

**AGENDA  
REGULAR MEETING  
GROUNDWATER REPLENISHMENT SYSTEM STEERING COMMITTEE  
(A Committee of Orange County Water District  
and Orange County Sanitation District Directors\*)  
OCWD Boardroom 18700 Ward Street, Fountain Valley  
Monday, April 13, 2015, 5:00 p.m.**

\* Orange County Water District Notice: The GWRS Steering Committee (SC) meeting is being noticed as a joint meeting with the Orange County Water District (OCWD) Board of Directors and Orange County Sanitation District (OCSD) Board of Directors for the purpose of strict compliance with the Brown Act and it provides an opportunity for all Directors to hear presentations and participate in discussions. The SC has been delegated limited authority by the OCWD and OCSD Boards of Directors. Agenda items requiring Board approval will be placed on future OCWD and/or OCSD Board meeting Agendas. OCWD Directors receive no additional compensation or stipend as a result of simultaneously convening this meeting.

**PLEDGE OF ALLEGIANCE**

**ROLL CALL**

**ITEMS RECEIVED TOO LATE TO BE AGENDIZED**

RECOMMENDATION: Determine need to take action on item(s) which arose subsequent to posting of the Agenda (ROLL CALL VOTE: Adoption of this recommendation requires two-thirds vote of the Board/Committee, or, if less than two-thirds of the members are present, a unanimous vote)

**VISITOR PARTICIPATION**

Time has been reserved at this point in the agenda for persons wishing to comment for up to three minutes to the Board of Directors on any item that is not listed on the agenda, but within the subject matter jurisdiction of the District. By law, the Board of Directors is prohibited from taking action on such public comments. As appropriate, matters raised in these public comments will be referred to District staff or placed on the agenda of an upcoming Board meeting.

At this time, members of the public may also offer public comment for up to three minutes on any item on the Consent Calendar. While members of the public may not remove an item from the Consent Calendar for separate discussion, a Director may do so at the request of a member of the public.

**CONSENT CALENDAR (ITEM NO. 1)**

All matters on the Consent Calendar are to be approved by one motion, without separate discussion on these items, unless a Board member or District staff request that specific items be removed from the Consent Calendar for separate consideration.

1. **MINUTES OF PREVIOUS MEETING**

RECOMMENDATION: Approve Minutes of the January 12, 2015 GWRS Steering Committee meeting as presented

**END OF CONSENT CALENDAR**

## **INFORMATIONAL ITEMS**

2. GWRS INITIAL EXPANSION CONSTRUCTION UPDATE
3. GWRS OPERATIONS UPDATE
4. GWRS OPERATING BUDGET SUMMARY
5. UPDATE ON OCSD FLOW AVAILABILITY
6. QUARTERLY OUTREACH REPORT [JANUARY - MARCH 2015]

## **DIRECTORS' ANNOUNCEMENTS/REPORTS**

### **GENERAL MANAGERS' REPORT**

- Next GWRS Steering Committee - Monday, July 13, 2015 @ 5:00 p.m.

## **DETERMINATION OF ITEMS TO BE PLACED ON CONSENT CALENDAR FOR APRIL 15 OCWD BOARD MEETING**

## **ADJOURNMENT**

In accordance with the requirements of California Government Code Section 54954.2, this agenda has been posted in the main lobby of the Orange County Water District, 18700 Ward Street, Fountain Valley, CA not less than 72 hours prior to the meeting date and time above. All written materials relating to each agenda item are available for public inspection in the office of the District Secretary. Backup material for the Agenda is available at the District offices for public review and can be viewed online at the District's website: [www.ocwd.com](http://www.ocwd.com).

Pursuant to the Americans with Disabilities Act, persons with a disability who require a disability-related modification or accommodation in order to participate in a meeting, including auxiliary aids or services, may request such modification or accommodation from the District Secretary at (714) 378-3233, by email at [jdurant@ocwd.com](mailto:jdurant@ocwd.com) by fax at (714) 378-3373. Notification 24 hours prior to the meeting will enable District staff to make reasonable arrangements to assure accessibility to the meeting.

As a general rule, agenda reports or other written documentation has been prepared or organized with respect to each item of business listed on the agenda, and can be reviewed at [www.ocwd.com](http://www.ocwd.com). Copies of these materials and other disclosable public records distributed to all or a majority of the members of the Board of Directors in connection with an open session agenda item are also on file with and available for inspection at the Office of the District Secretary, 18700 Ward Street, Fountain Valley, California, during regular business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday. If such writings are distributed to members of the Board of Directors on the day of a Board meeting, the writings will be available at the entrance to the Board of Directors meeting room at the Orange County Water District office.

<b>2015 GWRS Steering Committee Members</b>
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OCSD Committee Members

Tom Beamish, Chair	OCSD Director .....	(No. 1)
Jim Ferryman	OCSD Director .....	(No. 2)
John Nielsen	OCSD Director .....	(No. 3)

OCSD Alternates

Lucille Kring	OCSD Director.....	(No. 1)
Greg Sebourn	OCSD Director .....	(No. 2)
Steve Jones	OCSD Director .....	(No. 3)

OCWD Committee Members

Roger Yoh, Vice Chair	OCWD Director .....	(No. 1)
Philip Anthony	OCWD Director .....	(No. 2)
Cathy Green	OCWD Director .....	(No. 3)

OCWD Alternates

Denis Bilodeau	OCWD Director .....	(No. 1)
Jan Flory	OCWD Director .....	(No. 2)
Dina Nguyen	OCWD Director .....	(No. 3)



MINUTES OF MEETING  
GROUNDWATER REPLENISHMENT SYSTEM STEERING COMMITTEE  
ORANGE COUNTY WATER DISTRICT & ORANGE COUNTY SANITATION DISTRICT  
January 12, 2015 @ 5:00 p.m.

Chairman Yoh called the Groundwater Replenishment System Steering Committee meeting to order in the Boardroom at the District office. Following the Pledge of Allegiance to the Flag, the Secretary called the roll and reported a quorum as follows.

2015 Committee Members

Roger Yoh	OCWD Director (No. 1)	
Philip Anthony	OCWD Director (No. 2)	
Cathy Green	OCWD Director (No. 3)	
Tom Beamish	OCSD Director (No. 1)	
Jim Ferryman	OCSD Director (No. 2)	(arrived at 5:05 p.m.)
John Nielsen	OCSD Director (No. 3)	

Alternates

Denis Bilodeau	OCWD Director (No.1)	(arrived at 5:27 p.m.)
Jan Flory	OCWD Director (No. 2)	(not present)
Dina Nguyen	OCWD Director (No. 3)	(not present)
Lucille Kring	OCSD Director (No. 1)	(arrived at 5:20 p.m.)
Greg Sebourn	OCSD Director (No. 2)	
Steve Jones	OCSD Director (No. 3)	(arrived at 5:10 p.m.)

Others

Mike Markus, OCWD	Jim Herberg, OCSD
Mehul Patel, OCWD	Kathy Millea OCSD
Bill Hunt, OCWD	Cindy Murra, OCSD
Judy-Rae Karlsen, OCWD	Rich Ten Bosch, James Clark - Black & Veatch
John Kennedy, OCWD	Luke Wendel - Parsons
Bill Dunivin, OCWD	Curt Horner, Damon Yates - McCarthy Building Co.
Gina Ayala, OCWD	Debra Burris - DDB Engineering
Sandy Scott-Roberts, OCWD	

• Annual Reorganization of GWRS Steering Committee Officers

Chairman Yoh reported the Committee reorganizes on an annual basis. It was a consensus of the Committee members present to approve OCSD Director Tom Beamish as Chairman and OCWD Director Roger Yoh as Vice Chairman of the 2015 GWRS Steering Committee.

Chairman Beamish then announced the new Alternate Directors:

- Lucille Kring - OCSD Alternate No. 1
- Dina Nguyen - OCWD Alternate No. 3

CONSENT CALENDAR

The Consent Calendar was approved upon motion by Director Green, seconded by Director Nielsen and carried [6-0] as follows.

*[Yes- Beamish, Yoh, Anthony, Green, Nielson, Sebourn /No-0]*

1. Minutes of Previous Meeting

**The Minutes of the GWRS Steering Committee meeting held October 13, 2014 are approved as presented.**

## INFORMATIONAL ITEMS

OCSD Director Ferryman arrived at 5:05 p.m. and OCSD Director Jones arrived at 5:10 p.m. during the following discussion.

2. GWRS Initial Expansion Construction Update

GWRS Project Manager Mehul Patel reported the GWRS construction contract was awarded to McCarthy Building Companies, Inc. on October 20, 2011 with a construction completion date of October 18, 2014. He noted that due to authorized time extensions, the completion date has been extended to April 24, 2015 and the contractor is focusing on the completion of construction in the lime area and beginning start-up of the microfiltration (MF), reverse osmosis (RO), and Flow Equalization process areas. Mr. Patel indicated the final completion of the project would not likely occur until the end of June 2015 with substantial completion by the end of April. He advised the Construction Management Monthly Progress Report for November 2014 compiled by Parsons and the Change Order Reports are in today's packet.

3. GWRS Operations Update

Director of Operations Bill Dunivin reported OCWD and OCSD staff continue to work together to develop a strategy to bring more water into OCSD's Plant 1 for the pending commissioning and startup of the GWRS Initial Expansion Project. He advised the GWRS plant is currently behind on production rates however OCSD will start increasing flow into Plant 1 during January 2015 in an effort to stabilize the treatment process prior to commissioning the new MF and RO process.

OCSD Director Lucille Kring arrived at 5:20 p.m. and OCWD Director Bilodeau arrived at 5:27 p.m. during the following discussion.

4. Update on OCWD P1-101 Sludge Dewatering and Odor Control Project

OCSD Planning Manager Kathy Millea presented an update on the OCSD P1-101 Sludge Dewatering and Odor Control Project that commenced construction in January 2013. She reported the project is no longer expected to have an impact on the amount of flow available to the GWRS Initial Expansion project. However, OCSD has observed a significant decrease in sewer flows to both OCSD plants that will limit flow availability to the GWRS Initial Expansion project.

5. Quarterly Outreach Report [October – December]

Principal Communications Specialist Gina Ayala reported on OCWD outreach projects and advised the Committee that the focus of public outreach is to build and maintain support for the project as well as encourage media interest and increase media coverage. She briefly reviewed the hallway project, Speaker's Bureau, tours, media coverage, and the new OCWD website. Ms. Ayala stated the detailed report is in today's packet. Ms. Ayala responded to questions and reported on the demographics for visitors and the upcoming dedication of the GWRS Initial Expansion project.

## DIRECTORS' ANNOUNCEMENTS/REPORTS

Chairman Beamish reported the following schedule for 2015 GWRS Steering Committee meetings:

- Monday, April 13, 2015 @ 5:00 p.m.
- Monday, July 13, 2015 @ 5:00 p.m.
- Monday, October 12, 2015 @ 5:00 p.m.

ADJOURNMENT

There being no further business, the meeting was adjourned at 5:55 p.m.

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Tom Beamish, Chair





## AGENDA ITEM SUBMITTAL

**Meeting Date:** April 13, 2015

**To:** GWRS Steering Committee

**From:** Mike Markus/Jim Herberg

**Staff Contact:** M. Patel

**Budgeted:** N/A

**Budgeted Amount:** N/A

**Cost Estimate:** N/A

**Funding Source:** N/A

**Program/Line Item No.:** N/A

**General Counsel Approval:** N/A

**Project Report Approved:** N/A

**CEQA Compliance:** N/A

**Subject: GWRS INITIAL EXPANSION CONSTRUCTION UPDATE**

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### SUMMARY

A Notice to Proceed was issued on October 20, 2011 to McCarthy Building Companies, Incorporated for construction of the Groundwater Replenishment System (GWRS) Initial Expansion project. The project construction contract was in the amount of \$115,089,998. Attached is the Construction Management Monthly Program report for February 2015.

#### Attachment(s):

- Parsons Construction Management Report (February 2015)
- Change Order Report

### RECOMMENDATION

Informational.

### DISCUSSION/ANALYSIS

The GWRS Initial Expansion project increases the GWRS treatment capacity from 70 million gallons per day (mgd) to 100 mgd. Additionally, two flow equalization tanks will be constructed on Orange County Sanitation District property to store excess daytime wastewater flows and feed to GWRS at night. Construction is now underway on the project.

The construction contract was awarded to McCarthy Building Companies, Incorporated with a Notice to Proceed dated October 20, 2011. The original construction contract end date was October 18, 2014. Due to authorized time extensions the revised contractual end date is now April 24, 2015. The contractor is currently focused on finishing completing start-up of the Microfiltration (MF), Reverse Osmosis (RO), and Flow Equalization process areas.

Attached is the Construction Management Monthly Progress Report for February 2014 compiled by Parsons. Parsons is the construction manager for the project and each month they prepare a summary report on the status of the construction for the GWRS Initial Expansion project. Also attached is a Change Order Report showing a summary of the amounts for all Change Orders issued to date for construction of the GWRS Initial Expansion project.

The construction progress and contract status information to be presented is based upon information shown in the Construction Management Monthly Progress Report from Parsons.

**PRIOR BOARD/COMMITTEE ACTIONS**

9/07/11, R11-9-128 Contract GWRS-2011-1, GWRS Initial Expansion Award Contract to McCarthy Builder Inc.



**INITIAL EXPANSION OF THE GROUNDWATER  
REPLENISHMENT SYSTEM PROJECT  
CONTRACT NO. GWRS-2011-01**

**CONSTRUCTION MANAGEMENT MONTHLY  
PROGRESS REPORT**

**FEBRUARY 2015**

**PARSONS**

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## SAFETY

Reporting period is February 2015

- Regulatory Agency Visits occurring in period: = 0
  - ❖ There were no Cal-OSHA safety visits made to the construction project site during the month of February.
- As of February 28, 2015, the project completed 1228 days. In June 2013, both the Contractor and the Construction Manager had an employee injured. There were no safety incidents in February 2015.
- Operational incidents:
  - ❖ On February 19, the plant shutdown for half a day so that the Contractor could test and place the new backwash supply pump in service.

## CONSTRUCTION CONTRACTOR ACTIVITY/ KEY ACCOMPLISHMENTS IN REPORTING PERIOD

- **MF Facility:** MF Backwash supply pump was placed into service February 19. Repair and replacement of membranes continued cell-by-cell in Train C.
- **Area 255 RO Transfer and MF Backwash Pumping:** The ne MF backwash Supply Pump was placed into service February 19, 2015, and witness testing of the uncoupled RO Transfer Pump commenced February 25, 2015.
- **RO Building:** Witnessed RO System component testing was substantially completed in February. Unit F03 completed orifice testing and was loaded with membranes February 20 and 21. Unit F02 sequence testing was underway at the end of February 2015.
- **UV Area:** New UV reactors were on-line in February for the fourth month of a 90-day acceptance test. Communications failures were addressed February 4, 2015, and have not occurred since. However, a problem with new Train M flow transmitter surfaced in February and Train M has been taken off-line. The instrument was sent too manufacturer for troubleshooting. The UV System Supplier has been notified that performance testing cannot be considered complete until the new reactors can run incident free for 30 days.
- **SEFE Construction:** Final mechanical and electrical work continued in the SEFE Pump Station in February. Pre-operational testing is set to begin in March.
- **Decarb Area 710:** The new Decarbonator valves were adjusted by the manufacturer in February.
- **Lime Feed System Area 730:** The final two new lime slakers were tested and put in service in February 2015. The new Lime Saturator and dosing pump are scheduled to commence testing in March.
- **SBS:** The new SBS pump and Flush Pump were placed in service in February to support flushing of membranes in the new RO Units.
- **Construction Schedule:** The Contractor was directed to incorporate the Startup Recovery Schedule in the January 2014 Construction Schedule Update. The new schedule established a February 9, 2015 Final Completion Date. Allowance was made for final contract acceptance by April 24, 2015.

In February 2015, the contract was extended 32 days for changes to RO System testing requirements. The revised contract completion date is May 26, 2015.

The February 2015 schedule update shows a 15 day slip from the January Update. The final acceptance date is now forecast as July 1, 2015, thirty-five (35) days beyond revised contract time. See Schedule Concerns/Issues, below.

## UPCOMING WORK AND CHALLENGES

- MF: Train C membrane integrity testing and sequence testing of control valves will continue.
- RO: Sequence testing, membrane loading and placing Train F in service.
- LIME: Pre-operational testing should commence.
- DECARB: Witness testing should begin in March.
- UV: New UV Trains are in their 90 day acceptance testing period. Train M flow transmitter correction and final communication terminations for power monitors and sump pump will substantially complete the Area.
- PWPS: Uncoupled witness testing and manufacturer's certification of installation should commence.
- BULK CHEMICALS: SHC and first phase of Sulfuric Acid improvements should be tested and placed in operation.
- SEFE AREA: Pre-operational testing should commence.

**PROGRESS PHOTOS**



**Feb 3 – Gathering Spare MF Valves**



**Feb 3 – Witness Testing RO Unit F03**



**Feb 4 – Checking G02 RO Pump Vibration**



**Feb 4 – Reloading UV Firmware**



**Feb 6 – Checking G03 RO Pump Vibration**



**Feb 10 – Witness Testing Lime Slaker B02**





**Feb 12 – RO Sequencing Testing F03**



**Feb 12 – Painting Sulfuric Acid Vent Piping**



**Feb 17 – Draining RO Unit F03**



**Feb 19 – Adjusting Decarb Inlet Valves**



**Feb 19 – Adjusting Decarb Bypass Valves**



**Feb 23 – Rebuilding F02 ERD**



**Feb 23 – Loading RO Membranes Unit F03**



**Feb 24 – Lifting Sulfuric Acid Piping**



**Jan 25 – Witness Testing ROTP Motor**



**Feb 26 – Ongoing MF Membrane Pinning**



**Feb 26 – Coupling ROTP**



**Feb 27 – Running New RO Transfer Pump**

## SIGNIFICANT SCOPE ITEMS/ISSUES

With most systems in testing and startup mode, equipment and controls issues are uncovered.

- **RO Feed Pump Vibration:** During witnessed testing of RO Feed Pumps in January and early February 2015, four of six new pumps tripped out on high vibration at speeds on the ranging from 80% to 90% of maximum. The pump manufacturer took readings in early February and has yet to issue and findings, and again after third-party testing.

The Contractor conducted third-party testing February 19 through 21, 2015 from which preliminary findings were transmitted March 2, 2015. One of the four pumps, Unit F01, has improved with run-in and currently meets acceptance criteria.

The Contractor has stated that a final report will be prepared after meetings among the Contractor, Pump Manufacturer and Third-Party Tester are conducted.

- **Plant Shutdowns:** The contract limits the total duration of full plant shutdowns to 28 days. As of the end of February 2015, 38 shutdown days have been attributed to Contractor activities. The Contractor has identified two remaining plant shutdowns to complete the work.

## QUALITY ASSURANCE/QUALITY CONTROL

### OPEN NON-COMPLIANCES (NCN's)

- NCN #29 was issued 10/15/13 for failure to install a test tee on the new Threshold Inhibitor pressure gauge. The Contractor responded 10/16/13, refuting the NCN by reference to a P&ID Drawing. This refutation was rejected 10/22/13, based upon multiple specification requirements and a Detail Drawing that requires testing tees whether shown on individual system P&ID Drawings or not. The District determined that the stipulated test tees need only apply in chemical process areas. Bulletin #57 was issued December 16, 2013, to clarify the requirement. The NCN was closed February 13, 2015.
- NCN #36 was issued 12/9/13, for incomplete/incorrect submittal data in order to highlight an incompatibility between the control valve actuators installed and their communication interface requirement (Foundation Fieldbus). The Contractor indicated in May 2014 that they could not identify how to provide the specified communication interface. District staff researched Phase 1 records, identified the fix and provided the Contractor with a contact in June 2014. The reworked valves were installed in October 2014. However, upon testing in November, one of the valves actuators in question failed from apparent moisture damage.
- NCN #40 was issued 1/13/14, for damage to existing electrical raceway on the east side of the 910 Switchgear Building.
- NCN #45 was issued 4/24/14, for inadequate compaction of AC pavement. On 5/29/14, the Design Engineer issued a disposition lowering the compaction requirement and requesting additional testing. The MF area of rework was corrected in August 2014. The remaining issues of contention are four road crossings from the temporary dewatering discharge line.
- NCN #47 was issued 5/14/14 for failed insulation kits on a number of flanged joints in the SEFE area. Determination of the corrective action was made by the Contractor in September 2014. The NCN was closed February 27, 2015.
- NCN #49 was issued 7/17/14 for out-of-spec nuts, bolts and gaskets in RO system piping. The Contractor commenced repairs in September 2014. The NCN was closed February 18, 2015.
- NCN #55 was issued 9/24/14 after it was determined that RO skylight attachment details were not per approved design.
- NCN #56 was issued 12/15/14 after it was discovered that new chemical storage tank level gauges do not match the approved submittal details.
- NCN #57 was issued 1/27/15 when it was discovered that a Cathodic Protection Test Station had been paved over.
- NCN #58 was issued 2/18/2015 when the extent of flooding from misfit RO permeate dump piping became apparent.

## COST MANAGEMENT

### UPDATED COST REPORT

Original Contract Amount	\$115,089,997.68
Changes to Date Amount	\$4,061,994.83
Total Contract Amount	\$119,151,992.51
Prior Month's Invoice	\$748,427.83
This Month's Invoice	\$853,965.31
Total Invoice Amount to Date	\$115,857,595.40
Retention to Date	\$5,729,356.37
Other Deductions to Date	0

### EXPENDITURE PROGRESS

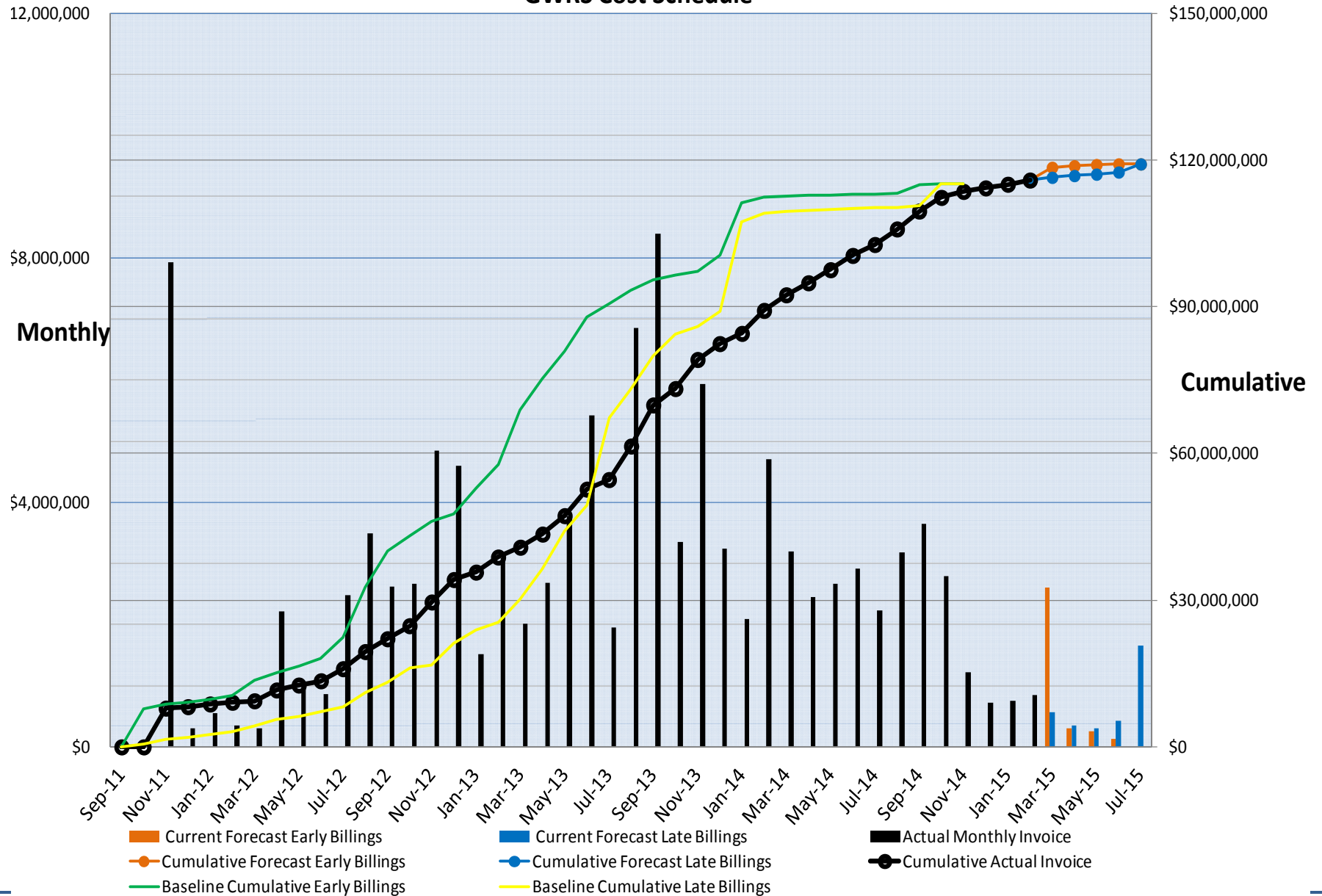
Financial Percent Complete – Dollars	97.24%
Time Expended Percent Complete – Days (1228/1315)	93.38%
Financial Expenditure this Period (Feb 2015)	0.72%
Planned Expenditure for Next Month (Mar 2015)	0.50%

### SUMMARY

- Contractor's February 2015 invoice somewhat higher January 2014 invoice. This is due processing Change Order No. 21. Future invoicing will be a function of Change Order processing.

## Contractor Billings and Current Forecast

### GWR S Cost Schedule



## SCHEDULE MANAGEMENT

On January 27, 2014, the Contractor submitted the Schedule Update incorporating the agreed Startup Recovery Schedule. This January 2014 Update was accepted as the current project baseline schedule. In February 2015, 32 calendar days were added to contract time for extended RO testing requirements.

### CONTRACT SCHEDULE MILESTONE

Notice of Award	09/07/11
Notice to Proceed	10/20/11
Time of Completion	1095 Calendar Days
Original Contract Completion Date	10/18/14
Authorized Time Extensions	220 Calendar Days
Current Contract Completion Date	05/26/15
Days Behind Current Contract Completion Date per February 2015 Update	35 Calendar Days
Contractor's Anticipated Completion Date per February Update	07/01/15

### CRITICAL PATH

Based on the Contractor's February 2015 Schedule Update all remaining project areas are schedule critical, the project's longest path remains as follows:

- RO Systems Startup, and Overall Plant Startup and Testing
- Non-Work Day Time Adjustments:
- Inclement Weather Days Requested to Date: 9 Granted: 2
  - Non-working days requested by Contractor and approved by CM Team this period: 0.

### Project Float Tracking

Schedule Update	Current Baseline		Jan 2015 1501 Update		Feb 2015 1502 Update	
	CD	EFD	CD	EFD	CD	EFD
No 1 Delta V Upgrade	0	03/16/12*	8	<b>03/08/12 A</b>	8	<b>03/08/12 A</b>
No 2 42 inch BWW Piping	0	04/17/12	-3**	<b>04/23/12 A</b>	-3**	<b>04/23/12 A</b>
No 3 Substantial Completion	220	02/25/15	-103	05/08/15	-95	06/01/15
No. 4 Final Completion***	220	05/26/15	- 53	06/16/15	- 35	07/01/15

CD= Calendar Day(s) Float

EFD = Early Finish Date

\*Field Change Order # 2 slipped Interim Milestone No 1 by 59 days due to severe flooding in Southeast Asia which damaged Emerson manufacturing facilities in Thailand.

\*\* CM letter granting 3 day extension issued 04/11/12

\*\*\* Time Extensions (FCO#): (11.1)-12 days; (75)-72 days; (253)-104 days; (448)-32 days.

## SCHEDULE CONCERNS/ISSUES

- **Schedule Recovery:** Discussion of schedule recovery involving startup planning began in May 2013. The Contractor presented a preliminary recovery schedule in November 2013, based on a Data Date of October 10, 2013. A meeting to discuss the schedule was conducted on December 19, and a consensus achieved.

FCO 0253 Global Time Adjustment was issued January 29, 2014, adding 104 calendar days of contract time to April 24, 2015. The adjustment was made in consideration of all unforeseen conditions and changes to that date, and committed the Contractor to a 29 calendar day recovery from the December 2013 schedule. The new schedule includes a final completion target date of February 9, 2015, that if achieved, would have recovered an additional 74 calendar days.

The agreed startup schedule compressed testing and commissioning such that multiple areas would be simultaneously in play. Further schedule slip has compounded the need for resources to manage and monitor concurrent startups in multiple areas. Construction productivity, deficiencies, unrecognized complexities in testing, and changes to the design have all contributed to schedule slippage. Beginning with the September 2014 Schedule Update, the Contractor has reported project completion beyond contract time.

Since the April 2014 Schedule update the forecast Final Completion date slipped 143 days to July 1, 2015. Substantial Completion is now forecast for June 1, 2015.

In February 2015, thirty-two (32) calendar days were added to contract time under Change Order No. 21, bringing final completion to a date of May 26, 2015. The time extension was based on a time impact analysis for changes to hydraulic pressure testing requirements that began in late September 2014 and ended in December 2014.

Current delays are resulting from issues discovered in testing.

The remaining major process areas of concern are addressed below:

- **MF:** Train E 21-day Acceptance Testing Completed September 11, 2014.

The new BackwashWaste Pump was placed into operation January 21, 2015.

The Backwash Supply Pump was tested February 19, 2015, and placed into operation.

Train C pre-operational testing began November 2015. New Train C membranes were installed and lain up prior to the holidays. MF Train C witnessed testing commenced January 13, 2015. Train C membrane quality issues came to the



fore in February 2015, with replacements and pinning repairs continuing throughout the month.

- **RO:** The February Schedule Update indicates that all new RO Units will be on-line in early May 2015, a slip of two weeks from the January Update. However, high vibration issues with the G-Train pumps introduce significant uncertainty in the operational completion of the G-Train.

Progress on the F-Train is good, with membrane loading of Unit F03 having been completed February 23, and Unit F02 Sequence Testing completing February 27, 2015.

- **Lime:** The Lime Feed System startup was successfully completed in two phases, culminating in February 2015. The new Lime Saturator C, new lime dosing pump and the polymer skid remain to be commissioned.
- **Decarb Area:** The Decarbonator Area startup is currently scheduled to begin in March 2015.
- **SEFE:** SEFE Tanks and Pump Station startup is forecast for mid-April.
- **Overall Plant Startup:** The February 2015 Schedule Update forecasts Overall Plant Startup beginning mid - May 2015, after completion of second RO Train and SEFE startups.

## CHANGE MANAGEMENT

**New This Period:** RFP 0316 was issued to add conduit between two flow elements and their transmitters in SEFE Area.

RFP 0317 was issued add an Air Vacuum and Relief Valve on the 78-inch UVP Pipe at DeCarb.

RFP 0318 was issued to modify pipe supports at the RO CIP.

RFP 0319 was issued to add conduit and wire for the new Lime Saturator I/O.

RFP 0320 was issued to add wiring for the new leak detector on the SBS system.

FCO 00355.1 was issued for modifying existing UV Stairs under T&M FCO 00355.

FCO 00398.1 was issued for replacing PVC RO FLW spools with stainless steel under T&M FCO 00398.

FCO 00409.1 was issued to change the RO Dump Valve controls to 120 VAC under T&M FCO 00409.

FCO 00411.1 was issued for rewiring RO control panel feeders under T&M FCO 00411.

FCO 00427.1 was issued for relocating a seismic cable tray tie that interfered with the ROTP under T&M FCO 00427.

FCO 00438 was issued for reduced AC removals, per RFP 0077.

FCO 00439 was issued to add two PRVs at the Plant 1 Bleach Station, per RFP 0313.

FCO 00440 was issued to add condensate drains on UV and SEFE PS roofs, per RFP 0315.

FCO 00441 was issued to replace a circuit breaker in BUSE 480-MCC-0040, per RFP 0310.

FCO 00442 was issued for SEFE grading and paving revisions, per RFP 0285.1.

FCO 00443 was issued to replace the pressure instruments for the RO CIP Cartridge Filters, per RFP 0301.

FCO 00444 was to modify the MF Train C basement lighting circuits, per RFP 0312.

FCO 00445 was issued to modify the easterly sump pump panel in MF Train C basement, per RFP 0314.

FCO 00446 was issued to add Remote Displays for SEFE Pump Station control valves, per RFP 0304.

FCO 00447 was issued to modify the Lime Sat catwalk handrail, per RFP 0307.

FCO 00448 was issued for additional hydro-testing of RO concentrate piping, per RFP 0286.

FCO 00449 was issued to add conduit between two flow elements and their transmitters in SEFE Area, per RFP 0316.

FCO 00450 was to modify signal and power arrangements for MF Train C sampling instruments, per RFP 0309.

FCO 00451 was issued for stainless steel HVAC support hardware.

FCO 00452 was issued for installing Class 2 bolts on RO piping.

FCO 00453 was issued for modify piping at the new lime dosing pump, per RFI 1242.

FCO 00454 was issued at T&M to add temporary support at one RO CIP mixer.

Pending Issues:      Design changes (RFPs) are pending for:

- None

Summary of Pending Changes

No.	Description	Cost
<b>Requests For Proposal (RFP)/Requests For Change (RFC)</b>		<b>*ROM Value</b>
0216	Modify Sulfuric Acid System, RFI 0921, RFI 0923	\$10,000
0288	Modify SEFE Tank Drain Control Strategy	\$37,000
0306	Modify SEFE Pump A04 & A05 TSH, RFI 1216	\$6,000
0319	Add Lime Sat C i/o Cables, RFI 1247	\$16,000
0320	Add SBS Leak Detection Probe, RFI 1211.1	\$10,000
Misc.	Allowance for indirect costs	\$156,000
<b>Total ROM Value of Proposed Changes</b>		<b>\$235,000</b>
<b>Field Change Orders (FCO) Not yet in a Change Order</b>		<b>Committed Value</b>



**Change Orders  
 (CO):**

<b>CO #01</b>	<b>Misc. Items</b>	<b>May 15, 2012</b>	<b>(\$1,386,772)</b>
<b>CO #02</b>	<b>Misc. Items</b>	<b>July 16, 2012</b>	<b>\$76,093</b>
<b>CO #03</b>	<b>Misc. Items</b>	<b>August 2, 2012</b>	<b>\$138,606</b>
<b>CO #04</b>	<b>Misc. Items</b>	<b>October 8, 2012</b>	<b>(\$104,663)</b>
<b>CO #05</b>	<b>Misc. Items</b>	<b>October 23, 2012</b>	<b>\$109,741</b>
<b>CO #06</b>	<b>Misc. Items</b>	<b>January 8, 2013</b>	<b>\$104,589</b>
<b>CO #07</b>	<b>Misc. Items</b>	<b>February 14, 2013</b>	<b>(\$208,177)</b>
<b>CO #08</b>	<b>Misc. Items</b>	<b>May 1, 2013</b>	<b>\$724,342</b>
<b>CO #09</b>	<b>Misc. items</b>	<b>June 25, 2013</b>	<b>\$1,051,427</b>
<b>CO #10</b>	<b>Misc. Items</b>	<b>September 10, 2013</b>	<b>\$211,420</b>
<b>CO #11</b>	<b>Misc. Items</b>	<b>October 9, 2013</b>	<b>\$376,829</b>
<b>CO #12</b>	<b>Misc. Items</b>	<b>November 27, 2013</b>	<b>\$103,345</b>
<b>CO #13</b>	<b>Misc. Items</b>	<b>January 16, 2014</b>	<b>\$317,634</b>
<b>CO #14</b>	<b>Misc. Items</b>	<b>February 12, 2014</b>	<b>(\$40,317)</b>
<b>CO #15</b>	<b>Misc. Items</b>	<b>March 25, 2014</b>	<b>\$610,504</b>
<b>CO #16</b>	<b>Misc. Items</b>	<b>May 29, 2014</b>	<b>\$66,007</b>
<b>CO #17</b>	<b>Misc. Items</b>	<b>August 27, 2014</b>	<b>\$343,645</b>
<b>CO #18</b>	<b>Misc. Items</b>	<b>October 3, 2014</b>	<b>\$339,348</b>
<b>CO #19</b>	<b>Misc. Items</b>	<b>December 1, 2014</b>	<b>\$131,687</b>
<b>CO #20</b>	<b>Misc. Items</b>	<b>February 4, 2015</b>	<b>\$552,638</b>
<b>CO #21</b>	<b>Misc. Items</b>	<b>February 27, 2015</b>	<b>\$544,069</b>
<b>TOTAL</b>			<b>\$4,061,995</b>

**Percent Cost Growth                      3.53%**

**Percent Growth Including Pending Estimates                      3.78%**

## ENGINEERING

Significant Engineering Items in February 2015:

- During February 2015, 5 new RFPs and 16 FCO's were issued to the Contractor. One RFP was in design as of February 27, 2015.
- RFIs in February were up 4 from January, at 21 for the month.
- Submittal volume in February was up 19 from January, at 38 received. The number of submittals in review at the end of the month was 11.

RFI's Received to Date	RFI's Returned to Date	RFI's In Review
1397	1393	4

Submittals Received to Date	Submittals Returned to Date	Submittals Pending Review
1484	1473	11

Major Submittals processed this period:

- The Construction Schedule Update for January 2015 was approved with comment.
- The Lime Saturator C Startup Plan was reviewed and returned with comments.
- The quarterly update of the Contractor's electronic red-line drawings continued in review.

## GWRs Initial Expansion Contract GWRs-2011-01 Change Order Report

CONTRACT AMOUNT	APPROVED CHANGE ORDER BUDGET	CHANGE ORDER NUMBER	DATE	CHANGE ORDER AMOUNT	TOTAL % CHANGE	REASON FOR CHANGE ORDER	TYPE CHANGE
\$ 115,089,997	\$ 5,754,500						
	\$ 7,141,272	1	May-12	\$ (1,386,772)	-1.20	FCO 1 - Bid item 4 & 5 credit for prior payment	OR
						FCO 2 - PCS Upgrade - Milestone Revision (no cost)	UC
						FCO 3 - OCSD slide gate modifications (credit)	OR
						FCO 4 - MF backwash pipeline modifications	DE
						FCO 6 - Change to meltblown cartridge filters	OR
						FCO 7 - Abandoned wells at RO building	UC
						FCO 8 - Stainless nuts and bolts for stainless pipe	DE
						FCO 9 - RO electrical feeder upsizing	DE
						FCO 12 - Sulfuric acid tank vent & overflow mods	OR
						FCO 13 - Breaker for future UV Train O	OR
						FCO 16.1 - Asbestos floor tile removal in old lab	UC
						FCO 17 - Additional personnel carriers	OR
						FCO 18 - Dewatering discharge point change (credit)	OR
						FCO 19 - Replace personnel carrier	OR
						FCO 20 - RO flush pump manufacturer change	OR
						FCO 22 - UV Train Control Center Components	OR
	\$ 7,065,179	2	Jul-12	\$ 76,093	-1.14	FCO 11 - RO building shoring extension	UC
						FCO 11.1 - RO building shoring time extension (no cost)	UC
						FCO 14.2 - RO waste sump electrical conflicts	UC
						FCO 15.1 - Remove bulge at OCSD effluent wall channel wall	UC
						FCO 24 - Unforseen transite material removal at old lab	UC
						FCO 25 - Conductivity analyzers and pressure switches	DE
						FCO 26 - Copier finishers	OR
						FCO 28 - Area 710 Decarb Elect/I&C RFI 30 (credit)	DE
						FCO 29 - 1.5 inch DW pipe removal at RO (credit)	OR
						FCO 30 - Flat plate closure at OCSD PISB (credit)	CIC
	\$ 6,926,573	3	Jul-12	\$ 138,606	-1.02	FCO 10.1 - 4" pump discharge at RO building	UC
						FCO 27.1 - OT inspection through 6/30/12 (credit)	OR
						FCO 33 - Filter screen component material change	OR
						FCO 34 - RO membrane change (bulletin 3)	OR
						FCO36 - SEFE RIO panel power supply	DE
						FCO 37 - Electrical stub ups beneath equipment (credit)	OR
						FCO 38 - Misc. electrical changes at UV area (credit)	DE
						FCO 39 - RO electrical room equipment layout (no cost)	DE
						FCO 41 - Allow early access to SEFE area at OCSD (no cost)	OR
						FCO 42 - Revised mobilization payment (no cost)	OR
						FCO 5.2 - Reroute existing 10" DW and 1" PA line at MF area	UC

## GWRs Initial Expansion Contract GWRs-2011-01 Change Order Report

CONTRACT AMOUNT	APPROVED CHANGE ORDER BUDGET	CHANGE ORDER NUMBER	DATE	CHANGE ORDER AMOUNT	TOTAL % CHANGE	REASON FOR CHANGE ORDER	TYPE CHANGE
	\$ 6,926,573	4	Oct-12	(104,663)	-1.02	FCO 23.1 - Remove 4th abandoned DW well at RO area	UC
						FCO 31.1 - Add rebar to RO slab area 9	UC
						FCO 40.1 - Add rebar to RO slab area 3	UC
						FCO 43 - Add 2nd pile for MF BWW line pipe support	OR
						FCO 44 - Payment for suitably stored materials (no cost)	Or
						FCO 46 - Sodium bisulfite piping insulation addition	DE
						FCO 47 - RO & MF slab waterproofing deletion (credit)	OR
						FCO 48 - MF reinforcement - RFI 0125 (credit)	OR
						FCO 49 - MF canopy pilaster base reinforcing	DE
						FCO 50 - Realign access road to SEFE area at OCSD	OR
						FCO 51 - MF blower room exhaust tie-in	UC
						FCO 52 - Shadow box insulation	DE
						FCO 53 - RO building revisions to electrical room	UC
						FCO 54 - Existing RO building grounding modifications	UC
						FCO 55 - MF pre bid equipment clarificaitons (credit)	OR
						FCO 56 - Relocate BFV actuator conduit at UV	UC
	\$ 6,816,831	5	Oct-12	\$ 109,741	-0.92	FCO 21.1 - MF backwash cover modifications at OCSD	OR
						FCO 57 - RO curtain wall NW corner framing	DE
						FCO 59 - RO building metal deck support RFI 197	DE
						FCO 60 - RO buildng bridge crane extensions	DE
						FCO 61 - SEFE grading revisions	OR
						FCO 62 - Relocate electrical at MF wall knockouts	DE
						FCO 63 - RO building retrofit waterstop	DE
						FCO 67 - SHC loading panel power feed	DE
						FCO 69 - Roof mounted level switches at SEFE tanks	DE
	\$ 6,712,242	6	1/8/2013	\$ 104,589	-0.83	FCO 45.1 - Reroute DW/SW lines RFI 274/279	DE
						FCO 65 - MF Waterstop Retrofit	DE
						FCO 68 - OCWD Water & Power Costs Reimbursement (credit)	OR
						FCO 70 - RO Acoustical Barrier End Closure	DE
						FCO 71 - FPW Channgel Mixer Breaker	DE
						FCO 72 - RO Basement Wall Finish	OR
						FCO 74 - Additional Pipe Support 60-inch MFF Pipeline	DE
						FCO 75 - MF Excavation Time Extension	OR
						FCO 76 - 3" Potable Water Connection at Screening Facility	DE
						FCO 78 - Future Pump Deck Sleeves RFI 0321	OR
						FCO 79 - Butterfly Valve Actuator Modifications	DE
						FCO 80 - Cartridge Filter Pedestal Modifications	DE
						FCO 82 - Add Steel Plate to SEFE Tank Outlet	DE
						FCO 83 - Alloy 20 Strainers at Sulfuric Acid Pumps	OR
						FCO 86 - UV Baseplate Conflict	DE



## GWRS Initial Expansion Contract GWRS-2011-01 Change Order Report

CONTRACT AMOUNT	APPROVED CHANGE ORDER BUDGET	CHANGE ORDER NUMBER	DATE	CHANGE ORDER AMOUNT	TOTAL % CHANGE	REASON FOR CHANGE ORDER	TYPE CHANGE
						FCO 88 - RO Feed Pump Discharge Flange Set	DE
	\$ 6,920,420	7	2/14/2013	\$ (208,177)	-1.01	FCO 11.2 - RO Building Shoring Damp-Proofing	DE
						FCO 66.1 - Pothole SEFE Pump Station Electrical - RFI 0360	OR
						FCO 77.1 - RO Skylight Roof Curbs - RFI 0322	DE
						FCO 85 - Sulfuic Acid Flow Transmitter Modifications	OR
						FCO 87 - RO Monorail Support Beams - RFI - 0343	DE
						FCO 90 - Cut, Remove, and Replace Additional Concrete - RFI 393	DE
						FCO 92 - Add Circuit in Lime Area	DE
						FCO 94 - Modify Two Roof Joists - RFI 401	DE
						FCO 95 - Investigate Electrical Ductbank at UV	OR
						FCO 96 - Add Epoxy - Cartridge Filter Pedestals	DE
						FCO 97 - RO CIP Mixer Location and Position	DE
						FCO 98 - Add Conduits and Modify Grounding	DE
						FCO 99 - RO Transformer Pad Modifications - RFI 378.2	DE
						FCO 100 - Delete 54" BWW Pipe Support - RFI 420	CIC
						FCO 101 - MF Pipe Connection Modifications	CIC
						FCO 102 - Add Rebar in Slab RO Electrical Room - RFI 416	CIC
						FCO 103 - Increased Asphalt Removal RO Electrical Room South Road	CIC
						FCO 106 - RO Building Cartridge Filter Relocation	OR
						FCO 107 - Delete MF Basement Drain Piping	OR
						FCO 109 - Siemens Pre-Bid Scope Changes	CIC
						FCO 110 - RO Membrane Feed Pump Substitution (credit)	OR
						FCO 112 - Relocate RO Sprinkler Lines	CIC
						FCO 113 - SEFE Tank Outlets	DE
						FCO 114 - Increased Asphalt Removal Lime Decarb Area	CIC
						FCO 116 - MF Basemetn Dampproofing Removal	CIC
	\$ 6,196,078	8	4/8/2013	\$ 724,342	-0.38	FCO 117 - Train E MFF Pipe Support Plates	DE
						FCO 119 - Reduce Coating @ UV Facility, RFI 461.1 (Credit)	OR
						FCO 120 - UV Pipe & Ductbank Modifications, RFI 451	UC
						FCO 121 - Piping Modifications at UV, RFI 274.1, 288, 404	UC
						FCO 123 - Light Pole Base Removal on FPW Channel, RFI 427	DE
						FCO 124 - Piping modifications @ Lime Area, RFI 471	DE
						FCO 124.1 - Lime/Decarb Tamper Switches, RFI 471	DE
						FCO 127 - Cut, Remove, and Replace Concrete, RFI 400	OR
						FCO 128 - SEFE Area Contaminated Soils	UC
						FCO 129 - Delete Coating on Interrial Plastic Pipe (Credit)	OR
						FCO 131 - Disposal of SEFE Contaminated Soil	UC
						FCO 133 - Ductwork Mods in MF Basement, RFI 460	DE

## GWR Initial Expansion Contract GWR-2011-01 Change Order Report

CONTRACT AMOUNT	APPROVED CHANGE ORDER BUDGET	CHANGE ORDER NUMBER	DATE	CHANGE ORDER AMOUNT	TOTAL % CHANGE	REASON FOR CHANGE ORDER	TYPE CHANGE
						FCO 134 - Modification of MF Sump Cover, RFI 515	OR
						FCO 81.1 - Pothole North of UV Electrical Building	UC
						FCO 84.1 - UV Pipe Damage Reimbursement (Credit)	NA
	\$ 4,933,231	9		\$ 1,051,427	0.53	FCO 89.1 - Unforeseen Ductbank at RO Transformer Pad	UC
						FCO 104.1 - RO Seismic Brace Conflicts	DE
						FCO 105.2 - Pothole Unforeseen Utilities Area 710	UC
						FCO 108.2 - SEFE Construction Fencing	CIC
						FCO 115.1 - Relocate Sump Discharge at EMH B-1	UC
						FCO 118.1 - RO Beam Support at Seismic Joint	DE
						FCO 122.1 - Repair Dewatering Discharge Line	NA
						FCO 125 - Increased Asphalt Removal@UV Area	UC
						FCO 126 - Train C MFF Support Base Plates, RFI 506	DE
						FCO 130 - Modify Hydrants at SEFE Area, RFI 517	DE
						FCO 132.1 - Add Waterstop at MFF Feed Box	DE
						FCO 135 - SEFE Drainage Piping Reduced Scope	OR
						FCO 136 - Grating Mods at UV Area	OR
						FCO 137.1 - Credit for VFD/Motor Substitution, RFI 479	OR
						FCO 139 - Relocate LS and Sanitary Sewer Piping, RFI 483	UC
						FCO 140 - RO Joists Uplift Bridging	DE
						FCO 141 - Electrical Instrument Mods @ MF CIP RFI 386	DE
						FCO 142 - Add Retrofit Waterstop @ MF, RFI 210.1	DE
						FCO 143 - Modify Feeder Breakers for 510-AC-1 & 2	DE
						FCO 144 - Modify HSS 12x8 Girt @ RO West Elev	DE
						FCO 145 - Add Neoprene Pad at TI and SHC Tanks	OR
						FCO 146.1 Safe Area Contaminated Soils 2	UC
						FCO 147 - Lime Saturator C Sump Mod RFI 411.1	UC
						FCO 148 - Concrete Finish Existing Walls @ MF, RFI 565	OR
						FCO 149 - Train C & E Instrument Sleeves@MF, RFI 519	DE
						FCO 150 - 4" & 2" Drain Piping @ Switchgear/RO, RFI 523	UC
						FCO 151 - Modify Link Seal Hardware, RFI 525	DE
						FCO 153 - Add Conduit for FE to FIT, RFI 522	DE
						FCO 154 - Modify Cable Tray and Supports	OR
						FCO 155 - Delete Cable Tray and Supports, RFI 560	DE
						FCO 156 - Add J-Box and Conduit@FIT, RFI 536.1	DE
						FCO 157 - Delete Circuits C247, C253 Extend P501, RFI 537	DE
						FCO 158 - Add 1" ARV to DW Piping, RFI 539	OR
						FCO 159 - SEFE Contaminated Soils Disposal 2	CIC
	\$ 5,249,314	10		\$ 211,420	0.71		
						FCO 111 - Bid Item No. 10 Credit (Credit)	OR
						FCO 160 - Lime Dosing System Changes, RFI 490 (Credit)	OR
						FCO 161 - Increase Size of 510-TCP-1, RFI 568	DE
						FCO 162 - Modify Lime Saturator C Blowdown Trench	UC

## GWR Initial Expansion Contract GWR-2011-01 Change Order Report

CONTRACT AMOUNT	APPROVED CHANGE ORDER BUDGET	CHANGE ORDER NUMBER	DATE	CHANGE ORDER AMOUNT	TOTAL % CHANGE	REASON FOR CHANGE ORDER	TYPE CHANGE
						FCO 164.1 - Concrete Details at Lime Saturator	DE
						FCO 166 - Modify SEFE Tank Internal Roof Coating (Credit)	OR
						FCO 167 - Change Valve 510-ROC-BFV-2310	DE
						FCO 168- Obsolete Control Equipment, RFI 0437	OR
						FCO 169 - Soils Disposal at OC Landfill	UC
						FCO 170 - Add Baseplates for Monorail, RFI 625	DE
						FCO 171 - Add Roof Hatch, Modify HVAC Duct at MF	OR
						FCO 172 - Modify Programming for BPV & ERD	UC
						FCO 174 - Modify Demolition Limits @ RO Wall, RFI 562	DE
						FCO 175 - Add Grounding at MF, Lime RFI 674, 668.1	DE
						FCO 177 - Delete 4" conduits and Supports, RFI 514 (Credit)	UC
						FCO 178 - Modify Fire Sprinkler Pipe in RO, RFI 669	DE
						FCO 179 - Relocate Existing Elect and Piping at RO, RFI 566	DE
						FCO 181 - Add Supports to Process Air Piping at MF, RFI 615	DE
						FCO 182 - Cable Tray Modification in RO Basement	OR
						FCO 183 - Modify Cable Tray, Ducts, Pipe Support, RFI 579 (Credit)	OR
						FCO 184 - Relocate Panel and Conduit at MF Cell E02, RFI 604	DE
						FCO 185 - Repair Conduit and Re-pull Wire, RFI 652	UC
						FCO 188 - Remove Dampproofing at FPW Channel	UC
						FCO 027.2 - OT Inspection Charges July to Dec 2012 (Credit)	OR
	\$ 4,872,485	11		\$ 376,829	1.04	FCO 064.1 - Repair Stirrups at RO Knockout Wall	UC
						FCO 152.1 ROP Piping Clarification, RFI 0319	DE
						FCO 163.1 - Relocate Pipes at Lime Sump	UC
						FCO 176.1 - Modify Steel for Curtain Wall, RFI 702, 704	DE
						FCO 180.1 - FACP 5101 Cicuit Investigation	DE
						FCO 186.1 - Adjust Conduit at Decarbonator	UC
						FCO 187 - SEFE Tank Slab Placements (Credit)	OR
						FCO 189 - Electrical & Control Mods @ RO CIP Mixers	DE
						FCO 190 - Relocate Conduits from Exiting RO West Wall	DE
						FCO 191 - Modify Conduit P125A, P804B, RFI 661, 662.1	DE
						FCO 192 - Modify Metal Sutr Framing at RO, RFI 627.1	DE
						FCO 193 - FRP Pipe Anchor Support & Expansion Joint Adds	DE
						FCO 194 - Modify/Delete Conduit, Cable, Delete Instruments, RFI 655 (Credit)	OR
						FCO 195 - Add Conduits & Pull Box, RFI 511.2, 508, 513	DE
						FCO 197 - Modify Concrete Equipment Pad at Polymer Tank, RFI 737	OR
						FCO 199 - Add Lighting Contactors at RO, RFI 535.1	DE
	\$ 4,769,140	12		\$ 103,345	1.13	FCO 200 - Add P981, P982, C358C, C366C, RFI 712	DE

## GWRs Initial Expansion Contract GWRs-2011-01 Change Order Report

CONTRACT AMOUNT	APPROVED CHANGE ORDER BUDGET	CHANGE ORDER NUMBER	DATE	CHANGE ORDER AMOUNT	TOTAL % CHANGE	REASON FOR CHANGE ORDER	TYPE CHANGE
						FCO 138.1 - RO Deck Support on Grid 1, RFI 0557	DE
						FCO 165.1 - Unforseen Concrete Slab at SEFE Tanks	UC
						FCO 196.1 - Restore MF Basement FA Devices	UC
						FCO 198.1 - Replace Fabric on SEFE Fence	OR
						FCO 202 - Modify HVAC ductwork @ RO building	DE
						FCO 203 - Relocate Electrical Equipment at MF East, RFI 721	DE
						FCO 204 - Conduit for FO Panel at UV Electrical Building	DE
						FCO 206 - Add handrail at UV Facility, RFI 723	DE
						FCO 207 - Mods at Saturator C Blowdown Trench, RFI 633	DE
						FCO 208 - Modify Skylight curbs at RO, RFI 771	DE
						FCO 209 - Modify Pipe Support for Scour Air, RFI 718 (Credit)	UC
						FCO 210 - Add flange nozzles to SEFE Tanks, RFI 613	DE
						FCO 211 - Delete conduits, RFI 733.1, RFI 752 (Credit)	OR
						FCO 212 - Delete Conduits, RFI 745, 746, 747 (Credit)	OR
						FCO 213 - Add circuits C908, Delete C737,C738, RFI 634	DE
						FCO 214 - Modify Pipe Penetration detail at MF Cells	DE
						FCO 215 - Modify 8" SEFE drain line, RFI 732	DE
						FCO 216 - Core, grout and install pipe for C01-LIT-325 level transmitter for MF cell	DE
						FCO 217 - Modify overhead coiling door instllation, RFI 672	DE
	\$ 4,451,506	13		\$ 317,634	1.41	FCO 218 - Modify Shadow Boxes at RO Building, RFI 765	OR
						FCO 201.1 - Investigate/Repari Lime Building DW Line	UC
						FCO 219.1 - Adjust RO Light Fixture, RFI 0809	DE
						FCO 221 - Respan RO Flowmeters	OR
						FCO 223 - Add conduit and Expansion Fittings, RFI 778, 779	DE
						FCO 224.1 - Relocate MF Basement Light	DE
						FCO 225 - Increase Rating for AC-1,2 Disconnects, RFI 777	DE
						FCO 226 - Add IW and Instrument Air Stations at MF	DE
						FCO 227 - Add Overflow piping to Polymer Tank, RFI 795	OR
						FCO 229 - NETA Breaker Testing, Submittal 16100-004-A	OR
						FCO 230 - Add conduit, circuit, disconnect to monorail, RFI 795	DE
						FCO 231 - Reroute conduits and circuits at Waste Sump Pumps	OR
						FCO 232 - Relocate A710 Power Panesl, RFI 449	UC
						FCO 233 - Relcoate Conduits and Circuits, RFI 793	UC
						FCO 234 - Modify East wall of RO Electrical Room, RFI 794	DE
						FCO 235 - Seal Water Interlock, Bulletin #30	DE
						FCO 236 - Relocate MF Conduit, RFI 459.1	UC
	\$ 4,491,823	14		\$ (40,317)	1.37	FCO 237 - Modify Stainless Steel flanges at RO, RFI 735.1	DE

## GWR Initial Expansion Contract GWR-2011-01 Change Order Report

CONTRACT AMOUNT	APPROVED CHANGE ORDER BUDGET	CHANGE ORDER NUMBER	DATE	CHANGE ORDER AMOUNT	TOTAL % CHANGE	REASON FOR CHANGE ORDER	TYPE CHANGE
						FCO 205 - FRP Anchor Relocation in RO basement	DE
						FCO 220.1 - Modify RO Acoustic Barrier Frames	DE
						FCO 238.1 - Adjust MF Train E PA Line, RFI 0871	UC
						FCO 239 - Modify SS Card Reader locations, RFI 773 (Credit)	OR
						FCO 240 - Lime Building Wall Penetration, RFI 727	DE
						FCO 241 - Modify ductbank @ road crossing, RFI 836	UC
						FCO 242 - Modify Bonding Jumpers @ UV spools, RFI 843	UC
						FCO 243 - Add Supports for ROP FRP Pipe	DE
						FCO 244 - Add conduit/conductors @ PWPS, RFI 537	DE
						FCO 246 - Add cable chase to A03-VFD-3400, RFI 783	UC
						FCO 248 - Modify Canopy at RO Electrical Room	OR
						FCO 249 - Delete conduit and circuits, NCN 0028 (Credit)	OR
						FCO 250 - Install conduit, circuit, for LCP-Ethernet	OR
						<b>FCO 251 - SEFE Contaminated Soils Remediation</b>	UC
						<b>FCO 252 - Deduct unused Hazardous hauling cost allotment to Yuma, AZ (Credit)</b>	UC
						FCO 253 - Global contract time adjustment	Other
						FCO 254 - Add conduits and circuits for CP Rectifiers, RFI 759	DE
						FCO 255 - Add conduit and circuits for Wall Wash lights, RFI 762	DE
						FCO 256 - Modifications at TI and SBS control panel	DE
						FCO 257 - Modify existing Fire Alarm, Lighting, HVAC, RFI 865.1	DE
						FCO 260 - Modify canopy coverboard at MF and UV, RFI 880	DE
						FCO 261 - MF and RO Asphalt thickness discrepancy	UC
						FCO 262 - RO Basement Wall Knockout Reduction	Other
						FCO 263 - Polish and blast RO stainless steel pipe	DE
						FCO 264 - Add firetape to medium voltage cable, RFI 832	OR
						FCO 265 - Add expansion joints to CR/CF Piping RO CIP	DE
						FCO 266 - Modify Effluent launder enclosure, RFI 796	DE
	\$ 3,881,319	15		\$610,504	1.90	FCO 267 - Delete conduit, cable and supports, RFI 885.1 (Credit)	Other
						FCO 228.1 - Add Insulating Flange Kits for 815-A04-BFV-3405	DE
						FCO 245.1 - Add Drywall Joints in RO Bldg, RFI 893.1	DE
						FCO 258.1 - Attached Bonding Cables to UV Pipe	UC
						FCO 268 - Delete Removal of Shoring @ SEFE P.S. (Credit)	OR
						FCO 269 - Delete ductwork insulation, RFI 524 (Credit)	OR
						FCO 270 - Modify Skylight Curbs @ RO, RFI 771	DE
						FCO 271 - Delete Coating on Interior Ducting, RFI 556.1 (Credit)	OR
						FCO 272 - Modify 6" MCR Piping near Train B&C, RFI 870	DE
						FCO 273 - Add handrail @ ladder openings, RFI 770	DE

## GWRs Initial Expansion Contract GWRs-2011-01 Change Order Report

CONTRACT AMOUNT	APPROVED CHANGE ORDER BUDGET	CHANGE ORDER NUMBER	DATE	CHANGE ORDER AMOUNT	TOTAL % CHANGE	REASON FOR CHANGE ORDER	TYPE CHANGE
						FCO 274 - Modify Guardrail @ MF Train C, RFI 846	DE
						FCP 275 - Modify Existing Ductwork in MF basement, RFI 896	DE
						FCO 276 - Modify HVAC ductwork at MF, RFI 879	DE
						FCO 277 - Modify W12x19 beams at Decarb, RFI 905	DE
						FCO 278 - Add Master LES control to TI, SBS Pumps	DE
						FCO 279 - Roofing Substrate at RO parapets	Other
						FCO 280.1 Remove & Replace Metal Panel at Existing RO	Other
						FCO 281 - Add Hose bib station and piping at RO roof	OR
						FCO 282 - Link seal grout at SEFE pump station	DE
						FCO 283 - Provide new UPS for MF and RO Electrical Rooms	OR
						FCO 284 - Modify CT and Conduit at MF Train C, RFI 928	DE
						FCO 285 - Add asphalt plan walkway at RO, RFI 925	DE
						FCO 286 - Add angle at curb for Skylight Attachment	DE
						FCO 287 - Add walk demo at RO west side	DE
						FCO 288 - DW Tie-In at RO Fire line, RFI 0804	DE
						FCO 289 - Off hours SEFE tank radiography	OR
						FCO 290 - MF Process Air System piping modifications	DE
	\$ 3,815,312	16	5/23/2014	\$ 66,007	1.96	FCO 296 - Add L-angle to vertical expansion joint, RFI 919	Other
						FCO 291 - Modify 24-inch BWW spools at MF, RFI	DE
						FCO 292.1 - MF Train C North Wall Crack Repair	UC
						FCO 293.1 - Retroute Run P005B, RFI 981	UC
						FCO 294 - Delete Conduit/Circuits at MF, RFI 939, 946 (Credit)	DE
						FCO 297 - Modify Flowmeter Install at Decarb, RFI 913	DE
						FCO 298.1 - Modify RO Skylight Angles, RFI 1005	DE
						FCO 300 - Modify Lime Feed Piping, RFI 984	OR
						FCO 301 - Modify Lighting & HVAC at RO Elect Bldg, RFI	DE
						FCO 302 - Modify Piping at PWP A04-PMP-3400, RFI	UC
						FCO 304 - Add supports, upsize bolts 30" UVP, RFI 968	DE
						FCO 305 - Bid Item No. 9 Pile Installation (Credit)	OR
						FCO 306 - Add MF Train C Vapor Barrier	OR
						FCO 307 - Add coating for FPW Channel	OR
						FCO 308 - Add base at drywall/joint in RO, RFI 944	DE
						FCO 309 - Relocate Eyewash in Lime Building, RFI 973	DE
						FCO 310 - Delete conduit, DeviceNet cable, Programming RFI 949.1 (Credit)	DE
						FCO 311 - Delete N910E, N915E;Modify MF Train C CP location (Credit)	DE
						FCO 312 - SEFE Yard Hydrant Tie In Source, RFI 1006	OR
						FCO 314 - RO Bollards and SEFE Pump Station Stoops	DE
						FCO 315 - Delete AVRv & BV at Train C Backwash, RFI 972	OR
						FCO 316 - Delete Lime Silo Air Piping, RFI 0976	DE

## GWRs Initial Expansion Contract GWRs-2011-01 Change Order Report

CONTRACT AMOUNT	APPROVED CHANGE ORDER BUDGET	CHANGE ORDER NUMBER	DATE	CHANGE ORDER AMOUNT	TOTAL % CHANGE	REASON FOR CHANGE ORDER	TYPE CHANGE
						FCO 317 - Modify Vent piping @A255 Area Pumps, RFI 100	OR
						FCO 318 - Modify Speed feedback cable, RFI 986.1	DE
						FCO 319 - Modify control circuits for 230-B04-VFD-0800	OR
						FCO 320 - Bead Blast exterior SST Piping	OR
	\$ 3,471,667	17	8/12/2014	\$ 343,645	2.26	FCO 322 - Mill Product water pump barrel plate, RFI 1018	UC
						FCO 259.1 - Expose and Remove Interfering Ducts	UC
						FCO 295.1 - Repair Train E Cell Coating, RFI 987	UC
						FCO 303 - Beneficial Occupancy and Guarantees	Other
						FCO 313.1 - Outage N-1 SEJB6 POTW Fill Support	OR
						FCO 323.1 - Replace DB for 710-CPF-0008, RFI 1054	UC
						FCO 326 - Modify Programming for RO Units F&G	OR
						FCO 327 - Add Cartridge Filter Pressure Gauges	DE
						FCO 328 - Upsize UV PCS Conductors, RFI 1053	DE
						FCO 329 - Modify Conduit C510C, C595, Add 1560A	DE
						FCO 330 - Modify C358C and C366C	DE
						FCO 331 - SEFE Tank Roof Access Modifications	OR
						FCO 336 - Modify Sodium Hypochlorite Feed @ SEJB6	OR
						FCO 337 - Modify DeviceNet at MF East Electrical	OR
						FCO 338 - Add Lime Silo Blower Disconnects, RFI 1002	UC
						FCO 339 - RO Electrical Room Wall Facia	Other
						FCO 340 - Add Power to MF East FABP, RFI 1057	DE
						FCO 343 - Add Trian C CA Drip Legs, RFI 1059	DE
						FCO 344 - 30 Inch DIP-FPW Piping Mods, RFI 1074	DE
						FCO 347 - Adjust Level Switch UV Train J, K, L	DE
						FCO 348 - Modify existing RO West Wall Demolition, RFI 768	DE
						FCO 349 - Modify Seal Water @ BWW Pump, RFI	DE
						FCO 350 - Add SEFE PS AHU Support, RFI 1063	DE
						FCO 351 - Add Isolation Valves for Lime Feed PA	OR
	\$ 3,475,964	18	9/11/2014	\$ 339,348	2.55	FCO 352 - Modify RO Dump Valve Actuators	OR
						FCO 299.1 - Correct Existing Train E BW and MFF Pipe	UC
						FCO 333.2 - Repair CML in Existing 84-inch FPW	UC
						FCO 334.1 - 60 inch MFE Epoxy Lining Repairs	UC
						FCO 346.1 - Bid Item 11 Reconciliation	Other
						FCO 353 - Modify Motor Cooling Piping, RFI 1100	OR
						FCO 354 - Moidfy Programming RO Units	OR
						FCO 356 - Add MEMSAP Panels, RFI 1061	DE
						FCO 357 - Modifcy circuit LoLo SD Interlock A03-PMP-0400	DE
						FCO 358 - Modify BWW CMLSP Pipe, RFI 1103	DE
						FCO 361 - Abandon shoring along grade line M, RFI 576	Other
						FCO 363 - Add MF Turbidity Station Switches	OR
						FCO 365 - Add Area 730 Concrete Pipe Bases, RFI 118	DE

## GWRs Initial Expansion Contract GWRs-2011-01 Change Order Report

CONTRACT AMOUNT	APPROVED CHANGE ORDER BUDGET	CHANGE ORDER NUMBER	DATE	CHANGE ORDER AMOUNT	TOTAL % CHANGE	REASON FOR CHANGE ORDER	TYPE CHANGE
						FCO 366 - Barrier Water Connection to new RO Building	OR
						FCO 367 - Modify RO Feed Pump Motor Cooling	OR
						FCO 368 - Modify SBS Header Piping, RFI 1091	DE
						FCO 369 - Sampling Modifications at DPW Channels, RFI	DE
						FCO 371 - Add Conduit in 910 Building, RFI 1107	UC
						FCO 372 - Modify MF Common DN Segments, RFI	UC
						FCO 373 - Modify Lime Saturator C 12 inch PVC line, RFI 1145	DE
						FCO 374 - Modify Conduit - Area 815 MOVs, RFI 1109	UC
						FCO 375 - Extend MFE AVR/ above deck, RFI 1095	DE
						FCO 376 - Add doors at AC-1and2 and Screenwall, RFI	DE
						FCO 360.1 - Modify MF PA Pipe Supports, RFI 1126	DE
						FCO 379 - Replace UV Train I and M FITs, RFI 1131	DE
						FCO 380 - RO Startup Temporary Piping	OR
	\$ 3,344,277	19	11/26/2014	\$ 131,687	2.67	FCO 377 - Add Power to 210-CPF-0001, RFI 1136	DE
						FCO 247.1 - Relocate AC Vents in RO Electrical Room	DE
						FCO 321.1 - Restore Cathodic Protection at OCSD	UC
						FCO 383 - Internal CP Rectifier AC Power, RFI 1163	DE
						FCO 384 - Lime Pump Discharge Modifications	OR
						FCO 387 - Relocate Saturator C Dosing Assemblies	DE
						FCO 388 - Lime Saturator Small Bore Pipe Routing	DE
						FCO 389 - Reroute 8" DW to RO Building, RFI 1151	DE
						FCO 390 - Lime Pump Suction Piping Modifications	OR
						FCO 392 - Lime Saturator Injection Points, RFI 1176	DE
						FCO 393 - UV Electrical Room AC Disconnect, RFI 1159	DE
						FCO 394 - MF Electrical Room HVAC Fans Control, RFI 1148	DE
						FCO 395 - Add FIT/FE Manual Calbe Junction Box, RFI 1179	DE
						FCO 397 - Delete Work in HP Building	OR
						FCO 400 - Mechanical Crew OT Working Hours (T&M)	OR
						FCO 402 - Replace RO 5 to 6 port valve, RFI 1132	DE
						FCO 403 - RO Feed Pump FSL Signal to VFD, RFI 1156	DE
						FCO 404 - Cooling Fan Additional Power Conntion, RFI 1170	DE
						FCO 406 - MEMSAP Removable Grating	DE
	\$ 2,791,639	20	2/4/2015	\$ 552,638	3.15	FCO 381 - Relocate Existing Phone Equipment in 910 Bldg	UC
						FCO 262.1-Modify VFD I/O, RFI 1107, 1107.1, 1083	UC
						FCO 335 -Lime Silo CP Circuit Mods, RFI 1064	Other
						FCO 341.1 - Mod Grating Install @ UV, RFI 1088	DE
						FCO 342 - Add Circuit for Lime Air Dryer	DE
						FCO 345.1 - Lime Truck Unloading Panel Wiring	Other
						FCO 370.1 - Add 610 CPE 5021 Pad & Xypex Sat. C	UC
						FCO 382.1 - Temp Power to 100-BFV-5525, 5526	DE



## GWRs Initial Expansion Contract GWRs-2011-01 Change Order Report

CONTRACT AMOUNT	APPROVED CHANGE ORDER BUDGET	CHANGE ORDER NUMBER	DATE	CHANGE ORDER AMOUNT	TOTAL % CHANGE	REASON FOR CHANGE ORDER	TYPE CHANGE
						FCO 391 - Add Support for RO OH Coiling Door, RFI 0974	UC
						FCO 399.1 - Remove Reg Materials from Old Lab	UC
						FCO 405.1 - Mod Lime Storage Silo Knife Plate	DE
						FCO 407.1 -Mech Polish MF 12in SS Pipe	OR
						FCO 408.1 - Relo MF Basement Light Switches	UC
						FCO 410.1 - Mod MF Blower Pln Ctrl Wire, RFI 1206	Other
						FCO 412 - Add Pconduit OCSD I/O Cab, RFI 1187	DE
						FCO 413 - Ext Iconduit Tank Top Mix CP, RFI 1188	Other
						FCO 414 - Replace CV MF Sump Pump, RFI 1185	OR
						FCO 415 - Add SEFE Tank Mix Neo Pad, RFI 1186	Other
						FCO 416.1 - Mod SD JB Cover North of RO Building	UC
						FCO 417 - Mod RO Control Station, RFI 1168	OR
						FCO 418 - Mod RO Valve Actuator w/ Position Indicator	Other
						FCO 419 - Relocate RO Utility Sink	UC
						FCO 421 - Add ERD Piping Supports, RFI 1199	DE
						FCO 422 - Deletion of SEFE Tank Disinfection	Other
						FCO 423 - Replace Network Switch FO Transceivers	DE
						FCO 424 - Add South Area Striping	OR
						FCO 425 - Add OCSD SHC Pipe Encase Rebars	OR
						FCO 428 - FPW Chann Mixer Hatch Mod, RFI 1171	DE
						FCO 429 - Add RO Air Handler Drains, RFI1215	DE
						FCO 430 - Add Sulfuric Acid CPVC Coat, RFI 1222	DE
						FCO 432 - Mod Ramp North of RO Building, RFI 1190	DE
						FCO 433 - SEFE Contaminated Soil Reconciliation	UC
						FCO 434 - Relocate RO PCR, FF, & FLW Lines	Other
						FCO 435 - RO Shear Collar Install Reconciliation	Other
						FCO 436 - HVAC Duct Support Material RO & MF	Other
	\$ 2,247,570	21	2/28/2015	\$544,069	3.62	FCO 437 - Change RO Bolts & Nuts CL1/CL2	Other
						FCO 325.1 - Additional Potholing for 36-in ROC	UC
						FCO 355.1 - Exist. UV Stair Modification	Other
						FCO 398.1 - Replace RO FLW Spools, PVC to SST	Other
						FCO 401 - Remove Sand/Grit & Adj Sole Plate, MF BWW	UC
						FCO 409.1 - Change RO Dump Valve Volt, RFI 1204	DE
						FCO 411.1 - Change RO 208V Pnl Feed Wire, RFI 1203	DE
						FCO 427.1 - Relo Area 255 Seismic Support	UC
						FCO 438 - Decreased Asphalt Removal, SEFE	UC
						FCO 439 - Add OCSD Bleach Piping PRVs	OR
						FCO 440 - UV&SEFE Bldg Condens Drain, RFI 1238	DE
						FCO 441 - Rep BUSA-480-MCC-0040 Breaker, RFI 1223	DE
						FCO 442 - SEFE Grading Revisions	Other
						FCO 443 - Replace CIP Cart Filter PDI & PDSH	DE
						FCO 444 - Mod MF East Train C Basement Lighting	DE

## GWRS Initial Expansion Contract GWRS-2011-01 Change Order Report

CONTRACT AMOUNT	APPROVED CHANGE ORDER BUDGET	CHANGE ORDER NUMBER	DATE	CHANGE ORDER AMOUNT	TOTAL % CHANGE	REASON FOR CHANGE ORDER	TYPE CHANGE
						FCO 445 - Mod MF E Sump Pump Panel, RFI 1225	DE
						FCO 446 - Add SEFE PS Disch BFV Remote Control Panel	Other
						FCO 447 - Mod Lime Sat Catwalk Handrail, RFI 1219	UC
						FCO 448 - RO Feed Dual High Press Test	Other
						FCO 449 - Add Conduits FE to FIT, RFI 1240	DE
						FCO 450 - Mod MF Train C AIT-470, 475 Sign&Power	DE
						FCO 451 - Mod Sat Lime Feed Pulse Dampener	DE
						FCO 452 - 24-inch ROC Pipeline Mods, RFI 1077	Other
\$ 119,151,992				\$ 4,061,995	3.53		
<b>TYPE CHANGE - LEGEND</b>							

Design Error (DE)      Changes to completed work due to design error - Potential cost recovery from design engineer.

Unknown Condition (UC)      Additional work required to complete the design that

Owner Requested (OR)      Additional work requested by the owner - No cost recovery, work is outside scope of original contract.

Change-In-Condition (CIC)      Additional work required due to unexpected conditions - No



## AGENDA ITEM SUBMITTAL

**Meeting Date:** April 13, 2015

**To:** GWRS Steering Committee

**From:** Mike Markus/Jim Herberg

**Staff Contact:** W. Dunivin

**Budgeted:** N/A

**Budgeted Amount:** N/A

**Cost Estimate:** N/A

**Funding Source:** N/A

**Program/Line Item No.:** N/A

**General Counsel Approval:** N/A

**Project Report Approved:** N/A

**CEQA Compliance:** N/A

**Subject:** GWRS OPERATIONS UPDATE

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### SUMMARY

Operation of the Groundwater Replenishment System (GWRS) commenced on January 10, 2008. The GWRS operations update will be discussed at Committee.

### RECOMMENDATION

Informational

### DISCUSSION/ANALYSIS

Since startup in 2008 GWRS continues produce water that meets regulatory requirements. The quality of the secondary effluent received from the Orange County Sanitation District (OCSD) continues to meet all water quality requirements while operating in the nitrified/denitrified (NDN) mode. The GWRS, Microfiltration (MF) and Reverse Osmosis (RO) treatment processes have benefited in overall operational improvements as a result of OCSD's efforts to successfully maintain stable operation in the NDN mode.

OCWD and OCSD staffs continue to work together on the plan to bring more water into OCSD's Plant 1 for the pending commissioning and startup of the GWRS Initial Expansion Project. OCSD has been steadily making adjustments for increasing flow into Plant 1 during January through March of 2015 in an effort to stabilize the treatment process before commissioning the new MF and RO process.

The GWRS effluent production for the months of January through March 2015 is shown in the following tables:

	<b>January 2015 (million gallons)</b>	<b>January 2015 (acre feet)</b>
Mira Loma, Kraemer/Miller Basin Recharge and Canyon Power	1,065.59	3,271.35
Seawater Intrusion Barrier	923.49	2,835.11
<b>Total</b>	<b>1,989.08</b>	<b>6,106.46</b>

	<b>February 2015 (million gallons)</b>	<b>February 2015 (acre feet)</b>
Mira Loma, Kraemer/Miller Basin Recharge and Canyon Power	1,006.64	3,088.44
Seawater Intrusion Barrier	894.76	2,746.92
<b>Total</b>	<b>1,901.40</b>	<b>5,835.36</b>

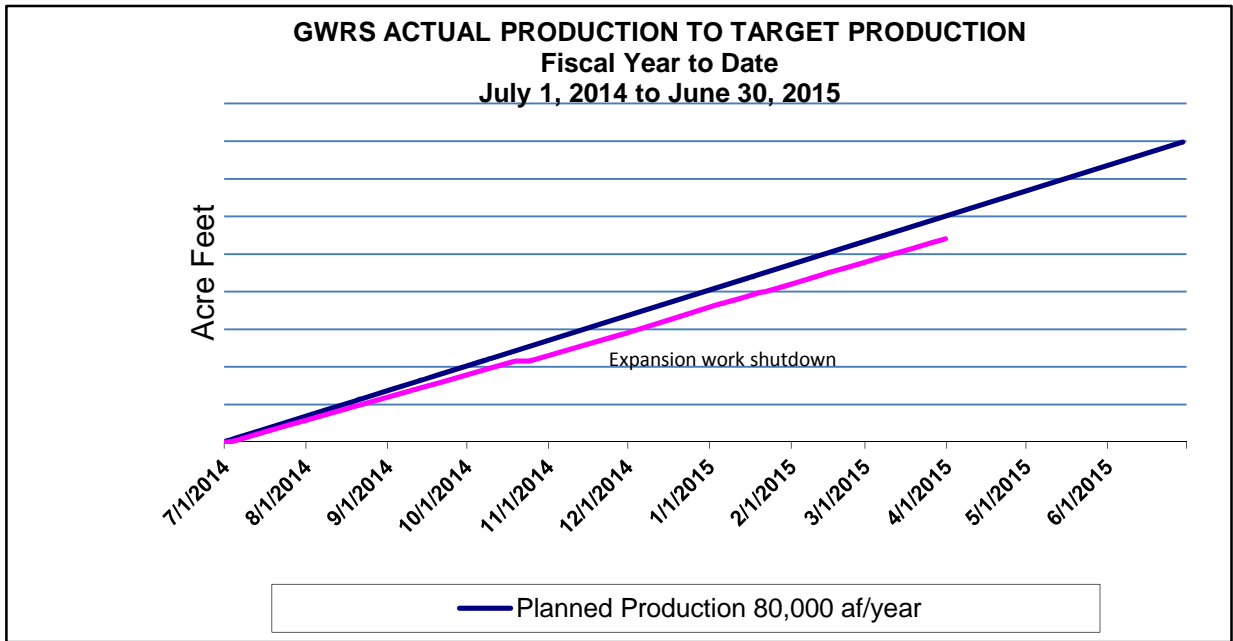
	<b>March 2015 (million gallons)</b>	<b>March 2015 (acre feet)</b>
Mira Loma, Kraemer/Miller Basin Recharge and Canyon Power	1,130.76	3,466.55
Seawater Intrusion Barrier	923.66	2,835.60
<b>Total</b>	<b>2,054.42</b>	<b>6,302.15</b>

The following graph shows the trend of fiscal year production to the fiscal year targeted production of 80,000 acre feet (af) for the 2014/2015 fiscal year. As of March 31, 2015 the GWRS production was 54,017 af which is -6,038 af below the target production of 60,055 af for this time period.

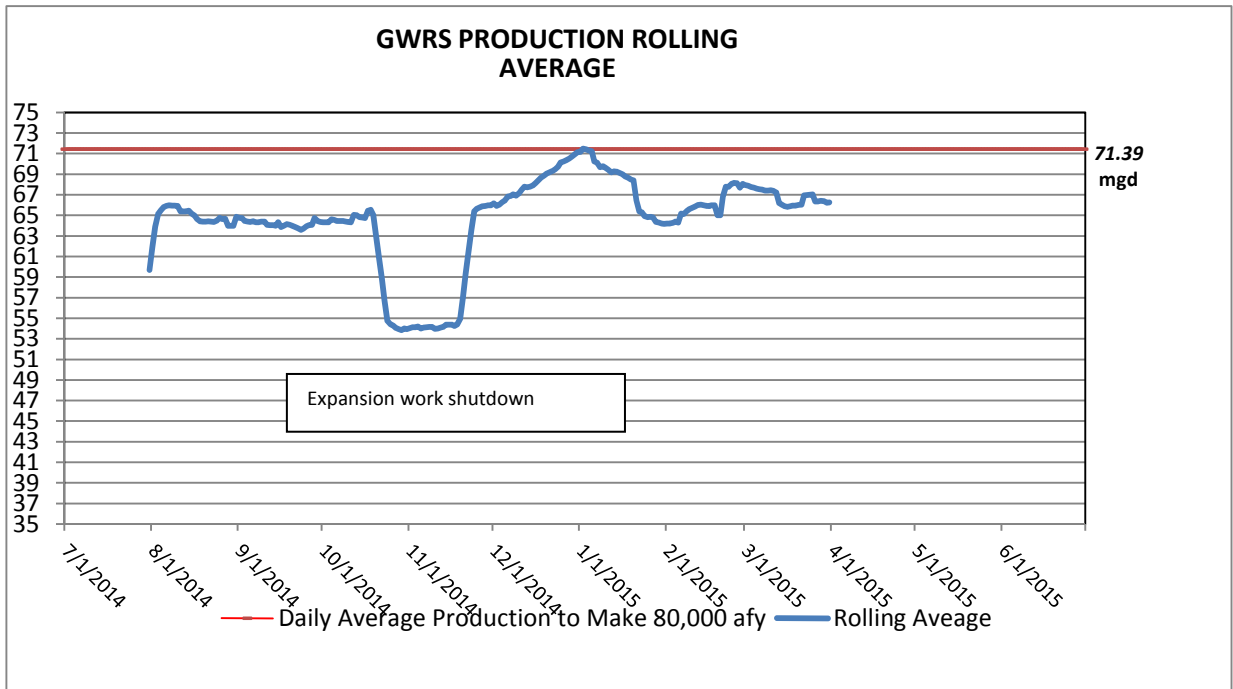
Back on December 3, 2014 staff began operating the standby RO train to add to production. The ability to use this train is possible because two of the new MF cells are operational and the added UV for the expansion is on line. Operating the standby or train has added approximately 3.5 million gallons per day (mgd) to the daily production. Overall production this fiscal year production has been impacted by GWRS initial expansion work, OCSD flow reduction to make repairs to head works and other process changes, with approximately 299 af of lost production being attributed to participation in the an energy demand response program. The energy demand response program pays approximately \$1,000,000/year for GWRS to reduce energy use during periods of peak electricity demand.

The 80,000 af production target is an estimate production pending startup of the GWRS initial expansion and available water from OCSD. OCWD staff is working closely with McCarthy, the GWRS Initial Expansion project contractor, with commissioning of new process equipment. It is expected that the MF system will be on line in early April with at least 3 RO trains. Staff is expecting to be able to make up for some of the lost production before the end of the 14/15 fiscal year (with the completion of the expansion) with a goal of achieving 80,000 af.

The table below shows the GWRS production trend compared to the planned production of 80,000 af:



The table below shows the rolling average production fiscal year to date:





## AGENDA ITEM SUBMITTAL

**Meeting Date:** April 13, 2015

**To:** GWRs Steering Committee

**From:** Mike Markus

**Staff Contact:** W. Dunivin

**Budgeted:** N/A

**Budgeted Amount:** N/A

**Cost Estimate:** N/A

**Funding Source:** N/A

**Program/Line Item No.:** N/A

**General Counsel Approval:** N/A

**Project Report Approved:** N/A

**CEQA Compliance:** N/A

**Subject:** **GWRs OPERATING BUDGET SUMMARY**

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### SUMMARY

The Joint Exercise of Powers Agreement between OCWD and OCSD governs the operation of the Groundwater Replenishment System (GWRs). This document requires OCWD to prepare and submit its annual operating budget for the GWRs to OCSD.

#### Attachment(s)

- Water Production Group Work Plan
- FY 2015-16 Department budget

### RECOMMENDATION

Informational

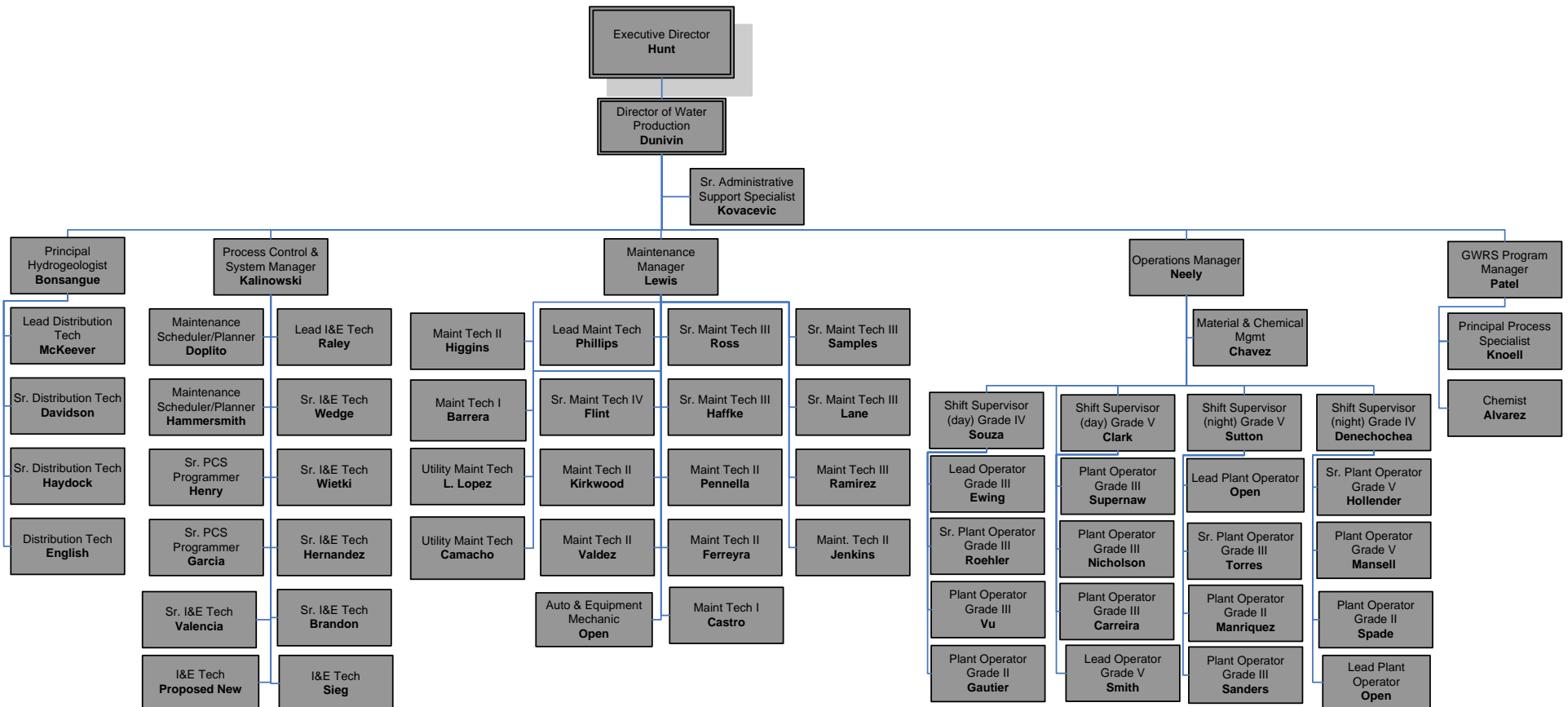
### DISCUSSION/ANALYSIS

The Amended Joint Exercise of Powers Agreement was established to provide details on the obligations of OCWD and OCSD for the operation of the GWRs. As part of this agreement is a requirement to report the OCWD annual budget for operations, maintenance, and capital expenditures for the GWRs to OCSD. A presentation will be given to show details of the GWRs operational budget. In addition, key cost centers and observations on the operational economics will be presented.

Attached to this submittal is a Water Production Group work plan (Attachment A) and a proposed Fiscal Year 15-16 line-item department budget for (Attachment B). This budget will be submitted to the OCWD Board of Directors for its consideration at the April Board meeting.



WATER PRODUCTION/GROUNDWATER REPLENISHMENT SYSTEM



### Existing Staff – 64 FTEs

- 1 – Executive Director of Operations
- 1 – Director of Water Production
- 1 – Senior Administrative Support Specialist
- 1 – Principal Process Specialist
- 4 – Supervisors (Operations Manager, GWRS Program Manager/Process Manager, Process Control & System Manager and Maintenance Manager)
- 20 – Operators
- 14 – Maintenance Technicians
  - 1 – Vehicle and Equipment Technician
  - 2 – Utility Maintenance Technicians
  - 2 – Maintenance Scheduler/Planners
  - 1 – Material and Chemical Management Technician
  - 8 – Instrumentation & Electrical Technicians
  - 2 – Process Control System Programmers
  - 1 – Chemist
  - 1 – Principal Hydrogeologist
  - 3 – Senior Distribution Technicians
  - 1 – Distribution Technician

### Mission

Operations and maintenance (O&M) of the GWRS Advanced Water Purification Facility (AWPF), Talbert Barrier and Green Acres (GAP)

### Key Issues for FY 2015-16

- ◆ Maximize operation of GWRS processes:
  - With the GWRS initial expansion complete work with the Orange County Sanitation District to make as much water as possible for GWRS production.
  - Goal for 2015-16 production 103,000 acre feet.
  - Send all non-barrier production to Miraloma and Kraemer/Miller basins.
  - Continue to control or reduce the water treatment unit cost by getting the best possible price on electricity, chemicals and spreading the system's fixed costs over the maximum possible production.
  - Optimize operation of new 15 million gallon flow equalization facilities to maximize GWRS production.
  
- ◆ Reduce GWRS processing costs:
  - Continue optimization of MF backwash and cleaning regimes.

- Optimization of RO cleaning regimes by optimizing clearing chemical concentrations and cleaning intervals.
  - Optimization of RO pretreatment chemical program, which includes the use of acid and antiscalant to reduce cost and prevent mineral scaling of membranes in the 3<sup>rd</sup> stage of RO units.
  - Optimize use of new RO energy recovery devices in six new RO units to reduce energy cost and/or balance flux performance.
  - With the current success of identifying an antiscalant that helps control mineral scaling, continue pilot research to make the final steps toward RO operations at pH 7. Progress to date has saved approximately \$1,800,000 annually. Adjustment from pH 6.9 to 7.0 would further reduce acid usage - potentially saving another \$300,000 annually. At the same time, continue to engage manufacturers to develop and evaluate antiscalant formulations toward this goal.
  - Work with purchasing to find and procure the best chemical pricing.
  - Energy use reduction, load shifting to less expensive nighttime hours where possible, and participation in demand response programs that offset the cost of electricity.
  - In the second year of 5 year energy contract that is helping maintain costs of energy.
  - Lifespan extension of both MF and RO membranes.
  - Continue efforts to maximize UV lamp life to 12,000 hours.
  - Continue to replace older RO membranes in phases and planned approach to maintain water quality with the purchase of 3 sets of 1,050 RO membrane elements.
- ◆ Manage GWRS assets by:
- Continued implementation of a robust preventative maintenance program using the Maximo computerized maintenance management system (CMMS).
  - Staff continues to update GWRS the work plans in the CMMS to reflect knowledge gain with 6 years of experience operating the treatment plant.
  - Staff adding all new equipment supplied for the GWRS expansion to the CMMS.
  - Continued development of staff capabilities to make both minor and major mechanical and electrical repairs on equipment and facilities. These internal capabilities assure fast response, quality repairs and lower cost.

- Begin replacement of original MF membranes in a limited number of cells based on manufacturing availability from Evoqua.
- The new Tekken lime system is being optimized for delivery of non-corrosive water into distribution system by effective lime post treatment with confirmatory testing.
- Protection of injection wells by delivery of low particle water.
- Effectively manage the warranty claims and contractor required repairs for the GWRS initial expansion equipment during the one year warranty period.

<b>Account Information</b>	<b>FY 2013-14 Actual</b>	<b>FY 2014-15 Budget</b>	<b>FY 2015-16 Proposed Budget</b>
Salaries and Benefits	7,903,803	7,326,254	8,812,826
Services and Supplies	15,612,398	17,489,200	19,966,434
<b>Total</b>	<b>\$23,516,201</b>	<b>\$24,815,454</b>	<b>\$28,779,260</b>

**I FY 2015-16 Major New Initiatives/Programs**

- ◆ Continue to monitor changes in the MF membrane backwash and cleaning intervals to increase process efficiency and production.
- ◆ Evaluate and test current and developmental Evoqua PVDF MF membranes using pilot units.
- ◆ Engage low-pressure membrane manufacturers to initiate evaluations of alternative products capable of successfully operating on AWPf source water and could be retrofitted into existing infrastructure.
- ◆ As the RO membranes age, investigate methods to effectively clean them extend their life to 5 years without reducing salt rejection effectiveness and to control energy use.
- ◆ Develop key performance factors that help identify and predict MR and RO membrane end of life conditions.

**II Core Activities**

- ◆ O&M of the 100 mgd GWRS AWPf.
- ◆ O&M of the 102 well Talbert Injection Barrier
- ◆ O&M of the GAP treatment plant.
- ◆ GWRS engineering and research aimed at maintaining and optimizing treatment plant performance, production and the Talbert Barrier.

- ◆ Administering the joint OCWD & OCSD GWRS Steering Committee meetings.
- ◆ Facilitate monthly OCWD and OCSD Joint Operation Committee meetings.

### **III Non-Core Activities**

- ◆ Participate in technology transfer on advanced treatment with other water districts, consultants, public agencies, and industry organizations.
- ◆ Provide in-kind support as specified by OCWD for participating Water Reuse Research Foundation and Water Research Foundation research projects.
- ◆ Provide technical support on various wellhead treatment systems throughout Santa Ana Watershed.
- ◆ Provide technical support as needed to the Water Quality, Engineering, Hydrogeology, Public Relations and Health & Regulatory Departments.
- ◆ Provide facility maintenance support for OCWD's Fountain Valley facilities.
- ◆ Provide support to set up meetings and events.
- ◆ Provide instrumentation and electrical support to OCWD's recharge and Prado operations.
- ◆ Provide data collection and monitoring support for the Research & Development Department.
- ◆ Provide technical updates and participate in meetings with the GWRS Independent Advisory Panel.
- ◆ Provide assistance with GWRS tours for the Publics Affairs Department as necessary.
- ◆ Provide any required GWRS technical and operational information for outside data requests.

### **IV Group Goals for FY 2015-16**

#### GWRS –

1. Produce up to 103,000 acre- feet of water for recharge and injection.
2. Continue efforts to control net production cost to less than \$500 per acre foot.
3. Continued development of the CMMS for the GWRS and update maintenance requirements for existing and new equipment associated with the GWRS Initial Expansion.
4. Continued development of databases to help staff monitor the individual process performance of the MF, RO and UV treatment systems.

GWRS Engineering/Research Center –

1. Provide bench and pilot scale evaluations of major process changes before implementation in the full scale GWRS.
2. Evaluation of the MF and RO operating strategies, cleaning protocols, and chemical usages to increase production, reduce operating cost, and extend asset life.
3. Test new MF/UF membranes or systems available in the current market as possible for possible use in existing GWRS or GWRS Final Expansion.
4. Evaluate commercially available RO technology and membranes in anticipation of future large-scale replacements.
5. Evaluate the impact of feedwater quality on MF and RO membrane performance and Talbert Barrier wells through the operation of various remote membrane/filter monitoring systems and additional water analysis.
6. Provide support as needed to the OCWD lab, R&D, and other District departments.
7. Support the science, technology and practice of water reuse through providing researchers site access to conduct studies funded by the WaterReuse Research Foundation and others.
8. Participate in technology transfer initiatives, including serving as project advisors and presenting information at conferences and symposiums.
9. Continue collaborations through the Dow Application Center – established to streamline development and evaluation of the very latest membrane chemistries and technologies. Solicit collaborations with other leading membrane manufacturers such as CSM and Hydranautics toward the same objectives.
10. Develop statistical parameters for process control for critical control points in keeping with recommendations from the GWRS Independent Advisory Panel.
11. Work with engineering to bring the Mid Basin demonstration project on line.

OCSD –

1. Continue with joint operations meetings with OCSD plant operations and source control and OCWD staff to ensure both agencies are knowledgeable of issues with each other's operations.
2. Coordinated day to day operation and optimization of the new 15 million gallon volume flow equalization storage tanks.

CDPH and the RWQCB –

1. Prepare an Annual Report on the GWRS operation with District staff and outside consultant.

2. Assist the District's Health and Regulatory department in amending the current permits to include the Initial Expansion of the GWRS.

Talbert Barrier –

1. In conjunction with the barrier staff continue evaluating the corrosivity and injection well fouling propensity of the GWRS finished product water.

**V Pending Activities**

Continue to develop staff to effectively operate and maintain the GWRS Initial Expansion Facilities.

**VI Staff Addition Needed for FY 2015-16**

Add one new I&E technician to provide support for GWRS and Forebay operations to maintain electrical equipment and support control systems.

**VII Future Issues**

In the next two years, issues the District will need to consider include:

1. Optimization of the GWRS AWPf treatment process to lower operational costs, including operation of new flow equalization facilities.
2. Continue to optimize MF and RO membrane replacement strategies.
3. Process optimization and adjustment of preventative maintenance requirements as necessary.
4. Continue forward-looking review of water treatment technologies and opportunities to optimize current GWRS membrane and advanced oxidation treatment processes.
5. Continue to monitor energy issues to ensure the lowest possible power expenditures for the GWRS.
6. Support the planning, construction, start-up, operation, maintenance and optimization of the District's first mid-basin injection well.

GENERAL FUND OPERATING BUDGET FY 15-16  
WATER PRODUCTION (1050)

JDE Account Number	Description	General	GWR System O&M	Process Optimization	Talbert Barrier O&M	FV Facility O&M	GAP O&M	Lab Maintenance	Alamitos Barrier O&M	Forebay O&M	MWDOC	Total
	ACTIVITY CODE	9900	9922	9952	9908	9901	9911	9974	9932	9920	9970	
	<b>SALARIES &amp; BENEFITS</b>											
1050.50104	REGULAR SALARIES	710,266	3,173,717	377,473	546,352	451,442	647,662	129,767		39,844	77,475	6,153,998
1050.50106	OVERTIME SALARIES	21,822	194,751	13,156	14,613	14,766	39,091	4,620		602	3,427	306,848
1050.50210	PAYROLL TAXES	10,676	49,931	5,725	8,134	6,760	9,958	1,949		586	1,173	94,892
1050.50202	RETIREMENT	121,730	557,928	64,877	93,401	77,624	114,344	22,375		6,734	13,470	1,072,483
1050.50204	HEALTH INSURANCE	106,204	526,680	55,754	89,234	79,342	110,914	23,904		6,384	13,288	1,011,704
1050.50206	WORKERS' COMPENSATION	15,204	93,782	7,332	15,819	13,559	20,182	3,635		955	2,433	172,901
	<b>SALARIES &amp; BENEFITS TOTAL</b>	<b>985,902</b>	<b>4,596,789</b>	<b>524,317</b>	<b>767,553</b>	<b>643,493</b>	<b>942,151</b>	<b>186,250</b>	<b>-</b>	<b>55,105</b>	<b>111,266</b>	<b>8,812,826</b>
	<b>TRAVEL/CONFERENCE/MILEAGE</b>											
1050.51301	PATEL JULY 2015 AMTA WORKSHOP AND BOARD MEETING, TORONTO, CANADA (JUST ATTENDING AMTA BOARD MEETING AT EVENT, TRIP COSTS PARTIALLY REIMBURSED BY AMTA)		300									300
	PATEL SEPT 2015 WATEREUSE ANNUAL CONFERENCE, SEATTLE, WA		1,500									1,500
	PATEL SEPT 2014 SWMOA 1 DAY WORKSHOP, TBD, CA		300									300
	PATEL FEB 2016 AWWA/AMTA JOINT MEMBRANE TECHNOLOGY CONF, SAN ANTONIO, TX (CONF ORGANIZER, ABSTRACT WILL BE SUBMITTED, AMTA BOARD MEETING)		2,000									2,000
	PATEL OCT 2015 AMTA WORKSHOP, KNOXVILLE, TN (JUST ATTENDING AMTA BOARD MEETING AT EVENT, TRIP COSTS PARTIALLY REIMBURSED BY AMTA)		300									300
	PATEL MAY 2016, SWMOA ANNUAL SYMPOSIUM, SCOTTSDALE, AZ		800									800
	PATEL SEPT 2015 IDA WORLD CONGRESS, SAN DIEGO, CA (ABSTRACT SUBMITTED, PARTICIPATE AS A MODERATOR)		800									800
	KNOELL 2016 CA WATEREUSE ANNUAL OR WATEREUSE DESALINATION RESEARCH CONFERENCE (SANTA ROSA, CA. PAPER)			800								800
	KNOELL 2016 SWMOA ANNUAL SYMPOSIUM (PHOENIX, AZ. BOARD MEETING AT EVENT, PAPER)			800								800
	KNOELL AUGUST 2015 IDA WORLD CONGRESS(SAN DIEGO, CA. PAPER ACCEPTED)			900								900
	DUNIVIN WATER REUSE CONFERENCE TBD		1,500									1,500
	CWEA ANNUAL CONFERENCE		1,250									1,250
	KALINOWSKI EMERSON USER CONFERENCE		2,500									2,500
	PCS PROGRAMMER EMERSON USER CONFERENCE		2,500									2,500
	MAINTENANCE CWEA LOCAL SECTION TRISTATE CONFERENCE (3)		2,500									2,500
	<b>TRAVEL/CONFERENCE/MILEAGE TOTAL</b>	<b>-</b>	<b>16,250</b>	<b>2,500</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>18,750</b>
	<b>PROFESSIONAL SERVICES-GENERAL</b>											
1050.53	CONSULTING SERVICES GWRS		75,000									75,000
	<b>PROFESSIONAL SERVICES-GENERAL TOTAL</b>	<b>-</b>	<b>75,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>75,000</b>
	<b>OFFICE EXPENSE - GENERAL</b>											
1050.51501	BLUE PRINT AND COPIES		2,000									2,000
	FILING CABINETS, CHAIRS		3,500									3,500
	OFFICE SUPPLIES		12,000	400								12,400
	<b>OFFICE EXPENSE - GENERAL TOTAL</b>	<b>-</b>	<b>17,500</b>	<b>400</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>17,900</b>
	<b>HARDWARE/SOFTWARE</b>											
1050.51510	PCS SYSTEM SOFTWARE SUPPORT (EMERSON GUARDIAN)		50,500									50,500
	PCS SYSTEM HARDWARE		7,000									7,000
	LAB BUILDING BMS SYSTEM HARDWARE/SOFTWARE UPGRADE							5,700				5,700
	ADOBE PROFESSIONAL				500							500
	<b>HARDWARE/SOFTWARE TOTAL</b>	<b>-</b>	<b>57,500</b>	<b>-</b>	<b>500</b>	<b>-</b>	<b>-</b>	<b>5,700</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>63,700</b>













GENERAL FUND OPERATING BUDGET FY 15-16  
WATER PRODUCTION (1050)

JDE Account Number	Description	General	GWR System O&M	Process Optimization	Talbert Barrier O&M	FV Facility O&M	GAP O&M	Lab Maintenance	Alamitos Barrier O&M	Forebay O&M	MWDOC	Total
	ACTIVITY CODE	9900	9922	9952	9908	9901	9911	9974	9932	9920	9970	
1050.54020	CHEMICALS - GWRS REVERSE OSMOSIS SULFURIC ACID (NO TAX)											
	SULFURIC ACID OPERATING WITH SEASONAL ADJUSTMENTS BETWEEN PH (2,100 TONS) 6.9 TO 7.0 PH		320,000	1,500								321,500
	<b>CHEMICALS - GWRS REVERSE OSMOSIS SULFURIC ACID (NO TAX) TOTAL</b>	-	<b>320,000</b>	<b>1,500</b>	-	-	-	-	-	-	-	<b>321,500</b>
1050.54025	CHEMICALS - GWRS REVERSE OSMOSIS ANTISCALANT (NO TAX)											
	RO ANTISCALANT (555 TONS)		1,720,000									1,720,000
	<b>CHEMICALS - GWRS REVERSE OSMOSIS ANTISCALANT (NO TAX) TOTAL</b>	-	<b>1,720,000</b>	-	-	-	-	-	-	-	-	<b>1,720,000</b>
1050.54030	CHEMICALS - GWRS MF CLEANING CHEMICALS (TAX)											
	MF MEMBRANE CLEANING CHEMICALS CAUSTIC (565 TONS)		300,000									300,000
	MF MEMBRANE CLEANING CHEMICALS CITRIC (515 TONS)		413,000									413,000
	MF PROPRIETARY CLEANING CHEMICAL STUDY			1,000								1,000
	MF MEMCLEAN (30 TONS)		36,000									36,000
	<b>CHEMICALS - GWRS MF CLEANING CHEMICALS (TAX) TOTAL</b>	-	<b>749,000</b>	<b>1,000</b>	-	-	-	-	-	-	-	<b>750,000</b>
1050.54033	CHEMICALS - GWRS RO CLEANING CHEMICALS (TAX)											
	RO MEMBRANE GENERIC CLEANING CHEMICALS CLEANINGS (51 TONS)		170,000	1,500								171,500
	RO MEMBRANE CITRIC (20 TONS)		20,000									20,000
	RO MEMBRANE DDBS CLEANINGS (12.5 TONS)		70,000									70,000
	RO CLEANING CHEMICAL STUDY			500								500
	RO MEMBRANE PROPRIETARY CLEANING CHEMICALS 3 STAGE CLEANINGS		20,000	500								20,500
	<b>CHEMICALS - GWRS RO CLEANING CHEMICALS (TAX) TOTAL</b>	-	<b>280,000</b>	<b>2,500</b>	-	-	-	-	-	-	-	<b>282,500</b>
1050.54040	CHEMICAL GAP ALUM											
	PRETREATMENT COAGULANT (25 TONS)						12,000					12,000
	<b>CHEMICALS GAP ALUM TOTAL</b>	-	-	-	-	-	<b>12,000</b>	-	-	-	-	<b>12,000</b>
1050.51555	LAB SUPPLIES											
	CALIBRATION STANDARDS FOR BARRIER FIELD EQUIPMENT		20,000		600							20,600
	CHEMICALS AND SUPPLIES		2,500									2,500
	LABORATORY DI WATER SYSTEM		1,400									1,400
	PEROXIDE AND CHLORINE TEST STRIPS		2,500									2,500
	2 NEW HANDHELD EC PH METERS		2,500									2,500
	<b>LAB SUPPLIES TOTAL</b>	-	<b>28,900</b>	-	<b>600</b>	-	-	-	-	-	-	<b>29,500</b>
1050.51560	LAB SAMPLES ANALYSIS											
	GENERAL LAB ANALYSIS BY OUTSIDE LAB		4,000	3,000	2,200							9,200
	<b>LAB SAMPLES ANALYSIS TOTAL</b>	-	<b>4,000</b>	<b>3,000</b>	<b>2,200</b>	-	-	-	-	-	-	<b>9,200</b>
1050.51565	RENT EQUIPMENT- GENERAL											
	RENTAL OF EQUIPMENT FOR PM PROJECTS		3,000									3,000
	<b>RENT EQUIPMENT - GENERAL TOTAL</b>	-	<b>3,000</b>	-	-	-	-	-	-	-	-	<b>3,000</b>
1050.54501	UTILITIES - ELECTRICITY (OFFSITE & MISC ELECTRICAL METERS)											
	GAP CATHODIC PROTECTION						12,000					12,000
	GAP DEEP WELL WATER ELECTRICITY						35,000					35,000
	GAP INFLUENT PUMPING ELECTRICITY						30,000					30,000
	GAP SANTA ANA RESERVOIR PUMP STATION POWER (CNE/SCE)						146,000					146,000
	INJECTION WELLS						34,000					34,000
	<b>UTILITIES - ELECTRICITY (OFFSITE &amp; MISC ELECTRICAL METERS) TOTAL</b>	-	-	-	-	-	<b>257,000</b>	-	-	-	-	<b>257,000</b>

GENERAL FUND OPERATING BUDGET FY 15-16  
WATER PRODUCTION (1050)

JDE Account Number	Description	General	GWR System O&M	Process Optimization	Talbert Barrier O&M	FV Facility O&M	GAP O&M	Lab Maintenance	Alamitos Barrier O&M	Forebay O&M	MWDOC	Total
	ACTIVITY CODE	9900	9922	9952	9908	9901	9911	9974	9932	9920	9970	
1050.54505	UTILITIES - ELECTRICITY (66KV FV SITE SCE) 70,000 AF											
	ADMIN BLDG ELECTRICITY					49,000						49,000
	MWDOC BLDG ELECTRICITY					35,000						35,000
	GAP ELECTRICITY					325,000						325,000
	WAREHOUSE, ANNEX & MAINTENANCE SHOPS		120,000									120,000
	LABORATORY							205,000				205,000
	SCREENINGS		12,400									12,400
	MICROFILTRATION		2,825,585									2,825,585
	REVERSE OSMOSIS		5,320,337									5,320,337
	UV SYSTEM ELECTRICITY		868,841									868,841
	DECARB		96,000									96,000
	CHEMICAL FEED/LIME SYSTEM		17,000									17,000
	PRODUCT WATER PUMP STATION		1,425,000									1,425,000
	BARRIER PUMP STATION		800,000									800,000
	<b>UTILITIES - ELECTRICITY (66KV FV SITE SCE) 70,000 AF TOTAL</b>	-	<b>11,485,163</b>	-	-	<b>409,000</b>	-	<b>205,000</b>	-	-	-	<b>12,099,163</b>
1050.54505.2	UTILITIES ELECTRICAL CURTAILMENT POWER CREDITS											
	ESTIMATED PAYMENTS NAPP \$1,000,000		(1,000,000)									(1,000,000)
	<b>UTILITIES ELECTRICAL CURTAILMENT POWER CREDITS TOTAL</b>	-	<b>(1,000,000)</b>	-	-	-	-	-	-	-	-	<b>(1,000,000)</b>
1050.54510	UTILITIES - GAS											
	NATURAL GAS FOR HVAC OFFICES & ANNEX BUILDING					6,000						6,000
	NATURAL GAS FOR LABORATORY							39,000				39,000
	<b>UTILITIES - GAS TOTAL</b>	-	-	-	-	<b>6,000</b>	-	<b>39,000</b>	-	-	-	<b>45,000</b>
1050.54515	UTILITIES - WATER											
	POTABLE WATER AND INDUSTRIAL WATER		48,000									48,000
	<b>UTILITIES - WATER TOTAL</b>	-	<b>48,000</b>	-	-	-	-	-	-	-	-	<b>48,000</b>
1050.511	MEMBERSHIPS/CERTIFICATION FEES											
	MEHUL - WEF, AWWA, ASCE MEMBERSHIP FEES		800	200								1,000
	OPERATOR & MAINTENANCE CERTIFICATION FEES		7,000									7,000
	<b>MEMBERSHIPS/ CERTIFICATION FEES TOTAL</b>	-	<b>7,800</b>	<b>200</b>	-	-	-	-	-	-	-	<b>8,000</b>
1050.51192	TECHNICAL TRAINING											
	DELTA V PROCESS CONTROL TRAINING		3,500									3,500
	I&E MEDIUM VOLTAGE SAFETY TRAINING CLASSES		3,500									3,500
	MICROSOFT OFFICE TRAINING		1,500									1,500
	MANAGEMENT TRAINING		1,200									1,200
	MAINTENANCE TRAINING		1,500									1,500
	WPG TRAINING LIBRARY			400								400
	OPERATOR CERTIFICATION CLASSES		3,000									3,000
	ON SITE O&M TECHNICAL TRAINING		1,500									1,500
	CRANE TRAINING		3,500									3,500
	ULTRASONIC MONITOR TRAINING & CERTIFICATION		1,500									1,500
	WATER DISTRIBUTION TRAINING BARRIER STAFF				500							500
	<b>TECHNICAL TRAINING TOTAL</b>	-	<b>20,700</b>	<b>400</b>	<b>500</b>	-	-	-	-	-	-	<b>21,600</b>
1050.51112	SPECIAL DEPARTMENT EXPENSE											
	CONSULTING SERVICE PERMITS		2,000									2,000
	SCAQMD AND CITY PERMIT FEES		14,000									14,000
	UNITED PARCEL SERVICE		1,000									1,000
	ORANGE COUNTY PUBLIC FACILITIES PERMIT				421							421
	<b>SPECIAL DEPARTMENT EXPENSE TOTAL</b>	-	<b>17,000</b>	-	<b>421</b>	-	-	-	-	-	-	<b>17,421</b>
1050.56026	LADPW CURRENT EXPENSE											
	LADPW BARRIER											
	<b>LADPW CURRENT EXPENSE TOTAL</b>	-	-	-	-	-	-	-	-	-	-	-
	<b>WATER PRODUCTION GRAND TOTAL</b>	<b>1,021,902</b>	<b>21,648,002</b>	<b>598,467</b>	<b>1,152,124</b>	<b>1,332,543</b>	<b>1,521,901</b>	<b>487,950</b>	-	<b>55,105</b>	<b>111,266</b>	<b>27,929,260</b>





## AGENDA ITEM SUBMITTAL

**Meeting Date:** April 13, 2015

**To:** GWRS Steering Committee

**From:** Mike Markus/Jim Herberg

**Staff Contact:** M. Patel

**Budgeted:** N/A

**Budgeted Amount:** N/A

**Cost Estimate:** N/A

**Funding Source:** N/A

**Program/Line Item No.:** N/A

**General Counsel Approval:** N/A

**Project Report Approved:** N/A

**CEQA Compliance:** N/A

**Subject:** UPDATE ON THE OCSD FLOW AVAILABILITY

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### SUMMARY

Orange County Sanitation District (OCSD) is in the process of maximizing flows to Plant No. 1. An update on the flow availability for the GWRS Initial Expansion will be presented by OCSD staff.

### RECOMMENDATION

Informational.

### DISCUSSION/ANALYSIS

OCSD has seen a decrease in the available sewer flows to their Plant No. 1 facility that feeds GWRS. This decrease is a result of the ongoing drought and increased conservation. In response to the historic low flow observed, OCSD staff has begun to make diversions of sewer collection flows to maximize Plant No. 1 production. This includes operation of the Steve Anderson Lift Station continuously. The GWRS Initial Expansion requires 133 million gallons per day (mgd) of secondary effluent to produce its 100 mgd design capacity. The GWRS Initial Expansion is expected to be complete at the end of June 2015. An update on the projected flow availability to the GWRS Initial Expansion will be presented by OCSD staff.

### PRIOR BOARD/COMMITTEE ACTIONS

9/07/11, R11-9-128 Contract GWRS-2011-1, GWRS Initial Expansion Award Contract to McCarthy Builder Inc.



## AGENDA ITEM SUBMITTAL

**Meeting Date:** April 13, 2015

**To:** GWRS Steering Committee

**From:** Mike Markus

**Staff Contact:** E. Torres/G. Ayala

**Budgeted:** N/A

**Budgeted Amount:** N/A

**Cost Estimate:** N/A

**Funding Source:** N/A

**Program/Line Item No.:** N/A

**General Counsel Approval:** N/A

**Engineers/Feasibility Report:** N/A

**CEQA Compliance:** N/A

**Subject:** QUARTERLY OUTREACH REPORT [JANUARY–MARCH 2015]

### SUMMARY

Outreach for OCWD projects and the GWRS continues with a major focus to build and maintain support, as well as field media interest and media coverage. The following is a report of activities from January through March 2015.

### RECOMMENDATION

Informational

### DISCUSSION/ANALYSIS

#### Tour Update

From January through March 2015, OCWD conducted 40 tours for nearly 843 guests. Below is a monthly breakdown that shows the number of tours and guests:

Month	# of Tours	# of Guests
January	14	279
February	15	236
March	11	328

Following is a list of groups that toured the GWRS during this period:

- Two groups of students from Dana Hills High School
- Community members who composed three public tour groups
- Students from Chavez High School in association with Orange County Coastkeeper
- Representatives from the State Water Resources Control Board (DDW Operator Certification)
- Members of Shepherd's Grove Men's Group Ministry
- Students from Cal Poly Pomona
- Representatives from the San Francisco Public Utilities Commission and Brown & Caldwell
- Representatives from Aquaback Technologies, Inc.

- General Electric Water & Power representatives
- Members of the City of Oceanside's Utilities Commission and the Water Utilities Director
- Students from Orange High School in association with Orange County Coastkeeper
- Executive staff from Oakland Energy & Water Ventures
- Students from the Port of Los Angeles High School
- Students from the University of Southern California's sustainability class
- Students from San Bernardino Valley College
- Students from Godinez High School
- Representatives from the Association of California Cities, Orange County
- Directors Green, Anthony and Reyna along with Jason Dadakis and Mike Markus gave a briefing and tour to Environmental Protection Agency (EPA) Director of the Office of Ground Water and Drinking Water Peter Grevatt. Before coming to Fountain Valley for the GWRS tour, Peter was given a tour of the Prado Wetlands and Forebay.
- Students from West Coast University
- Representatives from Padre Dam Municipal Water District
- Students from Edison High School
- Students from Shibaura Institute in Japan, in association with UCI
- Two groups of nursing students from California State University, Fullerton (CSUF)
- Students from Huntington Beach High School
- Health science students from CSUF
- Students from CSUF's extended education program
- Nursing students from West Coast University
- Students from El Modena High School
- Nursing students from CSUF
- Students from a sustainability class at California State University, Long Beach.
- John Kennedy provided a briefing and tour to the Chief Administrative Officer of San Jose Water.
- UCI American Academy of Environmental Engineers
- Engineers from La Paz, Mexico, in Association with SAWPA

#### **Upcoming Tours:**

- CSUF, April 16 & 22
- Pomona College, April 21
- Vanguard University, April 24
- Public Tour, May 1
- CSUF, May 6 & 7
- California State University, Long Beach, May 12
- Godinez High School, June 2

#### **Speakers Bureau:**

(Note: The GWRS is mentioned in all OCWD speakers bureau presentations.)

- Director Phil Anthony presented to members of the Cypress Rotary about OCWD, its projects and its groundwater cleanup efforts.
- Director Harry Sidhu and Principal Hydrogeologist Dave Mark gave a presentation to members of the Anaheim Rotary about OCWD and its groundwater cleanup projects.
- Director Denis Bilodeau participated in a water bond panel discussion hosted by the American Council of Engineering Companies, Orange County Chapter.
- Director Vincent Sarmiento, General Manager Mike Markus and Principal Hydrogeologist David Bolin presented to the Delhi Neighborhood Association in Santa Ana about OCWD and its groundwater cleanup projects.
- Executive Director of Planning & Natural Resources Greg Woodside provided a presentation about the District and its projects to the Orange County Association of Environmental Professionals.
- GWRS Program Manager Mehul Patel gave a presentation about the Groundwater Replenishment System at a municipal water technology workshop hosted by the Government Accountability Office.
- Director of Public Affairs Eleanor Torres provided a presentation to Mesa Water District's Water Issues Study Group.
- Executive Director of Local Resources & Engineering John Kennedy gave a presentation at the Annual Conference of AGWA-AGWT about managing the basin and developing new local water supplies.
- GWRS Program Manager Mehul Patel provided an Annual Water Treatment Seminar at AWWA's conference in Arizona.
- President Cathy Green provided a presentation to the Huntington Beach Coordinating Council about Orange County's groundwater supplies and challenges.
- President Cathy Green provided a presentation at the Industrial Environmental Coalition of Orange County's water conference luncheon about the drought and water supply.
- Mike Markus gave a presentation to the YLWD Board of Directors regarding the groundwater contamination projects.

#### **Upcoming Speakers Bureau:**

- Nellie Gayle Gardeners, April 14
- Anaheim Caravan, April 17
- St. Paul's Lutheran School, April 22
- ASCE Conference, May 21
- Kiwanis Club of La Palma, May 21

#### **Media:**

- A video about the GWRS, produced by BuzzFeed, is trending on YouTube and there are more than 1.5 million views: [https://www.youtube.com/watch?v=p-f\\_F3tE9rA](https://www.youtube.com/watch?v=p-f_F3tE9rA). BuzzFeed.com interviewed GWRS Program Manager Mehul Patel and later filmed a blind taste test of its employees sampling three types of water: tap water, Fiji water and GWRS water.
- A production crew from Brazil's TV Globo interviewed Mike Markus in February and captured footage of the Groundwater Replenishment System and recharge basins in

Anaheim. The footage will be used for a future global segment about solutions to combat drought.

- President Cathy Green was interviewed by a reporter from CBS2 about the GWRS Initial Expansion on February 24. The segment aired that day during the CBS2 news at 6 p.m. and the KCAL9 news at 8:30 p.m.
- On February 25, Cinco Dias, a Spanish business and finance newspaper, published an article about water purification technology and referenced water reuse projects throughout the world. The article contains a few paragraphs about the GWRS and Mehul Patel is quoted. Here is a link to the full story: [http://cincodias.com/cincodias/2015/02/25/empresas/1424890925\\_662451.html](http://cincodias.com/cincodias/2015/02/25/empresas/1424890925_662451.html).
- On February 26, Mehul Patel was interviewed by a reporter from Saigon TV about the GWRS: <https://youtu.be/3zkk5x-H1oY>.
- Bill Dunivin was interviewed about the GWRS by a writer from Treatment Plant Operator. A resulting article was published titled, "A California Water District Succeeds with Indirect Reuse of Recycled Wastewater": [http://www.tpomag.com/editorial/2015/03/a\\_california\\_succeeds\\_with\\_indirect\\_reuse\\_of\\_recycled\\_wastewater](http://www.tpomag.com/editorial/2015/03/a_california_succeeds_with_indirect_reuse_of_recycled_wastewater).
- The Groundwater Replenishment System was referenced in this article: <http://www.utsandiego.com/news/2015/mar/11/padre-dam-water-purification-plant-ready-to-open/>.
- The GWRS Initial Expansion was mentioned in this article: <http://www.virtual-strategy.com/2015/03/11/el-ni%C3%B1o-weak-drought-deepens-orange-county-calif-water-recycling-advances-increasingly-im#axzz3UCgz4baW>.
- OCWD and the GWRS were mentioned in an online article published by Sustainable Cities Collective titled, "Managing Water During Dry Times in Inland Empire, California:" <http://bit.ly/1CCMHM3>
- Perkin Elmer published a case story and an article about the GWRS: <http://bit.ly/19E0jtY>; <http://bit.ly/198bwlf>.

**Other:**

- On January 20, a press release was distributed about the SCE grant award the District received for the GWRS Initial Expansion: <http://bit.ly/1CKrZ8q>.