M E E T I N G N O T I C E A N D A G E N D A

TECHNICAL ADVISORY COMMITTEE
OF THE
SEASIDE BASIN WATER MASTER

DATE: Wednesday, March 9, 2016

MEETING TIME: 1:30 p.m.

Monterey Regional Water Pollution Control Agency Offices
5 Harris Court, Building D (Ryan Ranch)
Monterey, CA 93940

If you wish to participate in the meeting from a remote location, please call in on the Watermaster Conference Line by dialing (712) 432-1212. Use the Meeting ID 355890617. Please note that if no telephone attendees have joined the meeting by 10 minutes after its start, the conference call will be ended.

OFFICERS
Chairperson: Roger Hulbert, California American Water Company
Vice-Chairperson: Joe Oliver, MPWMD

MEMBERS
California American Water Company **City of Del Rey Oaks** **City of Monterey** **City of Sand City** **City of Seaside**
Coastal Subarea Landowners
Laguna Seca Property Owners **Monterey County Water Resources Agency** **Monterey Peninsula Water Management District**

Agenda Item	Page No.
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6. Set Next Meeting Date	

The next regular meeting will be held on Wednesday April 13, 2016 at 1:30 p.m. at the MRWPCA Board Room.

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SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	March 9, 2016
AGENDA ITEM:	2.A
AGENDA TITLE:	Approve Minutes from the January 13, 2016 Meeting
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

Draft Minutes from this meeting was emailed to all TAC members. Any changes requested by TAC members have been included in the attached version.

ATTACHMENTS:	Minutes from this meeting
RECOMMENDED ACTION:	Approve the minutes

D-R-A-F-T
MINUTES

Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
January 13, 2016

Attendees: TAC Members

City of Seaside – Rick Riedl (via telephone)
California American Water – Roger Hulbert
City of Monterey – Norm Green (via telephone)
Laguna Seca Property Owners – Bob Costa
MPWMD – Joe Oliver
MCWRA – Peter Kwiek
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
HydroMetrics –Georgina King (via telephone)

Others
None

The meeting was convened at 1:35 p.m. after a quorum had been established.

1. **Public Comments**
   There were no public comments.

2. **Administrative Matters:**

   A. Approve Minutes from the November 18, 2015 Meeting
   On a motion by Mr. Oliver, seconded by Mr. Hulbert the minutes from this meeting were unanimously approved as presented, with Mr. Kwiek abstaining.

   B. Progress Report on Salinas River Groundwater Basin Investigation Model TAC
   Mr. Jaques summarized the agenda packet materials for this item, also reporting that the planned January 2016 meeting of this TAC had been cancelled.

   Mr. Kwiek reported that a decision had not yet been made as to when the next TAC meeting will be held, but a notice in this regard will be sent out soon.

   C. Sustainable Groundwater Management Act (SGMA) Update
   Mr. Jaques summarized the agenda packet materials for this item.

Mr. Oliver reported that DWR last updated Bulletin 118 in 2003, but the Salinas Valley Basin boundaries have been as currently shown since long before then. It is important that the Seaside Basin be recognized as adjudicated, since adjudicated basins are exempt from most of the requirements of the SGMA. MPWMD will carry out DWR's required steps in pursuing the boundary revision request.

Mr. Hulbert asked what changes were being requested regarding the adjudicated basin. Mr. Jaques described those changes which are along the southwestern, eastern, and northern boundaries of the Seaside Basin. Mr. Oliver explained the justification for deleting the area along the southwest boundary of the Basin and reported that MPWMD will include the justifications for each of these requested revisions in its submittal to DWR.

Mr. Green asked if there is a hydrogeologic divide between the Seaside and Salinas Valley Basins. Mr. Oliver and Mr. Jaques responded that there is what appears to be a flow divide rather than a structural divide along the northern boundary of the Seaside Basin.

Mr. King reported that HydroMetrics is assisting two of its other clients in preparing boundary revision requests, and offered to serve as a resource for questions if MPWMD has any as it prepares its request. Mr. Oliver thanked her for this offer.

A motion was made by Mr. Oliver, seconded by Mr. Kwiek, to accept MPWMD's proposed approach as described in the agenda packet, and the motion passed unanimously.

3. Report on Expanded Analysis by HydroMetrics on Groundwater Flow Divides within and East of the Laguna Seca Subarea (LSSA)

Mr. Jaques introduced this item and Ms. King provided a PowerPoint presentation (see attached slides) describing it. T he Model goes to the year 2041. This analysis evaluated the 3 scenarios described on page 20 of the agenda packet (Historic, Baseline, and No Standard or Alternative Producer Pumping). There was some Q&A during the presentation. She reported that recharge occurs largely to the east of the LSSA. Flow through the LSSA goes partly in a westerly direction to the Southern Coastal Subarea and partly in a northerly direction to the Northern Inland Subarea.

The previously prepared Safe Yield Study aggregated data from all 5 layers of the Model whereas this analysis focused only on Layer 5. Layer 5 did not show flow going out of the LSSA to the east, whereas the aggregated data did show flowing going out of the LSSA to the east. Ms. King offered to add a new figure to the analysis to supplement Figure 14, showing inflows and outflows from just Layer 5.

Ms. King noted that there has been little geologic study of the area to the east of the LSSA. This lack of data affects how accurately the Model can perform evaluations in that area. Mr. Oliver concurred with Ms. King's comments on this.

Mr. Oliver requested that the term "Alternate" be replaced with "Alternative" Producer to be consistent with the language in the Adjudication Decision. He also asked if this expanded analysis Technical Memorandum would be included in the 2016 Annual Report, indicating some concern about the Memorandum's highlighting of the geologic uncertainty in the area to the east of the LSSA.

Ms. King asked if the work being performed to update the Salinas Valley Basin model goes as far as the Corral de Tierra subbasin. Mr. Jaques said he understood from Mr. Franklin that it does not, but Mr. Kwiek said that it was still being determined whether that area would be covered in the model update, which is limited to Zone 2C.

There was consensus that it would not be worthwhile to do any further modeling of the area to the east of the LSSA at this time. It would be better to wait until more geologic data in that area is available.

Mr. Jaques recommended making some revisions to the Conclusions in the Technical Memorandum as well as expanding some of them.

A motion was made by Mr. Costa, seconded by Mr. Green, to approve the Technical Memorandum with the revisions recommended by Mr. Jaques, and other revisions requested by TAC members at today's meeting. The motion passed unanimously.

4. Schedule

Mr. Jaques reported that there were no significant items to discuss in the Schedule. There was no other discussion of this item.

5. Other Business

There was no Other Business to discuss.

6. Set Next Meeting Date

The next TAC meeting will be on February 10, 2016 at 1:30 p.m. at the MRWPCA Board Room.

The meeting adjourned at 2:50 p.m.

Attachments: PowerPoint slides used during presentations of Agenda Item No. 3.

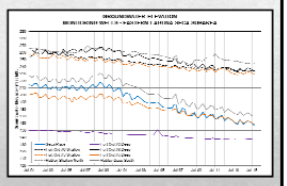
Laguna Seca Subarea Groundwater Flow Divides

Presented to the Seaside Basin Technical Advisory Committee

January 13, 2016

Background & Purpose

- Declining groundwater levels in the LSSA
- Some areas of LSSA cannot be effectively managed by WM as wells outside of the Basin are causing the declining levels
- Map existing and future groundwater flow divides based the groundwater model



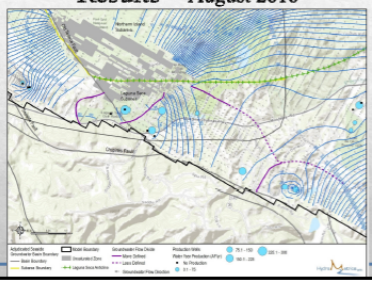
Time Periods

Model Scenario	Year	Month
Historic	2010	February
		August
Baseline	2018	February
		August
	2041	February
		August
No Standard or Alternate Producer Pumping	2010	February
		August
	2018	February
		August
	2041	February
		August

Methods

- Analysis only provided for Model Layer 5 / Santa Margarita Aquifer – thickest layer and most likely to stay saturated
- Groundwater flow divides hand-delineated using 1 foot contours exported from the flow model
- Well-defined and less-defined divides based on qualitative inspection of the degree of divergence in the groundwater flow vectors

Results – August 2010

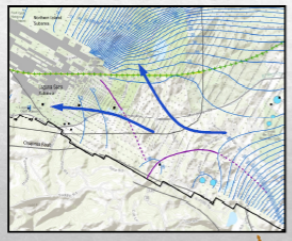


Important to Note

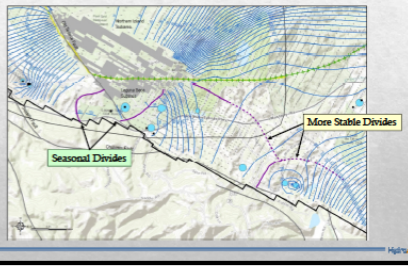
- Flow divides are not static features or hard barriers to flow
- They will move in response to pumping stresses and changes in recharge

General Results

- Regional flow direction is consistent for all months examined
- Laguna Seca Anticline acts as a barrier to flow, splitting flow into two paths: one flowing west through the LSSA to the south of the barrier and one flowing northwest into the Northern Inland Subarea

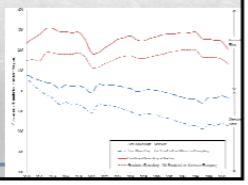


General Results

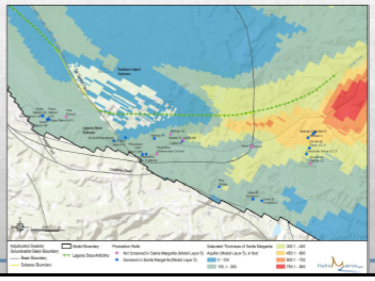


Other Results

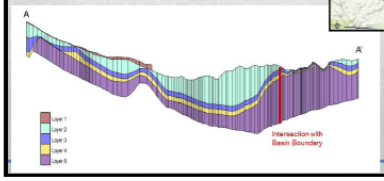
- Historic and Baseline – flow divide shows little movement this is due to relative groundwater levels decreases over time
- No Standard or Alternate Produce Pumping Scenario – flow divide moves west over time
- Safe Yield analysis results were aggregated across all model layers -- net outflow across eastern boundary after 2030
- Model Layer 5 does not show outflow to the east



Other Results - Saturated aquifer thickness

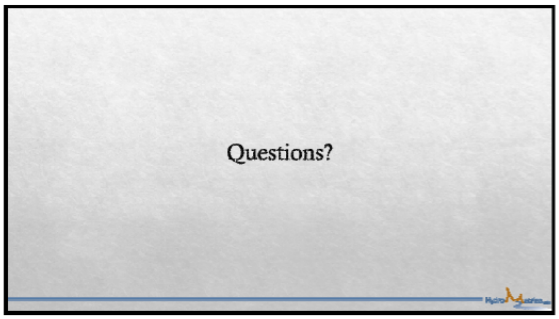


Other Results
Model Cross-Section



Conclusions

- The eastern divide should remain fairly stable under the current configuration of production wells and the scheduled triennial reduction to reach the basin's safe yield
- Westwards migration of flow divide during the No Standard or Alternate Producer Pumping Scenario over time
- The eastern portion of the LSSA is in greater hydraulic connection with the area to the east of the subarea
- As such, it will not be possible for WM to implement management strategies to stop declining groundwater levels in the eastern portion of the LSSA
- Modeling may be based on incorrect conceptual model of geology in the Coral de Tiera area. Should undertake studies to improve geologic uncertainty


Questions?

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	March 9, 2016
AGENDA ITEM:	2.B
AGENDA TITLE:	Progress Update on Salinas River Groundwater Basin Investigation Model TAC
PREPARED BY:	Robert Jaques, Technical Program Manager

There have not been any Salinas River Groundwater Basin Investigation Model TAC meetings since my last update to the Watermaster TAC at our January 13, 2016 meeting. A February email from the County indicated that County staff was continuing to work toward establishing an MOU with the USGS, and they were in the process of finalizing a scope of work for the project with consideration of the input received at their Stakeholders meeting in December.

They indicated that their next TAC meeting will be held on Tuesday April 12, 2016.

ATTACHMENTS:	None

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

RECOMMENDED ACTION:	None required – information only

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	March 9, 2016
AGENDA ITEM:	2.C
AGENDA TITLE:	Sustainable Groundwater Management Act (SGMA) Update
PREPARED BY:	Robert Jaques, Technical Program Manager

As reported at prior TAC meetings, MPWMD has been working on preparing a Bulletin 118 boundary modification request following the procedures set forth by DWR for doing this. Joe Oliver provided the following update on their progress on this:

1. Per the DWR's basin boundary modification requirements, the requesting agency needs to adopt a resolution formally initiating the boundary modification process. Accordingly, the MPWMD board adopted this resolution at their January 27 meeting (http://www.mpwmd.net/asd/board/boardpacket/2016/20160127/16/Item-16.htm).
2. Per the DWR's basin boundary modification requirements, an initial notification needs to be submitted as a means to inform other local agencies, public, and DWR of the pending basin boundary modification request. Accordingly, the initial notification for the adjudicated Seaside Basin boundary modification was filed with DWR on February 12. (http://sgma.water.ca.gov/basinmod/initprintview/96). The modification request needs to be submitted to DWR prior to March 31, 2016.

ATTACHMENTS:	None

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

RECOMMENDED ACTION:	None required – information only

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	March 9, 2016
AGENDA ITEM:	3
AGENDA TITLE:	Sustainable Groundwater Management Act (SGMA) Watermaster Reporting Requirements and Proposed Materials to be Submitted
PREPARED BY:	Robert Jaques, Technical Program Manager

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

SUMMARY: Under the SGMA, Adjudicated Basins are required to submit the following documentation:
(1) By April 1, 2016, submit to the department a copy of a governing final judgment, or other judicial order or decree, and any amendments entered before April 1, 2016.
(2) Within 90 days of entry by a court, submit to the department a copy of any amendment made and entered by the court to the governing final judgment or other judicial order or decree on or after April 1, 2016.
(3) By April 1, 2016, and annually thereafter, submit to the department a report containing the following information to the extent available for the portion of the basin subject to the adjudication:

(A) Groundwater elevation data unless otherwise submitted pursuant to Section 10932.
(B) Annual aggregated data identifying groundwater extraction for the preceding water year.
(C) Surface water supply used for or available for use for groundwater recharge or in-lieu use.
(D) Total water use.
(E) Change in groundwater storage.
(F) The annual report submitted to the court.

During a recent WebEx that I participated in online, DWR unveiled a draft version of their proposed data input template which they wish Adjudicated Basins to use to submit this documentation. Their draft template was somewhat revised based on input from the WebEx participants, and a copy of the revised (final) version of the template is attached. Their template includes some items that are not specifically listed in the SGMA sections shown above, but those should be easy to compile and submit. Some other items will be more complicated, including trying to determine the total water use within the Seaside Basin, broken down into source type, e.g. groundwater or surface water, and reporting groundwater level data for wells into DWR's California Statewide Groundwater Elevation Monitoring (CASGEM) program. With regard to total water use, this will be difficult if not impossible to accurately determine because ground and surface waters from multiple sources (Seaside Basin and Carmel River Basin as well as Sand City's desalination plant and MCWD's supply of in lieu water to the Seaside Golf Courses) are comingled within the Cal Am distribution system which serves the Seaside Basin as well as the rest of Cal Am's customers. Thankfully, the revised version of the data input template provides for an adjudicated basin to simply indicate that the data is not available, if that is the case. For the Seaside Basin I was not able to come up with any readily-available way of compiling total water use data, because Cal Am and MCWD both supply water to customers within the Seaside Basin's boundaries, but apparently do not identify those customers' accounts in their databases in such a way that they can easily be extracted from their entire list of customers. I confirmed that this was the case with Brian True of MCWD, and with Joe Oliver and Roger Hulbert regarding Cal Am. Of the water purveyors in the Seaside Basin, it appears that only

AGENDA ITEM:	3

the City of Seaside has this type of data, since all of the users in its Municipal water system are located within the Basin boundaries (per Rick Riedl) and their total water usage equals the amount pumped from the Seaside Municipal wells. This is data which the City submits to the Watermaster and which is included in the Watermaster's Production Reports. Consequently, I propose to simply check the box in the DWR template for this item indicating "These data are not available" and provide the description above as the explanation.

Regarding the CASGEM reporting requirement, I have discussed this both with Tim Ross of DWR and Joe Oliver of MPWMD and am working with them both to come up with a relatively straightforward way of compiling data on the wells that MPWMD does not already report to CASGEM on, and having that data added to that compilation.

Attached is the documentation I propose to use to fill out DWR's data input template to submit to DWR in fulfillment of the Watermaster's reporting requirements as an Adjudicated Basin, subject to any revisions the TAC feels should be made before the documentation is submitted.

ATTACHMENTS:	1. DWR data input template 2. Proposed documentation to be submitted by the Watermaster

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

RECOMMENDED ACTION:	Approve submitting the proposed documentation, or request modifications to it prior to submittal

California Department of Water Resources
Sustainable Groundwater Management Program
Sacramento CA 95XXX
916-651-XXXX
Website: http://sgma.water.ca.gov/adjudbasins
Email: xxx

First Year Watermaster Reporting for Sustainable Groundwater Management Act

Pursuant to Water Code Section 10720.8, this required information is hereby submitted to the Department of Water Resources by April 1, 2016.

A) Watermaster Information (this information will be available to the public)

Adjudicated Area Name:		
Court Appointed Watermaster or management entity:		
Court Case Name:		
Court Case _____	Number _____	Date ____
B. 118 Groundwater Basins	Name: drop downs	Number:
Data Reporting Year	Start (MM/DD/YYYY)	End (MM/DD/YYYY)___

Watermaster or Manager Office:			
Address:			
City:		Zip:	
Phone:			
Email:			
Fax:			
Point of Contact:			
Email:			

B) Reporting Data (*Mandatory reporting as listed in Water Code Section 10720.8)

		Yes	No
(A)	***Groundwater elevation data unless otherwise submitted pursuant to Section 10932**		
a	*Is water level data submitted to the CASGEM Program?		
b	*If Yes, does this watermaster collect or receive additional groundwater levels?		
c	*If No, does this watermaster measure groundwater levels?		
	If No, move to (B) below. If b or c is Yes:		

*For Yes on b, please log in to the CASGEM web site and enter information for additional wells and upload water levels.
*For Yes on c, please go to the CASGEM web site and follow "instructions for watermasters and other water level contributors".
[DWR will provide a "how to" document to walk contributors through the process"]

(B)	***Annual aggregated data identifying groundwater extraction for the preceding water year (Oct.-Sept.) (or most recent water year data was reported)**		
	*These data are not available_(checkbox) *Explanation _____		
	*Reporting year if different than water year: Start (MM/DD/YYYY), End (MM/DD/YYYY)		
	*Total Groundwater Extraction _____ Acre-Feet		
	Mixed extraction method determination (if available):		
	Meters _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Electrical records _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Land use _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Groundwater model _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Reported by pumper _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Other method _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Extraction by water use sector (if available):		
	Urban _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Large Landscape _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Commercial _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Industrial _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Residential _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Agricultural _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Managed Wetlands _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Managed Recharge _____AF	Explanation _____	Uncertainty_ (% or unknown)
	Other sector _____AF	Explanation _____	Uncertainty_ (% or unknown)

(C)	*Surface Water supply used for or available for use for groundwater recharge or in-lieu use.		
	*These data are not available_ (checkbox) *Explanation _____		
	*Surface Water Supply _____AF	Method used to determine _____	Uncertainty _ (% or unknown)
	Surface water for recharge or in-lieu use by source type (if available):		
	Local surface Deliveries _____AF	Explanation ___	Uncertainty_ (% or unknown)
	Local Imported Deliveries _____AF	Explanation ___	Uncertainty_ (% or unknown)
	Colorado River Deliveries _____AF	Explanation ___	Uncertainty_ (% or unknown)
	CVP Base and Project Deliveries ___AF	Explanation ___	Uncertainty_ (% or unknown)
	Other Federal Deliveries _____AF	Explanation ___	Uncertainty_ (% or unknown)
	State Water Project Deliveries ____AF	Explanation ___	Uncertainty_ (% or unknown)
	Recycled water _____AF	Explanation ___	Uncertainty_ (% or unknown)
	Desalination water _____AF	Explanation ___	Uncertainty_ (% or unknown)
	Other _____AF	Explanation ___	Uncertainty_ (% or unknown)

(D)	*Total Water Use Applied use1 (report water use in the basin as data is available and/or as reported in annual report)		
	*These data are not available_ (checkbox) *Explanation _____		
	*Total Water Use _____AF	Method used to determine _____	Uncertainty _____ (% or unknown)
	Comments (explain any special conditions that pertain to how water use is reported, if needed)		

	Water Use (AF)	Ground-water (%)	Local surface Deliveries	Local Imported Deliveries	Colorado River Deliveries	Other Federal Deliveries	State Water Project Deliveries	Recycled Water	Desalination Water
Urban	____	____	____	____	____	____	____	____	____
Large Landscape	____	____	____	____	____	____	____	____	____
Commercial	____	____	____	____	____	____	____	____	____
Industrial	____	____	____	____	____	____	____	____	____
Residential	____	____	____	____	____	____	____	____	____
Agricultural	____	____	____	____	____	____	____	____	____
Managed Wetlands	____	____	____	____	____	____	____	____	____
Managed Recharge	____	____	____	____	____	____	____	____	____
Other sector	____	____	____	____	____	____	____	____	____

	Water use met by source type Groundwater _____ AF Surface water _____ AF Recycled or reused water _____AF			
(E)	*Annual change in groundwater storage.			
	*These data are not available_ (checkbox) *Explanation _____			
	*Change in storage _____AF		Method used to determine _____	Uncertainty _____ (% or unknown):
		Time period for change: Start date (MM/DD/YYYY), End date (MM/DD/YYYY)		

(F)	***The annual report submitted to the court. Reporting Year _____**
*Please submit an electronic (pdf preferred) copy of your annual report.	
*Please submit electronic copies of your governing final judgment and any amendments (pdf preferred).	
Please submit a shape file of your Watermaster adjudication boundary.	
Please submit additional reports or documents (such as engineering reports, watermaster rules, or other reports helpful to assess management for sustainability)	

Checklist View page (For user to view status of completed reporting items, and confirm all required reporting items are completed)

Review Draft Submit button (For user to produce report pdf and email to Board for review and approval)

Submittal button (Please confirm that your data are correct before submitting)

Proposed Documentation to be Submitted by the Watermaster

(Information to be submitted shown in ***boldface Italics***)

California Department of Water Resources
Sustainable Groundwater Management Program
Sacramento CA 95XXX
916-651-XXXX
Website: http://sgma.water.ca.gov/adjudbasins
Email: xxx

First Year Watermaster Reporting for Sustainable Groundwater Management Act

Pursuant to Water Code Section 10720.8, this required information is hereby submitted to the Department of Water Resources by April 1, 2016.

A) Watermaster Information (this information will be available to the public)

Adjudicated Area Name: ***Seaside Groundwater Basin***

Court Appointed Watermaster or management entity: ***Seaside Basin Watermaster*** ***Seaside Basin Watermaster***

Court Case Name: ***California American Water vs. Numerous Defendants and Intervenors***

Court Case ***Superior Court, Monterey County***	Number ***M66343***	Date ***Feb. 9, 2007***
B. 118 Groundwater Basins	Name: ***Salinas Valley***	Number: ***3-04.08***
Data Reporting Year	Start ***10/01/2014***	End ***09/30/2105***

Watermaster or Manager Office:
Seaside Basin Watermaster

Address: ***2600 Garden Road, Suite 228***

City: ***Monterey, CA*** Zip: ***93940***

Phone: ***(831) 641-0113***

Email:
watermasterseaside@sbcglobal.net

Fax: ***None***

Point of Contact: ***Robert Jaques***

Email: ***bobj83@comcast.net***

B) Reporting Data (*Mandatory reporting as listed in Water Code Section 10720.8)

		Yes	No
(A)	*Groundwater elevation data unless otherwise submitted pursuant to Section 10932	*X*	
a	*Is water level data submitted to the CASGEM Program?	*X*	
b	*If Yes, does this watermaster collect or receive additional groundwater levels?	*X*	
c	*If No, does this watermaster measure groundwater levels?	*X*	

If No, move to (B) below. If b or c is Yes:

*For Yes on b, please log in to the CASGEM web site and enter information for additional wells and upload water levels.
*For Yes on c, please go to the CASGEM web site and follow "instructions for watermasters and other water level contributors".
[DWR will provide a "how to" document to walk contributors through the process"}

(B) *Annual aggregated data identifying groundwater extraction for the preceding water year (Oct.-Sept.) (or most recent water year data was reported)

*These data are not available_(checkbox)
*Explanation _____

****Reporting year if different than water year: Start (10/01/2014), End (09/30/2015)***

*Total Groundwater Extraction
3,762.01 Acre-Feet

Mixed extraction method determination (if available):

Meters ***3,762.01*** _____AF Explanation ***All are metered***	Uncertainty ***Believed 95% accurate***
Electrical records _____AF Explanation _____	Uncertainty_ (% or unknown)
Land use _____AF Explanation _____	Uncertainty_ (% or unknown)
Groundwater model _____AF Explanation _____	Uncertainty ***Believed 95% accurate***
Reported by pumper ***3,762.01*** AF Explanation ***All are metered***	Uncertainty_ (% or unknown)
Other method _____AF Explanation _____	

Extraction by water use sector (if available):

Urban	***3,762.01*** AF	Explanation All Basin users	Uncertainty ***Believed 95% accurate***
	Large Landscape ***1,140.17*** AF	Explanation Parks, golf courses, cemeteries_____	Uncertainty ***Believed 95% accurate***
	Commercial ____AF	Explanation _____	Uncertainty_ (% or unknown)
	Industrial ____AF	Explanation	Uncertainty_ (% or unknown)
	Residential ***2,621.84*** AF	Explanation Housing & commercial mix	Uncertainty ***Believed 95% accurate***
	Agricultural ____AF	Explanation _____	Uncertainty_ (% or unknown)
	Managed Wetlands ____AF	Explanation _____	Uncertainty_ (% or unknown)
	Managed Recharge ____AF	Explanation _____	Uncertainty_ (% or unknown)
	Other sector _____AF	Explanation _____	Uncertainty_ (% or unknown)

(C) *Surface Water supply used for or available for use for groundwater recharge or in-lieu use.

*These data are not available_(checkbox) *Explanation _____

Surface Water Supply ***215.19*** AF Method used to determine ***Metered***
Uncertainty ***Believed 95% accurate***

Surface water for recharge or in-lieu use by source type (if available):

Local surface Deliveries _____AF
Local Imported Deliveries ***215.19*** AF Explanation ***Metered*** Uncertainty ***Believed 95% accurate***
Colorado River Deliveries _____AF CVP Base and Project Deliveries ___AF Other Federal Deliveries _____AF
State Water Project Deliveries ____AF
Recycled water _____AF Desalination water _____AF
Other ***195.03*** AF Explanation ***Metered groundwater imported from Marina Coast Water District used for in-lieu use*** Uncertainty ***Believed 95% accurate***

Explanation ___ Uncertainty_ (% or unknown)
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(D) *Total Water Use Applied use] (report water use in the basin as data is available and/or as reported in annual report)

*These data are not available ***X*** (checkbox) *Explanation ***It is not impossible to accurately determine total water use in the Basin because ground and surface waters from multiple sources (Seaside Basin and Carmel River Basin as well as Sand City's desalination plant) are comingled within the Cal Am distribution system which serves the Seaside Basin as well as the rest of Cal Am's customers. In addition MCWD provides service to some users within the Basin boundaries. These water purveyors do not have any direct means of extracting that consumption data from their account records.***

(E) *Annual change in groundwater storage.

*These data are not available_(checkbox) *Explanation _____

*Change in storage	Method used to determine	Uncertainty
-***-1,580*** AF	***Groundwater model and groundwater contour interpretations***	***Unknown***

Time period for change: Start date (***10/01/2014***), End date (***09/30/2015***)

(F) *The annual report submitted to the court. Reporting Year ***2015***

*Please submit an electronic (pdf preferred) copy of your annual report. ***Submit this document.***

*Please submit electronic copies of your governing final judgment and any amendments (pdf preferred). ***Submit these documents.***

Please submit a shape file of your Watermaster adjudication boundary. ***Submit this document.***

Please submit additional reports or documents (such as engineering reports, watermaster rules, or other reports helpful to assess management for sustainability) ***Submit Watermaster Rules and Regulations***

For Item (3)(E): I propose to use the value for change in storage contained in HydroMetrics' estimate of change in groundwater storage during WY 2015, as discussed in the attached February 26, 2016 Technical Memorandum. I do not propose to submit the full Technical Memorandum, because the final sentence in the report reads "Going forward, it would be preferable to annually update the Seaside Groundwater Basin groundwater model and to report the model calculated change in storage estimates." This may be a suggestion for the Watermaster to consider (at some point) but I do not want to commit the Watermaster to having to do annual model updates just for the purpose of calculating change in storage for DWR reporting purposes. I believe it could be rather costly to do that on an annual basis.

If we were to submit the full content of the change in storage Technical Memorandum to DWR I would propose to replace that sentence with one reading "Going forward, whenever the Seaside Groundwater Basin groundwater model is updated, a change in storage calculation will be performed using the updated model, and that information will be provided in the Watermaster's annual reporting to DWR for that year. For years in which the model is not updated, the method described herein will be used to develop an estimate of the annual change in storage."

HydroMetrics WRI
1814 Franklin St, Suite 501
Oakland, CA 94612

TECHNICAL MEMORANDUM

To: Bob Jaques, Technical Program Manager
Seaside Basin Watermaster

From: Stephen Hundt and Georgina King

Date: February 11, 2016

Subject: Seaside Basin Change in Groundwater Storage between Water Years 2014 and 2015

Under the Sustainable Groundwater Management Act, adjudicated groundwater basins are required to report the overall change in groundwater storage volume that takes place each year starting April 1, 2016 for change in storage from 2014 to 2015. The Seaside Basin Groundwater Flow Model is a tool capable of calculating storage changes over any time interval from January 1987 through December 2013. With model results unavailable from the 2014-2015 period, the annual change groundwater storage in the Seaside Groundwater Basin was instead calculated using groundwater level data collected for the annual Seawater Intrusion Analysis Reports (SIAR).

Hydrometrics WRI has prepared an annual SIAR for the Seaside Groundwater Basin since water year 2007. In addition to a thorough chemical analysis, groundwater elevation conditions are evaluated and reported on groundwater elevation contour maps. Contour maps are produced for the 2nd and 4th quarter of each water year for both the shallow and deep aquifer zones. These maps are prepared by manually drawing elevation contours based upon observed groundwater elevations in wells screened in each aquifer zone. Wells assigned to the shallow depth zone generally correlate to the Paso Robles Formation where it exists in the Seaside Groundwater Basin. Wells assigned to the deep zone correlate with the Santa Margarita Sandstone where it exists in the Seaside Groundwater Basin.

Groundwater storage change was estimated between water years 2014 and 2015 using the following steps:

1. Interpolate contour levels over the entire basin;
2. Calculate groundwater level change over the water year;
3. Multiply the change in groundwater level by aquifer storage coefficients to determine change in storage;
4. Aggregate change in storage for each aquifer zone; and
5. Add shallow and deep zone change in storage to arrive at change in storage for the entire basin.

In step one, the contour levels from the 4th quarter of water years 2014, and 2015 for both shallow and deep aquifer zones were separately interpolated onto regular grids covering the adjudicated area of the Seaside Groundwater Basin. For the second step, gridded 2014 groundwater levels were subtracted from the gridded 2015 levels to calculate the change in groundwater elevations between water year 2014 and 2015. In step three, the change in groundwater level at each grid cell was multiplied by the storage coefficient from the groundwater model for that cell; with the specific yield from model layer 2 used for the shallow zone and specific storage from model layer 5 used for the deep zone. This yielded a volumetric storage change for each cell in the grid produced in the first step. In step 4, all of these individual cell values were added together to produce separate volumetric change in storage values for the shallow zone and the deep zone. Finally, all the change in storage volumes for all cells in both the shallow and deep zones were added together to produce a total change in storage for the entire Seaside Groundwater Basin. The results of these calculations are shown in Table 1.

Table 1: Estimated Annual Change in Storage

Time Period	Change in Storage (AF)
Water Year 2014 - 2015	-1,580

The method described above requires data that is already being prepared on an annual basis for the Watermaster. However, this method is subject to an unknown but potentially high degree of uncertainty as a result the lack of data over a large portion of the Northern Inland subarea. The SIAR contour maps include only roughly estimated contours for most of the northern inland subarea. Unfortunately, the large size of the Northern Inland subarea means that these uncertain contour levels have an outsized influence on the storage estimates for the basin as a whole. The groundwater flow model, by honoring the physics of groundwater flow and the spatial distribution of recharge and pumping, is likely to produce more accurate groundwater elevations for this region. More importantly, the groundwater flow model uses a well-defined numerical technique to predict groundwater elevations, that will produce results that are more consistent from year to year than the manual contouring method. Going forward, it would be preferable to annually update the Seaside Groundwater Basin groundwater model and to report the model calculated change in storage estimates.

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	March 9, 2016
AGENDA ITEM:	4
AGENDA TITLE:	Schedule
PREPARED BY:	Robert Jaques, Technical Program Manager

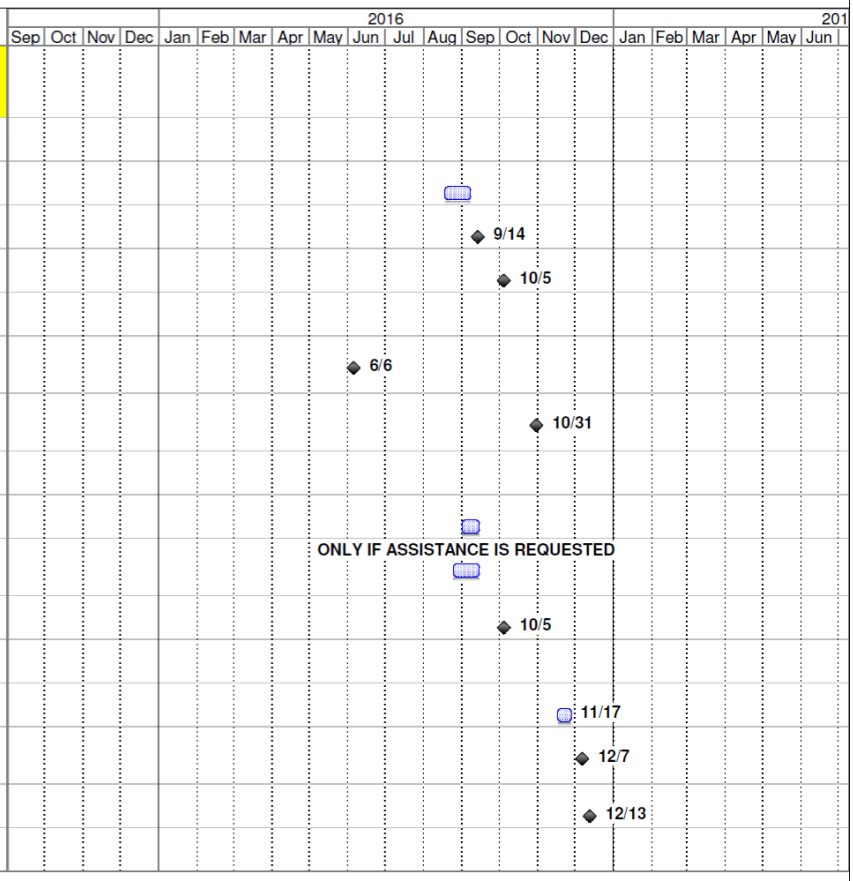
SUMMARY:
As a regular part of each monthly TAC meeting, I will provide the TAC with an updated Schedule of the activities being performed by the Watermaster, its consultants, and the public entity, MPWMD, which is performing certain portions of the work.

Attached is the most recent update of the Work Schedule for FY 2016.

ATTACHMENTS:	Schedule of Work Activities for FY 2016
RECOMMENDED ACTION:	Provide Input to Technical Program Manager Regarding Any Corrections or Additions to the Schedule

Seaside Basin Watermaster
Monitoring and Management Program
2016 Work Schedule

ID	Task Name
1	***CRITICAL PROJECT MILESTONES ASSOCIATED WITH TAC, BOARD, AND/OR CONSULTANT WORK***
2	**2016 Administration, Operations and Replenishment Budgets**
3	Prepare M&MP Draft Budgets (Same as Task 19)
4	TAC Approves M&MP Budgets (Same as Task 20)
5	Board Approves M&MP Budgets (Same as Task 21)
6	**Watermaster Prepares Quarterly Water Production, Water Level, and Water Quality Reports**
7	Watermaster Prepares Combined Quarterly Water Production, Water Level, and Water Quality Reports for 1st & 2nd Quarters (Same as Task 41)
8	Watermaster Prepares Annual Water Production, Water Level, and Water Quality Report for 2016 (Same as Task 42)
9	**Replenishment Assessment Unit Costs for Water Year 2017**
10	B&F Committee Develops Replenishment Assessment Unit Cost for 2017 Water Year
11	If Requested, TAC Provides Assistance to B&F Committee in Development of 2017 Water Year Replenishment Assessment Unit Cost
12	Board Adopts and Declares 2017 Water Year Replenishment Assessment Unit Cost
13	**Replenishment Assessments for Water Year 2016**
14	Watermaster Prepares Replenishment Assessments for Water Year 2016
15	Watermaster Board Approves Replenishment Assessments for Water Year 2016 (At December Meeting)
16	Watermaster Levies Replenishment Assessment for 2016
17	**Monitoring & Management Program (M&MP) Budgets for 2017 and 2018**



2016 Consultants Work Schedule for FY 2016 3-9-16

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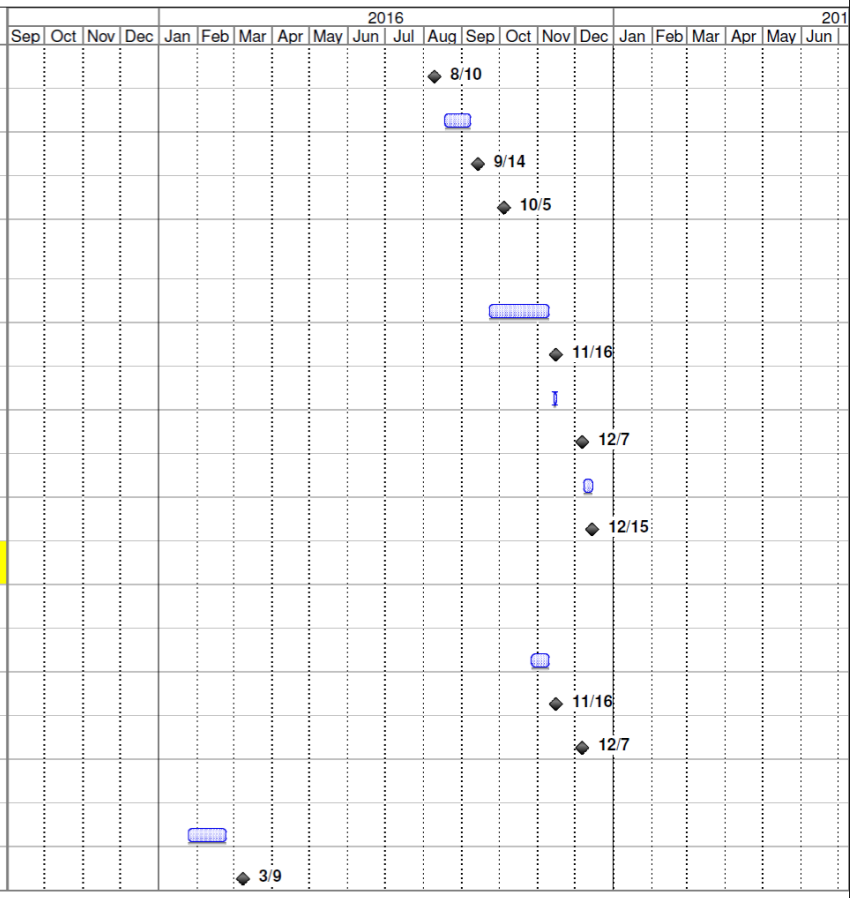
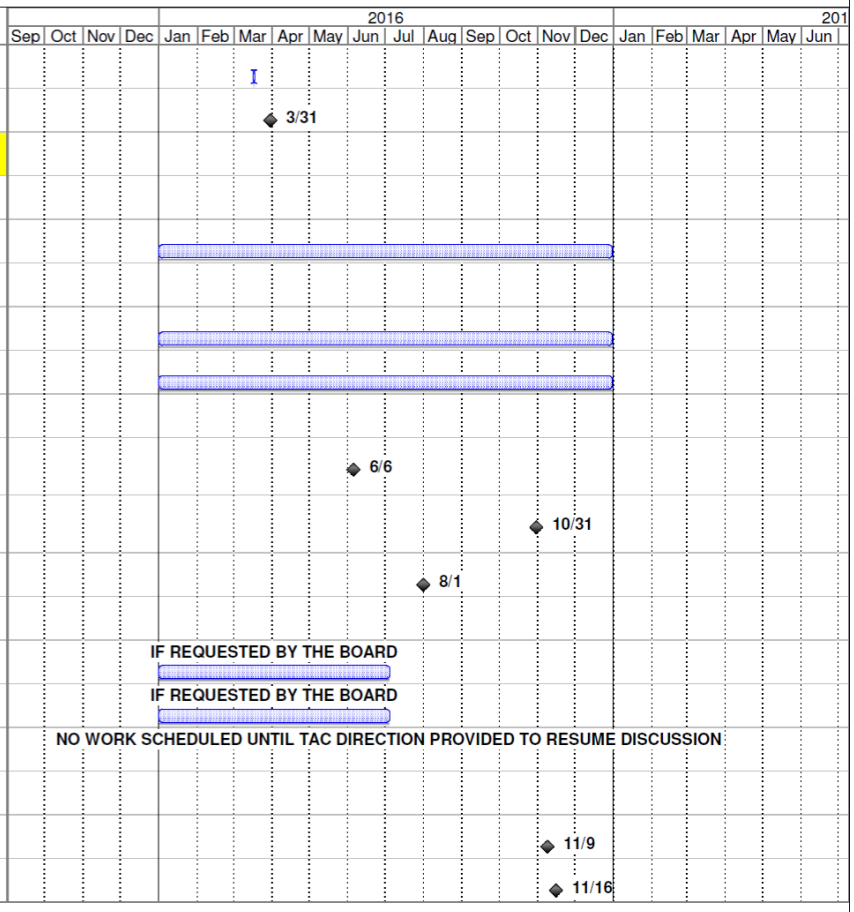
Seaside Basin Watermaster
Monitoring and Management Program
2016 Work Schedule

ID	Task Name	
18	Preliminary Discussion of Potential Scope of Work for 2017 M&MP	8/10
19	Prepare Draft 2017 M&MP Work Plan and 2017 and 2018 O&M and Capital Budgets	
20	TAC approves Draft 2017 M&MP Work Plan and 2017 and 2018 O&M and Capital Budgets	9/14
21	Board approves 2017 M&MP O&M and Capital Budgets	10/5
22	**2015 Annual Report (Note: Schedule Reflects Court Approval of Later Submittal Date for Annual Report)**	
23	Prepare Preliminary Draft 2016 Annual Report	
24	TAC Provides Input on Preliminary Draft 2016 Annual Report	11/16
25	Prepare Draft 2016 Annual Report (Incorporating TAC Input)	
26	Board Provides Input on Draft 2016 Annual Report (At December Board Meeting)	12/7
27	Prepare Final 2016 Annual Report (Incorporating Board Input)	
28	Watermaster Submits Final 2016 Annual Report to Judge	12/15
29	***MANAGEMENT***	
30	**M.1 PROGRAM ADMINISTRATION**	
31	Prepare Initial Consultant Contracts for 2017	
32	TAC Approval of Initial Consultant Contracts for 2017	11/16
33	Board Approval of Initial Consultant Contracts for 2017	12/7
34	**M.1.g – Sustainable Groundwater Management Act Reporting Requirements**	
35	HydroMetrics Prepares Draft Groundwater Storage Analysis	
36	TAC Reviews HydroMetrics Draft Storage Analysis	3/9



Seaside Basin Watermaster
Monitoring and Management Program
2016 Work Schedule

ID	Task Name
37	HydroMetrics Revises Draft Storage Analysis if Necessary
38	Submit SGMA Documentation to DWR
39	***IMPLEMENTATION***
40	**I.2.a DATABASE MANAGEMENT**
41	**I.2.a.1 Conduct Ongoing Data Entry/Database Maintenance**
42	**I.2.b DATA COLLECTION PROGRAM**
43	**I.2.b.2 Collect Monthly Water Levels (MPWMD)**
44	**I.2.b.3 Collect Quarterly Water Quality Samples (MPWMD)**
45	**I.2.b.6 Reports (from MPWMD)**
46	Watermaster Prepares Combined Quarterly Water Production, Water Level, and Water Quality Reports for 1st & 2nd Quarters
47	Watermaster Prepares Annual Water Production, Water Level, and Water Quality Report for 2016
48	Watermaster Prepares Report Regarding Long-Term Trends in Water Levels in Monitoring Wells
49	**I.3.a ENHANCED SEASIDE BASIN GROUNDWATER MODEL**
50	TAC Assists Board in Developing Work Plan to Address LSSA Modeling Results
51	Develop and Schedule Additional Tasks as Directed by Board
52	**I.3.c Refine and/or Update the BMAP**
53	**I.4.c Annual Seawater Intrusion Analysis Report (SIAR)**
54	HydroMetrics Provides Draft SIAR to Watermaster
55	TAC Approves Annual Seawater Intrusion Analysis Report (SIAR)



Seaside Basin Watermaster
Monitoring and Management Program
2016 Work Schedule

ID	Task Name	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
						2016												201					
56	Board Approves Annual Seawater Intrusion Analysis Report (SIAR)																◆ 12/7						
57	**I.4.d Complete Preparation of Seawater Intrusion Response Plan (SIRP)**					**WORK COMPLETED - NO FURTHER WORK PLANNED IN 2016**																	
58	**I.4.e Refine and/or Update the SIRP**						**ONLY IF FOUND TO BE NECESSARY**																

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	March 9, 2016
AGENDA ITEM:	5
AGENDA TITLE:	Other Business
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:
The "Other Business" agenda item is intended to provide an opportunity for TAC members or others present at the meeting to discuss items not on the agenda that may be of interest to the TAC.

ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only