the Board and Technical Advisory Committee schedule of meetings for 2019
- B.** Consider approving Summary of Payments September - November 2018 totaling \$115,033.12
- C.** Consider approving 2018 Financial Reports through November 30, 2018
- D.** Consider approving the Seawater Intrusion Analysis Report (SIAR for 2018)
- E.** Consider approving the following Professional Service Contracts for 2019:
 - 1. Two Contracts with Montgomery & Associates, Inc. — one for \$13,000 for providing ongoing and as-requested general hydrogeologic consulting services in 2019 and the second for \$21,100 to prepare the Seawater Intrusion Analysis Report (SIAR) for 2019
 - 2. Two Contracts with MPWMD—one for \$50,024 and the second one for \$3,915, both pertaining to monitoring and other work on the Seaside Groundwater Basin Monitoring and Management Program (M&MP) for 2019
 - 3. Two Contracts with Martin Feeney—one for \$4,000 to provide on-call/as-requested hydrogeologic consulting services and one for \$17,540.56 to perform 2019 Sentinel Wells induction logging
 - 4. One Contract with Todd Groundwater—for \$4,000 to provide on-call/as-needed hydrogeologic consulting services
 - 5. One Contract with Brownstein Hyatt Farber Schreck, LLP (Russ McGlothlin, Esq.)—for \$25,000 to provide legal services to attend if necessary a status conference hearing; assist with filing the Watermaster Annual Report to Court by January 15, 2019 as may be needed; and provide miscellaneous legal consultation as may be required by Watermaster

Moved by Council Member Albert, seconded by Mayor Oglesby and unanimously carried to approve the consent calendar as presented.

VIII. ORAL PRESENTATION: None Scheduled

IX. NEW BUSINESS:

- A.** Declaration of Unavailability of Artificial Replenishment Water for Water Year 2019.
Director Cook noted that the 3,500 acre feet from the Pure Water Monterey project starting the end of the year would be used to offset Carmel River Cease and Desist Order 83-10 and so would not be of direct benefit to the Basin as replenishment—Director Cook concurred that there is no foreseeable artificial replenishment water available in water year 2019.

Moved by Director Cook, seconded by Council Member Albert and unanimously carried, to adopt the Declaration of No Artificial Replenishment Water Available for Water Year 2019.

- B.** Agreement with CAW and MPWMD for Storage and Recovery of Water from the Pure Water Monterey Project
Director Cook noted the Division of Drinking Water has switched from the California Department of Public Health to the State Water Resources Control Board however that change in agency is covered in the storage agreement on page 3 under the water quality section, the end of the first paragraph, by the wording “...and any other water quality standards imposed by any other government entity...”

Mr. Roelof Wijbrandus, Upper Seaside Resident addressed the board, stating that he supported the Pure Water Monterey Project. However he felt the general public, in particular his neighbors would benefit from public outreach to educate them on the project. Mr. Wijbrandus also cautioned that measurements of source water into the project and water quantities extracted under the project be carefully monitored. Director Bruno reminded of the Watermaster role of protecting the Basin and its water quality now and into the future.

Moved by Council Member Albert, seconded by Mayor Carbone and unanimously carried, to approve the Watermaster agreement with CAW and MPWMD for storage and recovery of water from the Pure Water Monterey Project.

Mayor Oglesby informed the board that the City of Seaside would be hosting an information presentation on the water quality aspect of the Project. He encouraged Pure Water Monterey staff to participate in the presentation, and Director Evans stated MPWMD would also be willing to participate.

- C. Discussion/Consider Approving the Watermaster Annual Report for Water Year 2018. Mr. Jaques reported that the body of the attached Draft 2018 Annual Report reflects input from the TAC. The complete draft version is posted on the Watermaster website at <http://www.seasidebasinwatermaster.org>. The 2018 Annual Report will be filed with the Court by the new extended deadline of January 15th (instead of December 15th). Mr. Jaques responded to questions from directors.

Moved by Supervisor Adams, seconded by Director Evans and unanimously carried, to approve the Watermaster Annual Report for Water Year 2018.

X. OLD BUSINESS: None

XI. INFORMATIONAL REPORTS:

- A. Technical Advisory Committee (TAC) minutes from meeting held November 21, 2018 and draft minutes from the meeting held December 12, 2018
- B. Watermaster report of production of the Seaside Basin through Water Year 2018 (October 1, 2017 – September 30, 2018)
- C. Replenishment Fund Assessment calculations and 2018 Standard Producer Assessments
- D. Correspondence regarding SNG partial conversion of Alternative to Standard Production

XII. DIRECTOR'S REPORTS: There were no reports from directors.

XIII. STAFF COMMENTS: There were no staff comments.

XIV. NEXT MEETING DATE: The next meeting of the Watermaster board will be held Wednesday, February 6, 2019 at the Monterey One Water board room at 5 Harris Court, Building "D" on Ryan Ranch in Monterey at 2:00 p.m.

XV. There being no further business, Chair Bruno adjourned the meeting at 2:30 p.m.

THIS PAGE INTENTIONALLY LEFT BLANK

ITEM VI.A.

SEASIDE GROUNDWATER BASIN WATERMASTER

TO: Board of Directors
 FROM: Laura Dadiw, AO
 DATE: June 5, 2019
 SUBJECT: Summary of Payments made during the months of January - May 2019

RECOMMENDATIONS:

Consider approving payment of bills submitted and authorized to be paid January - May 2019

Summary of Payments Made January 2019

Paxton Associates (Administrative Officer (AO))

November 26, 2018 through December 25, 2019	55.5	\$ 5,550.00
---	------	-------------

Responded to telephone inquiries, e-mail, and other correspondence as needed regarding the Seaside Basin. Prepared Operations and Administrative Assessment invoices & statements. Prepared Declaration of No Repl Water. Discussed carryover w/Sweigert. Data collection followup with certain producers. Review Annual Report. Prepared agenda and packet materials for December board meeting and completed minutes of October board meeting; routinely picked up mail from PO Box; reconciled accounts to the City of Seaside Watermaster accounts; prepared financial reports; processed invoices

Brownstein, Hyatt, Farber, Schreck (Russ McGlothlin, Esq.)

November 2018-RFS 2018-01 Miscellaneous legal consultation Pasadena APA attorney; O'Farrell stipulation	0.8	360.00
--	-----	--------

Brownstein, Hyatt, Farber, Schreck (Russ McGlothlin, Esq.)

December 2018-RFS 2018-01 Miscellaneous legal consultation Judge O'Farrell stipulation	0.3	135.00
---	-----	--------

Robert Jaques (Technical Program Manager)

December 3, 2018 through December 31, 2018	40.5	4,050.00
--	------	----------

Responded to emails, telephone inquiries, and other correspondence on a variety of Watermaster issues; TAC agenda packet. Prep for/attend SVBGSA 12/18 TAC meeting. Prep for/attend December board meeting. Preparation of 2018 Annual Report to Court. Cook briefing. CAW/PWM storage agmt. 2019 M&MP Work Schedule. Review/approve consultant invoices. Updated BMAP.

Paxton Imaging Website Consultant)

December 2018 Monthly Watermaster website hosting and updating billed annually		2,400.00
--	--	----------

Total for January 2019	\$ 12,495.00
------------------------	--------------

Summary of Payments Made February 2019

Paxton Associates (Administrative Officer (AO))

December 26, 2018 through January 25, 2019	33	\$ 3,300.00	
--	----	-------------	--

Responded to telephone inquiries, e-mail, and other correspondence as needed regarding the Seaside Basin. Gathered and posted water production and water level data. Contract management. Prepared/mailed 2019 data collection fee letters. Prepared agenda and packet materials for January board meeting and completed minutes of January board meeting. Request by MPWMD for documents. Routinely picked up mail from PO Box; reconciled accounts to the City of Seaside Watermaster accounts; prepared financial reports; processed invoices; reviewed and posted items to web site.

Robert Jaques (Technical Program Manager)

January 1, 2019 through February 1, 2019	35 @\$150	5,250.00	
--	-----------	----------	--

Responded to emails, telephone inquiries, and other correspondence on a variety of Watermaster issues. Prepared TAC agenda packet and meeting. Cook briefing. Prepared for and attended January board meeting. Consultant contracts. City of Seaside Del Monte Manor stormwater infiltration design consult re: WM credits. Updated BMAP. Montgomery modeling and sustainable yield.

Montgomery & Associates (Technical Consultant)

January 2019 RFS 2019-01 General Consulting and TAC-BMAP	15.0	3,095.00	
--	------	----------	--

Monterey Peninsula Water Management District

July through September 2018 RFS 2018-01	116.0	13,684.00	
July through December 2018 RFS 2018-02	15.5	1,486.00	15,170.00

Todd Groundwater (Consulting Hydrogeologist)

December 2018 Groundwater modeling peer review	6.0	1,258.75	
January 2019 Groundwater modeling and related topics	4.5	1,090.00	2,348.75

Total for February 2019	\$ 29,163.75
-------------------------	--------------

Summary of Payments Made March 2019

Paxton Associates (Administrative Officer (AO))

January 26, 2019 through February 25, 2019	44.5	\$ 4,450.00	
--	------	-------------	--

Responded to telephone inquiries, e-mail, and other correspondence as needed regarding the Seaside Basin. PRA records request. Meet twice w/Jaques re: BMAP. Review TAC pkt. Post production. Assessment revenue deposit at City of Seaside. CAW credit request. 2,370 AF NSY calcs. Routinely picked up mail from PO Box; reconciled accounts to the City of Seaside Watermaster accounts; prepared financial reports; processed invoices; reviewed and posted items to web site.

Brownstein, Hyatt, Farber, Schreck (Russ McGlothlin, Esq.)

January 2019 RFS 2019-01 Miscellaneous legal consultation PRA records request; O'Farrell Stipulation; Annual Report review	6.1	2,745.00	
---	-----	----------	--

Robert Jaques (Technical Program Manager)

February 2, 2019 through March 1, 2019 48.5 7,275.00
Responded to emails, telephone inquiries, and other correspondence on a variety of Watermaster issues. Prepared TAC agenda packet and previous meeting minutes and attend 2/13 TAC meeting. G. Riley briefing. Sustainable yield. Seaside Muni questions. Review invoices. NSY calcs. Coordinate BMAP update.

Total for March 2019 \$ 14,470.00

Summary of Payments Made April 2019

Paxton Associates (Administrative Officer (AO))

February 26, 2019 through March 25, 2019 28.75 \$ 2,875.00
Responded to telephone inquiries, e-mail, and other correspondence as needed regarding the Seaside Basin. Meet w/Director Riley. Meet w/Jaques re: BMAP. Review TAC pkt and attend 3/13 meeting. CAW mtg 3/15 re: supplemental water sources. Create pumping table and producer invite list for ramp-down meeting and attend 3/21 mtg. Routinely picked up mail from PO Box; reconciled accounts to the City of Seaside Watermaster accounts; prepared financial reports; processed invoices; reviewed and posted items to web site.

Brownstein, Hyatt, Farber, Schreck (Russ McGlothlin, Esq.)

February 2019 RFS 2019-01 Miscellaneous legal consultation 1.3 585.00
PRA records request; MCWD/CAW req for testimony. CAW replenishment MOU
Annual Report filing fees 7.20 592.20

Robert Jaques (Technical Program Manager)

March 2, 2019 through March 26, 2019 48 7,200.00
Responded to emails, telephone inquiries, and other correspondence on a variety of Watermaster issues. Prepared TAC agenda packet, attend 3/13 TAC meeting, and prepare minutes. NSY mtgs and calls. Change-in-sotrage tech memo. Prepare/submit annual SGMA data. Prepare/lead 3/21 ramp-down mtg w/producers. Caw mtg 3/15 re: supplemental water sources. Review invoices.

Montgomery & Associates (Technical Consultant)

February 2019 RFS 2019-01 General Consulting & TAC 5.0 987.50
Prepare sustainable yield presentation and attend by tele 2/13 TAC mtg

Todd Groundwater (Consulting Hydrogeologist)

February 2019 Groundwater modeling and related topics 0.75 138.75

Todd Groundwater (Consulting Hydrogeologist)

Total for April 2019 \$ 11,793.45

Summary of Payments Made May 2019

Paxton Associates (Administrative Officer (AO))

March 26, 2019 through April 25, 2019 30 \$ 3,000.00
Responded to telephone inquiries, e-mail, and other correspondence as needed regarding the Seaside Basin. PRA records request. Review IRWM SWRP draft. McGlothlin leaving BHFS. Seaside in-lieu proposal. Set Budget/Finance Committee meeting. Routinely picked up mail from PO Box; reconciled accounts to the City of Seaside Watermaster accounts; prepared financial reports; processed invoices; reviewed and posted items to web site.

Brownstein, Hyatt, Farber, Schreck (Russ McGlothlin, Esq.)

March 2019 RFS 2019-01 Miscellaneous legal consultation 3.7 1,665.00
PRA records request; NSY calculations

Montgomery & Associates (Technical Consultant)

March 2019 RFS 2019-01 General Consulting & TAC 10.5 2,097.50
Prepare change in storage estimate and attend by tele 3/13 TAC mtg

Martin Feeney (Consulting Hydrogeologist)

January 1 - April 1, 2019 Sentinel Wells data collection 15.0 2,685.00
Induction logging and 10% markup 4,490.29 7,175.29

Total for May 2019 \$ 13,937.79

Grand Total January - May 2019 \$ 81,859.99

VI.B
6/5/19

Seaside Groundwater Basin Watermaster
Budget vs. Actual Administrative Fund
 Fiscal Year (January 1 - December 31, 2018)
 Balance through December 31, 2018

	<u>2018 Adopted Revised Budget</u>	<u>Contract Amount</u>	<u>Year to Date Revenue / Expenses</u>
Available Balances & Assessments			
Dedicated Reserve	-		-
FY (Rollover)	42,000.00		32,782.94
Admin Assessments	40,000.00		40,000.00
Available	<u>82,000.00</u>		<u>72,782.94</u>
Expenses			
Contract Staff	40,000.00	40,000.00	39,850.00
Legal Advisor	24,000.00	24,000.00	19,875.00
Filing fees and postage			232.42
Total Expenses	<u>64,000.00</u>	<u>64,000.00</u>	<u>59,957.42</u>
Total Available	18,000.00		
Dedicated Reserve	18,000.00		12,825.52
Net Available	<u>-</u>		<u>0.00</u>

Seaside Groundwater Basin Watermaster
Budget vs. Actual Monitoring & Management - Operations Fund
 Fiscal Year (January 1 - December 31, 2018)
 Balance through December 31, 2018

	2018 Adopted Budget	Contract Encumbrance	Year to Date Revenue/Expenses
Available Balances & Assessments			
Operations Fund Assessment	\$ 192,288.00	\$ -	\$ 192,288.00
Pass Through 2018	-	3,915.00	2,610.00
Cost Share Reimbursement	77,185.00	77,185.00	27,178.75
FY 2017 Rollover	100,000.00	-	218,760.62
Total Available	\$ 369,473.00	\$ 81,100.00	\$ 440,837.37
Appropriations & Expenses			
GENERAL			
Technical Project Manager	\$ 50,000.00	\$ 50,000.00	\$ 45,350.00
Contingency @ 10% (not including TPM)	29,043.00	-	-
Total General	\$ 79,043.00	\$ 50,000.00	\$ 45,350.00
CONSULTANTS (Montgomery; Todd Groundwater; Web Site Database)			
Program Administration	\$ 16,900.00	\$ 7,400.00	\$ 3,618.75
Production/Lvl/Qty Monitoring	2,400.00		
Groundwater Modeling RFS 2018-03	54,370.00	54,370.00	54,357.50
Geochemical Modeling (Todd)	50,000.00	4,000.00	1,711.25
Basin Management Action Plan 2018-04	65,260.00	45,260.00	45,275.23
Seawater Intrusion Analysis Report 2018-02	20,890.00	20,890.00	17,447.50
Total Consultants	\$ 209,820.00	\$ 131,920.00	\$ 122,410.23
MPWMD			
Production/Lvl/Qty Monitoring	\$ 48,832.00	48,832.00	29,312.00
Pass Through 2018	-	3,915.00	2,602.00
Basin Management	-		-
Seawater Intrusion	1,192.00	1,192.00	-
Direct Costs	-	-	-
Total MPWMD	\$ 50,024.00	\$ 53,939.00	\$ 31,914.00
CONTRACTOR (Martin Feeney)			
Production/Lvl/Qty Monitoring	\$ 30,586.00	\$ 30,585.56	\$ 18,969.34
Total Appropriations & Expenses	\$ 369,473.00	\$ 266,444.56	\$ 218,643.57
Total Available	-		222,193.80

Seaside Groundwater Basin Watermaster
Budget vs. Actual Administrative Fund
 Fiscal Year (January 1 - December 31, 2019)
 Balance through April 30, 2019

	2019 Adopted Revised Budget	Contract Amount	Year to Date Revenue / Expenses
Available Balances & Assessments			
Dedicated Reserve	-		-
FY (Rollover)	23,000.00		12,825.52
Admin Assessments	77,000.00		77,000.00
Available	100,000.00		89,825.52
Expenses			
Contract Staff	50,000.00	50,000.00	13,625.00
Legal Advisor	25,000.00		5,002.20
Filing fees and postage			-
Total Expenses	75,000.00	50,000.00	18,627.20
Total Available	25,000.00		
Dedicated Reserve	25,000.00		25,000.00
Net Available	-		46,198.32

Seaside Groundwater Basin Watermaster
Budget vs. Actual Monitoring & Management - Operations Fund
 Fiscal Year (January 1 - December 31, 2019)
 Balance through April 30, 2019

VI.C.
6/5/19

	2019 Adopted Budget	Contract Encumbrance	Year to Date Revenue/Expenses
Available Balances & Assessments			
Operations Fund Assessment	\$ 106,921.00	\$ -	\$ 106,921.00
Pass Through	-	3,915.00	2,049.00
Cost Share Reimbursement	-	-	-
FY 2018 Rollover	100,000.00	-	222,193.80
Total Available	\$ 206,921.00	\$ 3,915.00	\$ 331,163.80
Appropriations & Expenses			
GENERAL			
Technical Project Manager	\$ 50,000.00	\$ 50,000.00	\$ 19,725.00
Contingency @ 10% (not including TPM)	14,266.00	-	-
Total General	\$ 64,266.00	\$ 50,000.00	\$ 19,725.00
CONSULTANTS (Montgomery; Todd Groundwater; Web Site Database)			
Program Administration	\$ 21,140.00	\$ 19,400.00	\$ 7,408.75
Production/Lvl/Qlty Monitoring	2,400.00	-	-
Basin Management	30,000.00	-	-
Seawater Intrusion Analysis Report	21,550.00	21,100.00	-
Total Consultants	\$ 75,090.00	\$ 40,500.00	\$ 7,408.75
MPWMD			
Production/Lvl/Qlty Monitoring	\$ 48,832.00	48,832.00	-
Pass Through 2018	-	3,915.00	-
Basin Management	-	-	-
Seawater Intrusion	1,192.00	1,192.00	-
Direct Costs	-	-	-
Total MPWMD	\$ 50,024.00	\$ 53,939.00	\$ -
CONTRACTOR (Martin Feeney)			
Production/Lvl/Qlty Monitoring	\$ 17,541.00	\$ 17,540.56	\$ 7,175.29
Total Appropriations & Expenses	\$ 206,921.00	\$ 161,979.56	\$ 34,309.04
Total Available	-		296,854.76

THIS PAGE INTENTIONALLY LEFT BLANK

SEASIDE GROUNDWATER BASIN
WATERMASTER

TO: Board of Directors

FROM: Robert S. Jaques, Technical Program Manager

DATE: June 5, 2019

SUBJECT: Updated Basin Management Plan

RECOMMENDATIONS:

Approve the Updated Basin Management Action Plan.

BACKGROUND:

Under Request for Service (RFS) No. 2018-03 issued on August 1, 2018 Montgomery & Associates has updated the Watermaster's Basin Management Action Plan (BMAP). Georgina King and Derrick Williams, formerly with HydroMetrics and now with Montgomery & Associates, managed that work.

The Watermaster's first BMAP was completed in 2009. The BMAP constitutes the basic plan for managing the Seaside Groundwater Basin. The BMAP identifies both short-term actions and long-term strategies intended to protect the groundwater resource while maximizing the beneficial use of groundwater in the basin. It provides the Watermaster a logical set of actions that can be undertaken to manage the basin to its Safe Yield. Over the nine years since the BMAP was completed, the Watermaster has collected much groundwater level and quality data, and conducted various studies to improve the understanding of the basin. This improved understanding was incorporated into the Updated BMAP to facilitate ongoing responsible management of the groundwater resource.

Due to the significance of certain of the findings and conclusions in the Preliminary version of the Updated BMAP, Gus Yates of Todd Groundwater was asked to perform a peer review of the document and to provide his comments on it and any recommendations he had pertaining to it.

Mr. Yate's Memo summarizing the results of his review is contained in Attachment 1. In addition he commented in an email that the approach to quantifying basin yield should be discussed, because the yield calculation methodology is an important issue. He further commented that it was his recommendation that we should depart from the simplistic notion of "Natural Safe Yield" (NSY) and the simple methodology he used back in 2004 when he was developing the initial NSY figure that is contained in the Adjudication Decision. The approach he recommended is referred to as "Sustainable Yield."

Ms. King and Mr. Yates discussed the comments and recommendations in Mr. Yates' Memo and reached agreement on what revisions should be made to the Preliminary Draft version of the Updated BMAP. At the TAC's January 9, 2019 meeting Ms. King and Mr. Yates discussed those revisions and responded to questions from the TAC regarding the Updated BMAP.

DISCUSSION:

The Draft Updated BMAP is quite lengthy, so only the Executive Summary from that document is contained in Attachment 2. However, a full copy of the document has been posted for review on the Watermaster's website at:

<http://www.seasidebasinwatermaster.org/Other/BMAP%20Updated%20Draft%201-21-19.pdf>

The Draft Updated BMAP fulfills Montgomery & Associates' scope of work for this assignment and satisfactorily addresses the issues raised by Mr. Yates and the TAC. At its February 13, 2019 meeting the TAC unanimously approved the Draft Updated BMAP.

The Draft Updated BMAP's finding that the Basin's NSY is only 2,370 AFY is discussed further in Agenda Item No. IX.B. The recommendation of Montgomery & Associates and Todd Groundwater (Mr. Yates) to use a different approach (Sustainable Yield) rather than Natural Safe Yield for basin management purposes is discussed in Agenda Item No. IX.C.

Mr. Williams will provide a presentation on the Updated BMAP at today's meeting and will respond to questions from the Board.

ATTACHMENTS:

1. Gus Yate's Memorandum
2. Introductory Pages and Executive Summary from the Draft Updated Basin Management Action Plan

Attachment 1



December 21, 2018

MEMORANDUM

To: Bob Jaques, Technical Manager, Seaside Basin Watermaster
From: Gus Yates, Senior Hydrologist
Re: Transmittal of Comments on Draft 2018 Basin Management Action Plan

I have reviewed the subject report and am transmitting with this memorandum a Word file of the report containing numerous comments and editorial suggestions. The latter are generally minor changes in how information is presented to minimize ambiguity. Most of the comments relate to technical details to make sure I am correctly understanding the information and to ensure that Montgomery & Associates has considered certain issues or alternative interpretations. With one exception, any change in those details would not likely result in a substantive change in conclusions or recommendations.

I recommend that the water balance in Table 10 and the related text show averages for the most recent 5 years instead of all the way back to 1988. Continuing to include older data in the water balance creates the impression that conditions are not changing. It would be more useful to provide an average of recent years that reflect pumping reductions and other actions that have been implemented to improve groundwater conditions. For example, the rate of decline in many of the hydrographs has slowed or even stopped in recent years. The water-level hydrographs show very little short-term response to wet and dry years, so it does not much matter whether average rainfall during the budget analysis period equals the long-term average.

All of the recommended management strategies described in Section 6 of the report seem reasonable. Some cost information would be needed to prioritize their implementation.

Attachment 2



January 21, 2019

**Seaside Groundwater Basin
2018 Basin Management Action Plan**

SEASIDE GROUNDWATER BASIN WATERMASTER
MONTEREY COUNTY, CALIFORNIA

DRAFT
UPDATED BMAP

Contents

1	Executive Summary	5
1.1	Introduction.....	5
1.2	Description and State of the Seaside Groundwater Basin	5
1.3	Supplemental Water Supplies	8
1.4	Groundwater Management Actions	11
1.5	Other Recommendations.....	11
2	Background and Purpose.....	12
3	State of the Seaside Groundwater Basin.....	14
3.1	Jurisdictional Framework.....	14
3.2	Geologic Framework	17
3.3	Groundwater Levels.....	19
	3.3.1 Basinwide Groundwater Contour Maps.....	19
	3.3.2 Northern Subarea Hydrographs	23
	3.3.3 Southern Subarea Hydrographs	27
	3.3.4 Protective Groundwater Elevations.....	33
3.4	Groundwater Level Conclusion	40
3.5	Groundwater Storage	41
	3.5.1 Storage Concepts	41
	3.5.2 Quantitative Estimates of Groundwater Storage.....	42
	3.5.3 Recent Changes in Groundwater in Storage	55
	3.5.4 Storage Efficiency.....	55
3.6	Groundwater Budget.....	56
	3.6.1 Groundwater Inflows	58
	3.6.2 Groundwater Outflows.....	59
	3.6.3 Change in Groundwater in Storage.....	61
3.7	Review of Natural Safe Yield.....	62
3.8	State of the Basin and Material Injury.....	63
4	Supplemental Supplies	65
4.1	Regional Context	65
4.2	Alternatives Currently Being Considered.....	66
	4.2.1 Monterey Peninsula Water Supply Project (MPWSP).....	66
	4.2.2 Regional Urban Water Augmentation Project (RUWAP)	70
	4.2.3 Monterey Bay Regional Water Project (MBRWP or Deepwater Desal Project) .	70
	4.2.4 People's Moss Landing Water Desalination Project (People's Project)	72
	4.2.5 Projects in the Planning Stage having the Potential to Increase Source Water to the MIW Advanced Wastewater Purification Facility	73
4.3	2009 BMAP Implemented Supplemental Supplies	75
	4.3.1 Sand City Water Supply Project	75

	4.3.2 Pacific Grove Wastewater Reuse Project	76
	4.3.3 Carmel River Water Aquifer Storage and Recovery Project – Phases 1 and 2....	76
4.4	Alternatives No Longer Being Pursued	77
	4.4.1 MPWMD 95-10 Desalination Project	77
	4.4.2 Seawater Conversion Vessel.....	77
	4.4.3 Coastal Water Project (Moss Landing Desalination – Local Alternative).....	78
	4.4.4 North Marina Desalination – Local Alternative.....	78
	4.4.5 Regional Alternative (Moss Landing Desalination – Regional Alternative).....	78
5	Basin Management Actions	80
5.1	Increase Groundwater Recharge.....	80
	5.1.1 Enhanced Storm Water Recharge within the City of Seaside.....	80
	5.1.2 Groundwater Injection Preferable to In-Lieu Recharge for Raising Coastal Groundwater Levels	81
5.2	Decrease Groundwater Demand	82
	5.2.1 Water Conservation	82
	5.2.2 Recycled Water for Laguna Seca Golf Courses.....	83
5.3	Operational Management	84
	5.3.1 Redistribute Pumping Among Existing Wells	84
	5.3.2 Install New Southern Coastal Subarea Wells	84
	5.3.3 Install New Inland Wells.....	85
	5.3.4 Coordination with Neighboring Sustainability Management Planning Agencies	85
6	Recommended Management Strategies	87
	Recommendation 1: Encourage Implementation of Selected Management Actions.....	87
	Recommendation 2: Groundwater Modeling to Determine a Combination of Management Actions and Supplemental Supply Projects that Achieve Protective Groundwater Elevations....	89
	Recommendation 3: Continue Ongoing Groundwater Monitoring	89
	Recommendation 4: Develop Long-Term Financing Plan for Replenishment Water.....	89
7	References Cited	91
8	Acronyms & Abbreviations	92

Tables

Table 1. Summary of Supplemental Water Supply Projects Currently Being Considered	9
Table 2. Summary of Supplemental Supply Projects Implemented since 2009	10
Table 3. Summary of Management Actions Implemented since 2009	10
Table 4. Summary of ASR Injection and Recovery by Water Year	24
Table 5. Summary of Protective Elevations for Coastal Monitoring Wells	33
Table 6. Useable Stored Groundwater under Pre-Development and Fall 2017 Conditions	50
Table 7. Total Usable Storage Space Estimates Using Protective Groundwater Elevations	52
Table 8. Allocation of Usable Storage Space	54
Table 9. Changes in Total Stored Groundwater Estimates from Groundwater Elevations	55
Table 10. Modeled Water Budget, Average over Water Years 1988 - 2017	57
Table 11. Modeled Net Flows between Subareas, Adjacent Basins and the Ocean, Average over Water Years 1988 - 2017	59
Table 12. Estimated Water Year 1988-2017 Natural Safe Yield of the Seaside Groundwater Basin	62
Table 13. Summary of Monterey Peninsula Water Conservation and Rationing Plan Stages	83

Figures

Figure 1. Administrative Jurisdictions in the Basin	16
Figure 2. Seaside Basin Well Locations	18
Figure 3. Shallow Zone Water Elevation Map – 4th Quarter WY 2017 (August-September 2017)	20
Figure 4. Deep Zone Water Elevation Map – 4th Quarter WY 2017 (August-September 2017)	21
Figure 5. Northern Coastal Subarea Hydrographs	25
Figure 6. Sentinel Well Hydrographs	26
Figure 7. Northern Inland Subarea Hydrographs	28
Figure 8. Southern Coastal Subarea Hydrographs	29
Figure 9. Laguna Seca Subarea Hydrographs	31
Figure 10. General Location of Groundwater Flow Divides in the Laguna Seca Subarea	32
Figure 11. PCA West Shallow Groundwater and Protective Elevations	34

Figure 12. MSC Shallow Groundwater and Protective Elevations.....	35
Figure 13. CDM-MW-4 Shallow Groundwater and Protective Elevations.....	36
Figure 14. PCA West Deep Groundwater and Protective Elevations.....	37
Figure 15. MSC Deep Groundwater and Protective Elevations	38
Figure 16. Sentinel Well 4 Groundwater and Protective Elevations	39
Figure 17. Model Calibrated Storage Coefficient for Model Layer 5 (Deep Aquifer).....	44
Figure 18. Shallow Protective Groundwater Elevations.....	46
Figure 19. Deep Protective Groundwater Elevations	47
Figure 20. Pre-Development Groundwater Elevations.....	48
Figure 21. Definition of Total Usable Storage Space.....	49
Figure 22. Annual Reported Groundwater Production and Operating Yield for Watermaster Producers.....	60

DRAFT

1 EXECUTIVE SUMMARY

1.1 Introduction

The Seaside Groundwater Basin's (the Basin) court-appointed Watermaster's primary role is to administer and enforce the provisions of the Decision filed February 9, 2007 by the Superior Court in Monterey County under Case No. M66343 - California American Water v. City of Seaside et al. (the Decision). One provision of the Decision is the requirement to develop a Monitoring and Management Plan (M&MP), which the Watermaster developed in May 2006. The M&MP included a recommendation to prepare a Basin Management Plan. The first Basin Management Plan, titled the *Seaside Groundwater Basin Management Action Plan (BMAP)* was completed in February 2009 (HydroMetrics LLC, 2009a). This current report updates the previous BMAP with the benefit of nine additional years' worth of groundwater data and an enhanced understanding of the Basin.

1.2 Description and State of the Seaside Groundwater Basin

The Basin as delineated in Exhibit B of the Decision is bounded by the Pacific Ocean on the west, faults and bedrock on the south, bedrock on the east, and a groundwater flow divide on the northern boundary. The Decision subdivides the subbasins into four subareas: Northern Inland, Northern Coastal, Southern Inland, and Southern Coastal. The northern and southern subbasins are separated by the Laguna Seca Anticline. This feature, including the segment of the Ord Terrace Fault that offsets the anticline, forms a subsurface hydraulic barrier to groundwater flow (**Figure ES-1**). The coastal and inland subareas are not separated by any geologic features, and groundwater flow is continuous between coastal and inland subareas.

The Basin comprises three aquifers: a deep aquifer, a shallow aquifer, and surficial Aromas Sands. The deep aquifer generally consists of the Purisima Formation and Santa Margarita Sandstone. The shallow aquifer refers collectively to numerous discontinuous lenses of sand and gravel in the Paso Robles Formation overlying the Santa Margarita Sandstone and below the surficial Aromas Sand layer.



EXPLANATION

- Adjudicated Seaside Groundwater Basin Boundary
- Basin Boundary
- Subarea Boundary
- Monitoring Well
- Production Well
- ASR Well
- Laguna Seca Anticline
- Faults

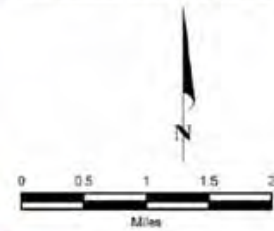


Figure ES-1. Seaside Basin Well Locations

Since the first BMAP, groundwater levels have continued to decline in all parts of the Basin except in the Southern Coastal Subarea and in shallow wells near the coast in the Northern Coastal Subarea. In those locations, groundwater levels remain stable. The continued groundwater level declines have not led to any observed seawater intrusion or other operational problems, other than the need to replace a monitoring well sampling pump so it can operate from a deeper depth. However, the declining groundwater level trend is not sustainable over the long-term.

The Basin's *Usable Stored Groundwater* is the amount of groundwater above protective groundwater elevations. It is estimated that the *Usable Stored Groundwater* is 6,350 acre-feet as of Fall 2017. The unsaturated area above the current groundwater table has approximately 90,600 acre-feet of *Total Usable Storage* space. Of the 90,600 acre-feet of total usable storage space, 62,020 acre-feet are in the Coastal and Northern Inland Subareas and 28,580 acre-feet are in the Laguna Seca Subarea. Using revised protective groundwater elevation surfaces, the sum of the *Usable Stored Groundwater* and the *Total Usable Storage* space is approximately 96,950 acre-feet.

The Basin has lost approximately 1,450 acre-feet per year of groundwater from storage since 1988. This equates to 43,500 acre-feet of groundwater lost from storage over 30 years. These losses are reflected in the lowered groundwater levels observed throughout the Basin.

A review of the Basin's Natural Safe Yield was conducted using the Basin's updated groundwater flow model. Using the same approach but different analysis period to that used in establishing the Natural Safe Yield in the Decision and in the first BMAP in 2009, the Natural Safe Yield was estimated to be 2,370 acre-feet per year over the past 30 years. This is less than the 2,850 acre-feet per year estimated in the 2009 BMAP, which was estimated over a six-year period between Water Years 2002 and 2007; and lower than the Natural Safe Yield of 3,000 acre-feet per year included in the Decision. Because the Natural Safe Yield estimate reflects the theoretical maximum amount of groundwater production that would have resulted in no decreases in groundwater in storage, it does not account for the uneven pumping distribution in the Basin which will cause localized groundwater level declines even at the lower Natural Safe Yield estimate.

Preventing future seawater intrusion requires raising groundwater levels near the coast to protective elevations. These groundwater elevations can be raised only if replenishment water is recharged into the Basin and not recovered, or pumping is reduced to less than the Natural Safe Yield.

1.3 Supplemental Water Supplies

Long-term supplemental supplies are needed to reduce pumping in the Basin to at or below the Natural Safe Yield; and to provide water which can be used to replenish the Basin. Developing these supplemental supplies is the strategy that will have the greatest impact on the Basin and allows for its long-term management and use in the future. Since the first BMAP, a number of projects have been developed by various project proponents and are in various stages of planning, environmental assessment, or construction. Most of these supplies are part of other larger programs.

The largest agency producers of groundwater in the Basin are California American Water Company (CAWC) and the City of Seaside. Supplemental water supply projects that have progressed the farthest focus on providing supplemental supplies to these two producers in order to meet their water rights as established by the Decision. These projects additionally provide water for CAWC to return to the Basin to restore the water it has over-pumped since the date of the Decision. A summary of supplemental water supply projects that are currently being considered, some of which are in the construction phase, is provided in **Table 1**. **Table 2** provides a summary of supplemental supply projects that have been implemented since the first BMAP was prepared in 2009. **Table 3** summarizes Basin management actions that have been implemented since 2009.

All of the projects and management actions, except one, are physical projects with capital costs associated with them. The exception is water conservation which does not produce additional supply but rather results in a demand reduction. Water conservation is already being given high priority by the Seaside Groundwater Basin Watermaster's (Watermaster) and its member agencies.



Table 1. Summary of Supplemental Water Supply Projects Currently Being Considered

Project	Project Proponent	Project Type and Capacity	Benefit to Seaside Basin	Status
Monterey Peninsula Water Supply Project (MPWSP)	California American Water Company (CAWC)	Desalinate (6.4 mgd plant capacity) saltwater extracted by slant wells; 7,167 AFY desalinated water, plus ASR wells for additional storage of desalinated water	Supplemental supply for CAWC so they can meet their adjudicated right, plus return to the Basin by in-lieu recharge, over a period of 25 years, the volume that they have historically over pumped	Draft EIR approved by California Public Utilities Commission (CPUC) in August 2018 CPUC approved project in September 2018
Regional Urban Water Augmentation Project (RUWAP)	Monterey One Water (M1W)	Inject purified wastewater from Pure Water Monterey (PWM) Project into the Seaside Basin; 3,500 AFY	Modeling predicts an increase in Basin groundwater levels	EIR complete and infrastructure currently being constructed
Monterey Bay Regional Water Project (MBRWSP or DeepWater Desal)	Marina Coast Water District (MCWD)	Distribute recycled water from the M1W Reclamation Plant; total of 1,727 AFY of recycled water to identified urban areas	Supplemental supply for two City of Seaside golf courses (Blackhorse and Bayonet, 450 AFY) and 250 AF for a proposed golf course in Del Rey Oaks; total of 700 AFY supplemental supply to offset over-pumping of the Basin	Phase 1 under construction in 2018
People's Moss Landing Water Desalination Project (People's Project)	Deepwater Desal LLC (DWD)	Desalinate ocean water from a deep open ocean intake within the Monterey Canyon; 25,000 AFY potable water	Supplemental supply to meet water demand and keep pumping below the Safe Yield	Notice of Preparation/ Notice of Intent to prepare a Draft EIR/EIS issued in June 2015
Greater Monterey County Storm Water Resource Plan (SWRP)	Moss Landing Green Commercial Park, LLC	Desalinate ocean water from an open ocean intake; 13,400 AFY potable water	Water to be used to meet needs of Monterey Peninsula area	Notice of Preparation for the People's Project issued in June 2015
	Multiple entities	Provide more source water for PWM by identifying storm water capture opportunities and/or direct recharge of storm water	Water for use in recharging, or reducing pumping from the Basin	Planning stage



Table 2. Summary of Supplemental Supply Projects Implemented since 2009

Project	Project Proponent	Project Type and Capacity	Benefit to Seaside Basin	Status
Sand City Water Supply Project	Owner: City of Sand City Operator: CAWC	Desalinate brackish source water: up to 300 AFY desalinated water	Supplemental water supply helps reduce pumping from the Basin	Facilities completed and placed into operation in 2010
Carmel River Water Aquifer Storage and Recovery Project (aka Seaside ASR) - Phases 1 & 2	Monterey Peninsula Water Management District (MPWMD)	Divert excess Carmel River winter flows during high flow periods, treat, and inject into four ASR wells for recovery by CAWC during dry periods; Phase 1 (2 wells) = up to 2,400 AFY stored, with an average annual yield of 920 AFY; Phase 2 (2 wells) = up to 2,900 AFY stored, with an average annual yield of 1,050 AFY	Supplemental water supply for the Basin	Phase 1 completed in 2007 and operational in 2008; Phase 2 completed in stages with one ASR well operational in 2012 and the second ASR well operational in 2015
Pacific Grove Wastewater Reuse Project	City of Pacific Grove	Treat and distribute reclaimed waste water for irrigation: 100 - 125 AFY	No benefit to Basin	Facilities completed and placed into operation in 2017

Table 3. Summary of Management Actions Implemented since 2009

Action	Proponent	Project Type and Capacity	Benefit to Seaside Basin	Status
Water Conservation	All municipal suppliers	Public awareness	Reduced water demand	Ongoing
Irrigate the Bayonet and Blackhorse Golf Courses with Water from the Ord Community Water System	City of Seaside	MCWD temporarily provided 2,160 AF to City of Seaside over a period of six years	Temporary supplemental water supply for the Basin used in lieu of pumping by the City of Seaside	This source was used from 2010 - 2015

1.4 Groundwater Management Actions

A number of management actions could be implemented by various water agencies to delay the onset of seawater intrusion and maximize the use of groundwater. Any action that assists in appropriate management of the Basin should be encouraged and supported by the Watermaster. Of the near-term management actions reviewed in this BMAP, the following appear to be the most cost-effective, most likely to be implemented, and provide the greatest benefit to the Basin:

- Install Southern Coastal Subarea wells in coordination with the Watermaster to determine optimal pumping locations that do not cause groundwater levels to fall below protective elevations.
- Use recycled water in the Laguna Seca Subarea for golf course irrigation.
- Support water conservation.
- Coordinate with the Salinas Valley Basin Groundwater Sustainability Agency and Marina Coast Water District Groundwater Sustainability Agency to ensure that sustainable management criteria included in the neighboring Groundwater Sustainability Plans (GSPs) do not limit the Watermaster's sustainable management of the Basin, and
- Enhance storm water recharge of the City of Seaside's storm water.

The recommended near-term actions are not intended to provide long-term solutions for restoring groundwater levels in the Basin, although some near-term solutions may have long-term benefits.

1.5 Other Recommendations

This updated BMAP identifies other recommendations that need to be addressed and pursued by the Watermaster.

- Use the groundwater flow model to evaluate the combination of Basin management actions and supplemental water supply projects to determine their ability to raise groundwater levels to protective elevations.
- Re-evaluate the Basin's natural safe yield given the impacts of various projects currently being implemented.
- Continual annual analyses of groundwater levels and quality.

THIS PAGE INTENTIONALLY LEFT BLANK

SEASIDE GROUNDWATER BASIN
WATERMASTER

TO: Board of Directors

FROM: Robert S. Jaques, Technical Program Manager

DATE: June 5, 2019

SUBJECT: Discussion and Possible Approval of Allocation of Water Rights After Decision-Required Pumping Ramp-Downs Have Been Completed

RECOMMENDATIONS:

Ramp-down to 3,000 AFY in WY 2021 and assign water allocations to each Producer as shown in Table 7 of Attachment 1 after all pumping ramp-downs have been completed.

BACKGROUND:

At its February 13, 2019 meeting the TAC approved the Draft Updated Basin Management Action Plan (Updated BMAP). One of the findings in the Updated BMAP is that the Natural Safe Yield (NSY) of the Basin is 2,370 AFY, which is lower than the Adjudication Decision's initially-established 3,000 AFY.

Attached is a Memo titled "Seaside Groundwater Basin Natural Safe Yield Allocations to Producers." The Memo describes how the Adjudication Decision allocated water rights to each of the Producers (both Standard and Alternative Producers), and the water rights that each Producer would have after all of the Decision-required ramp-downs in pumping have been completed. The Memo also briefly describes the water rights impacts that would result from lowering the NSY of the Basin from 3,000 AFY to 2,370 AFY.

As discussed in the Memo, the approach used to make these calculations is based on the assumption that the Decision contemplated that all of the Basin's NSY comes from the Laguna Seca and the Coastal Subareas, and that none of it comes from the Northern Inland Subarea. Two options for arriving at the water rights for each Producer are presented in the Memo.

As noted in the Memo, there are some inconsistencies in the Decision which complicate the calculation of water rights after the ramp-downs are completed.

At its March 13, 2019 meeting the TAC recommended that I meet with the Producers (the well pumpers in the Seaside Basin) to discuss the pumping ramp-down analysis with them. I met with the Producers on March 21 and discussed with them the attached Memo. Although all of the Producers were invited, and nearly all responded to the meeting invitation, the Producer representatives that actually attended were:

- California American Water Company (CAWC)
- Cypress Pacific (formerly Calabrese)
- DBO
- Laguna Seca Golf Resort
- City of Seaside
- Granite Rock

It may be that the producers that did not attend reviewed the Memo before the meeting and decided that either of the ramp-downs discussed in it would not adversely impact them, and so they did not feel the need to attend.

The Memo contains a set of ramp-down calculations for a basin-wide NSY of 3,000 AFY, because 3,000 AFY had been the ramp-down figure that was developed when CAWC was sizing its Monterey Peninsula Water Supply Project. That analysis led to the conclusion that CAWC's ultimate water right in the Basin would be 1,474 AFY, based on a basin-wide Natural Safe Yield of 3,000 AFY. Therefore, it was appropriate to include the ramp-down analysis leading to CAWC's 1,474 AFY of ultimate water right. Also contained in the Memo is a set of ramp-down calculations for a basin-wide NSY of 2,913 AFY, based on a slightly different interpretation of the Adjudication Decision.

My notes of comments provided by the Producers at the March 21 meeting are also attached.

DISCUSSION:

I believe the attached Memo provides all of the necessary background information and calculations for use by the Board in determining which of the two ramp-down figures (3,000 AFY or 2,913 AFY) should be used when the next (and presumably final) ramp-down occurs in WY 2021.

I also believe that either of the two approaches would be consistent with the Decision, since there is an apparent anomaly in the Decision regarding what it establishes as the NSY of the Seaside Basin.

At its May 8, 2019 meeting the TAC voted unanimously to recommend to the Board to use 3,000 acre-feet per year as the Natural Safe Yield value when making the calculations for the next ramp-down in pumping, in part because ramping-down to 3,000 AFY would cause less hardship on the Alternative Producers by not requiring them to ramp-down along with the Standard Producers. Ramping down to 2,913 AFY would provide negligible additional benefit and would require both the Standard and Alternative Producers to ramp-down.

ATTACHMENTS:

1. Memorandum dated March 18, 2019 titled "Seaside Groundwater Basin Natural Safe Yield Allocations to Producers"
2. Notes from March 21, 2019 meeting with the Producers

Attachment 1

MEMORANDUM

TO: Seaside Groundwater Basin Producers

FROM: Robert S. Jaques, Technical Program Manager, Seaside Basin Watermaster

DATE: March 18, 2019

SUBJECT: Seaside Groundwater Basin Natural Safe Yield Allocations to Producers

Introduction

As required by the Amended Seaside Groundwater Basin Adjudication Decision dated February 2007 (referred to herein simply as the “Decision”), ramp-downs in pumping are to be performed triennially until the initially authorized Operational Yield (OY) of 5,600 acre-feet per year (AFY) is reduced to the Basin’s Natural Safe Yield (NSY).

The purpose of this Memorandum is to describe how the allocation of water rights to each of the Producers that are parties to the Decision could be calculated once these ramp-downs to achieve NSY production levels have been completed. These allocations will be the amounts that each Producer can pump on an ongoing basis and be in compliance with the Decision.

The Memorandum also briefly provides information on the water rights impacts if the initial NSY established by the Decision were to be reduced as recommended in the recently completed Draft Updated Basin Management Action Plan (Updated BMAP). No action or decision on using a lower NSY has been made, and no consideration of that recommendation by the Watermaster Board is expected until at least the Board’s June 2019 meeting.

The Decision’s Breakdown of NSY Between Subareas of the Basin

The Decision breaks the Seaside Basin down into these four subareas:

- Northern Coastal Subarea
- Southern Coastal Subarea
- Northern Inland Subarea
- Laguna Seca Subarea

The Decision used the NSY approach to establish the total quantity of water that Producers may ultimately pump from the Basin on an ongoing basis (their long-term OYs), and laid out how the long-term OYs are to be allocated amongst the various Producers. Under the NSY approach used in the Decision, Alternative Producers have first rights to the NSY, and Standard Producers share in the amount of NSY remaining after the Alternative Producer allocations have been made. The 5,600 AFY Basinwide initial OY consisted of an OY of 4,611 AFY for the Coastal Subarea and an OY of 989 AFY for the Laguna Seca Subarea.

Section III.A.17 of the Decision states that for the Basin as a whole the NSY is between 2,581 and 2,913 AFY, that for the Coastal Subarea the NSY is between 1,973 and 2,305 AFY, and that for the Laguna Seca Subarea the NSY is 608 AFY.

However, Section III.A.20 of the Decision states that the initially assumed Basinwide NSY is 3,000 AFY. In the range of values stated in the Decision for the Coastal Subarea (1,973 to 2,305 AFY), if the upper value of 2,305 AFY is added to the 608 AFY for the Laguna Seca Subarea, the resultant NSY is only 2,913 AFY for these two Subareas. This is slightly less than the Basinwide NSY of 3,000 AFY cited in Section III.A.20. This apparent anomaly in the Decision is discussed below in the section titled *Pumping Ramp-down Calculations*.

Alternative and Standard Producer Allocations

Table 2 on page 21 of the Decision sets forth the initial Alternative Producer allocations in the Coastal and Laguna Seca Subareas. These are shown below in Table 1.

In 2015 Alternative Producer Calabrese converted 8 AFY of its Alternative Production allocation to a Standard Production allocation, leaving it with 6 AFY of Alternative Production. As a result of this the Alternative Production allocations were revised to those shown below in Table 2.

Table 1 on page 19 of the Decision sets forth the initial Standard Producer percentages of OY in the Coastal and Laguna Seca Subareas as shown below in Table 3. Shown in the right-hand column of Table 3 are the percentages of the total Standard Producer allocation for each of these Standard Producers.

As a result of Producer Calabrese's 2015 partial conversion of its Alternative Production allocation to a Standard Production allocation, giving it 8 AFY of Standard Production, the Standard Production OY allocation percentages were revised to those shown below in Table 4.

Pumping Ramp-down Calculations

The Decision requires only Standard Producers to ramp-down in order for pumping to be reduced to the NSY level, unless all Standard Producers are ramped-down to zero production, in which case ramp-downs are also required of Alternative Producers. If it is necessary to ramp-down Alternative Producers, the amount of ramp-down required would be allocated amongst the Alternative Producers in proportion to their share of the initial OY of the subarea within which they are located.

3,000 AFY NSY

If it is assumed that the intent of the Decision was to set the Basinwide NSY at 3,000 AFY, and that the ranges of values for NSY cited in Section III.A.17 were simply to provide background information, then the allocation of long-term OY would be calculated on the Basin as a whole, and not on a subarea-by-subarea basis. This subsection describes the calculation of long-term OYs based on this assumption.

Section III.A.20 of the Decision establishes an OY of 4,611 AFY for the Coastal Subarea, and in that subarea the total allocation to Alternative Producers (including the Calabrese partial conversion to Standard Production) is 735 AFY as shown below in Table 2. Therefore, the OY available to Standard Producers in the Coastal Subarea is $4,611 - 735 = 3,876$ AFY. Using the allocation percentages in Table 4, the amount of OY available to each Standard Producer in the Coastal Subarea before any ramp-downs occur is shown below in Table 5.

Similarly, Section III.A.20 of the Adjudication Decision establishes an OY of 989 AFY for the Laguna Seca Subarea, and in that subarea the total allocation to Alternative Producers is 644 AFY as shown above in Table 2. Therefore, the OY available to Standard Producers in the Laguna Seca Subarea is $989 - 644 = 345$ AFY. Using the allocation percentages in Table 4, the amount of OY available to each Standard Producer in the Laguna Seca Subareas is shown in Table 5. Note that there is only one Standard Producer in the Laguna Seca Subarea – California American Water.

The total amount of OY available to each Standard Producer for all subareas Basinwide before any ramp-downs occur is shown in Table 6, along with the percentage of total OY available to each Standard Producer Basinwide. In that table the OY available to California American Water is the sum of its OYs in the Coastal and Laguna Seca Subareas ($3,505 + 345 = 3,850$ AFY).

If the OY is ramped-down to an NSY of 3,000 AFY for the Basin as a whole, the total amount of long-term OY available to Standard Producers is $3,000 - 735 - 644 = 1,621$ AFY. Since all of the required ramping-down can be accomplished by the Standard Producers, the Alternative Producers do not have to ramp-down.

Table 7 shows the long-term OYs for all Producers Basinwide if the Basinwide OY is ramped-down to 3,000 AFY.

The 3,000 AFY approach was used to arrive at California American Water's 1,474 AFY of long-term OY that was reported in the March 2018 FEIR/EIS for the Monterey Peninsula Water Supply Project. As seen in Table 7, that figure rose slightly to 1,479 AFY as result of Calabrese's later partial conversion of its Alternative Production to Standard Production.

As a result of the ramp-downs that have already been implemented, current OY allocations Basinwide total 3,360 AFY. Achieving a Basinwide OY of 3,000 AFY would require a ramp-down of 360 AFY in WY 2021.

2,913 AFY NSY

A lengthy discussion of the pumping ramp-downs was held between Russ McGlothlin (Watermaster's legal counsel), Lori Girard (California American Water's legal counsel), and Watermaster staff (Laura Paxton and Bob Jaques) on March 6, 2019. The apparent anomaly in the Decision regarding the Basin's NSY, mentioned above, was one topic explored in that discussion.

The apparent anomaly suggests that the Decision may (1) simply have rounded up the 2,913 AFY figure to 3,000 AFY, recognizing that subsequent studies might arrive at an updated set of NSYs for each of these subareas, or (2) may have contemplated that a portion of the Basinwide NSY comes from the other of the Basin's four subareas, namely the Northern Inland Subarea. Of the four persons who were in the March 6 discussion, only Mr. McGlothlin actually participated in the legal process that led to the Decision. He felt that the 3,000 AFY figure was simply a rounding-up of the 2,913 AFY, and that the intent of the Decision actually was for the NSY for the Coastal Subarea to be between 1,973 and 2,305 AFY, and that the NSY for the Laguna Seca Subarea was to be 608 AFY. Since there are no Producers with wells in the Northern Inland Subarea, it would have been impossible to allocate any portion of the Northern Inland Subarea's NSY to any of the Producers. Also, in the Decision the NSY of between 1,973 and 2,305 AFY for the Coastal Subarea is not broken down between the Southern Coastal Subarea and the Northern Coastal Subarea, which together constitute the Coastal Subarea. Therefore, it is not possible to allocate the Coastal Subarea NSY within these two subareas.

For the reasons stated in the paragraph above, one could conclude that the intent of the Decision was that the Basinwide NSY was intended by the Decision to be a maximum of 2,913 AFY, and that this amount was to be allocated to just the Coastal and Laguna Seca Subareas. Under that assumption, the maximum NSY allocated to the Coastal Subarea would be 2,305 AFY and the NSY allocated to the Laguna Seca Subarea would be 608 AFY.

Section III.B.2 of the Decision states that the OYs for both subareas (the Coastal Subarea and the Laguna Seca Subarea) are to be reduced by ramp-downs until the OY in each subarea is equivalent to the NSY for that subarea.

Ramping down the OYs in the Coastal Subarea to reach the NSY of 2,305 AFY, with a total allocation to Alternative Producers in the Coastal Subarea of 735 AFY, would require the Standard Producers to ramp-down to $2,305 - 735 = 1,570$ AFY. No ramp-down by Alternative Producers in that subarea would be necessary to reach the 2,305 AFY level.

Ramping down the OYs in the Laguna Seca Subarea would require a 100% ramp-down of the one Standard Producer's (California American Water) allocation, and partial ramp-downs for each of the Alternative Producers, to reach the NSY of 608 AFY.

Using this method of calculation, the allocations to all of the Producers would be as shown below in Table 8.

As a result of the ramp-downs that have already been implemented, current OY allocations Basinwide total 3,360 AFY. Achieving a Basinwide OY of 2,913 AFY would require a ramp-down of 447 AFY in WY 2021.

Updated BMAP

Using the Watermaster's Seaside Basin Groundwater Model (that did not exist at the time the Decision was prepared) and more recent data from the Watermaster's well monitoring program, the Updated BMAP developed a new NSY of 2,370 AFY figure for the Basin as a whole. Under this new NSY, 2,570 AFY was in the Coastal and Inland Subareas, and -200 AFY (a negative NSY) was in the Laguna Seca Subarea. A negative NSY means that more water is naturally being lost from a subarea than is coming into the subarea to recharge it through precipitation and subsurface groundwater flow.

Having a negative NSY for the Laguna Seca Subarea would mean that all pumping in that subarea would have to be eliminated. This would be untenable. The negative NSY of 200 AFY for that subarea will hopefully be mitigated in conjunction with the development of the Groundwater Sustainability Plan (GSP) for the adjacent Monterey Subarea of the Salinas Valley Basin. The Salinas Valley Basin Groundwater Sustainability Agency and the Marina Coast Water District Groundwater Sustainability Agency will be working together to coordinate the development of that GSP. That GSP must be completed by January 31, 2022. Once that GSP has been developed, it would be appropriate to reevaluate the Laguna Seca Subarea NSY to determine if changes in Producer allocations in that subarea will be necessary in order to achieve NSY.

Watermaster staff will participate in the development of the GSP through membership on the committees that these GSAs have established to review and comment on draft chapters of the GSP as it is being developed by their consultants.

At this time it would not be appropriate to reduce Producer allocations below the levels described in the *Pumping Ramp-down Calculations* above.

Historical Pumping and Ramp-Downs

Table 9 provides a summary of each Producer’s pumping in recent Water Years (WY - October 1 to September 30) as well as the ramped-down OY for each Producer. The blue-highlighted production figures indicate that the amount pumped exceeded the OY available. As the table indicates, the only Producers that have been unable, at least in some years, to reduce their pumping to stay within the OY available to them are California American Water and the City of Seaside’s municipal system.

The two far right-hand columns of Table 9 show the projected Final Allocations, taken from Tables 7 and 8, that each Producer would have depending on which NSY value (3,000 AFY or 2,913 AFY) is used in the final ramp down calculation. Regardless of which NSY value is used, it appears that only California American Water and the City of Seaside’s municipal system would have difficulty reducing their pumping to stay within the long-term OY available to them.

TABLES

Table 1. Initial Alternative Production Allocations

Coastal Subarea	
Producer	Allocation, AFY
Seaside Golf Courses	540
SNG	149
Calabrese	14
Mission Memorial	31
Sand City	9
Subtotal Coastal Subarea	743
Laguna Seca Subarea	
Producer	Allocation, AFY
Pasadera	251
Bishop	320
York School	32
Laguna Seca County Park	41
Subtotal Laguna Seca Subarea	644

Table 2. Revised Alternative Production Allocations

Coastal Subarea	
Producer	Allocation, AFY
Seaside Golf Courses	540
SNG	149
Calabrese	6
Mission Memorial	31
Sand City	9
Subtotal Coastal Subarea	735
Laguna Seca Subarea	
Producer	Allocation, AFY
Pasadera	251
Bishop	320
York School	32
Laguna Seca County Park	41
Subtotal Laguna Seca Subarea	644

Table 3. Initial Percentages of Operating Yield Allocated to Standard Producers

Coastal Subarea		
Producer	Percentage of Total Subarea OY	Percentage of Subarea Standard Producer Allocation
California American Water	77.55	90.6
City of Seaside (Municipal)	6.36	7.43
Granite Rock Company	0.6	0.7
D.B.O. Development No. 27	1.09	1.27
Subtotal Coastal Subarea	85.60	100.00
Laguna Seca Subarea		
Producer	Percentage of Total Subarea OY	Percentage of Subarea Standard Producer Allocation
California American Water	45.13	100
Subtotal Laguna Seca Subarea	45.13	100.00

Table 4. Revised Percentages of Operating Yield Allocated to Standard Producers

Coastal Subarea		
Producer	Percentage of Total Subarea OY	Percentage of Subarea Standard Producer Allocation
California American Water	77.55	90.44
City of Seaside (Municipal)	6.36	7.42
Granite Rock Company	0.6	0.70
D.B.O. Development No. 27	1.09	1.27
Calabrese	0.15	0.17
Subtotal Coastal Subarea	85.75	100.00
Laguna Seca Subarea		
Producer	Percentage of Total Subarea OY	Percentage of Subarea Standard Producer Allocation
California American Water	45.13	100
Subtotal Laguna Seca Subarea	45.13	100

Table 5. OY Available to Standard Producers in the Coastal and Laguna Seca Subareas Before Any Ramp-downs Occur

Coastal Subarea		
Producer	Percentage of Subarea Standard Allocation Multiplied by Amount of OY Available	OY Available, AFY
California American Water	90.44 x 3,876	3505
City of Seaside (Municipal)	7.42 x 3,876	288
Granite Rock Company	0.7 x 3,876	27
D.B.O. Development No. 27	1.27 x 3,876	49
Calabrese	0.17 x 3,876	7
Subtotal Coastal Subarea		3876
Laguna Seca Subarea		
Producer	Percentage of Subarea Standard Allocation Multiplied by Amount of OY Available	OY Available, AFY
California American Water	100.00 x 345	345*
Subtotal Laguna Seca Subarea		345

* Section III.B.2 of the Decision states that of the 989 AFY total OY for the Laguna Seca Subarea, 644 AFY is allocated to the Alternative Producers and 345 AFY is allocated to the Standard Producers. Since California American Water is the only Standard Producer in the Laguna Seca Subarea, this establishes California American Water's Laguna Seca Subarea OY allocation of 345 AFY.

Table 6. Total OY Basinwide Available for Each Standard Producer Before Any Ramp-downs Occur

Producer	OY Available, AFY	Percentage of Available OY
California American Water	3505 + 345 = 3850	91.22%
City of Seaside (Municipal)	288	6.81%
Granite Rock Company	27	0.64%
D.B.O. Development No. 27	49	1.17%
Calabrese	7	0.16%
Total for All Subareas	4221	100.00%

Table 7. Total Long-term OYs Available to All Producers After Ramp-downs Are Complete, if the NSY is 3,000 AFY

Producer	Percentage of Available OY Multiplied by Amount of NSY Available	Long-term OY Available, AFY
Standard Producers		
California American Water	91.22 x 1,621	1479
City of Seaside (Municipal)	6.81 x 1,621	110
Granite Rock Company	0.64 x 1,621	10
D.B.O. Development No. 27	1.17 x 1,621	19
Calabrese	0.16 x 1,621	3
Total for All Standard Producers		1621
Alternative Producers		
Seaside Golf Courses		540
SNG		149
Calabrese		6
Mission Memorial		31
Sand City		9
Pasadera		251
Bishop		320
York School		32
Laguna Seca County Park		41
Total for All Alternative Producers		1379
	Basinwide Total	3000

Table 8. Total Long-term OYs Available to All Producers After Ramp-downs Are Complete if the Basinwide NSY is 2,913 AFY

Producer	Percentage of Available OY Multiplied by Amount of NSY Available	Long-term OY Available, AFY
Standard Producers		
California American Water	90.44 x 1,570	1420
City of Seaside (Municipal)	7.42 x 1,570	116
Granite Rock Company	0.70 x 1,570	11
D.B.O. Development No. 27	1.27 x 1,570	20
Calabrese	0.17 x 1,570	3
Total for All Standard Producers		1570
Alternative Producers		
Seaside Golf Courses		540
SNG		149
Calabrese		6
Mission Memorial		31
Sand City		9
Pasadera	251/644 x 608	237
Bishop	320/644 x 608	302
York School	32/644 x 608	30
Laguna Seca County Park	41/644 x 608	39
Total for All Alternative Producers		1343
	Basinwide Total	2913

Table 9. Historical Production and OY Allocations

Producer	Type of Producer	WY 2014		WY 2015		WY 2016		WY 2017		WY 2018		Projected WY 2021 OY Allocation	
		Actual Production AFY	OY Allocation After 2nd Ramp-down	Actual Production AFY	OY Allocation After 3rd Ramp-down	Actual Production AFY	OY Allocation After 3rd Ramp-down	Actual Production AFY	OY Allocation After 3rd Ramp-down	Actual Production AFY	OY Allocation After 4th Ramp-down	Final OY Allocation Based on an NSY of 3,000 AFY	Final OY Allocation Based on an NSY of 2,913 AFY
Coastal Subareas													
California American Water (Coastal Sub)	Standard	2,871	2,669	2,437	2,234	1,562	2,234	1,730	2,234	1,926	1,792	1,479*	1,420*
City of Seaside (Municipal)	Standard	224	219	183	185	195	185	188	183	183	147	110	116
Gracie Rock Company	Standard	0	21	0	17	0	17	0	17	0	14	10	11
DBO Development No. 27	Standard	0	37	0	32	0	32	0	32	0	25	19	20
Calabrese Cypress Pacific Inv.)	Standard	0	0	0	4	0	4	0	4	0	3	3	3
City of Seaside (Golf Courses)	Alternative	1	540	312	540	438	540	439	540	512	540	540	540
Sand City	Alternative	1	9	1	9	1	9	0	9	1	9	9	9
SNG (Security National Guaranty)	Alternative	0	149	0	149	0	149	0	149	0	149	149	149
Calabrese Cypress Pacific Inv.)	Alternative	0	14	0	6	0	6	0	6	0	6	6	6
Mission Memorial (Alderwoods)	Alternative	25	31	18	31	14	31	14	31	14	31	31	31
Laguna Sea Subarea													
CAY - Laguna Sea Subarea	Standard	362	147	328	48	317	48	299	48	303	0	0	0
Nicklaus Club Monterey	Alternative	207	251	193	251	112	251	155	251	143	251	251	237
Laguna Sea Golf Resort (Bishop)	Alternative	300	320	249	320	224	320	193	320	240	320	320	302
York School	Alternative	22	32	18	32	14	32	14	32	17	32	32	30
Laguna Sea County Park	Alternative	29	41	21	41	17	41	16	41	22	41	41	39
Basin Totals		4,040	4,480	3,762	3,920	2,913	3,920	3,049	3,920	3,363	3,360	3,000	2,913

Notes:

1. Blue shading indicates production exceeded allocation.
 2. Ramp-downs shown above through WY 2018 are based on ramping-down 10% triennially from a starting Basinwide OY of 5,600 AFY to an ending Basinwide OY of 3,000 AFY to match the initial NSY of 3,000 AFY.
 3. Ramp-downs shown in the two right-hand columns show two sets of final ramp-down figures: (1) Ramp-down to a final Basinwide OY of 3,000 AFY and (2) ramp-down to a final Basinwide OY of 2,913 AFY.
- * This is California American Water's long-term OY for all subareas.

Attachment 2

Notes from March 21, 2019 Producers Meeting

- California American Water pointed out that its higher than usual pumpage in WYs 2014 and 2015 was because of the small amount of ASR water that was available in those years.
- California American Water reported that with the implementation of the Monterey Peninsula Water Supply Project, it will discontinue its pumping from the Laguna Seca Subarea.
- Cypress Pacific reported that it is subject to ramp-down requirements imposed by MPWMD, so the ramp-downs discussed in the Memo did not have any additional impacts on them.
- There was interest in seeing what the pumpers to the east of the Laguna Seca Subarea will do under the Groundwater Sustainability Plan with which they will have to comply, and how that may mitigate the problem of falling water levels in that subarea, and perhaps elsewhere in the Seaside Basin.
- The City of Seaside said it is working on how to achieve the projected ramp-down levels for its Municipal Water System.
- Laguna Seca Resort said it did not realize that Alternative Pumpers could be required to ramp-down. Cutting back to less than current pumping levels would have a significant adverse impact on their golf course.
- There was some discussion regarding potentially doing more pumping in the Southern Coastal Subarea and returning this additional water to the Laguna Seca Subarea to help mitigate the falling water levels there.
- There seemed to be consensus to not pursue the Sustainable Yield approach at this time, but instead to work with the neighboring Corral de Tierra area (part of the Monterey Subbasin of the larger Salinas Valley Groundwater Basin) to try to resolve the problem of falling groundwater levels in the Laguna Seca Subarea.
- California American Water would like to get its desalination plant on-line before the Watermaster considers making any changes to the Natural Safe Yield approach used in the Decision to determine ultimate water rights to the Producers.

SEASIDE GROUNDWATER BASIN
WATERMASTER

TO: Board of Directors

FROM: Robert S. Jaques, Technical Program Manager

DATE: June 5, 2019

SUBJECT: Discussion of the Pros and Cons of Using the Sustainable Yield Approach in Place of the Natural Safe Yield Approach for Basin Management

RECOMMENDATIONS:

- A Sustainable Yield analysis should not be performed at this time.
- The concept of using the Sustainable Yield approach to replace the Natural Safe Yield approach should be revisited after the Groundwater Sustainability Plan for the Monterey Subbasin of the Salinas Valley Groundwater Basin has been completed, and its impacts on the Seaside Groundwater Basin have been determined.
- If something is learned, or events occur, that would warrant performing a Sustainable Yield analysis sooner, the Board should revisit the decision at that time.

BACKGROUND:

Attachment 1 contains the Proposal received from Montgomery & Associates to perform a Sustainable Yield (SY) analysis. Performing the analysis will be a complex and costly undertaking, and will require a considerable amount of interaction with the TAC to develop basin-wide operational parameters and management targets. Examples of potential management targets would include managing the Basin's groundwater levels to achieve protective groundwater elevations at the coast, or setting groundwater elevation targets at Laguna Seca wells to halt declining groundwater levels at a level acceptable to the groundwater users.

Attachment 2 provides background information describing why Montgomery & Associates and Todd Groundwater (Gus Yates) believe that using SY would be a better basin management approach than continuing to use Natural Safe Yield (NSY).

The SY analysis will rely entirely on the predictive portion of the Seaside Basin groundwater model. The underlying assumptions of the predictive model will need to be updated for the model to be comparable to groundwater models being used in the larger Salinas Valley. When the model was developed in 2009, the TAC provided substantial input on assumptions related to how long the predictive period was to be, what future climate to use, and what future pumping to include over the predictive period. While some of these are impossible to forecast exactly, it will be important to use assumptions that reflect current science and Basin understanding and therefore some updates will be necessary. The underlying assumptions of the predictive portion of the Seaside Basin groundwater model will need to be updated in order for the model to be comparable to groundwater models being used in the larger Salinas Valley Basin, and to incorporate assumptions that reflect current science and Basin understanding.

DISCUSSION:

Undertaking this work was not included in the 2019 Monitoring and Management Plan (M&MP) or in the FY 2019 M&MP Operations Budget, because the recommendation to do this work did not arise until the Updated BMAP was received. The Contingency line-item in the 2019 M&MP Operations Budget is far too small to cover these projected costs, so if the Board wished to pursue this work, I anticipate that it would probably want to defer it until a future year, so it could be included in the M&MP Work Plan and Operations Budget for that year. I also anticipate that the Board would first wish to seek the Court's approval to make the change from NSY to SY.

Attachment 3 contains a summary of pertinent information gained from previous groundwater modeling work. From this modeling work it is apparent that the Basin cannot sustain pumping at any reasonable level without the injection of a new source of water to raise groundwater levels to protective elevations.

Attachment 4 contains a discussion of potential Pros and Cons of developing and using the SY approach, developed through discussions with the TAC.

Because of the complexity of these issues, the TAC believes the Watermaster should proceed very thoughtfully and carefully in determining what, if any, changes to propose making to the Court. The approach recommended by the TAC is that:

1. An SY analysis not be performed at this time.
2. The concept of using the SY approach to replace the NSY approach be revisited after the Groundwater Sustainability Plan for the Monterey Subbasin of the Salinas Valley Groundwater Basin has been completed, and its impacts on the Seaside Groundwater Basin have been determined.
3. However, if something is learned or events occur, that would warrant performing an SY analysis sooner, the Board should revisit the decision at that time.

ATTACHMENTS:

1. Proposal from Montgomery & Associates to Perform a Sustainable Yield Analysis of the Seaside Basin
2. Background Information from Montgomery & Associates and Todd Groundwater on NSY and SY
3. Summary of Pertinent Information from Previous Groundwater Modeling Work
4. Discussion Paper of Potential Pros and Cons of Using the Sustainable Yield Approach in Place of Using Natural Safe Yield for Basin Management

Attachment 1



www.elmontgomery.com
1814 Franklin Street, Ste. 501
Oakland, CA 94612
510.903.0458

February 1, 2019

Mr. Bob Jaques
Seaside Watermaster Technical Program Manager
83 Via Encanto
Monterey, CA 93940

SUBJECT: COST PROPOSAL FOR SEASIDE BASIN SUSTAINABLE YIELD ANALYSIS

Dear Mr. Jaques:

Montgomery & Associates (M&A) appreciates the opportunity to present this scope of work and cost for estimating the Sustainable Yield of the Seaside Basin (Basin).

As described in the recent BMAP Update, the simplified method used to estimate Natural Safe Yield is now recognized as not being complete enough to take into account the complexities of inflows and outflows that are occurring in the Basin, and which ultimately affect the amount of groundwater that can be sustainably pumped from the Basin without causing negative effects. A more complete approach to managing the Basin is to use the Seaside Basin Watermaster model (model) to optimize the amount of pumping that can be sustained (Natural Sustainable Yield) at existing and/or new wells. This Natural Sustainable Yield acknowledges management targets such as stopping declining groundwater levels or meeting protective groundwater elevations. The model is the appropriate tool for integrating the effects of various pumping rates with operating or planned projects in the Basin. It is important that the Technical Advisory Committee (TAC) provide input for determining all the operational parameters and management targets to include in the analysis of Sustainable Yield.

This scope of work outlines tasks to estimate the Natural Sustainable Yield. Tasks include developing management targets and updating the predictive portion of the model. Additional tasks include simulating and optimizing a combination of management actions and supplemental water supply projects to estimate the Natural Sustainable Yield.

The tasks described below may be more than the TAC would like to include in the modeling for the Natural Sustainable Yield analysis, and therefore some tasks are identified as optional tasks in the task heading.



TASK 1. DEVELOP OPERATIONAL PARAMETERS & MANAGEMENT TARGETS

M&A will support the TAC in developing basin-wide operational parameters and management targets to be used in the Natural Sustainable Yield optimization modeling runs. Examples of potential management targets would include managing the Basin's groundwater levels to meet the protective groundwater elevations at the coast, or setting a groundwater elevation target at Laguna Seca wells to halt declining groundwater levels at a level acceptable to the groundwater users.

We anticipate attending and participating in up to two TAC meetings in person for this task. The costs for TAC meetings are included in Task 7.

TASK 2. EXTEND PREDICTIVE MODEL CLIMATE

The analysis of Natural Sustainable Yield relies entirely on the predictive portion of the model. There are a number of aspects and underlying assumptions of the predictive model that need to be updated for the model to be comparable to groundwater models being used in the larger Salinas Valley. These updates were not part of the recent model update as that effort was purely to update and calibrate the historical Model.

When the model was developed in 2009, the TAC provided substantial input on assumptions related to how long the predictive period was to be, what future climate to use, and what future pumping to include over the predictive period. We acknowledge that some of these are impossible to forecast exactly, but it is important to use assumptions that reflect current science and Basin understanding and therefore some updates are necessary.

TASK 2.1. EXTEND HISTORICAL HYDROLOGY BASELINE SCENARIO

Since 2009, all predictive simulations using the model have been based on repeating the historical hydrology from the 22-year model calibration period of 1987 – 2008. The current predictive simulation runs from 2009 through 2042. While maintaining this approach allows for direct comparison between new simulations and previous simulations, it does not take advantage of the additional nine years of hydrologic and climatic data that have been incorporated into the historical model. The historical model was updated in 2014 and 2018, and now includes a continuous 31 year hydrologic record from 1987 through 2017. Significantly, this 31-year hydrologic record includes the recent 2012-2015 drought. We propose that this full 31-year historical hydrology and climate dataset be used as basis for all predictive modeling, as this incorporates a broader range of potential climate variability.

There are two options for extending the hydrology for the historical predictive baseline:

1. Simply repeat the 31-year hydrology from 1987 – 2017, so that the baseline scenario is extended out 31-years from 2018 to 2048.



2. Extend the predictive model, based on repeating the new extended historical climate record out to 2070, which is more consistent with the long-term planning horizon that will be used in neighboring basins under SGMA compliance.

From the perspective of the Natural Sustainable Yield analysis, there is a strong benefit to having a longer extended predictive simulation period (e.g. out to 2070 instead of 2048). As will be further discussed below in Task 5, the analysis consists of first identifying a shorter-term Basin yield which allows groundwater levels to reach their management targets within a defined time-frame, and then estimating an increased longer-term Natural Sustainable Yield that keeps levels at these targets into the future. Having a longer extended simulation period allows for more flexibility on selecting a reasonable time-frame over which management targets can be met without having to ramp production down too quickly, and it also provides a longer period over which to evaluate the longer-term Natural Sustainable Yield, taking into account historical variability in hydrology and climate.

The updated and extended baseline model will be run and processed to produce a baseline water budget and hydrographs to be used for comparison against subsequent simulations.

TASK 2.2. CONVERT HISTORICAL CLIMATE BASELINE SCENARIO MODEL TO FUTURE CLIMATE CONDITION MODEL (OPTIONAL)

Previous predictive model simulations for the basin have not taken the effects of likely climate change into account: including projected changes in precipitation, temperature, and evapotranspiration. These are projected future conditions that would impact the magnitude and timing of both natural groundwater recharge and surface water deliveries to the Basin. If the TAC feels that management of the Basin should take into account climate change, we propose modifying the baseline predictive simulation model with projected future climate conditions.

For this task we will leverage new California-specific climate change datasets, data preparation tools, and guidance that have been developed by DWR in support of SGMA Groundwater Sustainability Plan development (DWR, 2018). DWR provides basin-specific climate change factors that allow historical hydrology and climatological data to be converted into datasets representative of projected near-future climate conditions in 2030, and late-future climate conditions in 2070. Depending on the degree of climate change uncertainty to be considered, datasets can be chosen that represent three different climate scenarios including Central Tendency, Drier with Extreme Warming, and Wetter with Moderate Warming. A single climate change scenario will be selected in consultation with the TAC, and the DWR climate change factors will be applied to inputs of the historical climate model to represent future climate conditions and hydrology.



TASK 3. INCORPORATE SEA LEVEL RISE AT OCEAN BOUNDARIES (OPTIONAL)

In this task we will incorporate estimates of projected sea level rise over the next century into the predictive model simulation by adjusting the head boundary conditions specified along the ocean boundary. Generally speaking, sea level rise is expected to increase seawater intrusion and/or the risk of sea water intrusion in coastal aquifers, though the magnitude of the effects due to sea level rise alone are highly dependent on local conditions. The sea level rise estimates will be based on the projected levels for Monterey Bay from the 2018 update of the State of California Sea-Level Rise Guidance document recently released by the California Ocean Protection Council (OPC, 2018). It should be noted that adjustments to the sea level elevations will also entail simple equivalent adjustments to the protective head elevations as they are tied to sea level.

TASK 4. INCORPORATE ALL EXISTING AND APPROVED/PLANNED SUPPLEMENTAL SUPPLY PROJECTS INTO BASELINE MODEL

We will update the predictive model to include various supplemental supply projects likely to be, or are in the process of being, constructed, as described in the 2019 BMAP Update. TAC involvement will be crucial to developing a predictive model that incorporates all of the projects envisioned over the predictive period, such as the Monterey Peninsula Water Supply Project (MPWSP), the Regional Urban Water Augmentation Project (RUWAP), Carmel River water ASR, and potentially other projects such as stormwater recharge projects. M&A will work with the TAC to finalize a list of projects and their planned implementation schedule. For costing purposes we have assumed incorporating up to three new projects not previously modeled and extending previously modeled projects.

The Pure Water Monterey project and existing phases of the Carmel River water ASR have already been modeled through 2041 but operational assumptions will need to be extended through the end of the predictive model period if it is extended, and other operational changes may be incorporated, such as increasing recharge if additional water sources such as RUWAP are included. We assume we will receive technical support from MPWMD who will provide recharge volumes based on climate, similar to what they have provided us before.

TASK 5. OPTIMIZATION SCENARIO SIMULATIONS

TASK 5.1. PREPARE SCENARIO INPUTS AND SETUP SUSTAINABLE OPTIMIZATION MODEL

M&A will work with the TAC to identify production wells that will be used in optimization. This may include only the Standard Producers, or a combination of Standard and Alternate Producers. There are other potential management actions such as installing new wells in either the Southern Coastal Subarea or the Northern Inland Subarea, or shifting a portion of production to these new wells, but this will likely require development of a separate scenario and therefore additional budget. Costs for development of additional scenarios are provided as an optional line item in the budget.



Given the management targets from Task 1 and wells identified for use in optimization, the USGS MODFLOW Groundwater Management Optimization process (GWM) will be configured to optimize average production rates at a predetermined set of wells such that the defined management targets at specific locations (e.g. groundwater levels) are met within a specified time frame and then maintained at those levels in the future. There will be two different Basin yields estimated. The first will be the yield that allows the Basin to achieve its management targets, and the second will be the Natural Sustainable Yield. Reaching management targets will require pumping less than the Natural Sustainable Yield until targets are achieved, thereafter, the Basin yield can be increased to the Natural Safe Yield that keeps groundwater levels at Basin management targets.

For costing purposes, we assume that a single set of management targets to be met within a single defined time frame will be used for the scenario, and that if multiple scenarios are developed, they will be based on the same baseline climate model (e.g. either Historical Climate or Climate Change Baseline).

TASK 5.2. RUN AND PROCESS OPTIMIZATION SCENARIO

In this task we will run the optimization model and process the model results, and document the scenario and the results with hydrographs and maps, along with a brief text summary.

TASK 6. PREPARE TECHNICAL MEMORANDUM

We will prepare a technical memorandum which documents Task 1 through 5, with a synthesis of the model optimization results and water budgets and Natural Sustainable Yield analysis for the Basin based on the identified management targets. For costing purposes we assume preparing one draft, responding to and addressing one round of review comments, and one final version of the report. The report will be provided in MSWord and PDF formats.

TASK 7. ATTEND TAC AND BOARD MEETINGS

In support of Tasks 1 – 5, to get input and direction from the TAC, and to report on progress and findings, we will prepare presentations and attend those monthly TAC meetings at which this work will be discussed. For costing purposes we assume preparing for and attending up to five TAC meetings. One in-person Board meeting is also included to present the findings of the analysis. Should the number of meetings be more than those assumed above, additional budget will be required to prepare for and attend those meetings.

MODELING CONTINGENCY

Modeling the long-term optimization of integrated groundwater management at a basin-wide scale is a complex process with several technical challenges that can arise and can lead to additional effort not originally scoped out. For this reason we have allocated a contingency budget corresponding to 40 additional hours of modeling effort (11% of the lead modeling effort for Tasks 2- 5) to address unexpected model integration or optimization issues that may arise during the modeling components of the project. This contingency task budget will not be used without prior consultation and approval from the client.



PROJECT BUDGET AND SCHEDULE

We anticipate that this work can be completed within an eight month period, though the timing may depend on the scheduling of TAC and Board meetings. We can begin work on this immediately following notice to proceed.

The total estimate costs for these tasks is \$133,035 as detailed in the attached cost table. As mentioned previously, there are a few optional tasks that we have included which may need to be discussed at the Technical Advisory Committee level.

Please feel free to contact us with any questions about the proposed scope of work and budget.

Sincerely,

A handwritten signature in black ink that reads "Derrick Williams".

Derrick Williams, Principal Hydrogeologist
E.L. MONTGOMERY & ASSOCIATES

A handwritten signature in black ink that reads "Georgina King".

Georgina King, Senior Hydrogeologist
E.L. MONTGOMERY & ASSOCIATES

Cost Estimate for Searles Basin Watermaster Sustainable Yield Modeling Analysis

Task	Hourly Rates	Montgomery & Associates Labor					Labor Total	Other Direct Costs	TOTALS
		Scientist VII \$225 per hr	Scientist VI \$200 per hr	Scientist V \$125 per hr	Scientist IV \$100 per hr	Hours			
1.0 Develop Operational Parameters & Management Targets									
Support FAC in developing Operational Parameters & Management Targets		8	32	36	0	76	\$14,880	\$0	\$14,880
2.0 External Feedback Model Outputs									
2.1 Output 1: External Historical Hydrology Response Scenario to 2040		6	2	24	0	26	\$4,860	\$0	\$4,860
Output 2: External Historical Hydrology Response Scenario to 2070		6	2	12	0	14	\$2,520	\$0	\$2,520
Run and Process Model Outputs		0	0	12	0	12	\$2,220	\$0	\$2,220
Document Results and Water Budget		1	1	12	4	18	\$3,225	\$0	\$3,225
2.2 Convert Historical Climate Baseline Model to Future Climate Conditions Model (Optional)		2	4	60	0	66	\$12,240	\$0	\$12,240
Run and Process Model Outputs		0	0	12	0	12	\$2,220	\$0	\$2,220
Equipment Results and Water Budget		1	1	12	4	18	\$3,225	\$0	\$3,225
3.0 Incorporate Sea Level Rise at Ocean Boundaries (Optional)									
Adjust User's Input Boundaries to account for projected sea level rise rate over model period		2	4	15	0	22	\$4,230	\$0	\$4,230
4.0 Incorporate Air External and Approval/Permit Supplemental Supply									
Output 1: Run 1 Simulation		2	4	16	0	22	\$4,230	\$0	\$4,230
Output 2: Run 2 Simulation		2	4	16	0	22	\$4,230	\$0	\$4,230
Run and Process Model Outputs		0	0	12	0	12	\$2,220	\$0	\$2,220
Equipment Results and Water Budget		1	1	12	4	18	\$3,225	\$0	\$3,225
5.0 Optimization Scenario Simulations									
5.1 Prepare Scenario Inputs and Setup Simulation Optimization Model		2	8	40	0	50	\$9,450	\$0	\$9,450
5.2 Run and Process Optimization Scenario		0	4	12	0	16	\$2,880	\$0	\$2,880
Document Results and Water Budget		4	11	64	4	83	\$15,370	\$0	\$15,370
E.0 Prepare Technical Memorandum									
Supportive Simulation Results and Overview Source table read		8	30	60	32	130	\$29,400	\$0	\$29,400
TOTALS									
		5	32	86	0	123	\$22,800	\$0	\$22,800
		8	30	60	32	130	\$29,400	\$0	\$29,400
		13	62	146	32	253	\$52,200	\$0	\$52,200



**MONTGOMERY
& ASSOCIATES**

Task	Hourly Rates	Montgomery & Associates Labor				Labor Total	Other Direct Costs	TOTALS	
		Scientific Staff 0-499 hrs	Scientific Staff 500-999 hrs	Scientific Staff 1000-1499 hrs	Scientific Staff 1500+ hrs				
Total		5235	3200	5185	5145	18765	81		
Task 1: TAC and Board Meetings		26	83	33	0	142	181	\$28,018	
Prepare for and attend up to five one or two day TAC meetings and one board meeting						142	181	\$28,018	
Task 2: Modeling Contingency (11%)		16	89	76	0	181	57,400	\$23,610	
Contingency for Modeling Task 2.5						181	57,400	\$23,610	
Task 3: Additional Optimization Scenarios		45	172	392	52	701	503	\$319,980	\$11,050
Review for and setup Optimization Scenario						701	503	\$319,980	\$11,050
Run and Process Optimization Scenario						0	0	\$0	\$0
Run and Process Model Results						0	0	\$0	\$0
Document Results and Write Budget						0	0	\$0	\$0
Additional Optimization Scenarios		2	8	32	0	42	43	\$4,070	\$0
Review for and setup Optimization Scenario						42	43	\$4,070	\$0
Run and Process Optimization Scenario						0	0	\$0	\$0
Run and Process Model Results						0	0	\$0	\$0
Document Results and Write Budget						0	0	\$0	\$0
Additional Optimization Scenarios Total		4	11	56	4	75	77	\$7,140	\$0

Attachment 2

Background Information from Montgomery & Associates and Todd Groundwater on Natural Safe Yield and Sustainable Yield

Natural Safe Yield is defined in the Decision as the quantity of groundwater existing in the Seaside Basin that occurs solely as a result of natural replenishment. The only truly natural replenishment is from percolation of rainfall into the aquifers and inflow of groundwater from adjacent basins. Through the use of the groundwater model we have come to understand that although some replenishment occurs from inflow from neighboring basins, more subsurface groundwater leaves the Seaside Basin than enters it, and there is a net subsurface loss from the Basin to neighboring basins. The amount of net outflow from the Basin over the past five years is more than the long-term average (1988-2017). If one assumes that rainfall recharge has remained essentially the same, then the biggest change to natural replenishment is increased outflow to neighboring basins. Increased injection for temporary storage of imported water and decreased native groundwater pumping have changed how groundwater moves within, and in and out of, the Basin. Another way to look at it is that increased Basin outflows are due to groundwater levels in the neighboring basins being lower than those in the Seaside Basin, thereby causing increased flows out of the Seaside Basin.

The method used to estimate Natural Safe Yield is now recognized as not being complete enough to take into account the complexities of inflows and outflows that are occurring and changing operations and conditions. These ultimately affect the amount of groundwater that can sustainably be pumped from the Basin. A more robust method would be to use the groundwater model to optimize the amount of pumping that can be sustained (Sustainable Yield) at existing and/or new wells, using management targets such as meeting protective groundwater elevations and/or stopping declining groundwater levels.

The Draft Updated BMAP includes a recommendation (the first bulleted recommendation in Section 1.5 and Recommendation 2 in Section 6) to use the groundwater model to conduct additional model runs to simulate a combination of basin management actions and supplemental water supply projects that would be able to raise groundwater levels to protective levels. This would be part of the approach to estimate Sustainable Yield for the Basin.

Attachment 3

Summary of Pertinent Information from Previous Groundwater Modeling Work

The information provided below comes from modeling reports prepared for the Watermaster by HydroMetrics.

Report Title: *Seaside Groundwater Basin Modeling and Protective Groundwater Elevations*

Report Date: November 2009

Pertinent Findings/Conclusions:

1. The Decision-required triennial pumping reductions will result in a gradual rise in most groundwater elevations. The pumping reductions will decrease, but not eliminate, inflow into the Basin from the ocean.
2. The “Physical Solution” required in the Decision, consisting of triennial pumping reductions until pumping has been reduced to a Natural Safe Yield of 3,000 AFY, by itself will not achieve protective groundwater level elevations.
3. Significant injection of water that is left in storage and not taken out through pumping will be the most successful means of raising groundwater elevations to protective water level elevations.
4. It will take a long time for the Santa Margarita aquifer to achieve protective water levels without artificial recharge. This is because the Santa Margarita aquifer is highly confined and does not receive significant deep percolation recharge near the coastline.
5. The amount of water in storage is highly dependent on rainfall. Artificial recharge will increase the amount of groundwater in storage.
6. New wells in the Paso Robles aquifer will be required in order to recover much of the stored groundwater.
7. Moving California American Water’s major production wells inland has little benefit and is therefore a not a good option to pursue.
8. The quantity of groundwater flowing into and out of the Seaside Basin, from or to the Salinas Valley Basin, is highly dependent on groundwater elevations in the Salinas Valley Basin.

Report Title: *Groundwater Modeling Results of Temporary Suspension of Triennial Pumping Reductions*

Report Date: September 2012

Pertinent Findings/Conclusions:

1. Skipping one triennial pumping reduction for a three-year period from 2011 to 2014 would have a negligible effect on the rate of advance of seawater intrusion (less than 0.001 feet per day of change).
2. Groundwater levels would reach the same levels by 2031 as they would if the pumping reduction had not been skipped.

Report Title: *Groundwater Modeling Results of Replenishment Repayment in the Seaside Basin*

Report Date: April 2013

Pertinent Findings/Conclusions:

1. The protective water level elevations developed in 2009 remain reasonable targets for groundwater management and should not be lowered.
2. California American Water's 25-year, 700 AFY replenishment payback plan raises shallow aquifer groundwater levels by about 1 to 1.5 feet, and deep aquifer groundwater levels by about 3 feet, but does not achieve protective water level elevations in any of the six protective water level wells, except PCA-West-Shallow, which is already above its protective water level elevation.
3. Stopping all Standard and Alternative Production pumping beginning in 2017 (which would reduce Basinwide pumping by approximately 2,000 AFY) would finally achieve protective water level elevations in all six of the protective water level wells by 2041 (the assumed end of the 25 year payback used for this scenario.)
4. Assuming the 25-year, 700 AFY repayment plan began in 2017, and 1,000 AFY of water was injected at the four ASR wells near General Jim Moore Boulevard and left stored in the Basin and not pumped back out, protective water levels would be achieved in all six of the protective water level wells by 2041.

Report Title: *Groundwater Modeling Results of Coastal Injection in the Seaside Basin*

Report Date: July 2013

Pertinent Findings/Conclusions:

1. All of the findings and conclusions listed below are based on the assumption that California American Water's replenishment repayment program of forgoing 700 AFY of pumping for a period of 25 years is being carried out.
2. Coastal groundwater levels in the Santa Margarita aquifer reach protective groundwater level elevations one to ten years faster, and with less injected water, if injection is performed near the coast rather than inland at the General Jim Moore Boulevard ASR well locations.
3. Coastal groundwater levels in the Paso Robles aquifer reach protective water level elevations at similar times with injection at either the coastal or General Jim Moore Boulevard locations.
4. In order to achieve protective water level elevations in all six of the coastal wells for which protective water levels were developed, over a 25-year injection period only 850 AFY of injection is required using coastal injection wells compared to 1,000 AFY required at the General Jim Moore Boulevard ASR well locations.
5. Injection rates higher than those mentioned in item 4 above would shorten the time needed to achieve protective water level elevations.
6. After coastal protective water level elevations are achieved, injection of 850 AFY would need to be continued indefinitely at coastal injection wells in order to keep groundwater levels above protective water level elevations.

Report Title: *Results of Laguna Seca Safe Yield Analysis (Revised)*

Report Date: July 2014

Pertinent Findings/Conclusions:

1. The Laguna Seca Subarea Natural Safe Yield was estimated to be 240 AFY. The Decision used 608 AFY with no explanation of the basis for that value.
2. Stopping all California American Water Laguna Seca Subarea pumping stabilizes groundwater level elevations in the western portion of the subarea, but they continue to decline in the central and eastern portions of the subarea.
3. Stopping all Laguna Seca Subarea pumping (pumping by California American Water and all Alternative Producers) results in stable or rising groundwater levels in the western and central portions of the subarea, but groundwater levels continue to decline in the eastern portion of the subarea.
4. There is significantly more pumping just east of the Laguna Seca Subarea (within the Monterey Subbasin of the Salinas Valley Basin and outside of the Seaside Basin boundary) than the total pumping that occurs within the Laguna Seca Subarea itself.
5. Groundwater levels in the eastern portion of the Laguna Seca Subarea are heavily influenced by pumping from outside of the Seaside Basin.

Report Title: *Groundwater Flow Divides Within and East of the Laguna Seca Subarea*

Report Date: January 2016

Pertinent Findings/Conclusions:

1. Under anticipated future pumping conditions, groundwater elevations in the Laguna Seca Subarea will continue to decline. The eastern portion of the Laguna Seca Subarea will suffer the greatest and most persistent declines.
2. Pumping by wells located to the east of the Laguna Seca Subarea, outside of the Seaside Basin boundary and in the Monterey Subbasin of the Salinas Valley Basin, affect groundwater levels in the Laguna Seca Subarea by diverting groundwater which would otherwise flow into, and thus recharge, the Laguna Seca Subarea. This diversion results in lowering groundwater levels in the Laguna Seca Subarea.
3. Flow currently goes into the Laguna Seca Subarea from the southeast (from the adjacent portion of the Salinas Valley Basin outside of the Seaside Basin boundary), and flows through the Laguna Seca Subarea to the west into the Southern Coastal Subarea and to the northeast into the Northern Inland Subarea.
4. With reduced pumping in the Laguna Seca Subarea in the future, groundwater levels will rise within this subarea and the flow divide between this subarea and the adjacent Salinas Valley Basin will move west.
5. Because of this flow divide movement, reduced pumping in the Laguna Seca Subarea in the future will result in some flow leaving the Laguna Seca subarea and flowing into the Corral de Tierra region of the Monterey Subbasin of the Salinas Valley Basin.

Attachment 4

**Discussion Paper of Potential Pros and Cons of Using the Sustainable Yield Approach
in Place of
Using Natural Safe Yield
for Basin Management**

Natural Safe Yield Approach

Discussion. The Adjudication Decision (“Decision”) uses the Natural Safe Yield (NSY) approach to establish the total quantity of water that producers may pump from the Seaside Basin, and to allocate that quantity amongst the various producers. Under the NSY approach used in the Decision, Alternative Producers have first rights to the NSY, and Standard Producers share in the amount of NSY remaining after the Alternative Producer allocations have been made. The Decision established an initial Basin-wide NSY at 3,000 AFY, and allocated 1,387 AFY of this NSY to Alternative Producers. That left $3,000 - 1,387 = 1,613$ AFY to be divided among the Standard Producers. Subsequent to the date of the Decision, one of the Alternative Producers converted part of its allocation to a Standard Producer allocation, which had the effect of increasing the 1,613 AFY figure to 1,621 AFY. If the lower NSY of 2,370 AFY reported in the Updated BMAP were to replace the Decision’s initial NSY of 3,000 AFY, the Standard Producers would need to reduce their collective annual pumping to $2,370 - 1,379 = 991$ AFY. This means the Standard Producers would have to collectively reduce their pumping by an additional 630 AFY.

It would likely be very difficult if not impossible for some of the Standard Producers, particularly Cal Am and the Seaside Municipal system, to accomplish making these additional pumping reductions while still supplying the water demands of their customers.

Pros and Cons of Continuing to Use the NSY Approach for Basin Management.

PROS	CONS
1. This is the approach prescribed by the Decision, so no change from the current approach would be required.	1. There are some oversights in the numbers included in the Decision which slightly complicate the calculation of Producers’ water rights after the pumping ramp-downs are all completed. However, this should be fairly easy to work through.
2. If the 3,000 AFY NSY figure in the Decision continues to be used, no action will be required.	2. The Watermaster’s hydrogeologic consultants report that using the NSY approach in the Decision is no longer appropriate for estimating yield. The NSY figure in the Decision was developed in 2005 based on a simplified water balance equation that accounted for some, but not all, flows in the groundwater system. It has now become apparent that there are significant flows across the Basin’s boundaries that were not accounted for in the 2005 analysis. Unless those flows are also accounted for, the relationship between pumping, intrusion and storage identified in 2005 will be incorrect.

PROS	CONS
3. If the lower NSY figure of 2,370 AFY is used, the recalculation of water rights to each Producer would be relatively straightforward by following the same calculation approach set forth in the Decision. As noted in Con No. 1, however, there are some oversights in the Decision which would need to be resolved.	3. The Watermaster’s hydrogeologic consultants recommend that Basin management use a “sustainable” or “operational” yield approach that takes advantage of the Seaside Basin groundwater model. This would allow the maximum pumping rate to reflect all of the flows across the basin boundaries as well as the locations of wells and the introduction of new sources of recharge (injection, stormwater percolation, etc.). They feel that making this change from using the NSY approach is essential to linking long-term Basin management to reality.
	4. Given the modeling done to date, and evidenced by continuing declining groundwater levels even in years where pumping has been close to 3,000 AFY, Material Damage is more likely to occur if the 3,000 AFY NSY continues to be used rather than using a lower value for NSY.

Sustainable Yield Approach

Discussion. As described in the recent BMAP Update, the simplified method used in the Adjudication Decision to estimate Natural Safe Yield is now recognized as not being complete enough to take into account the complexities of inflows and outflows that are occurring in the Basin. These ultimately affect the amount of groundwater that can be sustainably pumped from the Basin without causing negative effects (Material Injury). A more complete approach to managing the Basin would be to use the Seaside Basin groundwater model to optimize the amount of pumping that can be sustained (the Sustainable Yield) at existing and/or new wells. The Sustainable Yield would take into account management targets such as stopping declining groundwater levels or meeting protective groundwater elevations.

The SY analysis would involve making numerous assumptions and evaluations. These could include such things as alternative pumping scenarios and redistribution of pumping locations and quantities. The SY for the entire Basin would be the sum of the production quantities that each well could produce and still prevent Material Injury from occurring.

Pros and Cons of Changing to Using the Sustainable Yield Approach for Basin Management.

PROS	CONS
1. This approach would more realistically reflect the characteristics of the Basin and more accurately predict how much pumping could be	1. Performing an SY analysis would be costly. The cost proposal from Montgomery & Associates to do this work is well over \$100,000. The proposal notes that modeling the long-term optimization of integrated groundwater management at a basin-wide scale is a complex process with several technical challenges that could arise and could lead to additional effort (and cost) not anticipated in the cost proposal.

PROS	CONS
sustainably supported without causing Material Damage in the Basin.	<p>2. Changing from the NSY approach to the SY approach would first have to be approved by the Court. Documentation justifying making this change would have to be prepared and submitted to the Court. This would involve considerable staff, consultant, and legal counsel time and effort.</p> <p>3. The SY analysis would then need to be prepared and submitted to the Court for its review and approval before it could be used to replace the NSY approach used in the Decision. If the Court approved the SY analysis, then the Decision would need to be amended to reflect this. All of this would involve considerable staff and legal counsel time and effort.</p> <p>4. If SY were used instead of NSY, a new method of allocating pumping rights to each producer would have to be developed. This could be a contentious and time-consuming undertaking.</p> <p>5. It is very likely that greater pumping reductions will be required of many of the Producers if the Sustainable Yield approach is used in place of the NSY approach. It may be difficult if not impossible for some Producers to make these additional pumping reductions while still supplying the water demands of their customers.</p>
	<p>6. Because of the historical overpumping from the Basin, regardless of the approach that is used for Basin management, be it NSY or SY, it is very unlikely that even the reduced NSY pumping levels recommended in the Updated Basin Management Action Plan will achieve protective groundwater levels. The Basin would therefore still be at risk of seawater intrusion at some time in the future. An additional source(s) of water that can be injected into the Basin to raise groundwater levels, and to maintain them at protective water levels, will be necessary regardless of which approach is used for Basin management. Therefore, the expense and complexity of changing to the SY approach may not be justified.</p>

**SEASIDE GROUNDWATER BASIN
WATERMASTER**

TO: Board of Directors

FROM: Laura Paxton, Administrative Officer

DATE: June 5, 2019

SUBJECT: California American Water Request for Credit against Replenishment Assessment

RECOMMENDATIONS:

The Watermaster Budget and Finance Committee, at its May 14, 2019 meeting, recommended approving the California American Water request to allow a credit for actual expenditures incurred October 2016 through January 2019 for the Monterey Pipeline and Pump Station amounting to \$49,382,196 to be used to offset the Watermaster Year 2017/2018 Over-production Replenishment Assessment.

DISCUSSION:

In January of 2009, California American Water and the Seaside Basin Watermaster (Watermaster) entered into a Memorandum of Understanding (MOU) in order to establish a process for implementing Section III.M.1.d of the Amended Decision. This Section authorizes California American Water to receive Replenishment Credits for water supply augmentation expenditures it contends has or will result in replenishment of the Basin.

In summary, the MOU provides that a claim for Replenishment Credits provided by California American Water shall be based upon expenditures for a water supply augmentation project that California American Water contends has or will result in Basin replenishment. The MOU further provides that the Watermaster shall grant California American Water's requests for Replenishment Credits for years in which the Watermaster declares that water for Artificial Replenishment is not available. The granting of the request is subject to California American Water's obligation to provide future Artificial Replenishment in an amount equal to the number of acre-feet of Over-production for which California American Water receives Replenishment Credits. A copy of the MOU is attached.

California American Water has submitted its request for Replenishment Credit for Water Year 2018 (attached) that includes a listing of expenditures for a water supply augmentation project California American Water contends will result in replenishment of the Basin. This project was approved by the California Public Utilities Commission ("CPUC") in Decision D.16-09-021 dated September 15, 2016 available at: <http://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=167189425>.

Additionally, the Watermaster declared in December 2017 that water for Artificial Replenishment was not available for Water Year 2018.

- ATTACHMENT:**
- 1) CAW Request for Credit Correspondence with expense listing
 - 2) Memorandum of Understanding between Seaside Basin Watermaster and California American Water
 - 3) Amended Memorandum of Understanding between Seaside Basin Watermaster and California American Water
 - 4) Conclusion excerpt of PUC Decision in favor of pipeline and pump station construction



511 Forest Lodge Road
Suite 100
Pacific Grove, CA 93950
www.californiaamwater.com

February 8, 2019

Laura Paxton, Administrative Officer
Seaside Groundwater Basin Watermaster
PO Box 51502
Pacific Grove, CA 93950

SUBJECT: Request for Replenishment Assessment Credit

Dear Ms. Paxton:

California American Water hereby submits its formal request for a Replenishment Credit in the amount of \$49,382,196. We are requesting this credit be applied to the Seaside Basin Watermaster Water Year 2018 Overproduction Replenishment Assessment against California American Water that was transmitted by your December 17, 2018 invoice.

This amount was incurred by California American Water during the period from October 2016 through January 2019 for the Monterey Pipeline and Pump Station. This project was approved by the California Public Utilities Commission ("CPUC") in Decision D.16-09-021 dated September 15, 2016¹. Attached is a spreadsheet that breaks down the actual expenditures by category. Please note this amount does not include expenditures incurred by California American Water for the desalination plant and other related infrastructure that is also part of the overall Monterey Peninsula Water Supply Project ("Project")².

As you will likely recall, in January of 2009 the Seaside Basin Watermaster and California American Water executed a Memorandum of Understanding regarding Replenishment Credits ("MOU"). In accordance with the MOU, California American Water is submitting this request following receipt of the Watermaster's notice of the amount of the Replenishment Assessment. Additionally, the MOU provides that the Watermaster "shall grant" California American Water's request for a Replenishment Credit for years in which Artificial Replenishment Water is not available for purchase. Thus, we are requesting that you place California American Water's request on the agenda for approval at the next Watermaster meeting.

Sincerely,

Christopher Cook
Director of Operations

Attachment

cc: Ian Crooks
Lori Girard

¹ CPUC Decision D.16-09-021, September 15, 2016, Decision on California-American Water Company's Application for Approval of the Monterey Peninsula Water Supply Project Specifically in Regards to Phase 2, *available at*: <http://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=167189425>, or upon request.

² The overall Project was approved in CPUC Decision D.18-09-017, September 13, 2018, Decision Approving a Modified Monterey Peninsula Water Supply Project, Adopting Settlement Agreement, Issuing Certificate of Public Convenience and Necessity and Certifying Combined Environmental Report, *available at*: <http://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=229424336>, or upon request.

Monterey Pipeline and Pump Station

Item	Actual To-Date
Construction	
Construction	\$ 47,156,476
Inspections	\$ 485,880
Miscellaneous Exps	\$ 2,000
Internal	
Labor, Expenses, and Overhead	\$ 1,737,840
Total	\$ 49,382,196
CPUC Total Authorized Amount	\$ 50,331,541

**MEMORANDUM OF UNDERSTANDING BETWEEN SEASIDE BASIN
WATERMASTER AND CALIFORNIA AMERICAN WATER**

This Memorandum of Understanding between the Seaside Basin Watermaster (Watermaster) and California American Water (CAW) is entered into pursuant to a motion passed by Watermaster on December 3, 2008 with respect to the following:

RECITALS

A. The Amended Decision in Case No. M66343 filed February 9, 2007 (Decision) provides that Standard Producers that exceed their allocation of Natural Safe Yield are subject to a Replenishment Assessment for each acre foot of Over-Production for each Water Year. Under Section III.M1.d of the Decision, CAW has the right to claim a credit against its Replenishment Assessment (Replenishment Credit) for costs incurred for water supply augmentation that has or will result in replenishment of the Basin.

B. Watermaster has calculated the Replenishment Assessments for CAW for Fiscal Year 2006 (Water Year 05/06), Fiscal Year 2007 (Water Year 06/07) and Fiscal Year 2008 (Water Year 07/08) in the total amount of \$10,166,640. Pursuant to Section III.M.1.d of the Decision, CAW applied for a Replenishment Credit for expenditures totaling \$12,305,924.00 that CAW has made through calendar year 2006 for water supply augmentation associated with pre-construction expenses for the Coastal Water Project. The request was made on March 5, 2008 and supplemented with further information on May 2, 2008.

C. Watermaster approved CAW's request for a Replenishment Credit in the amount of \$12,305,924.00, subject to conditions set forth in the motion which provide that CAW will ensure replenishment of the Basin with water from the Coastal Water Project, or a comparable alternative project, at no cost to Watermaster, in an amount equivalent to the quantity of water that CAW has overproduced, and thus incurred a Replenishment Assessment obligation for Fiscal Years 2006, 2007 and 2008.

D. Watermaster and CAW desire to enter into this Memorandum of Understanding regarding future CAW requests pursuant to Section III.M.1.d of the Decision for Replenishment Credits against future Replenishment Assessment obligations.

AGREEMENT

Watermaster and CAW agree as follows:

1. At the end of each Water Year, Watermaster shall determine the Replenishment Assessments in accord with Section III.L.3.j.iii of the Decision. Within 40 days of CAW's receipt of Watermaster's notice of Replenishment Assessment against CAW for the preceding Water Year, CAW shall provide Watermaster any claim for a Replenishment Credit pursuant to Section III.M.1.d of the Decision. Such claim shall be based upon expenditures for a water supply augmentation project (such as the Coastal Water Project and/or other projects that produce water that can be used to replenish the Seaside Basin (hereinafter "Project(s)")) that CAW contends has or will result in replenishment of the Basin.

2. Watermaster agrees that the Project will result in replenishment of the Basin, and therefore:

(a) Watermaster hereby grants CAW's current request for a Replenishment Credit in the amount of \$12,305,924.00. Such Credit shall be immediately applied to CAW's Replenishment Assessments for Fiscal 2006 (Water Year 05/06), Fiscal Year 2007 (Water Year 06/07) and Fiscal Year 2008 (Water Year 07/08), which total \$10,166,640, subject to the condition that, upon completion and implementation of a water supply augmentation Project, CAW shall provide Watermaster, at no cost to Watermaster, and on a schedule that is Feasible either (1) water for Artificial Replenishment through direct replenishment and/or (2) cause in-lieu replenishment of the Basin by forbearing to produce water to which CAW is entitled as CAW's share of the Native Safe Yield, in an amount equal to CAW's total acre feet of Over-Production for the Water Years 05-06, 06-07, and 07-08, which total is 6,390.1 acre feet. Future CAW requests for Replenishment Credit shall be granted subject to the same conditions set forth in this Section 2 (a).

(b) In future Water years Watermaster shall address future requests by CAW for a Replenishment Credit as follows:

- i. For years in which Watermaster declares that water for Artificial Replenishment is not available, Watermaster shall grant CAW's request for a Replenishment Credit for that Water year, subject to CAW's obligation to provide future Artificial Replenishment as set forth in Section 2(a) herein.
- ii. For years in which Watermaster declares that water for Artificial Replenishment is available from sources other than a CAW water supply augmentation Project, Watermaster shall have the option of either: (i) requiring CAW to pay all or part of CAW's Replenishment Assessment for that Water Year for the purpose of providing Watermaster with funds to obtain Artificial Replenishment in sufficient quantities to replenish that quantity of Over-Production for which CAW pays a Replenishment Assessment; or (ii) granting CAW's request for a Replenishment Credit subject to CAW's obligation to provide future Artificial Replenishment as provided for in section 2(a) herein. . If Watermaster is unable to purchase Replenishment Water equal to CAW's total Over-Production for that Water Year,

AMENDMENT NO. 1
TO THE
MEMORANDUM OF UNDERSTANDING
BETWEEN
THE SEASIDE BASIN WATERMASTER AND CALIFORNIA AMERICAN WATER
DATED
DECEMBER 3, 2008

The Memorandum of Understanding pertaining to the repayment of Replenishment Assessments (December 3, 2008 MOU) between the Seaside Basin Watermaster (Watermaster) and California American Water (CAW), which was entered into pursuant to a motion passed by Watermaster on December 3, 2008 and executed by the Watermaster on January 21, 2009 and by CAW on January 29, 2009, is hereby modified by this Amendment No. 1 (Amendment) as follows:

RECITALS

- A. The December 3 2008 MOU was entered into to comply with and fulfill the conditions of the Amended Decision entered in the case California American Water Company v. City of Seaside et al., Monterey Superior Court, Case No. M66343.
- B. Section 2.a of the December 3, 2008 MOU states in part that "...upon completion and implementation of a water supply augmentation Project, CAW shall provide Watermaster, at no cost to Watermaster, and on a schedule that is feasible [emphasis added] either (1) water for Artificial Replenishment through direct replenishment and/or (2) cause in-lieu replenishment of the Basin by forbearing to produce water to which CAW is entitled as CAW's share of the Native Safe Yield, in an amount equal to CAW's total acre feet of Over-Production for the Water Years 05-06, 06-07, and 07-08, which total is 6,390.1 acre feet. Future CAW requests for Replenishment Credit shall be granted subject to the same conditions set forth in this Section 2 (a)."
- C. CAW is currently prosecuting before the California Public Utilities Commission an application for a Certificate of Public Convenience and Necessity to construct the Monterey Peninsula Water Supply Project ("MPWSP"), as an alternative to the Coastal Water Project.
- D. As of the date of this Amendment, CAW's total Over-Production for all Water years Through Water Year 2012-2013 is 11,981.29 acre feet, and it is anticipated that upon the estimated date on which CAW's MPWSP becomes fully operational, Cal-Am's total Over-Production will be 18,718.17 acre feet.
- E. On November 29, 2012 the Watermaster voted to accept a replenishment repayment schedule proposed by CAW under which the MPWSP would provide potable water to fulfill CAW's replenishment obligations as set forth in the December 3, 2008 MOU.
- F. Watermaster and CAW desire to amend the December 3, 2008 MOU to formalize their agreement that the replenishment repayment schedule proposed by CAW constitutes a "feasible" schedule as referred to in Section 2.a of the December 3, 2008 MOU.

AGREEMENT

Watermaster and CAW agree as follows:

1. Except as modified by the language below, all terms and conditions of the December 3, 2008 MOU are unchanged by this Amendment No. 1 and remain in full force and effect.
2. Beginning October 1 following final completion and acceptance of all MPWSP components (as defined by the relevant MPWSP construction contracts) by CAW, CAW shall commence Artificial Replenishment of the Seaside Basin as follows:
 - a. At the conclusion of the first Water Year after final completion and acceptance of the MPWSP, and each Water Year thereafter, Watermaster shall report, in accordance with the Amended Decision and Watermaster Rules and Regulations:
 - i. The cumulative total of CAW's Overproduction from Water Year 05/06 to date;
 - ii. CAW's Non-Native Water Stored in the Basin;
 - iii. The cumulative total of CAW's prior Artificial Replenishment.
 - b. CAW's Replenishment Obligation shall be fulfilled in accordance with the Replenishment Schedule contained in Attachment "A" hereto. The volume of artificial or in-lieu replenishment shall be based on a running five (5) Water Year average. Should the average volume of artificial or in-lieu replenishment calculated by the Watermaster be less than 700 acre feet annually, and if the Watermaster declares that water for Artificial Replenishment is available from sources other than the CAW Water Supply Project, Watermaster shall have the option of requiring CAW to pay a part of CAW's Outstanding Replenishment Assessment for the purpose of providing Watermaster with funds to obtain Artificial Replenishment in sufficient quantities to replenish that quantity not provided via in-lieu replenishment.
 - c. Should conditions change in the Basin sufficient to indicate that seawater intrusion is occurring, this Replenishment Schedule shall be subject to immediate modification.
 - d. Replenishment Years subsequent to Replenishment Year 25 shall continue at 700 acre-feet annually based on a running 5-year average until CAW's total Replenishment Obligation has been fulfilled.
 - e. In accordance with Section 4 of the December 3, 2008 MOU, at any stage in CAW's replenishment prior to Replenishment Year 25 should the Court determine that the Basin has been replenished in an amount sufficient to prevent seawater intrusion, or the Basin has been protected by alternative seawater intrusion preventive measures, CAW's obligations under conditions set by the December 3, 2008 MOU shall be deemed fully satisfied.
 - f. CAW's total Replenishment Obligation pursuant to the December 3, 2008 MOU shall equal the number of acre feet CAW Overproduced and for which CAW was assessed a Replenishment Assessment beginning with the Water Year 05/06 to the first Water Year after final completion and acceptance of the MPWSP occurs. In no event shall the total amount of Artificial Replenishment by CAW be greater than the cumulative total of acre feet of CAW's Over Production for which CAW was granted Replenishment Credits.

3. All terms used in this Amendment No. 1 that are defined terms in the Amended Decision shall be defined herein as set forth in Section III.A of the Amended Decision.

IN WITNESS WHEREOF the Parties hereby agree to the full performance of the terms and conditions set forth in this Amendment No. 1.

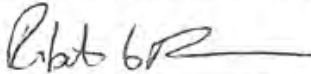
SEASIDE BASIN WATERMASTER



Chair, Seaside Basin Watermaster

Date: 4/25/14

CALIFORNIA AMERICAN WATER



President, California American Water

Date: 6-6-14

ATTACHMENT "A"

REPLENISHMENT SCHEDULE

REPLENISHMENT YEAR	ARTIFICIAL REPLENISHMENT (AFA)	IN-LIEU REPLENISHMENT (AFA)
1		700
2		700
3		700
4		700
5		700
6		700
7		700
8		700
9		700
10		700
11		700
12		700
13		700
14		700
15		700
16		700
17		700
18		700
19		700
20		700
21		700
22		700
23		700
24		700
25		700
--		700

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



September 22, 2016

TO: ALL PARTIES OF RECORD IN APPLICATION 12-04-019

Decision 16-09-021 is being mailed without the Concurrence of Commissioner Catherine J.K. Sandoval. The Concurrence will be mailed separately.

Very truly yours,

/s/ RICHARD SMITH for
Karen V. Clopton
Chief Administrative Law Judge

KVC/lil

Attachment

can authorize the requested cost recovery, or can reduce the allowed cost recovery to only that amount that satisfies the three cost factors.

7. Conclusion

The evidence shows that the Revised WPA is reasonable, and Cal-Am is authorized to enter into it. Cal-Am is authorized to build the pipeline and pump station, subject to the MMRP. The cost cap for the pipeline and pump station project is \$50.3 million. Finally, we authorize Cal-Am to file Tier 2 advice letters for cost recovery of the pipeline and pump station, with applicant including a showing that the facilities are used and useful, costs have been spent reasonably, and the facilities are appropriately sized. The proceeding remains open to resolve Phase 1 issues.

8. Comments on Proposed Decision

The proposed decision of assigned ALJ Weatherford in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code, and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure.

8.1. Opening Comments

Opening comments were timely filed on September 1, 2016, by Cal-Am, District and Agency (as "Joint Commenters"), ORA and PTA. The Joint Commenters note that the version of the WPA attached to the Proposed Decision as Appendix C was not the version corrected by Exhibit JE-10 (received as evidence on June 3, 2016). We appreciate their contribution and have substituted the correct version as the final Appendix C.

The Joint Commenters seek to have the separate cost caps (\$46.5 million for the pipeline and \$3.8 million for the pump station) converted to a

**SEASIDE GROUNDWATER BASIN
WATERMASTER**

TO: Board of Directors

FROM: Laura Paxton, Administrative Officer

DATE: June 5, 2019

SUBJECT: Discuss/consider Authorizing Watermaster Legal Counsel Services

RECOMMENDATIONS:

The Budget and Finance Committee, at its May 14, 2019 meeting, recommended contracting with Russ McGlothlin, now with O'Melveny and Myers, to provide Watermaster legal services for non-routine issues, and consider contracting in the future with Don Freeman, Esq. to provide legal services for routine Watermaster issues.

BACKGROUND:

Watermaster has contracted with Russ McGlothlin of Brownstein, Hyatt, Farber and Schreck (BHFS) for certain Watermaster legal services since October 1, 2014. Primary matters have included representation at Watermaster status case management hearings with Judge Nichols presiding; Public Records Act requests from general public (Moore Notice of Lodging) and Marina Coast Water District; stipulation to appoint Judge O'Farrell to Seaside Groundwater Basin Watermaster Adjudication Decision; and review and filing of Watermaster annual reports. The BHFS rate has been \$450/hour. Counsel McGlothlin has left BHFS and is now employed with the firm of O'Melveny and Myers (OMM) effective May 6, 2019.

DISCUSSION:

City of Seaside Attorney, Don Freeman is targeted to retire from the City on June 30, 2019; he is willing to consider providing legal services to Watermaster once his retirement is final. Services would encompass those performed by Mr. McGlothlin listed above. Mr. Freeman has not yet presented an hourly rate.

Watermaster issues may arise requiring expertise in high-level water law. Mr. McGlothlin has a high degree of expertise in water law, and a high degree of knowledge of Seaside Basin Watermaster issues having been significantly involved in development of the adjudication documents as well as representing the City of Seaside with respect to Basin-related matters. He has offered to continue providing legal services to Watermaster when needed under an OMM contract at a rate of \$740/hour. A Relationship and Waiver of Potential Conflict of Interest signed by representatives of Watermaster, City of Seaside, and the Monterey Peninsula Regional Water Authority (MPRWA) would be required if the agencies choose to continue with his services through OMM.

FISCAL IMPACT:

It is projected that there will be no fiscal impact if Watermaster contracts with both counsels at hourly rates without retainers. There has been no indication from Judge O'Farrell of any minute order stemming from the 2018 Watermaster Annual Report to Court, or that a 2019 case management conference hearing will be held. It appears expenditures will fall well below the \$25,000 budgeted for legal services in 2019 (Watermaster calendar year is its fiscal year) of which approximately \$5,000 has been expended.

ATTACHMENTS:

Email from Russ McGlothlin confirming the rate to be charged to Watermaster by OMM

Wednesday, May 8, 2019 8:28 AM

Subject: FW: New Contact Information, Effective Monday, May 6th
Date: Wednesday, May 8, 2019 8:27 AM
From: Laura Paxton <watermasterseaside@sbcglobal.net>

From: "McGlothlin, Russell" <rmcglothlin@omm.com>
Date: Tue, 7 May 2019 16:38:23 +0000
To: Laura Dadiw <watermasterseaside@sbcglobal.net>
Subject: RE: New Contact Information, Effective Monday, May 6th

Thank you Laura. With O'Melveny, my discount rate for existing clients will be \$740 for 2019. I recognize that is significantly higher than the rate we have been billing to the Watermaster at Brownstein. Unfortunately, it is the minimum I can bill at from O'Melveny. I would be delighted to continue to represent the Watermaster and would seek to minimize expense through careful coordination with you and Bob as to what I work on and identifying lower rate associates to assist me where appropriate. Warmest regards,

Russ

On 5/3/19 8:44 PM, "McGlothlin, Russell" <RMcGlothlin@bhfs.com> wrote:
Greetings.

As one of my professional contacts, I am emailing you to let you know that, effective Monday, May 6th, I will be employed by the law firm of O'Melveny and Myers. I have attached a V-Card with my new contact information. Warmest regards,

Russell M. McGlothlin
(805) 453 2955

STATEMENT OF CONFIDENTIALITY & DISCLAIMER: The information contained in this email message is attorney privileged and confidential, intended only for the use of the individual or entity named above. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or copy of this email is strictly prohibited. If you have received this email in error, please notify us immediately by calling (303) 223-1300 and delete the message. Thank you.

Page 1 of 1

D-R-A-F-T
MINUTES

**Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
January 9, 2019**

Attendees: TAC Members

City of Seaside – Leslie Llantero
California American Water – Nina Miller
City of Monterey – Max Rieser
Laguna Seca Property Owners – Bob Costa
MPWMD – Jon Lear
MCWRA – Tamara Voss
City of Del Rey Oaks – No Representative
City of Sand City – Leon Gomez
Coastal Subarea Landowners – No Representative

Watermaster

Technical Program Manager - Robert Jaques

Consultants

Montgomery & Associates - Georgina King (via telephone)
Todd Groundwater – Gus Yates (via telephone)

Others

M1W – Bob Holden
MCWD – Patrick Breen

The meeting was convened at 1:33 p.m. after a quorum had been established.

1. Public Comments

There were no public comments.

2. Administrative Matters:

A. Approve Minutes from the December 12, 2018 Meeting

On a motion by Ms. Voss, seconded by Mr. Costa, the minutes were unanimously approved as presented.

B. Sustainable Groundwater Management Act (SGMA) Update

Mr. Jaques summarized the agenda packet materials for this item. There was no other discussion.

3. Continued Discussion of Basin Management Action Plan Update

Mr. Jaques summarized the agenda transmittal for this item and introduced the topic for discussion.

Ms. King described and discussed the two items covered in her “Description Paper” contained on pages 14-15 of the agenda packet.

With regard to the first item, she noted that using the long-term rather than the most recent five years of data is more consistent with the definition of Natural Safe Yield contained in the Decision. Ms. Voss asked if the Decision specified how to calculate Natural Safe Yield. Mr. Jaques and Ms. King responded that there was no specification for that in the Decision.

Mr. Lear asked if using the Natural Safe Yield approach would result in a higher or lower value than using the Sustainable Yield approach. Ms. King said that using the Natural Safe Yield approach would result in a higher value than using the Sustainable Yield approach.

Ms. Voss said that she favored using the long-term data period, rather than the most recent five years of data. Ms. King noted that using the most recent five years of data would result in a much lower value of Natural Safe Yield than using the 30 year (long-term) data period.

With regard to the second item, Ms. King reported that there is much more now known about the Basin than was the case when the Decision was prepared. She said that more water is now leaving the Basin and flowing into adjacent subbasins than is coming into the Basin. Consequently, her recommendation is to use the groundwater model to prepare a “Substantial Yield” analysis based on production quantities and where the wells are actually located. This would be done to optimize water management within the Basin. She went on to say that this is the same approach that is being used to develop groundwater sustainability plans for other basins under the Sustainable Groundwater Management Act. She also reported that groundwater sustainability plans, under the Sustainable Groundwater Management Act, must be reevaluated every five years to reflect changes in conditions.

Mr. Lear commented that a Sustainable Yield analysis should also be reevaluated to reflect operational changes as they occur.

Ms. King went on to say that she would need input from all of the pumpers in order to perform a Sustainable Yield analysis for the Basin.

Mr. Lear noted that it will be very complex to reevaluate each party’s water rights under a Sustainable Yield approach, compared to the more simplistic Natural Safe Yield approach that was used in the Decision.

Mr. Yates recommended also taking into account salinity density effects in any new analysis, noting that this had not been done in developing the original Natural Safe Yield figure used in the Decision. He also went on to say that there are a number of legal precedents with regard to groundwater rights pertaining to storage of water in a basin.

Mr. Breen asked if the Pure Water Monterey project was a 100% recapture project, and Mr. Lear responded that it was.

Mr. Jaques proposed taking the following approach:

1. Request and receive from Montgomery and Associates a proposed scope of work and cost to perform a Sustainable Yield analysis.

2. Bring this proposal to the TAC for its consideration at the TAC's February 13 meeting.
3. If the TAC agrees with proceeding with the proposed scope of work, make that recommendation to the Board in conjunction with presenting to them the draft Updated Basin Management Plan at the Board's March meeting.

A motion was made and seconded to approve Mr. Jaques' proposed approach, and the motion passed unanimously.

Mr. Yates said he commended the TAC for making this decision.

4. Schedule

Mr. Jaques briefly summarized the agenda packet materials for this item and there was no other discussion.

5. Other Business

Ms. Llantero reported that a law firm is putting on a workshop in San Francisco in February regarding some aspects of the Sustainable Groundwater Management Act. There was no other discussion.

The meeting adjourned at 2:23 PM

THIS PAGE INTENTIONALLY LEFT BLANK

D-R-A-F-T
MINUTES

**Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
February 13, 2019**

Attendees: TAC Members

City of Seaside – No Representative
California American Water – Nina Miller
City of Monterey – Max Rieser
Laguna Seca Property Owners – Bob Costa
MPWMD – Jon Lear (via telephone)
MCWRA – Tamara Voss
City of Del Rey Oaks – No Representative
City of Sand City – Leon Gomez
Coastal Subarea Landowners – No Representative

Watermaster

Technical Program Manager - Robert Jaques

Consultants

Montgomery & Associates - Georgina King (via telephone)

Others

California American Water – Lori Girard
MCWD – Patrick Breen

The meeting was convened at 1:42 p.m. after a quorum had been established. Mr. Lear opened the meeting as Nina Miller had been detained. Ms. Miller assumed leadership of the meeting at the end of Item 1 of the agenda.

1. Public Comments

There were no public comments.

2. Administrative Matters:

A. Approve Minutes from the January 9, 2019 Meeting

On a motion by a Mr. Gomez, seconded by Ms. Voss, the minutes were unanimously approved as presented.

3. CONTINUED DISCUSSION OF UPDATED BASIN MANAGEMENT ACTION PLAN

Mr. Jaques summarized the agenda packet materials for this item.

Ms. Miller commented that there would be changes in the future that would impact the Basin as a result of implementation of the Monterey Peninsula Water Supply Project. She asked if those changes would affect the Natural Safe Yield that is reported in the Updated Basin Management Action Plan. Ms. King responded that the Natural Safe Yield would not be affected, because it only reflects naturally occurring inputs and outputs of water to and from the Basin.

3.A. Approve the Draft Updated Basin Management Plan

Mr. Jaques summarized the agenda packet materials for this item.

Mr. Lear posed two questions:

3 If the recommendation was made to lower the Natural Safe Yield, would it change the existing California American Water pay-back agreement? Mr. Jaques responded that he did not know the answer to that question at this time and that it would likely take a legal review and opinion to make that determination.

4 If the recommendation was made to lower the Natural Safe Yield, would it impact the existing storage agreements between California American Water, Monterey Peninsula Water Management District, and the Watermaster? Mr. Jaques responded that he did not believe there would be any impact on those storage agreements by changing the Natural Safe Yield, because Natural Safe Yield is not mentioned or involved in the storage agreements. In response to a related question, Mr. Jaques reported that water that is lost through lateral movement to other subbasins, after being stored, is addressed in the language of the existing storage agreements which states that due to hydrogeologic characteristics of the Seaside Basin, naturally occurring losses of stored water may result in the Watermaster reducing the percentage of stored water that may be extracted.

Ms. Voss asked if the concept of changing from Natural Safe Yield to Sustainable Yield would be covered as a separate topic for discussion and Mr. Jaques responded that it would.

On the understanding that the concept the changing from Natural Safe Yield to Sustainable Yield would be separately addressed, Ms. Voss moved for approval of the Updated Basin Management Plan. This motion was seconded by Mr. Gomez and unanimously approved.

3.B. Discuss Draft Updated BMAP Recommendations to: (1) Reduce the Basin's NSY to 2,370 AFY and (2) to Use Sustainable Yield Rather Than NSY for Basin Management

Mr. Jaques summarized the agenda packet materials for this item

Mr. Gomez said he concurred with Mr. Jaques' recommendations on how to proceed with these issues, since the issues are complex and warrant continued discussion.

Ms. Voss commented that 3,000 acre-feet per year as the Natural Safe Yield is no longer correct in view of the most recent data and that even though pursuing the Sustainable Yield approach would be a complex undertaking, it should be undertaken if warranted.

Mr. Costa asked if less than 3,000 acre-feet per year had been pumped in any prior years. Mr. Jaques responded that total production from the Basin was less than 3,000 acre-feet per year at least once in a recent year, but even in that year water levels continued to fall.

There was much further discussion on both the issues of Natural Safe Yield and Sustainable Yield.

Ms. King recommended waiting until adjacent basins have developed their Groundwater Sustainability Plans before performing a Sustainable Yield analysis, because such an analysis would need to include information from those plans.

There was consensus to proceed with further discussion of these issues as outlined on page 21 of the agenda packet.

4. Proposed Drainage Improvements at the Del Monte Manor in Seaside

Mr. Jaques summarized the agenda packet materials for this item.

Ms. Miller noted that percolation of water can move potential contaminants into underlying aquifers. Mr. Jaques commented that the shallowest aquifer is several hundred feet below the ground surface (Mr. Lear said he believed it was 300 or more feet below the ground surface at that location). Ms. King commented that because the depth to groundwater was that large there would be considerable soil

filtering of any contaminants and said she felt that there would be no adverse effects on the underlying aquifers.

In response to a question, Mr. Lear reported that there were no monitoring wells close to the location of the Del Monte Manor. Ms. King reported that some of California American Water's wells may be in this vicinity. Mr. Lear added that Mission Memorial Park has a well in this general location. He also mentioned that the previously prepared cross-aquifer contamination study but might provide some information on this.

Ms. Miller asked if Monterey County Environmental Health or the State had given its approval for the project, and also asked if they had performed a source water evaluation. Mr. Jaques said he did not have that information. Unfortunately, because of other commitments, Mr. Ottmar of the city of Seaside was not able to participate in today's meeting to provide that information.

There was consensus to continue discussion of this agenda item at the next TAC meeting before taking any action on it, so that Mr. Ottmar could provide information in response to these issues.

5. Schedule

Mr. Jaques highlighted the activities that had been updated in the schedule and there was no other discussion.

6. Other Business

No other business was discussed.

The meeting adjourned at 2:52 PM

THIS PAGE INTENTIONALLY LEFT BLANK

D-R-A-F-T
MINUTES

**Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
March 13, 2019**

Attendees: TAC Members

City of Seaside – Rick Riedl
California American Water – Nina Miller
City of Monterey – Max Rieser
Laguna Seca Property Owners – No Representative
MPWMD – Jon Lear (via telephone)
MCWRA – Tamara Voss
City of Del Rey Oaks – No Representative
City of Sand City – Leon Gomez (via telephone)
Coastal Subarea Landowners – No Representative

Watermaster

Technical Program Manager - Robert Jaques
Administrative Officer - Laura Paxton

Consultants

Montgomery & Associates - Georgina King and Derrick Williams (via telephone)

Others

City of Seaside – Scott Ottmar
California American Water - Lori Girard

The meeting was convened at 1:38 p.m. after a quorum had been established.

1. Public Comments

There were no public comments.

2. Administrative Matters:

A.Approve Minutes from the February 13, 2019 Meeting

On a motion by Ms. Voss, seconded by Mr. Rieser, the minutes were unanimously approved as presented.

B.MPWMD Letter Regarding Need to Maintain the PCA-East Monitoring Well in Service

Mr. Jaques summarized the agenda packet materials for this item. There was no other discussion.

C.Progress Report on Geochemical Modeling

Mr. Jaques summarized the agenda packet materials for this item.

Mr. Riedl asked if there would be a full report made on this topic. Mr. Jaques said that a technical memorandum on this item would be presented at the next TAC meeting.

Ms. Miller asked if the Sand City desalination plant's water could be used for bench testing of the MPWSP desalination plant's water. Mr. Lear responded that he will ask the Pueblo Water Resources modeler about this and get back to the TAC at the next TAC meeting, when the technical memorandum will be presented.

D.Change-in-Storage Memo for Sustainable Groundwater Management Act Reporting

Mr. Jaques summarized the agenda packet materials for this item. There was no other discussion.

3. CONTINUED DISCUSSION OF NATURAL SAFE YIELD (NSY) AND SUSTAINABLE YIELD

A. Allocation of Water Rights After Decision-Required Pumping Ramp-Downs Have Been Completed

Mr. Jaques summarized the agenda packet materials for this item.

Ms. Voss asked if either Option 1 or Option 2 would be do-able, if some producers may be unable to supply their demands under these options.

Mr. Jaques said he proposed to meet with the Producers to inquire about their ability to meet their water supply demands under the reduced pumping levels and report back to the TAC.

Mr. Riedl commented that the City of Seaside's Municipal water system is currently only using an estimated 50 gallons per-person-per-day as a result of conservation, and that this figure may actually be a lower gallons-per-person-per-day figure, because the city believes the population figures for its service area may be underestimated.

Ms. Voss reported that the Marina Coast Water District will do the Groundwater Sustainability Plan for the Monterey subbasin of the Salinas Valley Groundwater Basin in coordination with the Salinas Valley Basin Groundwater Sustainability Agency, but that the Corral de Tierra Management Area will be covered by the Salinas Valley Basin Groundwater Sustainability Agency's Groundwater Sustainability Plan.

Mr. Williams reported that the Salinas Valley Basin Groundwater Sustainability Agency and the Marina Coast Water District will jointly write the Monterey subbasin Groundwater Sustainability Plan, but that it is not yet clear on exactly how this will be done. However, in any case, the Corral de Tierra Groundwater Sustainability Plan will be managed by the Salinas Valley Basin Groundwater Sustainability Agency.

Ms. Girard commented that the 644 acre-feet per year of Operational Yield allocated to the Laguna Seca Subarea Alternative Producers being reduced to 608 acre-feet per year may be a nuance with which those Producers may differ.

Ms. Voss questioned if we don't reduce pumping to the 2,370 acre-feet per year that is recommended in the Updated Basin Management Action Plan, is it worth discussing Option 2 at this time?

Mr. Riedl asked if the Corral de Tierra Groundwater Sustainability Plan would affect the 2,370 acre-foot per year figure. Ms. Voss responded that she felt that it could, so why consider going from 2,913 acre-feet per year to 2,800 acre-feet per year (Option 2) now?

Ms. King commented that if we use the model with the Sustainable Yield approach, the Sustainable Yield for the Seaside Basin would probably be lower than the 2,370 acre-feet per year figure. She went on to say that we should wait to see what the Groundwater Sustainability Plan for the Corral de Tierra area comes up with before proceeding with a Sustainable Yield analysis. She said, however, that the adjacent subbasins will most likely not take steps that will raise groundwater levels in the Seaside Basin. She went on to say, however, that any Seaside Basin pumping reductions would help in the meantime.

Ms. Miller commented that the biggest influence on the Laguna Seca subarea is pumping in the adjacent subbasin.

Mr. Lear said he had discussed this agenda item with Mr. Stoldt, General Manager of the Monterey Peninsula Water Management District. He commented that ramp-downs at the next scheduled ramp-down, and any subsequent ramp downs, could be used to reach whatever lower Natural Safe Yield figure the Watermaster decides is appropriate.

Mr. Jaques asked if the TAC preferred him to represent only Option 1 to the Producers.

Ms. Miller commented that she would like to provide them with options.

Mr. Riedl said he did not feel that Option 2 needs to be presented, as it is not required by the Decision.

Ms. Voss recommended tabulating actual production figures from the last several water years and providing that information to the producers when Mr. Jaques meets with them.

Mr. Lear said he concurred with Ms. Voss, and that the producers should get a heads-up that Natural Safe Yield is likely to be lower in the future.

A motion was made by Ms. Voss and seconded by Mr. Riedl to have Mr. Jaques present the producers with Option 1 and also to notify them that the Natural Safe Yield is likely to be lower in the future. The motion passed unanimously.

B. Informational Presentation on the Sustainable Yield Approach for Basin Management

Ms. King made an informational PowerPoint presentation on this topic (see attached PowerPoint slides).

Mr. Jaques and Ms. King pointed out that in the future flows will stop coming into the Laguna Seca subarea from the Corral de Tierra subarea and will reverse direction with flows going east from the Laguna Seca subarea to the Corral de Tierra area subarea.

Ms. King and Mr. Williams reported that in Task 5 of their proposal, they would put in boundary conditions for each well and the program they use would optimize the analysis to get the maximum yield from the Basin to achieve whatever Management Objectives were set by the Watermaster.

Ms. Voss asked how the Seaside Basin model would differ from the Salinas Valley Basin and Marina Coast Water District models. Mr. Williams responded that the Watermaster will want to examine those models in order to have confidence in how they predict groundwater levels in the Seaside Groundwater Basin.

Ms. Voss also asked how well the Salinas Valley Basin model would represent the Seaside Basin. Mr. Williams responded that the Salinas Valley Basin modeling does not plan to cover the Seaside Basin.

Mr. Lear noted that the Salinas Valley Basin model will require input from throughout the Salinas Valley Basin area in order to properly run, and that it is only predictive at this point, and does not reflect historical data. He said we will want to examine the Salinas Valley Basin model's assumptions to see how they compare with the assumptions made for the Seaside Basin Groundwater Model.

C. Pros and Cons of Using the Sustainable Yield Approach in Place of the NSY Approach for Basin Management

Mr. Jaques summarized the agenda packet materials for this item.

Ms. King said she generally agreed with a listing of Pros and Cons in the agenda packet, but felt that action needs to be taken to keep groundwater levels from continuing to fall. Lowering the Basin's yield to 2,913 acre-feet per year helps, but more will be needed. If Sustainable Yield work is done, the 2,370 acre-feet per year figure would likely change to a lower level. She commented that as an interim step we could ramp down to 2,370 acre-feet per year now, and then see what happens after the Corral de Tierra subbasin Groundwater Sustainability Plan is developed.

Ms. Miller said she would like more time to consider this topic, as there is a lot of information to digest.

Mr. Jaques questioned whether the Watermaster should continue studying things such as Sustainable Yield, when it seems clear that injection is the only realistic way of achieving protective water levels.

Mr. Riedl asked if Task 1 of the Montgomery & Associates proposal could be done without performing modeling. Ms. King responded that the Decision's Natural Safe Yield value of 3,000 acre-feet per year was only intended to stabilize groundwater levels, but not to increase them. She went on to say that she suggested developing Management Targets first, rather than Operational Parameters, and that Board direction would probably be needed in setting the Management Targets.

Mr. Jaques said he felt the primary Management Target of the Decision is to get to protective water levels in order to protect against seawater intrusion. Mr. Riedl and Ms. Voss said they concurred with Mr. Jaques' conclusion.

Ms. Voss felt that the Watermaster's focus should be on figuring out how to achieve protective water levels.

Ms. King reported that natural recharge to the Seaside Basin occurs in a small area to the far east of the Basin, and that it takes a long time for that water to raise groundwater levels near the coast to protective water levels.

Mr. Riedl asked if redistributing pumping into the Southern Coastal Subarea would help achieve protective water levels. Ms. King reported that moving Cal Am production wells inland did not have much benefit, based on previously performed modeling, but that some redistribution of pumping into the Southern Coastal Subarea might have some beneficial effect. However it would not be sufficient to achieve protective water levels without undertaking other projects.

Ms. King said that one approach would be to use the model to see how much would be needed for injection to achieve protective water levels, in addition to any redistribution of pumping in the Southern Coastal Subarea.

Mr. Riedl asked if producers kept pumping at final ramp-down levels, and 850 acre-feet per year was injected near the coast, could the injection water be obtained from increased pumping in the Southern Coastal Subarea. Ms. King said you could probably get a small amount (a few hundred acre-feet per year) from increased pumping in the Southern Coastal Subarea, but that you would not be able to get the full 850 acre-foot per year amount.

Ms. Voss suggested that if the Watermaster decides more water is needed for injection to raise groundwater levels in the Seaside Basin, then the Watermaster should consider supporting a larger desalination plant and/or a larger Pure Water Monterey Project.

Mr. Riedl asked if Montgomery & Associates could determine how much more could be pumped from the Southern Coastal Subarea in order to provide an injection water source for injection near the coast.

Mr. Lear commented that once the Pure Water Monterey project begins operation and some data is obtained from monitoring wells, we will know more about how that project affects groundwater levels.

There was consensus to continue discussion of this topic to the next TAC meeting.

8. Continued Discussion of Proposed Drainage Improvements at the Del Monte Manor in Seaside

Mr. Jaques summarized the agenda packet materials for this item and Mr. Ottmar amplified on them.

Mr. Ottmar summarized that the project protects some existing infrastructure and increases infiltration.

There were no further questions about this project from TAC members.

A motion was made by Ms. Voss, seconded by Mr. Gomez, that the TAC find that there is no adverse effect on the Seaside Basin from the proposed project. The motion passed unanimously.

9. Schedule

Mr. Jaques summarized the agenda packet materials for this item, highlighting the principle schedule updates as reported on page 61 of the agenda packet, and that there will not be a need to have an April TAC meeting, so the next TAC meeting will be on May 8, 2019.

6. Other Business

Ms. Miller reported that the State Water Resources Control Board had requested Cal Am to destroy wells that are no longer needed.

Ms. King said she recommended seeking input from Mr. Lear on this matter. Mr. Lear noted that the Watermaster's Monitoring and Management Program calls out wells by name, so it would be desirable to go through the list of wells and see which ones may no longer be needed.

Mr. Lear and Ms. Miller said they would work together on this and provide recommendations on this topic at the next TAC meeting.

The meeting adjourned at 4:10 PM

D-R-A-F-T
MINUTES

**Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
May 8, 2019**

Attendees: TAC Members
City of Seaside – Rick Riedl
California American Water – Nina Miller
City of Monterey – Max Rieser (via telephone)
Laguna Seca Property Owners – No Representative
MPWMD – No Representative
MCWRA – Tamara Voss
City of Del Rey Oaks – No Representative
City of Sand City – Leon Gomez (via telephone)
Coastal Subarea Landowners – No Representative

Watermaster
Technical Program Manager - Robert Jaques

Consultants
None

Others
None

The meeting was convened at 1:40 p.m. The conference line telephone number had been changed without our knowledge, so it took a while for everyone to get connected.

1. Public Comments

There were no public comments.

2. Administrative Matters:

A. Approve Minutes from the March 13, 2019 Meeting

On a motion by Ms. Voss, seconded by Mr. Gomez, the minutes were unanimously approved as presented.

3. Report on Geochemical Modeling for the Pure Water Monterey Project AWT Water

Mr. Jaques summarized the agenda packet materials for this item. There was no other discussion.

4. Continued Discussion of Allocation of Water Rights After Decision-Required Pumping Ramp-Downs Have Been Completed

Mr. Jaques summarized the agenda packet materials for this item.

Ms. Voss said that she was okay with using the Natural Safe Yield of 3,000 acre-feet per year for calculating the next pumping ramp-down. She noted that the Salinas Valley Basin Groundwater Sustainability Plans will need to be completed by 2022, and at that time it would be appropriate to

reevaluate the Natural Safe Yield value, and also to consider the concept of Sustainable Yield versus Natural Safe Yield for basin management purposes.

Ms. Miller said she concurred with Ms. Voss' comments and that it was appropriate to take one step at a time and not undertake the Sustainable Yield analysis at this time because of the likelihood of having to redo it after the Salinas Valley Basin Groundwater Sustainability Plans have been completed.

Ms. Voss said she knew that the 3,000 acre foot per year Natural Safe Yield figure was probably too high, but the burden of lowering the Natural Safe Yield further is not justified or necessary at this time.

Ms. Voss made a motion to use 3,000 acre-feet per year as the Natural Safe Yield value when making the calculations for the next ramp-down in pumping. Mr. Riedl seconded the motion and it passed unanimously.

5. Continued Discussion of Pros and Cons of Using the Sustainable Yield Approach in Place of the NSY Approach for Basin Management

Mr. Jaques summarized the agenda packet materials for this item.

Ms. Voss said she felt that a Sustainable Yield analysis may be needed at a future point in time, but it was best to wait until the Salinas Valley Basin Groundwater Sustainability Plans were completed before making that decision.

Ms. Miller noted that waiting on making this decision will avoid the risk of having to revise the analysis after the Salinas Valley Basin Groundwater Sustainability Plans have been completed.

Mr. Gomez said he concurred with the comments made by Ms. Voss and Ms. Miller.

Mr. Riedl noted that a management objective for the Watermaster is to have pumping at a sustainable level. He noted that something could potentially change or be learned prior to the development of the Salinas Valley Basin Groundwater Sustainability Plans that would make it appropriate to perform a Sustainable Yield analysis before those plans were completed. Mr. Jaques said he could include that caveat in the TAC's recommendation to the Board.

A motion was made by Mr. Riedl, seconded by Ms. Voss, to make the following recommendation to the Board:

1. An SY analysis not be performed at this time.
2. That the concept of using the SY approach to replace the NSY approach be revisited after the Groundwater Sustainability Plan for the Monterey Subbasin of the Salinas Valley Groundwater Basin has been completed, and its impacts on the Seaside Groundwater Basin have been determined.
3. However, if something is learned or events occur, that would warrant performing a Sustainable Yield analysis sooner, the Board should revisit the decision at that time.

The motion passed unanimously.

6. Schedule

Mr. Jaques briefly summarized the changes to the schedule from the prior TAC meeting, noting that the geochemical modeling report was being moved from today's meeting to the June 12th TAC meeting.

7. Other Business

There was no other business.

The next regular meeting will be held on Wednesday June 12, 2019 at 1:30 p.m. at the M1W Board Room.

The meeting adjourned at 2:03 p.m.

THIS PAGE INTENTIONALLY LEFT BLANK

**SEASIDE GROUNDWATER BASIN WATERMASTER
Reported Quarterly and Annual Water Production From the Seaside Groundwater Basin
For All Producers Included in the Seaside Basin Adjudication – Water Year 2019**
(All Values in Acre-Feet (AF))

Producer	Water Year 2019														
	Q1	Q2	Q3	Q4	Annual Production from SPA Producers	Annual Production from APA Producers	Recovery	Injection	Recovery	Net/ASR	Net/ASR	Net/ASR			
Casual Subusers	SPA	340.23	291.75	161.71	793.69	145.42	133.68	144.34	423.43	457	0.00	1,217.12	1,791.62	453.87	2,245.49
CW - Casual Subusers															
Lasert		1.25	4.51	0.00	5.76	0.00	4.57	0.00	4.57	0.00	0.00	80.22	146.99	0.00	146.99
Old Grove		123.91	118.28	118.81	361.00	116.84	103.82	113.35	334.01	0.00	0.00	0.00	1.87	221.99	235.86
Parla		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.16	403.96	429.12
Playa		0.00	1.97	32.07	34.04	8.91	0.00	13.80	22.71	0.00	0.00	105.22	3.37	16.09	19.46
Plumas		0.05	0.00	0.00	0.05	19.67	25.28	17.19	62.14	0.00	0.00	0.66	9.00	540.00	549.00
Sanja Margarita		215.02	166.99	10.83	392.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	149.00	149.00
City of Seaside (Municipal)	SPA	15.74	14.59	11.76	42.09	6.34	17.24	14.15	38.13	0.00	0.00	0.00	0.00	6.00	6.00
Grande Rock Company	SPA	--	--	--	0.00	--	--	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DBO Development No. 30	SPA	--	--	--	0.00	--	--	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Caladese (Cypress Pacific Inc)	SPA	--	--	--	0.00	--	--	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City of Seaside (Golf Courses)	APA	51.64	21.85	0.00	73.49	5.07	3.34	23.31	31.73	0.08	0.00	0.66	9.00	149.00	158.00
Sanat City	APA	0.20	0.21	0.04	0.46	0.04	0.04	0.04	0.12	0.00	0.00	0.00	0.00	0.00	0.00
SMG (Security National Gaming)	APA	--	--	--	0.01	--	--	--	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Caladese (Cypress Pacific Inc.)	APA	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Mission Memorial (Alderwoods)	APA	2.51	1.49	0.00	4.00	0.03	0.00	0.00	0.03	0.00	0.00	4.03	31.00	31.00	31.00
Casual Subusers Totals					1,707.42				916.88	0.08	0.00	1,407.27	2,716.01	1,095.91	3,811.92
Laguna Seca Subusers															
CW - Laguna Seca Subusers	SPA	28.44	24.66	17.80	70.90	14.84	14.10	16.81	45.76	0.00	0.00	116.66	0.00	0.00	0.00
Ryan Ranch Golf		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hidden Hills Golf		11.24	9.73	7.31	28.29	7.11	5.93	6.97	20.01	0.00	0.00	48.30	0.00	0.00	0.00
Bishop Golf		17.20	14.93	10.48	42.62	7.74	8.17	9.84	25.75	0.00	0.00	68.37	0.00	0.00	0.00
The Club at President	APA	16.00	24.00	7.00	47.00	2.00	0.00	0.00	2.00	0.00	0.00	49.00	251.00	320.00	251.00
Laguna Seca Golf Resort (Bishop)	APA	16.55	12.42	0.22	29.19	0.00	0.30	0.00	0.31	0.00	0.00	29.50	320.00	320.00	320.00
York School	APA	1.33	0.49	0.00	1.81	0.03	0.00	0.00	0.03	1.69	0.00	3.53	32.00	32.00	32.00
Laguna Seca County Park	APA	3.01	1.47	0.76	5.23	1.70	0.41	1.16	3.28	0.00	0.00	8.51	41.00	41.00	41.00
Laguna Seca Subusers Totals					154.13				51.37	1.69	0.00	207.20	644.00	0.00	644.00
Total Production by WM Producers					1,861.56				968.26	1.77	0.00	1,614.47	3,360.01	1,095.91	4,455.92
Tip of Seaside Golf Courses In-Line (MCWD source water)															
MCWD delivery		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CW / MPM/MD ASR (Carnel River Basin source water)															
Injection		0.00	0.00	0.00	0.00	269.63	306.73	372.93	949.29	0.00	0.00	949.29	0.00	0.00	0.00
(Recovery)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net/ASR					0.00	269.63	306.73	372.93	949.29	0.00	0.00	949.29	0.00	0.00	0.00

Notes:
1. The Water Year (WY) begins October 1 and ends September 30 of the following calendar year. For example, WY 2019 begins on October 1, 2018, and ends on September 30, 2019.
2. "Type" refers to water right as described in Seaside Basin Adjudication decision as amended, signed February 9, 2007 (Monterey County Superior Court Case No. M06343).
3. Values shown in the table are based on reports to the Watermaster received by April 5, 2019.
4. All values are rounded to the nearest hundredth of an acre-foot. Where required, reported data were converted to acre-feet utilizing the relationships: 235,851 gallons = 43,560 cubic feet = 1 acre-foot.
5. "Base Operating Yield Allocation" values are based on Seaside Basin Adjudication decision. These values are consistent with the Watermaster Producers Allocation Water Year 2019 (see Item IX A in I/22/09 Board pack).
6. Any minor discrepancies in totals are attributable to rounding.
7. APA = Alternative Producer Allocation; SPA = Standard Producer Allocation; CW = California American Water.
8. It should be noted that CAVM/PM/MD ASR "Injection" and "Recovery" amounts are not expected to "balance" within each Water Year. This is due to their injection/recovery "rules" that are part of SWRCB water rights permits and/or separate agreements with state and federal resources agencies that are associated with the water rights permits.

THIS PAGE INTENTIONALLY LEFT BLANK

Monterey Peninsula Water Management District 2018 Annual Report

Accomplishments

- **Monterey Peninsula Water Supply Project** – The District has made continued progress on the Monterey Peninsula Water Supply Project (MPWSP) working jointly with California American Water (Cal-Am), the Monterey Peninsula Regional Water Authority, and other parties. This past year, Cal-Am completed the Monterey Pipeline and the Hilby Pump Station with the District acting as Project Manager for environmental compliance assurance. The proposed MPWSP desalination plant was given approval to proceed by the California Public Utilities Commission in September.
- **Pure Water Monterey Project** – The District provided the majority of preconstruction funding for this innovative water recycling plant, working in partnership with Monterey One Water which will own and operate the system. The project was 85% complete at the end of the year with delivery of water expected during summer of 2019. The District served as project manager for the injection well portion of the project.
- **Aquifer Storage and Recovery (ASR)** – The District operated the ASR facilities in coordination with Cal-Am while diverting 530 acre-feet (AF) of Carmel River Basin water for injection and storage in the Seaside Basin during the 2017 water year (WY). Since inception of the ASR program, a total of 8,561 AF has been diverted from the Carmel River for storage and subsequent recovery through the end of WY 2018. The District expanded its facility percolation pond to accommodate waters from two additional ASR wells to be constructed by Cal-Am. Facilities to treat produced waters are being designed to enable Cal-Am to recover ASR and Pure Water Monterey stored waters.
- **Water Availability** – In cooperation with the United States Geological Survey (USGS), the District completed calibration of an integrated ground water-surface water GSFLOW/MODFLOW model to update water availability for additional water supply from the Carmel River. In addition, the District completed a draft instream flow study and hydraulic model to simulate flow requirements for steelhead in the Carmel River. A final version is due to be completed in early 2019. These models will allow the District to simulate different water supply scenarios and their impacts on the Carmel River environment.
- **Well Permitting** – MPWMD issued 25 Confirmation of Exemptions for private properties that met the criteria established in District Rules and Regulations. Applications were reviewed for potential impacts to the water resource system and other water users.
- **Proposition 1 Integrated Regional Water Management (IRWM) Program** – The District spearheaded an effort that will allow the Monterey Peninsula region to receive \$4.2 million for implementation of water projects. The District represented the Monterey Peninsula Regional Water Management Group (RWMG) submission to the Central Coast funding area application for Proposition 1 Integrated Regional Water Management Disadvantaged Community Involvement Grant funds. In 2018, the Monterey Peninsula was awarded \$465,000 for Disadvantaged Community Involvement projects. The no-match grant funds were applied to a District initiated Disadvantaged Community Needs Assessment project that will provide a basis for future Disadvantaged Community



Construction of expanded percolation pond to accommodate waters from four existing and two future ASR wells.

Implementation grants; the City of Monterey Franklin Street Storm Drain project; and the District High Efficiency Applied Retrofit Targets (HEART) pilot program project.

In 2019 the District will take the lead role to coordinate the RWMG application for the next round of Proposition 1 Implementation grant funds.

- Legally-Mandated Carmel River Mitigation and Stewardship** – The District secured authorizations for an upgrade to the Sleepy Hollow Steelhead Rearing Facility, which includes construction of a new intake and water supply system to protect the facility from changes in river flows due to the removal of San Clemente Dam and to allow the facility to continue to operate during periods of extreme drought or high flows. Construction began in September 2018 and is expected to be completed in mid-2019. The total project cost is estimated at \$2.5 million, including environmental compliance documents, design, permits and construction. The State Coastal Conservancy has approved up to \$2.25 million for reimbursement of expenses, which will come from funds generated by a Settlement Agreement between Cal-Am and the National Marine Fisheries Service (NMFS).

The District successfully rescued 4,958 fish from the Carmel River, five tributaries, and the spillway at Los Padres Dam. All fish were released near the tributaries confluence with the Carmel River.

Staff also conducted late season Redd (steelhead nests) surveys, counting over approximately 20 miles. Staff also continued to work for the third year with NMFS on field studies to develop a steelhead population life history model for the watershed, based on tagged fish from NMFS' studies and MPWMD fall population surveys. This effort included assisting NMFS with basin-wide population surveys and installing 4 tag detection arrays from the mouth up to the Old San Clemente Dam site.



View from above, as District staff use a hoe ram to remove a concrete bridge pier and deck lying in the Carmel River.

District crews carried out the Vegetation Management Program in the active channel of the Carmel River at 13 sites to prevent debris dams and erosion. This includes trimming back encroaching vegetation and reducing the hazard of downed trees in preparation for winter flows. Trash was removed from along the river before winter rains washed it into the ocean. District staff also planted native trees on exposed banks to improve habitat value, protect water quality, and reduce bank erosion. In addition, the District removed a large concrete bridge pier and deck that was lying in the Carmel River. This bridge originally collapsed in the 1995 flood.

In October 2018, the District completed construction of the Carmel River Bank Stabilization Project at Rancho San Carlos Road. Work included installation of about 250 lineal feet of bank stabilization to protect both streambanks from further collapse just downstream of the Rancho San Carlos Road bridge. MPWMD employed an environmentally friendly stabilization technique consisting of logs and rocks built into a cribwall at the site, which has high visibility due to traffic over the bridge. Total cost for the project including environmental compliance documents, permit acquisition, and construction was approximately \$650,000. District staff will complete revegetation and irrigation installation in 2019.

- Los Padres Dam Improvements** – A study of upstream volitional fish passage alternatives continued and a study of alternatives to the dam and management of reservoir sediment was begun. A sediment transport model was completed and reviewed by regulatory agencies. District expenses will be partially reimbursed by Cal-Am under a Public Utilities Commission decision to plan for the long-term future of the dam and associated reservoir.

- **Salinas and Carmel Rivers Basin Study** – The District continued work on a Basin Study to evaluate future water demands and water supplies taking into account the effects of climate change. The area includes all the Salinas River Valley through Monterey and San Luis Obispo Counties, the Monterey Peninsula, and the Carmel River Basin. The US Bureau of Reclamation is providing \$1.8 million in grant funds for the effort. A Study Metrics technical paper and evaluation strategies were outlined in 2018. The study, which began in 2017, is expected to take about four years to complete.
- **North Monterey County Drought Contingency Plan (DCP)** – The District continued development of a plan for North Monterey County areas from Salinas to the Monterey Peninsula to better cope with recurring droughts in the region. The DCP is being partially funded with a federal grant of \$280,000 to prepare the plan, which will be coordinated with the Basin Study.
- **Conservation** – The District approved 1,135 rebate applications in the amount of \$398,658.17 for annual savings of 18.14 acre-feet of water. Staff conducted building-by-building inspections for compliance with the non-residential water efficiency requirements (Rule 143). More than 208 businesses were inspected. All Peninsula businesses will be verified by 2021. Staff completed an additional 1,037 property inspections to verify compliance with water efficiency standards for changes of ownership or use).

During 2018, the District issued 976 Water Permits and 86 Water Use Permits to Benefited Properties (i.e., properties eligible to receive a portion of a Water Entitlement). Staff conducted 911 inspections to verify compliance with permit water efficiency requirements.

As the regional entity responsible for compliance with State landscaping regulations, the District issued 44 Water Permits for new and refurbished landscapes. An ongoing program to assist schools with water saving practices, a 13,424 square-foot turf conversion project began at Martin Luther King Elementary School in Seaside. Two native plant workshops were held at the site in collaboration with CSUMB's Return of the Natives. The District hosted several rainwater harvesting and water efficient irrigation workshops.



Volunteers assisted with turf conversion project at Martin Luther King Elementary School in Seaside.

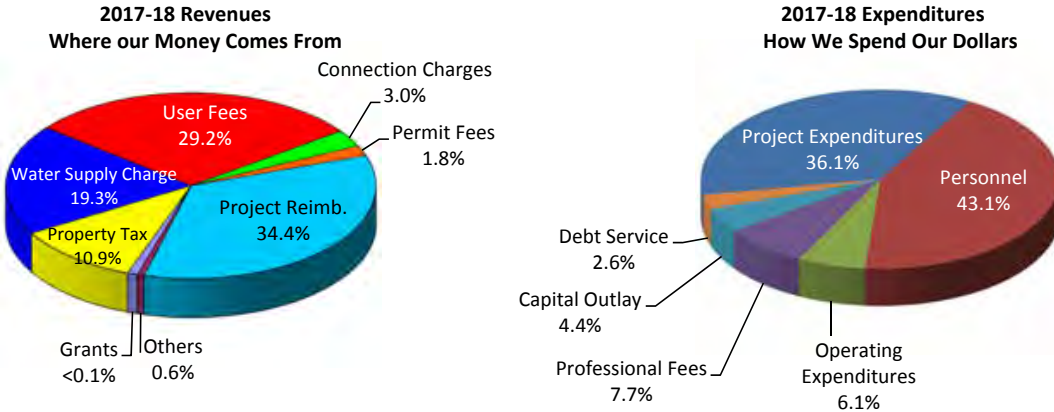
- **Community Outreach** - Posted regular updates to the District's Facebook page and Twitter account. Outreach to schools continued with presentations to classes at local schools and CSUMB. Presentations were also made to many local associations and clubs. We also executed over 20 presentations to community groups and city councils. The District also ran monthly ads covering District activities in local media. Conservation staff participated in numerous outreach events to provide information and water saving devices to the public.
- **Measure J** – In November, voters passed an initiative requiring the District to, if and when feasible, acquire all the water supply and distribution facilities of California American Water. The District has assembled a team of experts to examine feasibility and to report its findings in mid-2019.

Financial Analysis

The District prepared a Comprehensive Annual Financial Report (CAFR), which is a set of government financial statements comprising the financial report of a municipality that complies with the accounting requirements promulgated by the Government Accounting Standards Board. MPWMD received a clean financial audit report with no material weakness or deficiencies. The audit for fiscal year 2017-2018 was conducted by Hayashi Wayland, an independent auditing firm. The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the District for its CAFR for the fiscal year ended June 30, 2017. This District has received the CAFR award for 3 consecutive years.



As shown in the charts on below, total revenues received in Fiscal Year 2017-2018 were \$17,653,958, while expenditures totaled \$8,398,300, generating an increase in fund balance of \$9,255,658. As of June 30, 2018, the District’s total fund balance was \$14,112,065. The budget for Fiscal Year 2018-19 anticipates expenditures of \$15,989,300 and revenue of \$13,845,800 with \$2,143,500 coming from fund balance.



Future Financing Methods

The District has historically paid for costs associated with water supply projects on a pay-as-you-go basis, with the majority of the funding coming from User Fees, which was the District’s largest and most fluid revenue source. However, beginning in 2012 the User Fee revenue from Cal-Am customers was not available to the District. The District was funding its water supply projects from the Water Supply Charge established in 2012. However, in 2017 the Supreme Court reinstated the User Fee, which the District began collecting in April 2017. Possible sources of funds to pay for actual construction of future water supply projects include ongoing revenue increases, user fees, water supply charge, property tax, new revenue categories, grants, and bond financing. Actual funding sources will be dependent on the type of project, the amount of funding needed and other variables.

Water Supply

Groundwater Zone Charge: In June 1980, the District Board approved formation of a groundwater charge zone to provide the legal basis for a comprehensive well-monitoring program consisting of well registration, well metering, and water production reporting. However, the District abandoned this source as a revenue and no groundwater charge was established in any zone of the District during WY 2018.

Available Water Supplies: In WY 2018, 10,130 AF of water was legally available to serve Cal-Am customers within the District. Similarly, approximately 3,046 AF of water were assumed to be available to serve non-Cal-Am users extracting water from the Carmel Valley Aquifer and the Seaside Basin. However, because of legal and regulatory constraints, long-term water supplies available to Cal-Am’s customers in the future will be reduced to approximately 5,500 acre-feet per year (AFY) assuming that Cal-Am will retain rights to produce 774 AFY from Seaside Groundwater sources (restored to 1,474 in 25 years), 94 AFY from the Sand City Desalination Facility, 1,300 AFY from Aquifer Storage and Recovery, and 3,376 AFY from Carmel River sources. Non-Cal-Am pumpers outside of the Seaside Basin and Carmel River Basin that depend on percolating groundwater rights pumped 939.3 AF in WY 2018.

Requirements for Future Capital Improvements: A 6,252 AFY desalination facility is expected by 2021 with the Pure Water Monterey project expected to create 3,500 AFY of new supply in mid-2019. Aquifer Storage and Recovery is expected to be doubled in capacity by 2020, to almost 3,000 AFY in good years. The District continues to develop plans for additional ASR opportunities for future water supply.

