

**AGENDA
IRVINE RANCH WATER DISTRICT
BOARD OF DIRECTORS
REGULAR MEETING**

March 13, 2017

PLEDGE OF ALLEGIANCE

CALL TO ORDER

5:00 p.m., Board Room, District Office
15600 Sand Canyon Avenue, Irvine, California

ROLL CALL

Directors LaMar, Matheis, Swan, Withers and President Reinhart

NOTICE

If you wish to address the Board on any item, including Consent Calendar items, please file your name with the Secretary. Forms are provided on the lobby table. Remarks are limited to three minutes per speaker on each subject. Consent Calendar items will be acted upon by one motion, without discussion, unless a request is made for specific items to be removed from the Calendar for separate action.

COMMUNICATIONS TO THE BOARD

1. A. Written:

B. Oral:

2. ITEMS RECEIVED TOO LATE TO BE AGENDIZED

Recommendation: Determine the need to discuss and/or take immediate action on item(s).

PRESENTATIONS

3. NATURAL COMMUNITIES COALITION

Mr. Jim Sulentic will express his appreciation for the use of IRWD office space on behalf of Natural Communities Coalition.

4. OPERATIONS DATABASE MANAGEMENT SYSTEM IMPLEMENTATION

Staff will provide a presentation on the successful implementation of the operations database and highlight its benefits to the District.

CONSENT CALENDAR

Resolution No. 2017-7

Items 5-9

5. RATIFY/APPROVE BOARD OF DIRECTORS' ATTENDANCE AT MEETINGS AND EVENTS

Recommendation: That the Board ratify/approve the meetings and events for Steven LaMar, Douglas Reinhart, Mary Aileen Matheis and John Withers as described.

6. MINUTES OF REGULAR BOARD MEETING

Recommendation: That the minutes of the February 13, 2017 Regular Board Meeting be approved as presented.

7. APPROVAL TO PURCHASE REPLACEMENT GAS CHROMATOGRAPH/MASS SPECTROMETER

Recommendation: That the Board authorize the purchase of a replacement Gas Chromatograph Mass Spectrometer from Agilent Technologies in the amount of \$129,996.

8. SAN JOAQUIN MARSH CAMPUS SEWER LIFT STATION REHABILITATION FINAL ACCEPTANCE

Recommendation: That the Board accept construction of the San Joaquin Marsh Campus Sewer Lift Station Rehabilitation, project 05186; authorize the General Manager to file a Notice of Completion; and authorize the payment of the retention 35 days after the date of recording the Notice of Completion.

9. IRWD REAPPOINTMENT OF COMMISSIONER AND APPOINTMENT OF ALTERNATE COMMISSIONER TO THE BOARD OF THE SANTIAGO AQUEDUCT COMMISSION

Recommendation: That the Board adopt a resolution rescinding Resolution No. 2011-6 and reappointing James Reed as Commissioner and appointing Mary Aileen Matheis as Alternate Commissioner to the Board of the Santiago Aqueduct Commission.

Reso. No. 2017-

ACTION CALENDAR

10. MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES VARIANCES AND CHANGE ORDERS

Recommendation: That the Board authorize the General Manager to execute Variance No. 3 with Ninyo & Moore in the amount of \$24,955 for supplemental welding inspection, masonry grout sampling/testing, concrete sampling/testing, and in-place density testing during paving operations; authorize the General Manager to execute Variance No. 6 with Black & Veatch in the amount of \$215,500 for preparation of standard operating procedures; approve Contract Change Order (CCO) No. 48 in the amount of \$728,237.74 with Filanc/Balfour-Beatty (FBB) for the biosolids project; and approve CCO No. 49 in the credit amount of <\$47,099.20> with FBB for the Michelson Water Recycling Plant Biosolids and Energy Recovery, project no. 4286.

11. LONG-TERM EXCHANGE PROGRAM AGREEMENT WITH DUDLEY RIDGE WATER DISTRICT

Recommendation: That the Board authorize the General Manager to execute the 2017 Agreement Between Dudley Ridge Water District and Irvine Ranch Water District for Long-Term Exchange Program subject to any substantive changes being approved by IRWD's Supply Reliability Programs Committee.

OTHER BUSINESS

Pursuant to Government Code Section 54954.2, members of the Board of Directors or staff may ask questions for clarification, make brief announcements, make brief reports on his/her own activities. The Board or a Board member may provide a reference to staff or other resources for factual information, request staff to report back at a subsequent meeting concerning any matter, or direct staff to place a matter of business on a future agenda. Such matters may be brought up under the General Manager's Report or Directors' Comments.

- 12. A. General Manager's Report
- B. Directors' Comments
- C. CLOSED SESSION - Conference with Legal Counsel - Anticipated Litigation (Government Code Section 54956.9 (d)(2) - significant exposure to litigation (one potential case).
- D. Open Session
- E. Adjourn

Availability of agenda materials: Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the Irvine Ranch Water District Board of Directors in connection with a matter subject to discussion or consideration at an open meeting of the Board of Directors are available for public inspection in the District's office, 15600 Sand Canyon Avenue, Irvine, California ("District Office"). If such writings are distributed to members of the Board less than 72 hours prior to the meeting, they will be available from the District Secretary of the District Office at the same time as they are distributed to Board Members, except that if such writings are distributed one hour prior to, or during, the meeting, they will be available at the entrance to the Board of Directors Room of the District Office. The Irvine Ranch Water District Board Room is wheelchair accessible. If you require any special disability-related accommodations (e.g., access to an amplified sound system, etc.), please contact the District Secretary at (949) 453-5300 during business hours at least seventy-two (72) hours prior to the scheduled meeting. This agenda can be obtained in alternative format upon written request to the District Secretary at least seventy-two (72) hours prior to the scheduled meeting.

March 13, 2017
Prepared and
Submitted by: L. Bonkowski
Approved by: P. Cook

CONSENT CALENDAR

RATIFY/APPROVE BOARD OF DIRECTORS'
ATTENDANCE AT MEETINGS AND EVENTS

SUMMARY:

Pursuant to Resolution 2006-29 adopted on August 28, 2006, approval of attendance of the following events and meetings are required by the Board of Directors.

Events/Meetings

Steven LaMar

February 9	CMUA Legislative and Regulatory Meeting, Anaheim
February 14	State of the City Presentation, Irvine
February 27-28	ACWA Winter Conference, Washington DC
March 8	Sacramento Advocacy Trip
April 5-7	Legislative Meetings, Washington, DC

John Withers

February 22	UCI's Water Center Briefing on Water Rights
March 16	OCCOG General Assembly, Anaheim

Douglas Reinhart

March 22	General Counsel Services – RFP Evaluation
April 5-6	Legislative Meetings, Washington DC

Mary Aileen Matheis

February 14	The City of Irvine's State of the City Address
February 22	Luncheon Honoring Representative Ken Calvert
February 22	Lake Forest State of the City - Meet the Mayor: Scott Voigts
March 8	Sacramento Advocacy Trip
May 8-12	ACWA Spring Conference 2017, Monterey
March 22	General Counsel Services – RFP Evaluation
April 5-7	California Water Policy 26 San Diego

RECOMMENDATION:

THAT THE BOARD RATIFY/APPROVE THE MEETINGS AND EVENTS FOR STEVEN LAMAR, MARY AILEEN MATHEIS, DOUGLAS REINHART, AND JOHN WITHERS AS DESCRIBED.

LIST OF EXHIBITS:

None.

lb-Board Mtgs Events.doc

March 13, 2017

Prepared and

Submitted by: L. Bonkowski *LB*

Approved by: P. Cook *P. Cook*

CONSENT CALENDAR

MINUTES OF BOARD MEETING

SUMMARY:

Provided are the minutes of the February 13, 2017 Regular Board Meeting for approval.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

COMMITTEE STATUS:

Not applicable.

RECOMMENDATION:

THAT THE MINUTES OF THE FEBRUARY 13, 2017 REGULAR BOARD MEETING BE APPROVED AS PRESENTED.

LIST OF EXHIBITS:

Exhibit "A" – February 13, 2017 Minutes

EXHIBIT "A"

MINUTES OF REGULAR MEETING – FEBRUARY 13, 2017

The regular meeting of the Board of Directors of the Irvine Ranch Water District (IRWD) was called to order at 5:00 p.m. by President Reinhart on February 13, 2017 in the District office, 15600 Sand Canyon Avenue, Irvine, California.

Directors Present: Swan, Matheis, Reinhart, LaMar and Withers

Directors Absent: None.

Also Present: General Manager Cook, Executive Director of Finance Clary, Executive Director of Water Policy Weghorst, Executive Director of Operations Sheilds, Executive Director of Engineering and Water Quality Burton, Director of Water Resources Sanchez, Director of Public Affairs Beeman, Director of Human Resources Roney, Director of Treasury and Risk Management Jacobson, Legal Counsel Arneson (via teleconference), Secretary Bonkowski, Government Relations Officer Compton, Principle Engineer Akiyoshi, Ms. Kellie Welch, Ms. Jo Ann Corey, Ms. Christine Compton, Mr. Jim Reed, Mr. Bruce Newell, and students from UCI's Public Health class.

ORAL AND WRITTEN COMMUNICATIONS: None.

ITEMS TOO LATE TO BE AGENDIZED: None.

CONSENT CALENDAR

On MOTION by Swan, seconded and unanimously carried, CONSENT CALENDAR ITEMS 3 THROUGH 5 WERE APPROVED AS FOLLOWS:

3. RATIFY/APPROVE BOARD OF DIRECTORS' ATTENDANCE AT MEETINGS AND EVENTS

Recommendation: That the Board ratify/approve the meetings and events for Steven LaMar, Peer Swan, Douglas Reinhart, Mary Aileen Matheis and John Withers as described.

4. MINUTES OF REGULAR BOARD MEETING

Recommendation: That the minutes of the January 23, 2017 Regular Board Meeting be approved as presented.

5. PETERS CANYON WASH CHANNEL WATER CAPTURE AND REUSE PIPELINE FINAL ACCEPTANCE

Recommendation: That the Board authorize the General Manager to accept construction of Peters Canyon Wash Channel Water Capture and Reuse Pipeline, project 4985; authorize the General Manager to file a Notice of Completion; and authorize the release of retention 35 days after filing of the Notice of Completion.

ACTION CALENDAR

PENSION PLAN FUNDING AND UPDATE

Executive Director of Finance and Administration Clary provided the Board with an update on the District's pension obligation which was fully funded as of June 30, 2016. Ms. Clary said that during the past two years, CalPERS has achieved lower investment returns than anticipated and is also planning a decrease in its actuarial assumed discount rate over the next three years. She said that the result will be an increase in required pension plan contributions and a higher pension liability for all CalPERS agencies in the coming years. A fully funded pension plan means the fair value of the assets are equal to the actuarially determined future liabilities given an assumed discount rate and other key assumptions. A fully funded pension was an important consideration by the rating agencies in providing the District with the highest possible credit rating of "AAA" during the recent debt issuance process. She said that staff recommends the Board approve a contribution of \$11 million to the IRWD Section 115 Retirement Trust to partially offset the anticipated increase in the CalPERS pension liability.

Director Swan reported that this item was reviewed and approved by the Finance and Personnel Committee on February 7, 2017. On MOTION by Swan, seconded and unanimously carried, **THE BOARD APPROVED THE ADDITIONAL CONTRIBUTION OF \$11 MILLION TO THE IRWD SECTION 115 RETIREMENT TRUST.**

RESOLUTION TO RESCIND DECLARATION OF WATER SHORTAGE LEVEL ONE

General Manager Cook reported that in July 2015, the IRWD Board of Directors declared a Level Two Shortage that represents a significant shortage between 10% and 25%. Mr. Cook said that in 2016, IRWD's conservation target was eventually reduced to 0% based on an assessment of IRWD's projected demands and available supplies. He said that the Board adopted a resolution that rescinded the previous Level Two Shortage declaration and declared a Water Shortage Level One which represents a low-level shortage condition.

Director of Water Resources Sanchez provided an update on the drought, and noted that the state's hydrologic conditions have substantially improved, and there is no longer a drought emergency or any potential of a water shortage for IRWD. Ms. Sanchez said that staff recommends the Board adopt a resolution to rescind Resolution No. 2016-17 that declared a Water Shortage Level One and to also authorize staff to transition IRWD's messaging and outreach to long-term water use efficiency.

Following discussion, on MOTION by Swan, seconded and unanimously carried, **THE BOARD AUTHORIZED STAFF TO TRANSITION IRWD'S MESSAGING AND OUTREACH TO LONG-TERM WATER USE EFFICIENCY AND ADOPTED THE FOLLOWING RESOLUTION BY TITLE TO RESCIND RESOLUTION NO. 2016-17 THAT DECLARED A WATER SHORTAGE LEVEL ONE (SHORTAGE WARNING):**

RESOLUTION NO. 2017 –5

RESOLUTION OF THE BOARD OF DIRECTORS OF
IRVINE RANCH WATER DISTRICT RESCINDING RESOLUTION NO 2016-17 AND
RESCINDING WATER SHORTAGE LEVEL ONE (SHORTAGE WARNING)

BUREAU OF RECLAMATION 2017 GRANT APPLICATION

The Bureau of Reclamation is accepting applications for grant funding under its 2017 WaterSMART Drought Response Program which awards funding to projects that increase the reliability of water supplies. As such, staff has prepared an application for the University of California, Irvine Cooling Tower Conversion Project requesting \$300,000 in grant funding with an IRWD cost share of \$1,060,000. To complete the process, it is necessary to adopt a resolution to authorize staff to submit an application for a Bureau of Reclamation WaterSMART Program Grant for the UCI Cooling Tower Conversion Project. On MOTION by Swan, seconded and unanimously carried, THE BOARD ADOPTED THE FOLLOWING RESOLUTION BY TITLE AUTHORIZING STAFF TO SUBMIT AN APPLICATION FOR A BUREAU OF RECLAMATION WATERSMART PROGRAM GRANT IN THE AMOUNT OF \$300,000 FOR THE UCI COOLING TOWER CONVERSION PROJECT AND AUTHORIZING THE GENERAL MANAGER TO EXECUTE A RELATED AGREEMENT TO RECEIVE THE GRANT FUNDING AND TO PROVIDE MATCHING FUNDS IN THE AMOUNT OF \$1,060,000:

RESOLUTION NO. 2017 –6

RESOLUTION OF THE BOARD OF DIRECTORS OF
IRVINE RANCH WATER DISTRICT AUTHORIZING SUBMISSION
OF A GRANT APPLICATION FOR THE UCI COOLING TOWERS
CONVERSION PROJECT TO THE DEPARTMENT OF THE
INTERIOR, BUREAU OF RECLAMATION, POLICY AND
ADMINISTRATION

BARNES AND BERGER PROPERTY PURCHASE

Executive Director of Water Policy Weghorst reported that the District is pursuing the purchase of property in Riverside County that is located within Palo Verde Irrigation District (PVID) which has the highest priority water rights from the Colorado River in California. Mr. Weghorst said that as an owner of land within PVID, IRWD would be able to participate in water conservation programs implemented by Metropolitan Water District of Southern California and PVID. Conservation programs such as land fallowing make water available for other uses. Because Metropolitan owns the rights to any Colorado River water that is conserved as a result of Metropolitan and PVID programs, water conserved from the land owned by IRWD would benefit the Metropolitan service area, which includes IRWD. In the future, IRWD would work with Metropolitan and Municipal Water District of Orange County (MWDOC) to develop mutually beneficial agreements through which IRWD would receive increased water supply reliability during periods of drought and supply interruptions in consideration of the water conserved on IRWD land in PVID.

Mr. Weghorst said that on December 15, 2016, the District entered into escrow for the purchase of the Barnes and Berger Property which is located within PVID in Riverside County and consists of approximately 555 gross acres (or 538 water toll acres) owned by a partnership. He said that the Property has first priority water rights and its total acreage is currently enrolled in the existing Palo Verde Land Management, Crop Rotation and Water Supply Program (Fallowing Program). As part of the Purchase Agreement, IRWD has agreed to lease the Property back to the seller for farming purposes. The negotiated lease will be for one year with four additional one-year option terms.

Director of Treasury and Risk Management Jacobson reported that the Purchase Agreement provides for a 60-day due diligence period during which there is an opportunity to conduct any studies, tests and inspections deemed necessary prior to the acquisition of the Property. Mr. Jacobson said that Dee Jaspar & Associates was retained to oversee the due diligence investigations and to complete a Baseline Property Assessment Report. He said that due diligence work completed to date shows the Barnes and Berger Property is currently farmed with designated fields fallowed under the Fallowing Program and the crops appear to be in very good condition.

Mr. Jacobson described the other structures on the property that include a mobile home, a small lean-to garage structure and a wood-constructed shed. A subsurface septic tank is also located in this area. As a condition of the sale, the sellers would lease back the Property for farming and agree to remove the mobile home and garage structure and all unserviceable property or other personal property prior to the end of the lease. He then reviewed the findings of the due diligence work including an environmental assessment, site assessment, a survey of the property documenting all easements, mineral rights search and Preliminary Title Report; existing water facilities, and the existing fallowing program.

Vice President Swan reported that this item was reviewed by the Supply Reliability Programs Committee on November 17, 2016. On MOTION by Swan, seconded and unanimously carried, **THE BOARD FOUND THAT ALL MATTERS CURRENTLY IDENTIFIED WITH REGARD TO THE CONDITION OF TITLE, PHYSICAL CONDITION AND SUITABILITY OF THE BARNES AND BERGER PROPERTY FOR THE USES CONTEMPLATED ARE ACCEPTABLE; APPROVED THE ADDITION OF THE PROJECT "PURCHASE PVID BARNES AND BERGER PROPERTY" TO THE FY 2016-17 CAPITAL BUDGET IN THE AMOUNT OF \$9,186,000; FOUND THAT THE PROPERTY ACQUISITION IS EXEMPT FROM CEQA; APPROVED THE PROJECT AND AUTHORIZED STAFF TO POST AND FILE THE NOTICES OF EXEMPTION IN ORANGE AND RIVERSIDE COUNTIES; AND AUTHORIZED THE GENERAL MANAGER, TREASURER AND EACH OTHER OFFICER OF THE DISTRICT, EACH ACTING SINGLY, TO EXECUTE AND DELIVER ANY AND ALL DOCUMENTS, ASSIGNMENTS, CERTIFICATES, INSTRUCTIONS AND INSTRUMENTS NECESSARY OR PROPER FOR CARRYING OUT AND CLOSING THE REAL ESTATE PURCHASE TRANSACTION FOR THE ACQUISITION OF THE PROPERTY.**

GENERAL MANAGER'S REPORT

General Manager Cook provided an update on the Oroville dam where 180,000 people has been asked to evacuate due to its damaged spillway.

Mr. Cook provided an update on the District's Oracle Financial system which allows for business practices and an ID consolidation structure to be upgraded. He complimented Finance and Engineering staff on their efforts.

He further welcomed UCI public health class students to tonight's Board meeting.

DIRECTORS' COMMENTS

Director Matheis reported on her attendance at the Urban Water Institute conference.

Director LaMar reported that he attended ACWA's Agriculture Initiative and Federal Affairs Committee meeting, a City of Tustin Mayor's dinner with Director Matheis to honor Mayor Allen Bernstein, an Irvine Chamber Business Outreach, and a reception for Francis Spivy Weber's retirement.

Director Swan reported on his attendance at the Urban Water Institute's conference, UCI's Social Ecology Business Forecast, OCWD's Coordination Committee meeting, an OCWD/MWDOC planning meeting, a Newport Chamber of Commerce meeting, along with several Newport Bay Watershed meetings.

Director Reinhart reported on his attendance at the Urban Water Institute's conference, a South Orange County Agencies meeting, an OCWD/MWDOC Planning meeting, and a WACO meeting.

Consultant Jim Reed provided an update on meetings he attended on behalf of the District.

Consultant Bruce Newell said that the recent rains did not cause any problems in the canyon area.

CLOSED SESSION

President Reinhart said that a Closed Session would be held with legal counsel relative to existing litigation - Government Code Section 54956.9(d)(1) IRWD v. OCWD (Case No.30-2016-00858584-CU-WM-CJC).

OPEN SESSION

Following the Closed Session, the meeting was reconvened with LaMar, Reinhart, Withers, Swan, and Matheis present. President Reinhart said there was no action to report.

ADJOURNMENT

There being no further business, President Reinhart adjourned the meeting.

APPROVED and SIGNED this 13th day of March, 2017.

President, IRVINE RANCH WATER DISTRICT

Secretary IRVINE RANCH WATER DISTRICT

APPROVED AS TO FORM:

Legal Counsel - Bowie, Arneson, Wiles & Giannone

March 13, 2017

Prepared by: L. Oldewage

Submitted by: K. Burton *KLB*

Approved by: Paul Cook *P. Cook*

CONSENT CALENDAR

APPROVAL TO PURCHASE REPLACEMENT GAS CHROMATOGRAPH/MASS SPECTROMETER

SUMMARY:

The Gas Chromatograph/Mass Spectrometer (GC/MS) is used routinely in the District's water quality laboratory to analyze sewage, recycled water and environmental samples for a wide variety of Volatile Organic Compounds (VOCs). The existing 13-year old GC/MS has experienced decreased reliability and increased downtime because of the instrument's age, the original manufacturer is no longer in business and the company currently providing service will no longer guarantee support due to obsolescence. Staff recommends that the Board approve the purchase of a replacement GC/MS from Agilent Technologies in the amount of \$129,996.

BACKGROUND:

The District's water quality laboratory operates a GC/MS to perform routine analysis of a broad range of VOCs in sewage, recycled water, receiving waters and urban run-off, including those for National Pollutant Discharge Elimination System (NPDES) permit compliance and industrial waste pre-treatment program monitoring. The GC/MS is also used for monitoring 1,4-dioxane required in the District's Dyer Road Wellfield well blending plan. These analyses are performed primarily for regulatory compliance purposes as required by the District's various Regional Water Quality Control Board (RWQCB) orders and the blending plan approved by the Division of Drinking Water.

The specified replacement GC/MS will be sufficiently sensitive to enable the laboratory to perform the analysis of all routinely monitored VOCs and quantitate them at or below RWQCB required minimum levels for reporting. The new GC/MS will also be capable of measuring 1,4-dioxane to a reporting level of 0.5 Parts per Billion (ppb). The State of California has a Notification Level of 1 ppb for 1,4-dioxane.

Agilent Technologies GC/MS Purchase:

Staff requested quotations from the three major vendors of GC/MS equipment, Agilent Technologies, Scion Instruments and Perkin Elmer, with the specific requirement that the proposed system be sufficiently sensitive to meet a 0.5 ppb reporting limit for 1,4-dioxane using the State of California Sanitation and Radiation Laboratory's modified method. Perkin Elmer was not able to meet this requirement and did not provide a quotation. Scion Instruments has never implemented this method, but expressed certainty their instrument could meet this requirement and provided a quotation of \$119,559, which excluded sales tax and a required personal computer (PC) workstation that the District would need to supply. Scion Instruments' quote increases to \$128,824.82 with the addition of sales tax, excluding the PC. Agilent Technologies has numerous systems installed performing the required method and provided a quotation of \$129,995.94, including the sales tax and PC. Both Scion Instruments and Agilent

Technologies guarantee their instruments will meet the sensitivity specification for 1,4-dioxane. Additionally, Agilent Technologies has five technical support staff located in the greater Los Angeles area and additional staff in the San Diego area. Scion Instruments has one technician on staff, located in the Seattle, WA area and one contract technician to cover the western United States. Feedback sought and received from a neighboring water agency indicates Agilent Technologies' responsiveness to service requests is superior to that of Scion Instruments. Staff recommends purchasing the new GC/MS from Agilent Technologies.

FISCAL IMPACTS:

Each Fiscal Year (FY) since FY 2012-13 the Water Quality Department has included in the Operating Budget general plant capital funds that have accumulated and carried forward for replacement laboratory instrumentation and equipment. The current accumulated balance is \$421,530. The total cost for the replacement GC/MS is \$129,996. The Water Quality Department's accumulated general plant capital budgets for replacement laboratory equipment (Projects 3920, 4579, 5632 and 6497; tasks 8036.463.2 and 836.630.2) will provide the funds for the purchase of the GC/MS.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on February 23, 2017.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE THE PURCHASE OF A REPLACEMENT GAS CHROMATOGRAPH MASS SPECTROMETER FROM AGILENT TECHNOLOGIES IN THE AMOUNT OF \$129,996.

LIST OF EXHIBITS:

- Exhibit "A" – Quote from Agilent Technologies for a 7890B Gas Chromatograph, 5977B Mass Spectrometer Detector, Tekmar Atomix Auto-sampler/Purge and Trap Concentrator and related equipment
- Exhibit "B" – Quote from Scion Instruments for a 436-GC Gas Chromatograph, SCION QT Mass Spectrometer Detector, Tekmar Atomix Auto-sampler/Purge and Trap Concentrator and related equipment

EXHIBIT "A"



David Cole
 Irvine Ranch Water District
 3512 Michelson Dr
 Irvine CA 92612

Quotation

Quote No.	Create Date	Delivery Time	Page
2210631	01/05/2017	3 Weeks	1 of 6
Contact		Phone no.	Valid to
Jason Cherney		805-566-3011	03/06/2017
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 Email : LSCAinstrumentsales@agilent.com For Consumables Fax : 302-633-8901 Email : CAG_sales-NA@agilent.com For Genomics Fax: 512-321-3128 Email : orders@agilent.com For additional instructions, see last page			

Non-Agilent Trade-In Promotion applied

Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
G7077BA	1.000 EA	79,630.00 USD	31,852.00-	47,778.00
5977B Inert Plus MSD Turbo EI Bundle with Extractor EI Source and Data System (Software, PC and Monitor), and additional G1710FA Data License. The Agilent non-Agilent GC Trade-in Promotion, number 9601 is included with this quotation/order. Special return terms and conditions apply With the following configuration: Promotion number : Promotion #9601 Ship-to Country : USA Add ChemStation DA w/ MassH Fam MSD for 7890 GC Add Laser Printer Installation (44K) Familiarization at Installation (44L) 1 Year SW Update/Phone Assist (44W)				
Promotion discount 40.00 %.				
G3442B	1.000 EA	21,735.00 USD	8,694.00-	13,041.00
Agilent 7890B GC for MS with SSL inlet. Includes 100psi split-splitless inlet LAN interface and MS interface (for Agilent 5977 Series MSD or Agilent 7000 Triple Quad GC/MS or 7200 Q-TOF GC/MS). With the following configuration: Promotion No. : Promotion #9601 Ship-to Country : USA Installation (44K) Familiarization at Installation (44L)				



David Cole
Irvine Ranch Water District
3512 Michelson Dr
Irvine CA 92612

Quotation

Quote No.	Create Date	Delivery Time	Page
2210631	01/05/2017	3 Weeks	2 of 6
Contact		Phone no.	Valid to
Jason Cherney		805-566-3011	03/06/2017
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 Email : LSCAinstrumentsales@agilent.com For Consumables Fax : 302-633-8901 Email : CAG_sales-NA@agilent.com For Genomics Fax: 512-321-3128 Email : orders@agilent.com For additional instructions, see last page			

Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
Promotion discount 40.00 %.				
G3397B	1.000 EA	2,481.00 USD	992.40-	1,488.60
Ion Gauge Kit for 5977 MSD.				
With the following configuration:				
Ship-to Country : USA				
Installation (44K)				
Promotion discount 40.00 %.				
G7022B	1.000 EA	2,443.00 USD	684.04-	1,758.96
GCMS Application kit for EPA method 524 (VOC) for 5977 Extractor Ion Source.				
With the following configuration:				
Ship-to Country : USA				
Installation (44K)				
Special discount of 28.00 % is applied.				
TMR-ATOMX	1.000 EA	60,576.43 USD	19,505.60-	41,070.83
Teledyne Tekmar Atomx. Automated VOC sample prep system.80 vial capacity. Built-in purge and trap module. Inclds software,RS-232 cable,6890/7890 cable, #9 trap,5mL fritted glassware,and water reservoir.				



Quotation

David Cole
Irvine Ranch Water District
3512 Michelson Dr
Irvine CA 92612

Quote No.	Create Date	Delivery Time	Page
2210631	01/05/2017	3 Weeks	3 of 6
Contact		Phone no.	Valid to
Jason Cherney		805-566-3011	03/06/2017
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 Email : LSCAinstrumentsales@agilent.com For Consumables Fax : 302-633-8901 Email : CAG_sales-NA@agilent.com For Genomics Fax: 512-321-3128 Email : orders@agilent.com For additional instructions, see last page			

Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
<p>With the following configuration: Ship-to Country : USA Add foam eliminator and chiller tray Sample heater kit USB to RS232 adapter cable Installation (44K) Familiarization at Installation (44L)</p> <p>Special discount of 32.20 % is applied.</p>				
5182-0845	1.000 ST	156.00 USD	43.68-	112.32
<p>25ml Sparger Kit Fittings Included Glass-Stainless Steel</p> <p>Special discount of 28.00 % is applied.</p>				
G1033A	1.000 EA	6,199.00 USD	1,735.72-	4,463.28
<p>NIST 2014 MS Library Bundle includes 243k spectra with names, chemical structures, and retention indices. Includes MS/MS Spectra Lib, NIST search and AMDIS programs.</p> <p>With the following configuration: Ship-to Country : USA</p> <p>Installation (44K)</p> <p>Special discount of 28.00 % is applied.</p>				



Agilent Technologies

David Cole
Irvine Ranch Water District
3512 Michelson Dr
Irvine CA 92612

Quotation

Quote No.	Create Date	Delivery Time	Page
2210631	01/05/2017	3 Weeks	4 of 6
Contact		Phone no.	Valid to
Jason Chemey		805-566-3011	03/06/2017
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 Email : LSCAinstrumentsales@agilent.com For Consumables Fax : 302-633-8901 Email : CAG_sales-NA@agilent.com For Genomics Fax: 512-321-3128 Email : orders@agilent.com For additional instructions, see last page			

Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
H2149A	1.000 EA	11,900.00 USD		11,900.00
<p>Method and Application Consulting On-site consulting for a maximum of 4 participants. Certificates and manuals not included.</p> <p>With the following configuration: Ship-to Country : USA Four Day On-site (Includes Travel)</p>				
Gross Amount				: \$ 185,120.43
Total Discount				: \$ 63,507.44
Net Amount				: \$ 121,612.99
Sales Tax				: \$ 8,382.95
Total				: \$ 129,995.94



Quotation

David Cole
Irvine Ranch Water District
3512 Michelson Dr
Irvine CA 92612

Quote No.	Create Date	Delivery Time	Page
2210631	01/05/2017	3 Weeks	5 of 6
Contact		Phone no.	Valid to
Jason Chemey		805-566-3011	03/06/2017
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 Email : LSCAinstrumentsales@agilent.com For Consumables Fax : 302-633-8901 Email : CAG_sales-NA@agilent.com For Genomics Fax: 512-321-3128 Email : orders@agilent.com For additional instructions, see last page			

TO PLACE AN ORDER, Agilent offers several options:

- 1) Visit <http://www.agilent.com/chem/supplies> to place online orders using a purchase order or credit card.
- 2) Call 1-800-227-9770 (option 1) any weekday between 8am and 8 pm Eastern time in the U.S., Canada & Puerto Rico.
- 3) To place an order for Consumables, please fax the order to 302-633-8901.
To place an instrument and/or software order, please fax the order to 302-633-8953.
To place an order for Genomics, please fax the order to 512-321-3128, or email to orders@agilent.com
- 4) Or you can mail your order to:
Agilent Technologies
North American Customer Contact Center
2850 Centerville Road BU3-2
Wilmington, DE 19808-1610

To place an order, the following information is required:

- Purchase order number or credit card, delivery date, ship to, invoice to, end user, and quote number.
- GSA customers please provide GSA contract #.

EXCLUSIVE OFFERS FOR NEW INSTRUMENT CUSTOMERS, go to www.agilent.com/chem/exclusiveoffers

TO CHECK THE STATUS OF AN ORDER:

- 1) Visit <http://www.agilent.com/chem/supplies> to check the status of your order.
- 2) Call 1-800-227-9770 (option 1) any weekday between 8 am and 8 pm Eastern time, in the U.S., Canada & Puerto Rico. You will need to know the purchase order or credit card number the order was placed on.

FINANCING AND LEASING - A wide range of options are available. For more information or to discuss how monthly payments could suit your operational or budgetary requirements, contact your Agilent Account Manager.

TERMS AND CONDITIONS:

- Pricing: Web prices are provided only for the U.S. in U.S.dollars. All phone prices are in local currency and for end use. Applicable local taxes are applied.
 - All Sales Tax is subject to change at the time of order.
 - Shipping and Handling Charges: Orders with a value less than \$4000 or those requiring special services such as overnight delivery may be subject to additional shipping & handling fees. Some of these charges may be avoided by ordering via the Web
 - Payment Terms: Net 30 days from invoice date, subject to credit approval.
 - * Quotation Validity: This quotation is valid for 60 days unless otherwise indicated.
 - * Warranty period for instrumentation is 1 year. The Warranty period for columns and consumables is 90 days.
- Visit www.agilent.com/chem
- For Training course information and registration including e-Seminars, select Education.
 - For Literature, Application notes, and other information, select Library.
 - For Online Technical Support including the Technical Support Assistant and Frequently Asked Questions, select Technical Support.

It is Agilent Technologies intent to ship product at the earliest available date unless specified otherwise.



Agilent Technologies

David Cole
Irvine Ranch Water District
3512 Michelson Dr
Irvine CA 92612

Quotation

Quote No.	Create Date	Delivery Time	Page
2210631	01/05/2017	3 Weeks	6 of 6
Contact		Phone no.	Valid to
Jason Cherney		805-566-3011	03/06/2017
<p>To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 Email : LSCAinstrumentsales@agilent.com For Consumables Fax : 302-633-8901 Email : CAG_sales-NA@agilent.com For Genomics Fax : 512-321-3128 Email : orders@agilent.com For additional instructions, see last page</p>			

The sale of standard Products and Services referenced in this quotation is subject to the then current version of Agilent's Terms of Sale, and any LSCA Supplemental Terms or other applicable terms referenced herein. If any Products or Services are manufactured, configured or adapted to meet Customer's requirements, the sale of all Products and Services referenced in this quotation is subject to the then current version of Agilent's Terms of Sale for Custom Products and any LSCA Supplemental Terms or other applicable terms referenced herein. A copy of Agilent's Terms of Sale, Agilent's Terms of Sale for Custom Products and the LSCA Supplemental Terms is either attached or has been previously provided to you. Please contact us if you have not received a copy or require an additional copy. If you have a separate agreement in effect with Agilent covering the sale of Products and Services referenced in this quotation, the terms of that agreement will apply to those Products and Services. Agilent expressly objects to any different or additional terms in your purchase/sales order documentation, unless agreed to in writing by Agilent. Product and Service availability dates are estimated at the time of the quotation. Actual delivery dates or delivery windows will be specified at the time Agilent acknowledges and accepts your purchase order. The above conditions shall apply to the fullest extent permitted by the law. You may have other statutory or legal rights available. Commodities, technology or software exported from the United States of America ("U.S.") or from other exporting countries will be subject to the U.S. Export Administration Regulations and all exporting countries' export laws and regulations. Diversion contrary to U.S. law and the applicable export laws and regulations is prohibited.

WARNING: This product contains a chemical known to the State of California to cause cancer or birth defects or other reproductive harm.

EXHIBIT "B"



3019 Alvin Devane, Suite 120, Austin, TX 78741-7422, USA

QUOTATION

No. SCIQ1177-04
Date 01-09-2017

Sold To:	Ship To:	Scion Instruments Rep.
Irvine Ranch Water District Mindy Bergen 15600 Sand Canyon ave Irvine, CA 92618 USA Phone: 949-453-5872 Fax: Email: bergen@irwd.com	Irvine Ranch Water District Mindy Bergen 15600 Sand Canyon ave Irvine, CA 92618 USA Phone: 949-453-5872 Fax:	Anatoly Chlenov Phone: (650) 863-1552 Email: anatolyc@scioninstruments.com

Terms	Valid To	Ship Via
	11/19/2016	

Line	Part No.	Description	Qty	List Price	Disc (%)	Unit Price	Price
1	SCIONSQSEL311	SCION SQ SELECT, w/436, SSL-T21; 120V 436-GC/SCION SQ Select.	1	74,124.00		74,124.00	74,124.00
2	392500291	436/456-GC GC Installation Kit Includes: 25 ft cleaned tubing, 1/4x1/8' pipe thread connector, 1/8" Swagelok fittings, injector nut wrench, column scoring wafer, & fuses. Order additional copper tubing and fittings for detector gases.	1	563.00		563.00	563.00
3	391082491	NIST 14 MS Library and Search Program for MSWS Combination package of the NIST 14 Library for the NIST Mass Spectral Library Search Program, Version 2.0g. The program performs library searches using the NIST search algorithm and allows the display of compound structures contained in the database. Contains 243,893 EI spectra of 212,961 unique compounds, extended MS/MS spectral library, and 346,757 Kovats retention index values for 70,835 compounds. Isotope Calculator, AMDIS, MS Interpreter are also included. AMDIS works with only one channel ((full scan (TIC) or one MRM channel)) xms data files. This kit contains the NIST/Varian/Scion Instruments format data base only.	1	5,313.00		5,313.00	5,313.00
<i>Sub Total</i>							80,000.00
<i>15.0% Trade-in Discount</i>							-12,000.00
5	T150000100	Atomx automated sample prep system for solids and liquids, 120V. 80 vial position autosampler and built in Purge and Trap module with automated methanol extraction capability. System includes 3 standard spiking valves, mass flow controller, and a #9 analytical trap. Package includes Atomx Teklink, RS-232 cable, 5mL fritted glassware, water reservoir, installation kit box, and 1 year warranty.	1	46,949.00		46,949.00	46,949.00
6	SAONSITEC8	OnSite Instruction	1	2,860.00		2,860.00	2,860.00

Line	Part No.	Description	Qty	List Price	Disc (%)	Unit Price	Price
------	----------	-------------	-----	------------	----------	------------	-------

Quoted Currency is USD	
SubTotal	117,809.00
Shipping	1,750.00
Total	119,559.00

The total of this quotation is subject to the addition of Tax, based on the local rate

SSL injector with EFC 25 will be installed at the factory instead of the injector with EFC 21.

**TECHCOMP (USA) INC. CHEMICAL AND APPLIED MARKETS
GENERAL TERMS AND CONDITIONS OF SUPPLY AND SERVICE**

The Terms and Conditions contained herein constitute the sole terms and conditions governing the purchase by the applicable customer ("Customer") from Techcomp (USA) Inc. ("we" or "us") of the goods and services desired by Customer. Customer may acknowledge its acceptance of these terms and conditions by executing and returning the attached acknowledgement copy to us and, in any event, Customer shall be deemed to have accepted and agreed to these terms and conditions by its receipt of such goods or services. Any terms and conditions different from or any addition to those contained herein, including any contained in Customer's purchase order or in any other document furnished by Customer, shall be of no force or effect in connection with the sale of any such goods and serviced and we hereby object to and reject in their entirety all such terms and conditions, as our agreement to sell such goods and services is expressly made conditional upon the use of these terms and conditions.

1. Other, conclusion of contract

- 1.1. Our quotations are firm for a period of 60 days from the date of quotation or for such other period specified directly in the quotation.
- 1.2. No binding agreement with us exists until we have given our written acceptance of orders received, or until the delivery of items or services ordered by our Customers have been delivered or performed.
- 1.3. Information provided in our catalogues and brochures is non-binding unless it is explicitly designated as binding. Customer must accept any minor deviations in figures, drawings, dimensions and weights, consumption and power ratings, etc. in our offers of confirmation of orders.
- 1.4. We reserve without limitation our rights of ownership and exploitation of copyright in respect of our cost estimates and all documents relating to offers; they may not be made accessible to third parties.
- 1.5. Customer may request changes in the scope or quantity of the products covered by this quotation in which event an equitable adjustment will be made to any price, time of performance, and other provisions of this quotation as appropriate. Such changes must be requested in writing.
- 1.6. Substitutions or changes in quantities or specifications by us shall not be made without Customer's prior written approval.
- 1.7. Changes to an order by Customer after we have accepted the original order shall be subject to our reacceptance, in which case the originally quoted delivery time may no longer be applicable.

2. Prices

- 2.1. In the absence of a separate agreement, the applicable prices are the quoted prices.
- 2.2. All quoted prices for delivery within the United State of America are Shipping Point Prepay and Add unless otherwise stated. Responsibility for risk or loss or damage to the items passes to Customer upon delivery to the destination.
- 2.3. All quoted prices for delivery outside the United States of America are Carriage and Insurance Paid To (CIP) designated international airport. Responsibility for risk of loss or damage to the items passes to Customer upon delivery to the destination.
- 2.4. Prices quoted do not include city, state or federal sales or similar taxes. Customer shall report and pat all such taxed and hold us harmless.
- 2.5. We have the right to make partial deliveries.

- 2.6. If a bank guarantee or bid bond is required by Customer, the prices set forth herein shall be increased by the cost of such guarantee or bond.
- 2.7. Upon demonstration by us that the product complies with its specifications, any bank guarantee or bid bond will be returned by Customer, but in any event no later than ninety (90) days after delivery

3. Terms of payment

The following payment terms shall be applicable:-

- 3.1. Payments shall be tendered within one month after receipt of invoice, without deductions of any kind.
- 3.2. Customer's late payment shall constitute a fundamental breach of the agreement, shall result in a service charge against Customer or the lesser of 2% per month of the agreement amount or the maximum amount permitted by law, and shall entitle us to cancel or delay performance under the agreement.
- 3.3. The terms of payment pursuant to Section 3.1 above shall apply accordingly for all partial deliveries. If the partial delivery/deliveries is/are capable of being used, Customer shall not have the right to withhold payments.
- 3.4. If payment in instalments has been agreed and Customer defaults wholly or partially on two successive instalments, the entire amount of arrears shall be payable immediately.
- 3.5. In the case of deliveries outside the United States of America, Customer must provide, at our request, payment bonds for the agreed order price before delivery in the form of irrevocable and confirmed letters of credit issued by a major bank. Alternatively, payment-in-full in advance of shipment may be provided at Customer's discretion.

4. Dates and deadlines

- 4.1. The deadlines we specify begin on the date of our written declaration of acceptance, but not before Customer has provided the documents it is obliged to procure and/or has satisfied other requirements such as the provision of documents, clearances, construction and installation plans, and/or has rendered any payments due.
- 4.2. Specified dates and deadlines are binding only on condition that they are agreed in writing.
- 4.3. We shall not be liable for delivery delays due to circumstances beyond our control, including, but not limited to, fire, flood, war, acts of terrorism, labour disputes, accidents or delay of carriers, subcontractors or suppliers.
- 4.4. We reserve the right to choose the form of dispatch at our own discretion.
- 4.5. If dispatch is delayed at the request of Customer or due to circumstance for which Customer bear responsibility, we shall charge Customer the costs incurred for storage for each month started, commencing one month after notification of readiness to dispatch. The amount shall be at least 0.5% of the contract value, without prejudice to the assertion of additional rights. If we have set a reasonable deadline and said deadline has expired to no effect, we shall also have the right to dispose otherwise of the delivery items and to supply Customer within a reasonably extended delivery period.
- 4.6. In the case of deliveries outside the United States of America, Customer is obligated to procure all required approvals, in particular import approvals, etc.

5. Installation

The following provisions shall apply for all types of installation and assembly work:

- 5.1. The Customer shall provide in a timely manner, at its own expense:
 - The required number of assistance teams,
 - Operating supplies such as water, electricity, technical gases,
 - Heating and/or air conditioning, as appropriate, general lighting, or

- All earthworks, construction work, plastering work or other ancillary work, including any building materials required.
- 5.2. Before installation work begins, Customer shall provide all required details concerning the location of hidden power cables, gas pipes and water pipes or similar fittings, as well as the necessary details in respect of lab/facility, and provide all plans required for proper installation.
- 5.3. Before assembly or installation work begins all parts required for installation must be on the premises, and all preliminary work must be either completed or sufficiently advanced so that assembly or installation can be carried out immediately once our employees have arrived.
- 5.4. If assembly, installation or commissioning is delayed through no fault of our own, Customer shall bear the costs for waiting and/or for any additional trips that may be necessary on the part of the installation personnel.
- 5.5. We shall not accept any liability for work carried out by our installation personnel or other persons employed in discharging our obligations, if the work is not related to delivery, assembly, installation or commissioning, or if Customer has arranged for such work to be carried out.
- 5.6. Installation includes a system familiarisation on-site by the installation engineer. Additional factory training is available as an option.

6. Maintenance Service Agreements

The following provisions shall apply for all types of Maintenance Service Agreements (MSA):

- 6.1. Each item of equipment must be placed in good operating condition at Customer's expense prior to coverage under the MSA.
- 6.2. Subject to the exclusions set forth in Section 6.7, and during the period the MSA is in force, we will provide the following services: (i) corrective maintenance of covered equipment that has ceased to function; (ii) the number of preventive maintenance service calls (consisting of inspection, cleaning and lubrication of the covered equipment and replacement of marginal parts and components) per contract year specified in the MSA, if any; and (iii) such additional services as are specified in the MSA.
- 6.3. Our original system parts, or replacement parts provided by us only, as covered by the MSA unless otherwise specified.
- 6.4. All services shall be provided during normal working hours (8:00 a.m. to 5:00 p.m.) Monday through Friday, (Techcomp (USA) Inc holidays excluded) at times mutually agreed.
- 6.5. Parts may be repaired or replaced with new or reconditioned parts at our discretion and any replaced parts shall become our property. We reserve the right to determine conclusively what corrective work on the covered equipment shall be performed.
- 6.6. ALL SERVICES AND PARTS ARE FURNISHED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.
- 6.7. This MSA does not cover, and we shall have no obligation to provide services with respect to, (i) equipment, components, software or accessories not supplied or licensed by us; (ii) contamination, however caused; (iii) consumables; (iv) and components that directly contact any sample; (v) elements, including, but not limited to, photomultiplier tubes, mirrors, lenses, windows, gratings, optical filters, or electron multipliers; (vi) maintenance and parts needed due to applications or method development; (vii) equipment out of production for more than seven (7) years for which parts are no longer available; (viii) equipment not yet eligible for coverage as set forth in Section 6.1; (ix) equipment which

has been moved from its original location; (x) equipment which has been abused, altered, misused, operated or maintained improperly, used in an unsuitable physical environment, or used with inadequate facilities or utilities; (xi) software installation or modification of hardware to make it software compatible; (xii) computer processing units; or (xiii) any condition which is defined as a Customer responsibility under Section 6.8 below or which results from Customer's failure to fulfil such a responsibility.

- 6.8. Customer shall: (i) perform routine operation and maintenance procedures as outlined in the instruction manual(s) and the MSA; (ii) maintain any gas line filters; (iii) ensure that the recommended grade of gas is used with the covered equipment; (iv) comply with all laws and regulations applicable to the covered equipment and any workspace accessed by us, including but not limited to those pertaining to worker safety and to the handling, packaging, transport and disposal of hazardous material; (v) provide us with a safe environment in which to work and inform us of an hazardous materials in use and/or hazardous conditions affecting the area which we are working; (vi) replace and dispose of any roughing pump oil used with the covered equipment; (vii) ensure the use of high-grade acetone packed acetylene and clean air with any gas control unit; (viii) ensure no acetylene tanks has been operated below 100 PSI; and (ix) ensure all air used with air compressors has passed through a filter and oil and water trap.

7. Software

- 7.1. Title to all software provided as separate modules or embedded in the products shall remain the property of Techcomp or Techcomp's licensors. We grant to Customer a non-exclusive, limited license to use the software together with the products.
- 7.2. Customer shall not decompile, disassemble or otherwise reverse engineer the software, and may create derivative works only to the extent permitted by us.
- 7.3. Customer shall not sublicense, assign, copy, distribute or disclose any portion of the software to a third party without our express written consent. Customer may transfer or sell the software only together with the products.
- 7.4. The license shall terminate when Customer discontinues use of the software/

8. Warranties

- 8.1. We warrant: (i) consumable laboratory supplies and software sold under these terms to be free from defects in material and workmanship and in substantial conformance with our published specifications for a period beginning upon delivery and ending thirty (30) days thereafter, subject to any applicable license agreement (ii) services sold under these terms to be performed in a good and workmanlike manner for a period beginning upon performance and ending thirty (30) days thereafter; (iii) new equipment sold under these terms to be free from Defects in materials and workmanship and to be in compliance with our published specifications for a period beginning upon delivery and ending twelve (12) months after acceptance, but in no event longer than fifteen (15) months after delivery; and (iv) all other products sold under these terms to be free from defects in material and workmanship and in substantial conformance with our published specifications for a period beginning upon delivery and ending ninety (90) days thereafter. We do not warrant the operation of any software to be uninterrupted or error-free.
- 8.2. For items supplied but not manufactured by us, the warranty terms of the manufacturer will be transferred to Customer. These warranties do not cover consumable or wearing parts, such as pump oil, routine pump maintenance (e.g. cleaning, oil change, etc.), MALDI targets, digital media, solvents, columns, capillaries, needles, demo instrumentation etc. Any damage due to misuse is excluded.

- 8.3. At our option, we will, at our expense, replace or correct any goods which fail to comply with such warranty promptly upon receipt of notice from Customer during the applicable warranty period. We shall assume all risk of loss or damage to goods which are to be replaced or corrected pursuant to this warranty from the date upon which we take possession of the goods until the replace or corrected goods are received at the destination designated by Customer.
- 8.4. The warranty coverage is subject to all of the following limitations:
- The warranty applies only to defects in material and workmanship in covered products and is not to be interpreted as providing full service coverage for such items as routine maintenance, adjustments, or recalibration as defined by the instrument manual.
 - The following are expressly not covered under warranty:
 - Accident, abuse, alteration, misuse, or neglect;
 - Operation other than in accordance with correct operating procedures;
 - Tampering with the system (e.g. modification or tampering with one part of the instrument can, in some cases, affect another part of the instrument);
 - Lack of routine care and maintenance, such as lubrication and cleaning, as indicated in the operating manual;
 - Inadequate utility service, failure of electrical or other energy supplies, incorrect physical environment or other inadequate facilities or utilities as indicated in the operating manuals and/or pre-installation instructions;
 - Failure to maintain proper liquid helium level of superconducting magnets.
 - The sole and exclusive remedy under this warranty shall be repair of instrument malfunctions or, at our option, replacement of defective parts.
 - In-warranty repaired or replacement parts or products are covered by warranty only for the remaining unexpired option portion of the original warranty period applicable to the repaired or replaced parts or products. Repair or replacement of parts or products under warranty does not extend the original warranty period,
- 8.5. All claims under warranty must be made promptly after occurrence of circumstances giving rise thereto and must be received within the applicable warranty period by us or our authorised representative. Such claims should include the product type and serial numbers, and full description of the circumstances giving rise to the claim. We reserve the right in our sole discretion to determine whether to make repair under valid warranty claims by (a) sending a field service engineer to the site, (b) having the Customer remove the defective part, assembly, or instrument and send to a service shop or facility as we authorise, or (c) authorising the Customer to return the same to us. Before any products, parts, or assemblies are sent to a service shop or facility or are returned to us for repair and/or adjustment, authorisation from us or our authorised representative for the return and instructions as to how and where the same should be packed and shipped must be obtained. Any product, part or assembly sent to an authorised service shop or facility or returned to us for examination shall be sent prepaid via the means of transportation indicated as acceptable to us with all transportation at our expense. We reserve the right to reject any warranty claim on any item that has been altered or has been shipped by non-acceptable means of transportation. We and Customer shall agree on such acceptable means of transportation prior to sending the part(s).
- 8.6. Reasonable care must be used to avoid hazards. We expressly disclaim responsibility for loss or damage caused by use of our products other than in accordance with proper operating procedures. All of our obligations under this warranty shall cease to the extent

that defects arise from having been subject to accident, abuse, alteration, misuse or neglect, or which have not been operated and maintained in accordance with proper operating procedures. We make no warranty concerning services or components supplied through unapproved sources. What constitutes an approved source shall be determined solely by us.

8.7. Accessories (provided separately from systems) or service furnished by us are warranted to be free of defects in material and workmanship for a period of ninety (90) days from the date of receipt by Customer or the date the service was completed, or if we specifically agree in writing to provide installation, ninety (90) days from the date of installation. All such accessory/service warranties are limited in accordance with all the terms, conditions, and other provisions stated in this warranty.

8.8. The foregoing warranties are the only warranties, express or implied, we make. THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY EXCLUDED.

9. Liability

9.1. IN NO EVENT SHALL WE BE LIABLE FOR INCIDENTAL, INDIRECT, SPECIAL, CONSEQUENTIAL OR PUNITIVE DAMAGES.

9.2. IN NO EVENT SHALL WE BE LIABLE FOR LOSS OR DAMAGE IN EXCESS OF THE TOTAL VALUE OF THE ITEMS PURCHASED.

10. Data protection

10.1. We have the right to store data about our customers on computer equipment and to process and use said data for our operational purposes.

10.2. We shall retain copyright, trademark, patent and proprietary rights in all drawings, technical information, and know-how related to the manufacturing of the products purchased by Customer hereunder.

10.3. Documentation such as software listings, detailed drawings and other confidential and proprietary documentation normally not distributed may only be provided by us on the condition that the recipient of such documentation signs a Confidentiality Agreement.

10.4. Neither party shall have the right to assign any of its rights or obligations hereunder, whether by operation of law or otherwise, without the prior written consent of the other party.

11. Place of Jurisdiction, governing law

The rights and obligations of the parties shall be governed in all respects by the laws of the State of California, and the parties shall submit themselves to the jurisdiction thereof.

March 13, 2017

Prepared by: A. Murphy/M. Cortez

Submitted by: K. Burton *(KLB)*

Approved by: Paul Cook *(Signature)*

CONSENT CALENDAR

SAN JOAQUIN MARSH CAMPUS SEWER LIFT STATION REHABILITATION
FINAL ACCEPTANCE

SUMMARY:

The San Joaquin Marsh Campus Sewer Lift Station Rehabilitation is complete. The contractor, GCI Construction, Inc., completed the required work and all punch list items. The project has received final inspection and acceptance of construction is recommended.

BACKGROUND:

The San Joaquin Marsh Campus Sewer Lift Station Rehabilitation included replacement of the pump, discharge piping and valves, pump control panel, re-lining the vault with a polyurethane coating, replacement of the ductile iron manhole frame lid with a composite lid, and construction of a concrete pad around the manhole.

Linkture Consulting Engineers completed the design in December 2016. GCI Construction, Inc. was awarded the construction contract on January 10, 2017 and completed construction of the improvements on February 22, 2017.

Project Title:	San Joaquin Marsh Campus Sewer Lift Station Rehabilitation
Project No.:	05186
Design Engineer:	Linkture Consulting Engineers
Construction Management by:	IRWD Staff
Contractor:	GCI Construction, Inc.
Original Contract Cost:	\$104,600.00
Final Contract Cost:	\$110,364.31
Original Contract Days:	60
Final Contract Days:	60
Final Change Order Approved On:	March 6, 2017

Consent Calendar: San Joaquin Marsh Campus Sewer Lift Station Rehabilitation Final
Acceptance
March 13, 2017
Page 2

FISCAL IMPACTS:

Project 05186 is included in the FY 2016-17 Capital Budget. The existing budget is sufficient to fund the final payment for the project.

ENVIRONMENTAL COMPLIANCE:

This project is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15301, which provides exemption for minor alterations of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination, and Section 15302, which provides for exemption for replacement of existing facilities. A Notice of Exemption for the project was prepared and filed with the County of Orange on January 4, 2017.

COMMITTEE STATUS:

This item was not reviewed by a Committee.

RECOMMENDATION:

THAT THE BOARD ACCEPT CONSTRUCTION OF THE SAN JOAQUIN MARSH CAMPUS SEWER LIFT STATION REHABILITATION, PROJECT 05186; AUTHORIZE THE GENERAL MANAGER TO FILE A NOTICE OF COMPLETION; AND AUTHORIZE THE PAYMENT OF THE RETENTION 35 DAYS AFTER THE DATE OF RECORDING THE NOTICE OF COMPLETION.

LIST OF EXHIBITS:

None.

March 13, 2017

Prepared and

submitted by: L. Bonkowski

Approved by: Paul Cook



CONSENT CALENDAR

IRWD REAPPOINTMENT OF COMMISSIONER AND APPOINTMENT OF ALTERNATE COMMISSIONER TO THE BOARD OF THE SANTIAGO AQUEDUCT COMMISSION

SUMMARY:

The District's Board President has made changes to agency representation on the Santiago Aqueduct Commission. In order to update these changes with the Commission, staff recommends the Board adopt a resolution reappointing Jim Reed as Commissioner and appointing Mary Aileen Matheis as Alternate Commissioner on the Board of the Santiago Aqueduct Commission.

BACKGROUND:

The Irvine Ranch Water District is a member of the Santiago Aqueduct Commission Joint Powers Agreement whereby it provides for a Commission consisting of seven members, with one Commissioner and an Alternate Commissioner from IRWD to serve in the absence of the Commissioner.

The District's Board President makes changes from time to time on various agency representation. In order to update the change on the Santiago Aqueduct Commission board, it is necessary to rescind Resolution No. 2011-6 and adopt a new resolution reflecting Mary Aileen Matheis as Alternate Commissioner. Mr. Jim Reed continues as Commissioner.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

None.

COMMITTEE STATUS:

This item has not been reviewed by a Committee.

Consent Calendar: IRWD Reappointment of Commissioner and Appointment of Alternate
Commissioner to the Board of the Santiago Aqueduct Commission
March 13, 2017
Page 2

RECOMMENDATION:

THAT THE BOARD ADOPT THE FOLLOWING RESOLUTION BY TITLE:

RESOLUTION NO. 2017-

RESOLUTION OF THE BOARD OF DIRECTORS OF
IRVINE RANCH WATER DISTRICT RESCINDING
RESOLUTION NO. 2011-6, AND REAPPOINTING
JAMES REED AS COMMISSIONER AND APPOINTING
MARY AILEEN MATHEIS AS ALTERNATE COMMISSIONER TO
THE BOARD OF THE SANTIAGO AQUEDUCT COMMISSION

LIST OF EXHIBITS:

Exhibit "A" - Resolution

EXHIBIT "A"

RESOLUTION NO. 2017-

**RESOLUTION OF THE BOARD OF DIRECTORS OF
IRVINE RANCH WATER DISTRICT, RESCINDING
RESOLUTION NO. 2011-6 AND REAPPOINTING
COMMISSIONER AND APPOINTING ALTERNATE COMMISSION
TO THE BOARD OF THE SANTIAGO AQUEDUCT COMMISSION**

WHEREAS, Amendment No. 2 to the Santiago Aqueduct Commission (SAC) Joint Powers Agreement provides for a Commission consisting of seven members, one member to be selected by the Irvine Ranch Water District (IRWD);

WHEREAS, IRWD may also designate alternates to serve in the absence of the regular members; and

WHEREAS, the Board of Directors of IRWD wishes to change the appointment of the member and alternates designated by Resolution No. 2011-6.

NOW, THEREFORE, the Board of Directors of IRWD does hereby resolve, determine and order as follows:

Section 1. That Resolution No. 2011-6 be and hereby is rescinded.

Section 2. That Jim Reed, a consultant for IRWD, be and the same is hereby reappointed Commissioner of the Santiago Aqueduct Commission.

Section 3. That Mary Aileen Matheis, a member of the Board of Directors of IRWD, be and the same is hereby appointed Alternate Member of the Santiago Aqueduct Commission.

Section 4: The Secretary of IRWD is hereby directed to forward a certified copy of this resolution to the Santiago Aqueduct Commission.

ADOPTED, SIGNED AND APPROVED this 13th day of March, 2017.

President, IRVINE RANCH WATER
DISTRICT and of the Board of
Directors thereof

Secretary, IRVINE RANCH WATER
DISTRICT and of the Board of
Directors thereof

APPROVED AS TO FORM:

Legal Counsel
BOWIE, ARNESON, WILES AND GIANNONE

March 13, 2017

Prepared by: S. Malloy

Submitted by: K. Burton

Approved by: Paul Cook 

ACTION CALENDAR

MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES VARIANCES AND CHANGE ORDERS

SUMMARY:

Filanc/Balfour-Beatty (FBB) is constructing the Michelson Water Recycling Plant (MWRP) Biosolids and Energy Recovery Facilities (Biosolids Project). Ninyo & Moore was requested to provide supplemental inspection services and Black & Veatch (B&V), the engineer of record for the Biosolids project, was requested to prepare additional standard operating procedures for the major equipment. Contract Change Order (CCO) No. 48 includes structural modifications to the Solids Handling Building (SHB) and modifications or upgrades to several structural, electrical, and instrumentation items. CCO No. 49 includes credits for modifications in the mechanical piping related to the value engineering proposal of changing chemical pumps in CCO No. 42, roofing change from EPDM to PVC, SCADA changes, electrical modifications, and deletion of structural foundation insulation. Staff recommends that the Board:

- Authorize the General Manager to execute Variance No. 3 with Ninyo & Moore in the amount of \$24,955 for supplemental welding inspection, masonry grout sampling/testing, concrete sampling/testing, and in-place density testing during paving operations;
- Authorize the General Manager to execute Variance No. 6 with B&V in the amount of \$215,500 for preparation of standard operating procedures for the major equipment installed on the Biosolids project;
- Approve CCO No. 48 in the amount of \$728,237.74 with FBB for the Biosolids Project; and
- Approve CCO No. 49 in the credit amount of <\$47,099.20> with FBB for the Biosolids Project.

BACKGROUND:

Construction of the Biosolids Project was awarded to FBB in March 2013 in the amount of \$163,513,307. The Biosolids Project will provide biosolids digestion, dewatering, energy production, and on-site sludge drying. The project includes excavation for subsurface structures; installation of foundation piles; three egg-shaped digesters; a state-of-the-art odor control system; a biogas conditioning system and power generation using micro-turbines; a fats, oil and grease receiving station; and new utility services. These facilities are being constructed on the land north of IRWD's Operations Center, maintenance shops, water quality laboratory, and warehouse.

Variance No. 3 with Ninyo & Moore:

Ninyo & Moore has been providing concrete sampling/testing, masonry grout sampling/testing, and welding inspection since 2013. The effort to complete these samplings and inspections was underestimated and after review of the remaining effort needed, staff requested that Ninyo & Moore submit a variance for the remaining work along with in-place density testing during paving operations, which will occur in the later stages of construction. Staff recommends that the Board approve Variance No. 3, attached as Exhibit "A", in the amount of \$24,955 with Ninyo & Moore.

Variance No. 6 with B&V:

B&V has provided contract administration, construction inspection, and construction management services since 2013. The current scope of work covered by Variance No. 5 for B&V includes preparing standard operating procedures (SOPs) for startup, shutdown, and isolation of equipment for cleaning of processes. Under Variance No. 5, B&V will prepare five overall "process system" SOPs. After further discussion, staff desires individual "equipment" SOPs; therefore, a new list of SOPs was developed to ensure all items are covered. There is a total of 124 equipment SOPs to be written. Of the 124 SOPs, 52 equipment SOPs (existing SOPs) were generally covered under the Variance No. 5; however, staff would like the scope of these SOPs expanded to include valve configuration tables, pre-check information, and shutdown procedures. There are also 72 entirely new equipment SOPs to be developed at the request of the staff.

Staff requested an expanded scope of work for the 52 existing SOPs and the development of 72 new SOPs. This requires work activities that are beyond the existing scope of work in Variance No. 5. Staff requested B&V to submit a proposal to prepare the expanded scope as described. Variance No. 6, with a more detailed description of B&V's scope, is included as Exhibit "B". Staff recommends that the Board approve Variance No. 6 in the amount of \$215,500 with B&V.

CCO No. 48:

Staff negotiated with FBB and agreed to the labor and material costs contained in CCO No. 48, which contains the following items:

- Structural modifications of the elevator shafts in the amount of \$58,705.90 – Structural modifications were required because the actual elevators to be installed are slightly bigger than the ones designed. The elevator shafts were enlarged to allow for the mechanism and controls to fit. These modifications were required for the elevators located in the SHB and the Digester Control Building.
- SCADA programming update of polymer feed and storage system in the amount of \$23,685.14 – For better monitoring and controls, staff decided to add monitoring of additional valves on the polymer feed and storage system on SCADA. This item is the cost for the SCADA programmer to update the SCADA program to allow for this additional programming.

- Stairs and platform at SHB Load-Out Area in the amount of \$39,622.65 – Due to an ambiguity in the Contract Documents, FBB did not include in its bid a set of aluminum stairs at the SHB Load-Out Area. Additionally, for ease of operation and maintenance of equipment, a platform was later added in the same area. This item is for the labor and material to install both the stairs and platform.
- Additional polymer dilution flow meters and associated conduits and cables in the amount of \$38,978.70 – For better operation and controls, two additional magnetic flow meters were added to the polymer dilution system. This change was requested to allow staff to track and minimize water usage. This item is for the labor and material cost of the flow meters and the associated control conduits and cables.
- Miscellaneous Andritz items in the amount of \$41,246.71 – This includes miscellaneous Andritz items that IRWD and Andritz agreed to as changes to the contract. These items involve electrical and instrumentation tasks to improve operation, additional heaters to motors of the cake pumps and live bottom conveyors, and spare instrumentation parts.
- Remoted Input Output (RIO)-4001 changes in the amount of \$27,889.74 – For better control and monitoring of the digester gas booster system, additional conduit and wiring changes were required in a panel. This item is for the additional labor and material to make the changes.
- RIO-3102 changes in the amount of \$18,280.62 – This will provide additional conduit and cable needed to monitor the fire alarm control panel. The original design accounted for the Fire Alarm Control Panel to alert the fire department only. However, these circuits have been added to alert plant operation staff using the SCADA system, as well as the fire department in the event a fire alarm occurs at the plant. This will enable plant staff to anticipate the arrival of the fire department on site.
- Additional outlet and data locations in the SHB, in the amount of \$13,261.60 – Additional 110 volt electrical outlets and office network data locations in the SHB were required to accommodate the needs in the break room, lobby, sample analysis room, and the control room. This will include labor and materials required for the additional outlets and data locations.
- New lighting in the SHB first floor area in the amount of \$102,503.46 – Staff decided to change the lighting scheme of the first floor of the SHB and Cake Pump Room to allow for safer maintenance of the equipment in the building. Additionally, the new LED lighting will be more energy efficient.
- Additional conduits and cables for thermocouples for several pumps in the amount of \$54,982.68 – For better monitoring and maintenance of pumps, thermocouples were added to several pumps including the thickening feed, methane sludge recycle, Fats, Oils and Grease mixing, dewatering feed, acid phase sludge heating recirculation, and acid sludge transfer pumps. The stator temperature of a pump is critical information to monitor rotor wear and a shutdown interlock. A separate rotor temperature controller will allow configuration of critical temperature set points to prevent the pump from unintended failure. Thermocouples will allow staff to change temperature set points and can monitor the actual stator temperature.

- Additional wall panel framework at the SHB in the amount of \$128,000.00 – FBB is responsible for installing architectural wall panels at several buildings, including the SHB. Because there are several manufacturers of wall panels, the design of the connection between the wall panels and the structural steel of the building itself was not fully designed. The actual connection is more labor-intensive and has more material than anticipated. There are more structural supports required for the architectural wall panels than shown in the Contract Documents. This item is for the additional labor and material to install the wall panels.
- Changes in uninterruptible power supply (UPS) units in the amount of \$128,052.94 – Review of design requirements and actual equipment provided in the project resulted in changes in the sizes of several UPS units. The changes also allow for greater operational flexibility. This item is the net cost of the changes in sizes of the UPS units and related changes in conduits and wires.
- Addition of circuit breaker at transformer T-14 in the amount of \$53,027.60 – To allow for operational and maintenance flexibility, a circuit breaker at transformer T-14 was added. A portable generator can be connected to T-14, allowing staff flexibility during plant shutdowns and electrical emergencies. This item is for the labor and material to provide the circuit breaker and associated conduits, wires and concrete pad.

Staff recommends that the Board approve CCO No. 48 in the amount of \$728,237.74, which is attached as Exhibit “C”. Items that do not claim or grant additional time are considered full compensation for those items. If items require additional time, the items included in this change order are full compensation except for time impacts. The Contractor reserves the right to claim time impacts, but the Contractor must show any time impacts to the project's critical path and how IRWD is responsible for these time impacts. Resolution of these time impacts is scheduled for a later date. CCO No. 48 does not extend any of the milestone completion dates.

CCO No. 49:

CCO No. 49 includes several items that result in credits to IRWD. CCO No. 49 includes credits for the following items:

- Mechanical piping modifications, in the credit amount of <\$23,897.73> resulting from a value engineering proposal to change chemical pumps in CCO No. 42;
- Changing the SHB roofing from EPDM to PVC in the credit amount of <\$9,000>;
- Net reduction of Scope of Work in SCADA valve matrix tables animation clarifications in the credit amount of <\$4,429.09>;
- Change in starters for MCC-4100/4101 cake transfer pump breakers in the credit amount of <\$4,047.43>; and
- Deletion of insulation for the SHB foundation in the credit amount of <\$5,724.95>.

Staff recommends that the Board approve CCO No. 49 in the credit amount of <\$47,099.20>, which is attached as Exhibit “D”. CCO No. 49 does not extend any of the milestone completion dates. The CCO Summary is attached as Exhibit “E”.

FISCAL IMPACTS:

The MWRP Biosolids and Energy Recovery Facilities Project 4286 is included in the FY 2016-17 Capital Budget. The existing budget is sufficient to fund the variances and change orders.

ENVIRONMENTAL COMPLIANCE:

The MWRP Biosolids and Energy Recovery Facilities is subject to the California Environmental Quality Act (CEQA) and in conformance with the California Code of Regulations Title 14, Chapter 3, Article 7, a Supplemental Environmental Impact Report (SEIR), SCH # 2011031091, was certified by IRWD at its October 22, 2012 meeting. The City of Irvine Planning Commission approved a conditional use permit for the IRWD Biosolids Project at its December 6, 2012 meeting.

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on February 23, 2017. Following the Committee review and approval, two items were added to CCO No. 48: Changes in uninterruptible power supply units, in the amount of \$128,052.94, and the addition of a circuit breaker at transformer T-14, in the amount of \$53,027.60, were reviewed by staff and are recommended for Board approval.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE THE GENERAL MANAGER TO EXECUTE VARIANCE NO. 3 WITH NINYO & MOORE IN THE AMOUNT OF \$24,955 FOR SUPPLEMENTAL WELDING INSPECTION, MASONRY GROUT SAMPLING/TESTING, CONCRETE SAMPLING/TESTING, AND IN-PLACE DENSITY TESTING DURING PAVING OPERATIONS; AUTHORIZE THE GENERAL MANAGER TO EXECUTE VARIANCE NO. 6 WITH BLACK & VEATCH IN THE AMOUNT OF \$215,500 FOR PREPARATION OF STANDARD OPERATING PROCEDURES; APPROVE CONTRACT CHANGE ORDER (CCO) NO. 48 IN THE AMOUNT OF \$728,237.74 WITH FBB FOR THE BIOSOLIDS PROJECT; AND APPROVE CCO NO. 49 IN THE CREDIT AMOUNT OF <\$47,099.20> WITH FILANC/BALFOUR-BEATTY FOR THE MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY, PROJECT NO. 4286.

LIST OF EXHIBITS:

- Exhibit "A" – Variance No. 3 with Ninyo & Moore
- Exhibit "B" – Variance No. 6 with Black & Veatch
- Exhibit "C" – Contract Change Order No. 48 with FBB
- Exhibit "D" – Contract Change Order No. 49 with FBB
- Exhibit "E" – Construction Change Order Summary

EXHIBIT "A"

IRVINE RANCH WATER DISTRICT PROFESSIONAL SERVICES VARIANCE

Project Title: MWRP Biosolids & Energy Recovery Facilities _____

Project No.: 106523 _____ Date: 1-10-17 _____

Purchase Order No.: 518585 _____ Variance No.: 3 _____

Originator: IRWD ENGINEER/CONSULTANT Other (Explain) _____

Description of Variance (*attach any back-up material*):

Welding Inspection, Masonry Grout Sampling, Concrete Sampling, and In-Place Density Testing During Paving Operations.

Engineering & Management Cost Impact:

Classification	Manhours	Billing Rate	Labor \$	Direct Costs	Subcon. \$	Total \$
Field Technician/Inspector	244	85.00	20,740			20,740
Senior Project Engineer	17	145.00	2,465			2,465
Laboratory Testing				1,750		1,750
Total \$ =						24,955

Schedule Impact:

Task No.	Task Description	Original Schedule	Schedule Variance	New Schedule

Required Approval Determination:

Total Original Contract	\$ 222,730 _____	<input type="checkbox"/> Director: Cumulative total of Variances less than or equal to \$50,000.
Previous Variances	\$ 99,290 _____	<input type="checkbox"/> Executive Director: Cumulative total of Variances less than or equal to \$75,000.
This Variance	\$ 24,955 _____	
Total Sum of Variances	\$ 124,245 _____	<input type="checkbox"/> General Manager: Cumulative total of Variances less than or equal to \$100,000.
New Contract Amount	\$ 346,975 _____	
Percentage of Total Variances to Original Contract	55.8 _____ %	<input checked="" type="checkbox"/> Board: Cumulative total of Variances greater than \$100,000.

ENGINEER/CONSULTANT: Ninyo & Moore _____

IRVINE RANCH WATER DISTRICT

Andy Kohler
Company Name
Project Engineer/Manager 1-10-17
Date

Keith L. Burt
Department Director 2-17-17
Date

Andy Kohler
Engineer's/Consultant's Management 1-10-17
Date

General Manager/Board _____
Date

IRVINE RANCH WATER DISTRICT

PROFESSIONAL SERVICES VARIANCE REGISTER

Project Title: MWRP Biosolids & Energy Recovery Facilities _____

Project No.: 106523 _____ Project Manager: Billy Stewart _____

Variance No.	Description	Dates		Variance Amount
		Initiated	Approved	
1	Welding Inspection	2-8-16		\$47,100
2	Materials Testing and Welding Inspection	5-31-16		\$52,190
3	Materials Testing and Welding Inspection	1-10-17		\$24,955

EXHIBIT "B"

IRVINE RANCH WATER DISTRICT

PROFESSIONAL SERVICES VARIANCE

Project Title: MWRP Biosolids & Energy Recovery Facilities – Construction Phase Services

Project No.: 21146 (4286)

Date: February 9, 2017

Purchase Order No.: 514248

Variance No.: 6

Originator: IRWD ENGINEER/CONSULTANT Other (Explain) _____

Description of Variance (*attach any back-up material*): At the request of IRWD, (1) convert the planned Standard Operating Procedures (SOPs) from summary type SOPs to individual equipment type SOPs, (2) provide expanded scope of work for the planned SOPs (60), and (3) prepare 70 new SOPs. See attached detailed scope of work description.

Engineering & Management Cost Impact:

Classification	Manhours	Billing Rate	Labor \$	Direct Costs	Subcon. \$	Total \$
See attached summary						
Total \$ =						215,500

Schedule Impact:

Task No.	Task Description	Original Schedule	Schedule Variance	New Schedule
4.7	Prepare SOPs		none	

Required Approval Determination:

Total Original Contract	\$ <u>12,509,031</u>	<input type="checkbox"/> Director: Cumulative total of Variances less than or equal to \$50,000.
Previous Variances \$	<u>5,611,050</u>	<input type="checkbox"/> Executive Director: Cumulative total of Variances less than or equal to \$75,000.
This Variance	\$ <u>215,500</u>	
Total Sum of Variances	\$ <u>5,826,550</u>	<input type="checkbox"/> General Manager: Cumulative total of Variances less than or equal to \$100,000.
New Contract Amount	\$ <u>18,335,581</u>	
Percentage of Total Variances to Original Contract	<u>46.6%</u>	<input checked="" type="checkbox"/> Board: Cumulative total of Variances greater than \$100,000.

ENGINEER/CONSULTANT: Black & Veatch Corp.
Company Name

IRVINE RANCH WATER DISTRICT

[Signature]
Project Engineer/Manager

February 9, 2017
Date

[Signature]
Department Director

2-17-17
Date

[Signature]
Engineer's/Consultant's Management

February 9, 2017
Date

General Manager/Board

Date

IRVINE RANCH WATER DISTRICT

PROFESSIONAL SERVICES VARIANCE REGISTER

Project Title: <u>MWRP Biosolids and Energy Recovery Facilities – Construction Phase Services</u>				
Project No.: <u>21146 (4286)</u> Project Manager: <u>Steve Malloy</u>				
Variance No.	Description	Dates		Variance Amount
		Initiated	Approved	
1	Add a Field Electrical & Automation Engineer	02-05-14	03-25-14	\$664,600
2	Prepare an Odor Control Maintenance and Monitoring Program (OCMMP)	04-29-14	05-28-14	\$112,665
3	Add a Field Civil/Mechanical Engineer	10-06-14	11-10-14	\$899,000
4	Additional Startup Monitoring Activities	10-09-15	11-03-15	\$370,570
5	Additional Services for: (1) project management, (2) submittal reviews, (3) RFI reviews, (4) schedule reviews, (5) electrical inspections, (6) electrical/automation field engineering, (7) civil/mechanical field engineering, and (8) air quality permitting services.	04-07-16	09-27-16	\$3,564,215
6	Additional services for Standard Operating Procedures: (1) convert "existing" 60 SOPs from process summary type to individual equipment type, (2) expand the scope of the "existing" SOPs, and (3) prepare 70 new SOPs.	02-09-17	pending	\$215,500

**IRVINE RANCH WATER DISTRICT
MWRP BIOSOLIDS & ENERGY RECOVERY FACILITIES
(BIOSOLIDS PROJECT)
CONSTRUCTION PHASE SERVICES
Project No. 21146 (4286)**

VARIANCE #6

SCOPE OF WORK

BACKGROUND

The current scope of work for Black & Veatch (B&V) for preparing Standard Operating Procedures (SOPs) includes startup, shutdown, rotation, and cleaning of processes, as described in Variance #5. The scope of work in Variance #5 included five overall "process system" type SOPs. After further discussions, the MWRP Operations staff desires individual "equipment" SOPs; therefore, a new list of SOPs has been developed to ensure all items are covered as requested by Operations staff. There are a total of 124 "equipment" SOPs to be written. Of the 124 SOPs, 52 "equipment" SOPs (existing SOPs) were generally covered under the Variance #5; however, Operations staff would like the scope of these SOPs expanded in scope to include valve configuration tables, pre-check information, and shutdown procedures. There are also 72 entirely new "equipment" SOP to be developed at the request of the Operations staff.

BASIS FOR VARIANCE

The MWRP Operations staff requested an expanded scope of work for the 52 existing SOPs and the development of 72 all new SOPs. This requires work activities that are beyond the existing scope of work for Task 4.7 – Prepare Summary Standard Operating Procedures (SOPs), as approved in Variance #5.

DESCRIPTION OF THE WORK

The format for all SOPs will be based on the Chlorine Residual Testing SOP example provided by IRWD. Each SOP will include:

- 1) A valve configuration table. B&V will utilize the valve configuration tables developed for the electronic O&M as a basis for the SOP valve configuration tables.
- 2) Process flow diagram.
- 3) Pre checks will be included in the SOPs
- 4) In general, an SOP will be developed for normal startup and a separate SOP will be written for shutdown for each equipment package. Also, multiple items in each equipment package will be grouped into a common SOP. For example, there are

4 sludge screens, so one startup and one shutdown procedure will be written for all four sludge screens. Individual exceptions to these general rules are noted in the list below.

SOPs will be completed by B&V to the level defined as follows:

- Create one draft of each SOP with pictures (HMI screenshots if applicable). Deliver the Draft SOP prior to contractor startup activities.
- B&V staff will review the Draft SOP in the field with Operations staff during the contractor startup activities.
- Receive one round of comments from the Operations staff during or upon completion of the startup activities.
- B&V will incorporate the comments from the Operations staff and this will be the document delivered by B&V. This document will be available for Operations staff during the commissioning phase.

Review comments on Draft SOPs will be collected by IRWD on either one hardcopy or one electronic set of SOPs. After comments are incorporated, the SOPs will be turned over to the Operations Staff. The Operations staff will complete the SOPs by field validating the SOPs during the commissioning and initial operations period. Field validation includes using the SOP and making modifications to the SOP as needed during actual operation of the systems. The intent of this approach is to encourage active engagement from Operations staff in development of the SOPs.

A complete revised list of SOPs to be prepared is given below. To distinguish the new SOPs from the existing SOPs, the new SOPs are listed in bold and marked with an asterisk in the list below. Each function under each item of equipment represents an individual SOP. For example the PS Pump Station consists of three SOPs, one for startup, one for shut down, and one for isolation and draining of influent wet wells.

1. PS Pump Station:
 - a. Start-up PS pumps
 - b. Shut down of PS pumps
 - c. **Isolation and draining of influent wet wells***
2. WAS Pump Station:
 - a. Start-up of WAS pumps
 - b. Shut down of WAS pumps
 - c. **Isolation and draining of influent wet wells***
3. Huber Sludge Screens:
 - a. Start-up of sludge screen

- b. Shut down of sludge screen
 - c. **Cleaning procedures***
- 4. PS Wetwells: (mixers)
 - a. Start-up procedure
 - b. Shut down procedure
 - c. **Isolation and draining of wet wells***
- 5. PS/WAS Wetwells: (mixers)
 - a. Start-up procedure
 - b. Shut down procedure
 - c. **Isolation and draining of wet wells***
- 6. WAS Wetwells: (mixers)
 - a. Start-up procedure
 - b. Shut down procedure
 - c. **Isolation and draining of wet wells***
- 7. Thickening Feed Trains (centrifuge feed grinders and pumps):
 - a. Start-up procedure
 - b. Shut down procedure
- 8. Thickening Centrifuges:
 - a. Start-up procedure
 - b. Shut down procedure
 - c. **Cleaning procedure***
- 9. Thickened Wetwells:
 - a. Start-up procedure
 - b. Shut down procedure
 - c. **Isolation and draining of wet wells***
- 10. Digester Feed Pumps
 - a. Start-up procedure
 - b. Shut down procedure
- 11. Acid Phase Digesters: (mixing, sludge recirculation, heating water and heat exchanger)
 - a. Start-up procedure
 - b. Shut down procedure
 - c. **Rotation of digesters after initial start-up.***
- 12. Methane Phase Digesters: (mixing, sludge recirculation, heating water and heat exchanger)
 - a. Start-up procedure
 - b. Shut down procedure
 - c. **Rotation of digesters after initial start-up.***
 - d. Ferric addition
- 13. Methane Digester Standby Mixing Pumps**

- a. **Start-up procedure***
- b. **Shut down procedure***
- 14. **Methane Digested Sludge Recycle Pumps**
 - a. **Start-up procedure***
 - b. **Shut down procedure***
- 15. **Sludge Holding Tanks:**
 - a. Start-up procedure
 - b. Shut down procedure
 - c. **Rotation of sludge holding tanks after initial start-up.***
- 16. **Dewatering Centrifuges: (includes distribution conveyors)**
 - a. Start-up procedure
 - b. Shut down procedure
 - c. **Centrifuge Cleaning procedure***
- 17. **Heating Water Systems:**
 - a. **Primary Heating System (Including Boilers)**
 - i. **Start-up procedure***
 - ii. **Shut down procedure***
 - b. **Heat Dryer Heat Recovery System**
 - i. **Start-up procedure***
 - ii. **Shut down procedure***
 - c. **Microturbine Heat Recovery System**
 - i. **Start-up procedure***
 - ii. **Shut down procedure***
- 18. **Digester Gas System:**
 - a. Acid gas injection including foam separator (one SOP for startup, shutdown and cleaning procedure)
 - b. **Digester Gas Treatment**
 - i. **H2S Removal System (one SOP for startup, shutdown and cleaning procedure*)**
 - ii. **Siloxane Removal System (one SOP for startup, shutdown and cleaning procedure*)**
 - iii. **Moisture Removal System (one SOP for startup, shutdown and cleaning procedure*)**
 - iv. **Foam Separator (one SOP for startup, shutdown and cleaning procedure*)**
 - c. **Gas Holding Tank (one SOP for startup, shutdown and cleaning procedure*)**
 - d. **Waste Gas Burner (Flare) (one SOP for startup, shutdown and cleaning procedure*)**
- 19. **FOG Station:**

- a. **FOG receiving procedure***
 - b. Storage, mixing, heating
 - 1. Start-up procedure
 - 2. Shut down procedure
 - c. Transfer/feed
 - 1. Start-up procedure
 - 2. Shut down procedure
20. Microturbines:
- a. Start-up procedure
 - b. Shut down procedure
21. Dryer: (This SOP is reformatting the Andritz SOP to fit in the IRWD format. Minimal additional information will be added by B&V.)
- a. Start-up and shut down procedure
 - b. **RTO cleaning procedure***
22. Load Out:
- a. **Class A loading procedure (Silos) include mineral oil system***
 - b. **Class B loading procedure (Truck load out conveyor and cake storage hopper)***
23. Solids Receiving Facility Cake Receiving
- a. **Cake receiving***
 - b. **Cake transfer pump**
 - i. **Start-up procedure***
 - ii. **Shut down procedure***
24. Odor Control:
- a. Start-up procedure
 - b. Shut down procedure
 - c. **Cleaning procedure***
25. Sequencing Batch Reactor:
- a. Start-up procedure
 - b. Shut down procedure
26. Centrate Treatment Blower
- a. Start-up procedure
 - b. Shut down procedure
 - c. **Blower rotation***
27. Centrate transfer to MRWP (Decant wet well and thickening centrate pumps)*
- a. **Decant wet well pumps**
 - i. **Start-up procedure***
 - ii. **Shut down procedure***
 - b. **Thickening centrate wet well pumps**

- i. Start-up procedure*
 - ii. Shut down procedure*
- 28. Storm Water Pump Station:
 - a. Start-up procedure*
 - b. Shut down procedure*
- 29. Nuisance Sump Pump
 - a. Start-up procedure*
 - b. Shut down procedure*
- 30. Utility Water Break Tanks:
 - a. Start-up procedure*
 - b. Shut down procedure*
- 31. Sodium Hypochlorite System
 - a. Start-up procedure*
 - b. Shut down procedure*
 - c. Chemical receiving*
- 32. Sodium Hydroxide System
 - a. Start-up procedure*
 - b. Shut down procedure*
 - c. Chemical receiving*
- 33. Sulfuric Acid System
 - a. Start-up procedure*
 - b. Shut down procedure*
 - c. Chemical receiving*
- 34. Ferric Chloride System
 - a. Start-up procedure*
 - b. Shut down procedure*
 - c. Chemical receiving*
- 35. Anti-scalant System
 - a. Start-up procedure*
 - b. Shut down procedure*
 - c. Chemical receiving*
- 36. Thickening Polymer system:
 - a. Polymer Feed
 - i. Start-up procedure
 - ii. Shut down procedure
 - b. Mannich transfer pump/recirculation pump* (start-up and shut down in one SOP)
 - c. Emulsion recirculation pump*
 - d. Emulsion blending and aging
 - i. Start-up procedure*

- ii. **Shut down procedure***
 - e. **Chemical receiving***
- 37. Dewatering Polymer system:
 - a. Start-up procedure
 - b. Shut down procedure
 - c. **Mannich transfer/recirculation pump*(start-up and shut down in one SOP)**
 - d. **Emulsion recirculation pump***
 - e. **Emulsion blending and aging**
 - i. **Start-up procedure***
 - ii. **Shut down procedure***
 - f. **Chemical receiving***

Note: SOPs in bold font and with asterisk are items not originally in Variance #5.

LEVEL OF EFFORT AND ENGINEERING FEE

The original cost for the “process” SOPs was \$110,000 (Variance #5). The additional engineering fee for Variance #6 is \$215,500 based on the attached engineering fee spreadsheet. This additional fee will be added to existing Task 4.7 - Prepare Summary Standard Operating Procedures (SOPs).

The additional work includes the following:

- 1) Adding valve table configurations for all 124 SOPs
- 2) Breaking up the original 5 “process” SOPs into 52 “equipment” SOPs;
- 3) Developing drawings, pre-checklists for the 124 SOPs; and
- 4) Developing additional all new “equipment” 72 SOPs as requested by the Operations staff and identified above.

As noted above, each SOP will be drafted and reviewed by IRWD with comments incorporated. After this single round of review comments are incorporated, the document will be turned over to Operations staff and the B&V work will be complete. Operations staff will use the SOPs during commissioning and initial operations and make field updates to the SOPs to reflect their actual operating experience. Also, the SOPs will be loaded into the electronic O&M manual being prepared by B&V.

ATTACHMENT B - VARIANCE #6 - PROPOSED LEVEL OF EFFORT AND ENGINEERING FEE

	Project Director/VP	Project Manager 3	Engineer 7	Engineer 6	Construction Manager 7	Construction Manager 8	D&M Specialist 6	D&M Specialist 4	Engineer 2	Client	Technician 3	Manhours	Expenses	Total \$
Hourly Rate	\$315	\$260	\$220	\$210	\$225	\$185	\$175	\$140	\$120	\$100	\$100			
Variance #6														
Prepare 130 SOPs (additional work for Task 4.7)		24		120				80	1360	80		1,664	\$1,660	\$215,500
												0		\$0
Total - Variance #6	0	24	0	120	0	0	0	80	1360	80	0	1,664	\$1,660	\$215,500

CONTRACT CH EXHIBIT "C"



Irvine Ranch Water District

15600 Sand Canyon Avenue
 P.O. Box 57000
 Irvine, CA 92619-7000
 (949) 453-5300

C.O. No. 48

Final

Project No. 4286

MWRP Biosolids and Energy Recovery Facilities

Project Title

Date: 2/15/2017

THE FOLLOWING CHANGE TO CONTRACT, DRAWINGS AND SPECIFICATIONS IS PROPOSED.	\$ ADDITIONS	\$ DELETIONS	DAYS ±
1. Structural Modifications of the Elevator Shafts (CR-037) PR 4286 Task 3505	\$58,705.90	\$0.00	See Note 1
2. SCADA Programming Update of Polymer Feed and Storage System (CR-148A) PR 4286 Task 3510	\$23,685.14	\$0.00	0
3. Stairs and Platform at SHB Load-Out Area (CR-149) PR 4286 Task 3505	\$39,622.65	\$0.00	See Note 1
4. Additional Polymer Dilution Flow Meters and Associated Conduits and Cables (CR-159B) PR 4286 Task 3510	\$38,978.70	\$0.00	See Note 1
5. Miscellaneous Andritz Items (CR-205) PR 4286 Task 3520	\$41,246.71	\$0.00	See Note 1
6. RIO-4001 Changes (CR-286) PR 4286 Task 3510	\$27,889.74	\$0.00	See Note 1
7. RIO-3102 Changes (CR-310) PR 4286 Task 3510	\$18,280.62	\$0.00	See Note 1
8. Mini-Power Center for Additional Outlet and Data Locations in the SHB (CR-419) PR 4286 Task 3510	\$13,261.60	\$0.00	0
9. New Lighting in the SHB First Floor Area (CR-427A) PR 4286 Task 3510	\$102,503.46	\$0.00	See Note 1
10. Additional Conduits and Cables for Thermocouples for Several Pumps (CR-424, CR-424A through CR-424F) PR 4286 Task 3510	\$54,982.68	\$0.00	See Note 1
11. Additional Wall Panel Framework at the SHB (CR-445) PR 4286 Task 3505	\$128,000.00	\$0.00	See Note 1
12. Changes in Uninterruptible Power Supply Units (CR-162/CR-162A) PR 4286 Task 3510	\$128,052.94	\$0.00	See Note 1
13. Addition of Circuit Breaker at Transformer T-14 (CR-474) PR 4286 Task 3510	\$53,027.60	\$0.00	See Note 1
Notes: 1. For the items noted above, this CCO is full compensation except for time impacts. The Contractor reserves the right to show any time impacts to the project's critical path and how IRWD is responsible for these time impacts. 2. The project completion date of October 31, 2017 per CCO No. 45 is unchanged by this Change Order.			
TOTAL	\$728,237.74	\$0.00	0

DAYS ±

1. NET AMOUNT THIS CHANGE ORDER	=	\$728,237.74	0
2. ORIGINAL CONTRACT AMOUNT	=	\$163,465,940.00	1,278
3. TOTAL PREVIOUS CHANGE ORDER(S)	=	\$14,702,561.95	368
4. TOTAL BEFORE THIS CHANGE ORDER (2+ 3)	=	\$178,168,501.95	1,646
5. PROPOSED REVISED CONTRACT AMOUNT TO DATE (1+4)	=	\$178,896,739.69	1,646

NOTE: The documents supporting this Change Order, including any drawings and estimates of cost, if required are attached hereto and made a part hereof. This Change Order shall not be considered as such until it has been signed by the Owner and the Contractor. Upon final approval, distribution of copies will be made as required. The parties mutually agree the pricing set forth in this Change Order are complete and fair compensation for the entirety of the work authorized under this Change Order and that no additional compensation is warranted nor shall it be allowed.

CHANGES: All workmanship and materials called for by this Change Order shall be fully in accord with the original Contract Documents insofar as the same may be applied without conflict to the conditions set forth by this Change Order. The time for completing the contract will not be extended unless expressly provided for in this Change Order.

CSG-02

We hereby agree to make the above change subject to the terms of this change order for the sum of: _____

-----Seven Hundred Twenty-Eight Thousand Two Hundred Thirty-Seven and 74/100 -----Dollars

Date _____ Contractor Filanc/Balfour-Beatty By: Harry Cosmos, President

SIGNATURE	DATE	APPROVAL LEVEL REQUIRED
	<u>3/1/17</u>	Department Director Approval Required <input type="checkbox"/>
IRWD Engineer or Consulting Engineer	Date	Executive Director Approval Required <input type="checkbox"/>
<u>Steve Malloy</u>	<u>3-1-17</u>	General Manager Approval Required <input type="checkbox"/>
Principal Engineer	Date	Board Approval Required <input checked="" type="checkbox"/>
<u>Kevin L. Burt</u>	<u>3-1-17</u>	
Executive Director of Engineering & Water Quality	Date	
General Manager	Date	Purchase Order No.

NOTE: The documents supporting this Change Order, including any drawings and estimates of cost, if required are attached hereto and made a part hereof. This Change Order shall not be considered as such until it has been signed by the Owner and the Contractor. Upon final approval, distribution of copies will be made as required. The parties mutually agree the pricing set forth in this Change Order are complete and fair compensation for the entirety of the work authorized under this Change Order and that no additional compensation is warranted nor shall it be allowed.

CHANGES: All workmanship and materials called for by this Change Order shall be fully in accord with the original Contract Documents insofar as the same may be applied without conflict to the conditions set forth by this Change Order. The time for completing the contract will not be extended unless expressly provided for in this Change Order.

CONTRA EXHIBIT "D"



Irvine Ranch Water District

15600 Sand Canyon Avenue
P.O. Box 57000
Irvine, CA 92619-7000
(949) 453-5300

C.O. No. 49

Final

Project No. 4286

MWRP Biosolids and Energy Recovery Facilities

Project Title

Date: 2/15/2017

THE FOLLOWING CHANGE TO CONTRACT, DRAWINGS AND SPECIFICATIONS IS PROPOSED.	\$ ADDITIONS	\$ DELETIONS	DAYS ±
1. Related Mechanical Piping Modifications Due to Change in Chemical Pumps in CCO No. 42 (CR-054A) PR 4286 Task 3520	\$0.00	\$23,897.73	0
2. Changing the Solids Handling Building Roofing from EPDM to PVC (CR-255) PR 4286 Task 3505	\$0.00	\$9,000.00	0
3. Net Reduction of Scope of Work in CR-353 – SCADA Valve Matrix Tables Animation Clarifications (CR-353B/353C) PR 4286 Task 3510	\$0.00	\$4,429.09	0
4. Change in Starters for MCC-4100/4101 Cake Transfer Pump Breakers (CR-370A) PR 4286 Task 3510	\$0.00	\$4,047.43	0
5. Deletion of Insulation for the Solids Handling Building Foundation (CR-393) PR 4286 Task 3505	\$0.00	\$5,724.95	0
Notes: 1. The project completion date of October 31, 2017 per CCO No. 45 is unchanged by this Change Order.			
TOTAL	\$0.00	\$47,099.20	0

DAYS ±

1. NET AMOUNT THIS CHANGE ORDER	=	(\$47,099.20)	0
2. ORIGINAL CONTRACT AMOUNT	=	\$163,465,940.00	1,278
3. TOTAL PREVIOUS CHANGE ORDER(S)	=	\$15,430,799.69	368
4. TOTAL BEFORE THIS CHANGE ORDER (2+ 3)	=	\$178,896,739.69	1,646
5. PROPOSED REVISED CONTRACT AMOUNT TO DATE (1+4)	=	\$178,849,640.49	1,646

We hereby agree to make the above change subject to the terms of this change order for the sum of: _____

-----A CREDIT OF Forty-Seven Thousand Ninety-Nine and 20/100 -----Dollars

Date _____ Contractor Filanc/Balfour-Beatty By: Harry Cosmos, President

SIGNATURE	DATE	APPROVAL LEVEL REQUIRED
IRWD Engineer or Consulting Engineer 	<u>3/1/17</u> Date	Department Director Approval Required <input type="checkbox"/>
Principal Engineer 	<u>3-1-17</u> Date	Executive Director Approval Required <input type="checkbox"/>
Executive Director of Engineering & Water Quality	Date	General Manager Approval Required <input type="checkbox"/>
General Manager	Date	Board Approval Required <input checked="" type="checkbox"/>
		Purchase Order No. _____

NOTE: The documents supporting this Change Order, including any drawings and estimates of cost, if required are attached hereto and made a part hereof. This Change Order shall not be considered as such until it has been signed by the Owner and the Contractor. Upon final approval, distribution of copies will be made as required. The parties mutually agree the pricing set forth in this Change Order are complete and fair compensation for the entirety of the work authorized under this Change Order and that no additional compensation is warranted nor shall it be allowed.

CHANGES: All workmanship and materials called for by this Change Order shall be fully in accord with the original Contract Documents insofar as the same may be applied without conflict to the conditions set forth by this Change Order. The time for completing the contract will not be extended unless expressly provided for in this Change Order.

EXHIBIT "E"

MWRP Biosolids and Energy Recovery Facilities PR 21146 (4286)

Construction Change Order Summary

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C O days	Revised Total Contract Days	Revised Completion Date
1	Approved by Exe. Director of Engineering and Water Quality Approved on October 24, 2013 1.1 Modifications to Road to Development Area - Delete AC to Triangle, add AB to Michelson (CR-004)	A	IRWD	\$ 20,202.42	\$20,202.42	\$0.00	\$20,202.42	0.01%	\$163,486,142.42	0	0	0	1,278	10/28/2016
2	Approved by Exe. Director of Engineering and Water Quality Approved on November 13, 2013 2.1 Street Light Conduit Modifications (CR-007)	B	IRWD	\$ 12,475.08	\$12,475.08	\$20,202.42	\$32,677.50	0.02%	\$163,498,617.50	0	0	0	1,278	10/28/2016
3	Approved by Board of Directors Approved on March 10, 2014 3.1 Bid Quantity Adjustment of Bid Item 8.6 Pre-Drill	B	FBB	\$ 745,503.00	\$745,503.00	\$32,677.50	\$778,180.50	0.48%	\$164,244,120.50	0	0	0	1,278	10/28/2016
4	Approved by Exe Dir of Eng & Water Quality Approved on March 14, 2014 4.1 Installation of Five Additional Groundwater Wells and Monitoring - (CR-006) PR 21146 (4286) Task 3505 4.2 Brace Bay Modifications at the FOG Station - (CR-015) PR 21146 (4286) Task 3505 4.3 Grounding Extension at Nitrogen and Mineral Oil System (CR-025) PR 21146 (4286) Task 3510	A	IRWD	\$11,047.81	\$23,029.22	\$778,180.50	\$801,209.72	0.49%	\$164,267,149.72	0	0	0	1,278	10/28/2016
5	Approved by Exe Dir of Eng & Water Quality Approved on March 14, 2014 5.1 Unidentified Utility - Meter Shop Discharge (CR-008) PR 21146 (4286) Task 3505 5.2 Connection Beam Modifications at Solids Handling Facility (CR-014) PR 21146 (4286) Task 3235 5.3 Increased Grating Thickness at Solids Handling Facility (CR-041) PR 21146 (4286) Task 3505	B	IRWD	\$15,225.75	\$24,851.73	\$801,209.72	\$826,061.45	0.51%	\$164,292,001.45	0	0	0	1,278	10/28/2016
6	Approved by General Manager Approved on March 20, 2014 6.1 Additional Costs to Install Piles to the Design Tip (CR-033) PR 21146 (4286) Task 3505	B	FBB	\$31,815.00	\$31,815.00	\$826,061.45	\$857,876.45	0.52%	\$164,323,816.45	0	0	0	1,278	10/28/2016
7	Approved by Exe Dir of Eng & Water Quality Approved on April 21, 2014 7.1 Meter Shop Discharge Pipe Leak Investigation and Repair (CR-013) PR 21146 (4286) Task 3505 7.2 Additional Reinforcement and Lifting Eyes for Removable Slabs at Solids Handling Building (CR-021) PR 21146 (4286) Task 3505 7.3 Increased Grating Thickness at Solids Handling Facility (CR-041) PR 21146 (4286) Task 3505 Additional Conductance Probe Materials for Relay Level Switches for Various Sumps Located at the Microturbine Area PR 21146 (4286) Task 3510	B	IRWD	\$2,542.00	\$24,725.00	\$857,876.45	\$882,601.45	0.54%	\$164,348,541.45	0	0	0	1,278	10/28/2016

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

Change Order	Description	Category	IRWD or FBB	Contract Amount						Contract Days				Original Completion Date:
				Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum Total C O days	Revised Total Contract Days	10/28/2016
														Original Contract Amount: \$163,465,940.00
8	Approved by General Manager Approved on April 21, 2014				(\$49,990.00)	\$882,601.45	\$832,611.45	0.51%	\$164,298,551.45	0	0	0	1,278	10/28/2016
8.1	Cost Sharing for Project Partnering	A	IRWD	(\$14,611.00)						0				
	Credit for Primavera 7.0 Project Portfolio Management Software (CR-002)	A	IRWD	(\$2,700.00)						0				
8.2	PR 21146 (4286) Task 3235									0				
8.3	Deletion of Concrete Pad near Development Area (CR-004A) PR 21146 (4286) Task 3235	A	IRWD	(\$3,865.00)						0				
8.4	Deletion of Ground Test Device (CR-034) PR 21146 (4286) Task 3210	A	IRWD	(\$15,579.00)						0				
8.5	Deletion of Existing T-4 Switchgear Level Indicating Switch (CR-035) PR 21146 (4286) Task 3210	A	IRWD	(\$9,167.00)						0				
8.6	Change to NEMA 4X Panels and Modification to NEMA 4X Bar Graph Display (CR-046) PR 21146 (4286) Task 3210	A	IRWD	(\$4,068.00)						0				
9	Approved by Exe. Director of Eng. & Water Quality Approved on May 31, 2014				\$24,840.17	\$832,611.45	\$857,451.62	0.52%	\$164,323,391.62	0	0	0	1,278	10/28/2016
9.1	Additional Circuits for Gas Monitors and Re-route of Conduits in Solids Handling Facility (CR-028) PR 21146 (4286) Task 3510	C	FBB	\$1,187.49						0				
9.2	Cantilevered Beam Support Modifications in the Solids Handling Facility (CR-049) PR 21146 (4286) Task 3505	C	FBB	\$4,605.30						0				
9.3	Additional Ethernet Switches (CR-062) PR 21146 (4286) Task 3510	C	IRWD	\$19,047.38						0				
10	Approved by Exe. Director of Eng. & Water Quality Approved on May 31, 2014				\$21,398.99	\$857,451.62	\$878,850.61	0.54%	\$164,344,790.61	0	0	0	1,278	10/28/2016
10.1	Additional Grace Ports for Various PLCs (CR-030) PR 21146 (4286) Task 3510	C	IRWD	\$8,580.62						0				
10.2	Provide H-20 Rated Hatches at WAS Pump Station and Valve Vault (CR-061) PR 21146 (4286) Task 3505	C	IRWD	\$12,818.37						0				
11	Approved by Exe. Director of Eng. & Water Quality Approved on June 4, 2014				\$24,739.76	\$878,850.61	\$903,590.37	0.55%	\$164,369,530.37	#REF!	0	#REF!	#REF!	10/28/2016
11.1	Waste Activated Sludge (WAS) Pump Station Structural Modifications (CR-023) PR 21146 (4286) Task 3505	C	IRWD	\$12,905.49						0				
11.2	Removable Slab Modifications on the Second Floor of Solids Handling Building (CR-064) PR 21146 (4286) Task 3505	C	IRWD	\$11,834.27						0				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
12	Approved by Board of Directors Approved on July 21, 2014				\$156,580.22	\$903,590.37	\$1,060,170.59	0.65%	\$164,526,110.59	0	0	0	1,278	10/28/2016
12.1	Final Bid Quantity Adjustment for Bid Item No. 5.2 - Undocumented Fill (suitable) - Remedial Grading - Remove and Re-compact a net increase of 8,104.7 CY from 51,700 CY to 59,804.7 CY at \$5/CY. PR 21146 (4286) Task 3505	B	N/A	\$40,523.37						0				
12.2	Final Bid Quantity Adjustment for Bid Item No. 5.5 - Undocumented Fill (not suitable) - Remedial Grading - Remove and Export Offsite, a net increase of 60 CY, from 1,800 CY to 1,860 CY at \$25 /CY. PR 21146 (4286) Task 3505	B	N/A	\$1,500.00						0				
12.3	Final Bid Quantity Adjustment for Bid Item No. 5.6 - Geotextile Fabric - Remedial Grading, a net decrease of 5,414 SF, from 181,500 SF to 176,086 SF at \$0.40/SF. PR 21146 (4286) Task 3505	B	N/A	(\$2,165.60)						0				
12.4	Final Bid Quantity Adjustment for Bid Item No. 5.6 - Geotextile Fabric - Remedial Grading, a net decrease of 5,414 SF, from 181,500 SF to 176,086 SF at \$0.40/SF. PR 21146 (4286) Task 3505	B	N/A	(\$6,523.33)						0				
12.5	Final Bid Quantity Adjustment for Bid Item No. 5.8 - Undocumented Fill - Deep Foundations - Removal, a net increase of 966 CY, from 21,650 CY to 22,616 CY at \$5.50/CY. PR 21146 (4286) Task 3505	B	N/A	\$5,313.00						0				
12.6	Final Bid Quantity Adjustment for Bid Item No. 5.9 - Alluvium - Remedial Grading - Removal and Export Offsite, a net increase of 2,076 CY, from 28,154 CY to 30,230 CY at \$35/CY. PR 21146 (4286) Task 3505	B	N/A	\$72,665.98						0				
12.7	Final Bid Quantity Adjustment for Bid Item No. 5.10 - Undocumented Fill Deep Foundations - Compaction of stockpiled materials, a net increase of 3,117 CY, from 11,400 CY to 14,517 CY at \$15/CY. PR 21146 (4286) Task 3505	B	N/A	\$46,755.00						0				
12.8	Final Bid Quantity Adjustment for Bid Item No. 5.11 - Undocumented Fill - Deep Foundations - Export excess offsite a net decrease of 2,151 CY, from 10,250 CY to 8,099 CY. PR 21146 (4286) Task 3505	B	N/A	(\$30,114.00)						0				
12.9	Final Bid Quantity Adjustment for Bid Item No. 5.12 - Geotextile Fabric - Deep Foundations, a net increase of 9,218 SF, from 51,500 SF to 60,718 SF at \$0.60/SF. PR 21146 (4286) Task 3505	B	N/A	\$5,530.80						0				
12.10	Final Bid Quantity Adjustment for Bid Item No. 5.13 - Aggregate Base - Deep Foundations, a net increase of 513.2 CY, from 2,860 CY to 3,373.2 CY at \$45/CY. PR 21146 (4286) Task 3505	B	N/A	\$23,095.00						0				
13	Approved by Exe. Director of Engineering & Water Quality Approved on July 10, 2014				\$10,129.18	\$1,060,170.59	\$1,070,299.77	0.65%	\$164,536,239.77	0	0	0	1,278	10/28/2016
13.1	Modifications to Switchgear 16 (CR-070) PR 21146 (4286) Task 3510	A	FBB	\$10,129.18						0				
14	Approved by General Manager Approved on June 24, 2014				\$44,543.19	\$1,070,299.77	\$1,114,842.96	0.68%	\$164,580,782.96	0	0	0	1,278	10/28/2016
14.1	Slide Gates Clarification Regarding Actuators (CR-039) PR 21146 (4286) Task 3520	A	IRWD	\$44,543.19						0				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
15	Approved by General Manager Approval on July 31, 2014				\$45,214.40	\$1,114,842.96	\$1,160,057.36	0.71%	\$164,625,997.36	0	0	0	1,278	10/28/2016
15.1	Provide Masonry Shelf Angle at Digester Control Building (CR-031) PR 21146 (4286) Task 3505	C	FBB	\$27,543.19						0				
15.2	Beam Size Increase for Monorail Runway in Solids Handling Building - (CR-074) PR 21146 (4286) Task 3505	C	FBB	\$1,200.47						0				
15.3	Upsize Odor Control Circulation Pump Motor Disconnects (CR-082) PR 21146 (4286) Task 3510	B	FBB	\$1,184.83						0				
15.4	Additional Deck Support for the Solids Handling Building Roof (CR-044) PR 21146 (4286) Task 3505	C	FBB	\$15,285.91						0				
16	Approved by E&O Committee Approved on August 19, 2014				\$62,037.10	\$1,160,057.36	\$1,222,094.46	0.75%	\$164,688,034.46	0	0	0	1,278	10/28/2016
16.1	Installation of Level 3 Diesel Particulate Filter (DPF) on the Standby Generator - (CR-073) PR 21146 (4286) Task 3520	B	IRWD	\$62,037.10						0				
17	Approved by Board of Directors Approved on August 25, 2014				(\$106,241.99)	\$1,222,094.46	\$1,115,852.47	0.68%	\$164,581,792.47	0	0	0	1,278	10/28/2016
17.1	Modifications to Switchgear 16 (CR-070A) PR 21146 (4286) Task 3510	A	FBB	(\$106,241.99)						0				
18	Approved by Board of Directors Approved on August 25, 2014				\$108,087.55	\$1,115,852.47	\$1,223,940.02	0.75%	\$164,689,880.02	0	0	0	1,278	10/28/2016
18.1	Stormwater Drainage System Modification (CR-017) PR 21146 (4286)	A	IRWD	\$108,087.55						0				
19	Approved by Executive Director of Engineering & Water Quality Approved on September 30, 2014				\$72,572.86	\$1,223,940.02	\$1,296,512.88	0.79%	\$164,762,452.88	0	0	0	1,278	10/28/2016
19.1	Modification to Switchgear 16 (CR-070B) PR 21146 (4286) Task 3510	A	IRWD	\$1,125.75						0				
19.2	Alluvium Removal Due to 36-inch Storm Drain Installation (CR-085) PR 21146 (4286) Task 3520	B	N/A	\$14,140.00						0				
19.3	Additional Structural Support for Fats, Oils, and Grease (FOG) Grinders (CR-081) PR 21146 (4286) Task 3505	C	FBB	\$8,323.99						0				
19.4	Portable Lift Truck for 480V ABB Breakers (CR-108) PR 21146 (4286) Task 3510	A	IRWD	\$2,625.12						0				
19.5	Retaining Wall North and West of Biosolids Site (CR-010) PR 21146 (4286) Task 3505	B	IRWD	\$46,358.00						0				
20	Approved by Executive Director of Engineering & Water Quality Approved on November 19, 2014				\$54,485.63	\$1,296,512.88	\$1,350,998.51	0.83%	\$164,816,938.51	0	0	0	1,278	10/28/2016
20.1	Nitrogen Slab Modifications (CR-052) PR 21146 (4286) Task 3505	A	IRWD	\$24,855.80						0				
20.2	Additional Conduits and Circuits for the Access Control Systems for the Solids Handling Building and the Digester Control Building (CR-082) PR 21146 (4286) Task 3520	A	IRWD	\$3,412.13						0				
20.3	Digital Power Meters Change for SWGR-14 and SWGR-15 (CR-109) PR 21146 (4286) Task 3510	A	IRWD	\$3,863.22						0				
20.4	Truck Unloading Panel Modifications (CR-115) PR 21146 (4286) Task 3510	A	IRWD	\$12,843.50						0				
20.5	Switchgear SWGR-14 Modifications (CR-116) PR 21146 (4286) Task 3510	A	IRWD	\$9,510.98						0				
21	Approved by General Manager Approved on January 30, 2015				\$98,506.19	\$1,350,998.51	\$1,449,504.70	0.89%	\$164,915,444.70	0	0	0	1,278	10/28/2016
21.1	Additional Anchorage for Methane Digesters (CR-051A) PR 21146 (4286) Task 3520	B	FBB	\$92,367.44						0				
21.2	Additional Input/Outputs Review of Master I/O List (CR-136) PR 21146 (4286) Task 3510	C	FBB	\$6,138.75						0				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
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Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum Total C.O. days	Revised Total Contract Days	Revised Completion Date
22	Approved by Board of Directors Approved on February 9, 2015				\$964,324.51	\$1,449,504.70	\$2,413,829.21	1.48%	\$165,879,769.21	0	0	0	1,278	10/28/2016
22.1	Electrical Conduit Overfill (CR-055) PR 21146 (4286) Task 3510	C	FBB	\$485,250.28						0				
22.2	Heat Dryer Equipment Escalation Costs (CR-057) PR 21146 (4286) Task 3520	B	FBB	\$333,477.50						0				
22.3	Glass-lining Sludge Density Meters (CR-067) PR 21146 (4286) Task 3510	A	IRWD	\$71,010.74						0				
22.4	Switchgear-16 Enclosure (CR-040) PR 21146 (4286) Task 3510	C	FBB	\$56,882.30						0				
22.5	Propane Gas Tank Foundation Demolition (CR-084) PR 21146 (4286) Task 3505	C	IRWD	\$2,004.98						0				
22.6	Credit for travel co+C303sts related to inspection of centrifuges in Germany (CR-091) PR 21146 (4286) Task 3520	A	IRWD	(\$5,573.42)						0				
22.7	Deletion of MMC Switchgear-14 Breaker (CR-092) PR 21146 (4286) Task 3510	A	IRWD	(\$5,032.00)						0				
22.8	Increase of Fiber Optic Conduit Size (CR-097) PR 21146 (4286) Task 3510	C	IRWD	\$23,269.61						0				
22.9	Overtime to perform work in the Solids Handling electrical room (CR-103) PR 21146 (4286) Task 3510	A	IRWD	\$1,384.47						0				
22.10	Credit for modification to the Uninterruptible Power System (CR-118) PR 21146 (4286) Task 3510	A	IRWD	(\$9,771.72)						0				
22.11	Addition of Low Voltage Compartment in SCE Switch "C" (CR-160) PR 21146 (4286) Task 3510	A	IRWD	\$2,156.20						0				
22.12	Addition of input/output points relating to sump pumps located at the Solids Handling Building (CR-161) PR 21146 (4286) Task 3510	A	FBB	\$9,265.57						0				
23	Approved by General Manager Approved on February 26, 2015				\$97,005.10	\$2,413,829.21	\$2,510,834.31	1.54%	\$165,976,774.31	0	0	0	1,278	10/28/2016
23.1	Additional Steel Reinforcement the Pellet Storage Silos Anchor Bolts (CR-094) PR 21146 (4286) Task 3505	B	FBB	\$5,514.57						0				
23.2	Differential Pressure Transmitter (CR-094) PR 21146 (4286) Task 3510	A	IRWD	\$2,535.33						0				
23.3	Additional Aluminum Trench Grating in Digester Control Building (CR-107) PR 21146 (4286) Task 3520	A	IRWD	\$7,552.11						0				
23.4	Light Weight Concrete for Electrical Conduits Underneath the Solids Handling Building Electrical Room (CR-113) PR 21146 (4286) Task 3510	A	IRWD	\$30,535.94						0				
23.5	Adding Energyjets Weir Plates to Dewatering Centrifuges - (CR-124) PR 21146 (4286) Task 3520	A	IRWD	\$11,139.25						0				
23.6	Provide Angle Supports for the Removable Slabs at the Solids Handling Building - (CR-137) PR 21146 (4286) Task 3520	A	IRWD	\$20,671.61						0				
23.7	Structural Modification at Solids Handling Building - (CR-140) PR 21146 (4286) Task 3520	C	FBB	\$1,109.42						0				
23.8	Increase of Fiber Optic Conduit Size (CR-097) PR 21146 (4286) Task 3510	A	IRWD	\$5,516.45						0				
23.9	Steel Joist Framing Modifications at Digester Control Building (CR-151) PR 21146 (4286) Task 3505	C	FBB	\$2,286.29						0				
23.10	WAS Valve Vault and Piping Modifications (CR-100) PR 21146 (4286) Task 3520	A	IRWD	\$10,144.13						0				
24	Approved by General Manager Approved on March 6, 2015				\$99,122.95	\$2,510,834.31	\$2,609,957.26	1.60%	\$166,075,897.26	0	0	0	1,278	10/28/2016
24.1	Coating of WAS/Primary Sludge Pump Stations & Sludge Wetwells per RFI-0612A (CR-127) PR 21146 (4286) Task 3505	A	FBB	\$99,122.95						0				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
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Design Engine Black & Veatch

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25	Approved by Board of Directors Approved on March 23, 2015				\$280,575.97	\$2,609,957.26	\$2,890,533.23	1.77%	\$166,356,473.23	0	0	0	1,278	10/28/2016
25.1	Lightning Protection for the Methane Digesters (CR-121) PR 21146 (4286) Task 3505	C	FBB	\$158,259.68						0				
25.2	Deflagration Quench Tubes outside of the Dryer Room (CR-143) PR 21146 (4286) Task 3505	B	FBB	\$122,316.29						0				
26	Approved by Exe. Dir. Of Engineering & Water Quality Approved on April 14, 2015				\$74,815.79	\$2,890,533.23	\$2,965,349.02	1.81%	\$166,431,289.02	0	0	0	1,278	10/28/2016
26.1	UPS and Power Fail Alarms per RFI 357 (CR-056) PR 21146 (4286) Task	C	FBB	\$3,646.82						0				
26.2	I/O Points for Methane Digester Sump Pumps per RFI-356 (CR-077) PR 21146 (4286) Task 3510	C	FBB	\$6,489.00						0				
26.3	Loss of Power Alarms to the SCADA Network per RFI-0393B (CR-093) PR 21146 (4286) Task 3510	A	FBB	\$20,297.16						0				
26.4	FOG Flushing and Rock Trap Modifications per RFI-0534 (CR-101) PR 21146 (4286) Task 3510	A	IRWD	\$18,093.61						0				
26.5	Install Grounding Pig Tails in Solids Handling Building Area Electrical Room per RFI 0594 (CR-105) PR 21146 (4286) Task 3510	A	IRWD	\$1,593.10						0				
26.6	Additional Pushbuttons, Light and Relays for the FOG Receiving Control Panel (CR-114) PR 21146 (4286) Task 3510	A	IRWD	\$6,892.40						0				
26.7	Changes to the HMI Enclosures at the Sludge Receiving Area (CR-133) PR 21146 (4286) Task 3510	A	IRWD	\$7,114.17						0				
26.8	Provide Storage Shelf for Keyboard and Mouse to the HMI Enclosures at the Sludge Receiving Area (CR-135) PR 21146 (4286) Task 3510	A	IRWD	\$1,163.26						0				
26.9	Dewatering Feed Pump Station Guardrail Additions (CR-142) PR 21146 (4286) Task 3520	C	FBB	\$4,204.00						0				
26.10	Additional I/O Points for PLC-4300 (CR-156) PR 21146 (4286) Task 3510	C	FBB	\$3,035.28						0				
26.11	Shoring Revision to Roof Slab of Dewatering Feed Pump Station (CR-189) PR 21146 (4286) Task 3510	B	FBB	\$1,286.99						0				
26.12	Coating of the Sludge Receiving Bins (CR-199) PR 21146 (4286) Task 3520	A	FBB	\$1,000.00						0				

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27	Approved by Board of Directors Approved on April 27, 2015				\$107,253.26	\$2,965,349.02	\$3,072,602.28	1.88%	\$166,538,542.28	0	0	0	1,278	10/28/2016
27.1	Modifications to Human-Machine Interface (HMI) for the Microturbine Area (CR-078) PR 21146 (4286) Task 3510	A	IRWD	\$29,744.43						0				
27.2	Modifications to the Piping and Automation Features at Fats, Oils, and Grease (FOG) Facility (CR-129) PR 21146 (4286) Task 3510	A	IRWD	\$35,771.81						0				
27.3	Structural Support to the Monorail at the Dewatering Feed Pump Station (CR-152) PR 21146 (4286) Task 3505	C	FBB	\$13,697.51						0				
27.4	Two Additional Magnetic Flowmeters at Polymer Feed System (CR-158) PR 21146 (4286) Task 3510	A	IRWD	\$9,522.81						0				
27.5	Modifications to PLCs at Sludge Receiving Area (CR-180) PR 21146 (4286) Task 3510	A	IRWD	\$18,516.70						0				
28	Approved by Exe Dir Of Eng, & Water Quality Approved on May 15, 2015				\$74,550.35	\$3,072,602.28	\$3,147,152.63	1.93%	\$166,613,092.63	0	0	0	1,278	10/28/2016
28.1	Decanter Control Panel Modifications (CR-215) Task 3520	C	FBB	\$22,451.01						0				
28.2	Additional Structural Support in the Solids Handling Building (CR-075) Task 3505	C	FBB	\$12,028.44						0				
28.3	Additional Sump Pump Drain Line in the Bulk Polymer Storage Area (CR-119) Task 3520	C	FBB	\$1,433.86						0				
28.4	Install Three 5-inch conduits on Southwest Side of the Biosolids Site (CR-120) Task 3510	C	FBB	\$16,033.58						0				
28.5	Provide Power to Several Instruments Located at the Solids Handling Building and Digester Control Building (CR-154) Task 3520	C	FBB	\$3,454.91						0				
28.6	Install Foam Separator Drain at Digester Control Building (CR-167) Task 3520	C	FBB	\$11,013.75						0				
28.7	Install Support for 14-inch Plug Valve at Centrate Treatment Wetwell (CR-197) Task 3520	C	FBB	\$1,715.20						0				
28.8	Trench Modifications at the Sludge Cake Load-Out Area of the Solids Handling Building (CR-123) Task 3505	C	FBB	\$6,419.60						0				
29	Approved by Board of Directors Approved on June 22, 2015				\$225,971.77	\$3,147,152.63	\$3,373,124.40	2.06%	\$166,839,064.40	0	0	0	1,278	10/28/2016
29.1	Foul Air Pipe Supports in the Solids Handling Building Basement (CR-106) PR 21146 (4286) Task 3520	C	FBB	\$119,937.87						0				
29.2	Secondary Circuit Breaker for Transformer T-14 (CR-185) PR 21146 (4286) Task 3510	A	IRWD	\$106,033.90						0				

**MWRP Biosolids and Energy Recovery Facilities
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30	Approved by Board of Directors Approved on July 27, 2015				(\$47,976.59)	\$3,373,124.40	\$3,325,147.81	2.03%	\$166,791,087.81	0	0	0	1,278	10/28/2016
30.1	Credit for Changing Storm Drain line from Ductile Iron to PVC (CR-042) PR 21146 (4286) Task 3520	A	IRWD	(\$1,890.92)						0				
30.2	Installation of Additional Digester Anchorage (CR-051B) PR21146 (4286) Task 3505	B	FBB	\$118,335.54						0				
30.3	Huber Screens I/O Modifications per RFI-0391 and RFI-0525A (CR-068) PR 21146 (4286) Task 3510	A	IRWD	\$12,579.20						0				
30.4	Credit for FBB's Portion of Partnering (CR-090) PR 21146 (4286) Task Deletion of Waterstops at Methane Digester Complex (CR-102) PR 21146 (4286) Task 3505	E	FBB	(\$81,948.33)						0				
30.5	Deletion of Bid Item No. 18.4 - Computers and Networking Hardware for the Control System (CR-138) PR 21146 (4286) Task 3510	A	IRWD	(\$200,000.00)						0				
30.6	Electrical and Gas Modifications (CR-146) PR 21146 (4286) Task 3510	C	IRWD	\$363,978.41						0				
30.7	Credit for Changing Heat Dryer Wet Material Mixer from A24 Steel to A36 Steel (CR-157) PR 21146 (4286) Task 3520	E	FBB	(\$2,392.66)						0				
30.8	Credit for Travel Cost of On-Site Inspection for Acid Phase Digester (CR-175) PR 21146 (4286) Task 3520	B	IRWD	(\$683.39)						0				
30.9	Heat Dryer I/O Modifications per RFI-0626 (CR-179) PR 21146 (4286) Task 3510	A	IRWD	\$11,191.41						0				
30.10	Decant Trough I/O Modifications per RFI-0979 (CR-202) PR 21146 (4286) Task 3510	A	IRWD	\$9,960.55						0				
30.11	Deletion of Interior Coating of Methane Digesters (CR-188) PR 21146 (4286) Task 3520	A	IRWD	(\$398,571.00)						0				
30.12	Piping Modifications and Addition of Carbon Canisters (CR-218) PR 21146 (4286) Task 3520	A	IRWD	\$88,076.01						0				
30.13	Pickling and Passivation of Sludge Mixers (CR-248) PR 21146 (4286) Task 3520	C	IRWD	\$73,997.23						0				
30.14	IRWD Costs Associated to Repairing the Pile and Installing Couplers (CR-139) PR 21146 (4286) Task 3505	E	FBB	(\$38,102.85)						0				

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31	Approved by Exe Dir Of Eng. & Water Quality Approved on July 28, 2015				\$74,999.74	\$3,325,147.81	\$3,400,147.55	2.08%	\$166,866,087.55	0	0	0	1,278	10/28/2016
31.1	Provide Circuit and Breaker for Standby Generator in the Microturbine Area (CR-170) PR 21146 (4286) Task 3510	C	FBB	\$4,296.86						0				
31.2	Additional Pipe Support for 14-inch Air Line at the Centrate Facility (CR-226) PR 21146 (4286) Task 3520	C	FBB	\$893.78						0				
31.3	Addition of E-stops (CR-128) PR 21146 (4286) Task 3510	A	FBB	\$57,916.71						0				
31.4	Structural Support of Jib Crane at Dewatering Feed Pump Station Stairwell (CR-243) PR 21146 (4286) Task 3520	C	FBB	\$11,892.39						0				
32	Approved by Exe Dir Of Eng. & Water Quality Approved on August 31, 2015				\$74,682.96	\$3,400,147.55	\$3,474,830.51	2.13%	\$166,940,770.51	0	0	0	1,278	10/28/2016
32.1	Additional Conduits and Circuits for Fire Alarm in the Solids Handling	A	IRWD	\$21,637.57						0				
32.2	Additional Davit Bases at Centrate Treatment Facility (CR-111) PR 21146 (4286) Task 3520	A	IRWD	\$1,809.77						0				
32.3	Additional Fire Alarm Panel in Digester Control Building (CR-169) PR 21146 (4286) Task 3510	A	IRWD	\$25,153.79						0				
32.4	Modifications to FOG Sump Pumps Controls (CR-177) PR 21146 (4286) Task 3510	A	IRWD	\$5,690.83						0				
32.5	Additional Truck Load-out Conveyor Input and Output (CR-201) PR 21146 (4286) Task 3510	A	IRWD	\$2,220.12						0				
32.6	Additional Spare Conduits in the Microturbine Area (CR-229) PR 21146 (4286) Task 3510	A	FBB	\$14,602.41						0				
32.7	Conduits for Electrical Disconnect Switch for Roll-Up Doors of the Digester Control Building (CR-230) PR 21146 (4286) Task 3510	A	IRWD	\$3,568.47						0				
33	Approved by Executive Director of Engineering & Water Quality Approved on September 30, 2015				\$58,247.75	\$3,474,830.51	\$3,533,078.26	2.16%	\$166,999,018.26	0	0	0	-	1/0/1900
33.1	Realignment of 8-inch Reclaimed Water Line at Gate 2 (CR-225) PR 21146 (4286) Task 3520	B	FBB	\$24,017.48						0				
33.2	Additional Conduits and Wires for Lighting Circuits to Minimize Voltage Drop (CR-228) PR 21146 (4286) Task 3510	C	IRWD	\$32,399.41						0				
33.3	Cable and Conduit Changes at Solids Handling Building and Dewatering Feed Pump Station (CR-231) PR 21146 (4286) Task 3510	C	IRWD	\$1,830.86						0				

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34	Approved by Board of Directors Approved on October 26, 2015				\$164,775.28	\$3,533,078.26	\$3,697,853.54	2.26%	\$167,163,793.54	0	0	0	1,278	10/28/2016
34.1	Credit for Third Submittal Review Through 05/31/2015 (CR-088) PR 21146 (4286) Task 1065	B	IRWD	(\$39,502.50)						0				
34.2	Credit for Overtime Inspection Hours Through 05/31/2015 (CR-089) PR 21146 (4286) Task 3520	E	FBB	(\$80,850.00)						0				
34.3	Credit for Special Inspections for Structural Anchors and Geotechnical Investigation (CR-295) PR 21146 (4286) Task 1065	A	IRWD	(\$27,500.00)						0				
34.4	Change in Knife Gate Valve Manufacturer (CR-187) PR 21146 (4286) Task 3520	E	FBB	\$275,954.90						0				
34.5	Credit for Changes in Low Voltage SWGR-14 Circuit Breaker (CR-163) PR 21146 (4286) Task 3510	A	IRWD	(\$1,978.00)						0				
34.6	Change to Addressable Smoke Detectors (CR-220) PR 21146 (4286) Task 3510	B	IRWD	\$38,650.88						0				
35	Approved by General Manager Approved on November 25, 2015				\$97,980.57	\$3,697,853.54	\$3,795,834.11	2.32%	\$167,261,774.11	0	0	0	1,278	10/28/2016
35.1	Change in Naming Convention for Storm Water Pump Station (Area 1500) SCADA Programming (CR-181) PR 21146 (4286) Task 3510	E	FBB	\$9,027.03						0				
35.2	Valve Status Override Functionality (CR-182) PR 21146 (4286) Task 3510	E	FBB	\$38,999.08						0				
35.3	Control Changes for Primary Sludge and Waste Activated Pump Stations (Area 1900) SCADA Programming (CR-184) PR 21146 (4286) Task 3510	A	IRWD	\$36,772.78						0				
35.4	Motor Protection Relay (CR-239) PR 21146 (4286) Task 3510	A	IRWD	\$13,181.68						0				
36	Approved by General Manager Approved on December 3, 2015				\$86,007.50	\$3,795,834.11	\$3,881,841.61	2.37%	\$167,347,781.61	0	0	0	1,278	10/28/2016
36.1	Light Weight Concrete for Underslab Conduits at Microturbine Area (CR-253) PR 21146 (4286) Task 3510	A	FBB	\$21,117.50						0				
36.2	Outstanding CB&I Items (CR-099A) PR 21146 (4286) Task 3520 – This change order includes: CR-098 (Guard Rail at Biogas Storage Tank); CR-099 (Tube Steel Supports); additional Off-Site Storage Costs; and credit for Use of SS 308 in Lieu of SS 316L Welds.	B	FBB	\$64,890.00						0				
37	Approved by Exe. Director of Engineering and Water Quality Approved on January 21, 2016				\$47,446.49	\$3,881,841.61	\$3,929,288.10	2.40%	\$167,395,228.10	0	0	0	1,278	10/28/2016
37.1	Additional Pressure Relief Valves in the Digester Control Building Slab (CR-112) PR 21146 (4286) Task 3520	C	IRWD	\$1,065.72						0				
37.2	Change Feeder Circuit Breaker Size in MCC-4102 (CR-165) PR 21146 (4286) Task 3510	C	IRWD	\$4,157.60						0				
37.3	Change Feeder Circuit Breaker Size for the Primary Sludge Pump Variable Frequency Drive (CR-233) PR 21146 (4286) Task 3510	C	IRWD	\$2,430.59						0				
37.4	SCADA Programming Changes Due to Change to Schweitzer Power Quality	A	FBB	\$16,814.00						0				
37.5	Additional Labeling of Parallel Conduits and Cables (CR-262) PR 21146 (4286) Task 3510	A	IRWD	\$8,410.00						0				
37.6	Change in Sludge Receiving Entrance Beacon Operation CR-263) PR 21146 (4286) Task 3510	A	IRWD	\$5,382.19						0				
37.7	Anodize Aluminum Light Fixture Stanchions/Sun Shades (CR-283) PR 21146 (4286) Task 3510	A	IRWD	\$5,911.61						0				
37.8	Hot Tap 8-Inch ACP Potable Water Line (CR-311) PR 21146 (4286) Task 3520	A	FBB	\$3,274.78						0				

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38	Approved by General Manager Approved on February 29, 2016				\$83,345.07	\$3,929,288.10	\$4,012,633.17	2.45%	\$167,478,573.17	0	0	0	1,278	10/28/2016
38.1	Software Control Block Revision for Area 4300 – Dewatering (CR-211) PR 4286 Task 3510	C	FBB	\$18,908.76						0				
38.2	Revised Master List of SCADA Templates (CR-247) PR 4286 Task 3510	C	FBB	\$47,274.54						0				
38.3	Additional Overflow Alarms at Sludge Holding Tanks (CR-280) PR 4286 Task 3510	A	IRWD	\$9,654.54						0				
38.4	Leak Detection at Sulfuric Acid Facility (CR-290) PR 21146 (4286) Task 3510	A	IRWD	\$5,499.97						0				
38.5	Insulation for Acid Phase Gas Piping (CR-218A) PR 21146 (4286) Task 3520	A	IRWD	\$2,007.26						0				
39	Approved by General Manager Approved on March 7, 2016				\$98,006.46	\$4,012,633.17	\$4,110,639.63	2.51%	\$167,576,579.63	0	0	0	1,278	10/28/2016
39.1	SCE Installation - Final Accounting of Work Items Between Negotiated Change Order and Actual Work (CR-146E) PR 4286 Task 3510	B	FBB	\$7,809.51						0				
39.2	Installation of Southern California Gas (SCG) Boxes (CR-146F) PR 4286 Task 3510	A	FBB	\$3,479.81						0				
39.3	Schweitzer SEL-735 Power Monitors for Centrifuge Panels (CR-207) PR 4286 Task 3510	A	IRWD	\$34,274.40						0				
39.4	Hirschmann Ethernet Switches for Centrifuge Panels (CR-208) PR 4286 Task 3510	A	IRWD	\$9,569.15						0				
39.5	Addition of Sample Pump Variable Frequency Drives for Thickening Centrifuges (CR-237) PR 4286 Task 3520	E	IRWD	\$24,496.55						0				
39.6	Upgrade of Exit Signs and Ceiling Lights in the Gas Room of the Digester Control Building to NEC Class 1 Division 1 (CR-313) PR 4286 Task 352	A	IRWD	\$18,377.04						0				
40	Approved by General Manager Approved on April 20, 2016				\$97,287.05	\$4,110,639.63	\$4,207,926.68	2.57%	\$167,673,866.68	0	0	0	1,278	10/28/2016
40.1	Brace Plates in Solids Handling Building (CR-069) PR 4286 Task 3505	C	FBB	\$40,216.76						0				
40.2	Relocation of RIO-50 Panel (CR-186) PR 4286 Task 3510	B	FBB	\$4,818.64						0				
40.3	Addition of Two Doors at the bases of the stairways at Methane Digesters Nos. 1 and No. 2 (CR-232) PR 4286 Task 3505	C	FBB	\$52,251.65						0				

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engine Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
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41	Approved By Board of Directors Approved on May 23, 2016				\$1,103,650.56	\$4,207,926.68	\$5,311,577.24	3.25%	\$168,777,517.24	0	0	0	1,278	10/28/2016
41.1	Additional SCE and SCG Modifications (CR-146A) PR 4286 Task 3510	B	FBB	\$51,238.69						0				
41.2	Additional Potholing Due to SCE and SCG Realignment (CR-146B) PR 4286 Task 3510	B	FBB	\$36,706.57						0				
41.3	Additional Cameras at the Unloading/Loading Area of the Solids Handling Facility (CR-164) PR 4286 Task 3505	A	IRWD	\$61,731.96						0				
41.4	Fire Sprinkler System Modifications – Mechanical (CR-174) PR 4286 Task 3520	B	IRWD	\$154,592.08						0				
41.5	Fire Sprinkler System Modifications – Electrical (CR-166) PR 4286 Task 3510	B	IRWD	\$13,730.06						0				
41.6	Fiber Optic System Modifications (CR-172/CR-306/CR-314) PR 4286 Task 3510	A	IRWD	\$178,879.46						0				
41.7	T-15, T-16, and T-17 Secondary Breakers (CR-185A, CR-185B, and CR-185C) PR 4286 Task 3510	A	IRWD	\$254,941.66						0				
41.8	Cable and Conduit Changes at the Sludge Receiving Area of the Solids Handling Building (CR-203) PR 4286 Task 3510	C	FBB	\$14,338.94						0				
41.9	Concrete Surface Treatment (CR-222) PR 4286 Task 3505	A	IRWD	\$68,714.34						0				
41.1	Heating Water Boiler Control Modifications (CR-246) PR 4286 Task 3510	A	IRWD	\$71,379.00						0				
41.11	SCADA Control Modifications for the Acid Phase Digesters, Methane Digesters, and Sludge Holding Tank (CR-252) PR 4286 Task 3510	A	IRWD	\$50,540.23						0				
41.12	Ambient Gas Analyzer Wiring Modification (CR-264) PR 4286 Task 3510	B	IRWD	\$19,734.51						0				
41.13	Disconnect Switches for Flow Valves in the Solids Handling Building (CR-272) PR 4286 Task 3510	C	IRWD	\$25,550.26						0				
41.14	Centrifuge Pedestal Modifications (CR-301) PR 4286 Task 3505	C	IRWD	\$30,603.14						0				
41.15	SCADA, Instrumentation, and Electrical Modifications (CR-287, CR-294, and CR-322) PR 4286 Task 3510	A	IRWD	\$70,969.66						0				
42	Approved By Board of Directors Approved on May 23, 2016				(\$199,771.09)	\$5,311,577.24	\$5,111,806.15	3.13%	\$168,577,746.15	0	0	0	1,278	10/28/2016
42.1	Value Engineering of Chemical Pump Systems (CR-054) PR 4286 Task	E	FBB	(\$48,549.90)						0				
42.2	Change in Lightning Protection Installation for Egg-Shaped Digesters (CR-121A) PR 4286 Task 3510	E	FBB	(\$97,141.74)						0				
42.3	Deletion of Seal Water Stations and Seal Water Piping (CR-214) PR 4286 Task 3520	A	IRWD	(\$10,557.28)						0				
42.4	Deletion of Low Pressure Switches for Centrate Pumps (CR-257) PR 4286 Task 3510	A	IRWD	(\$1,748.17)						0				
42.5	Centrifuge Seismic Restraint Design Costs (CR-345) PR 4286 Task 1065	A	IRWD	(\$24,064.00)						0				
42.6	Credit for Overtime Inspection Hours From 6/1/2015 to Through 12/31/2015 (CR-089B) PR 4286 Task 1065	E	FBB	(\$17,710.00)						0				

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Design Engine Black & Veatch

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43	Approved by Exe. Director of Engineering and Water Quality Approved on May 31, 2016				\$74,731.69	\$5,111,806.15	\$5,186,537.84	3.17%	\$168,652,477.84	0	0	0	1,278	10/28/2016
43.1	Combustible Gas Detection System (CR-234) PR 21146 (4286) Task 3510	E	FBB	\$18,843.39						0				
43.2	Additional Wires and Cables Between MCC-4102 and PLC-4000 (CR-278) PR 21146 (4286) Task 3510	C	FBB	\$1,775.13						0				
43.3	SCADA Programming Modifications (CR-282) PR 21146 (4286) Task 3510	E	FBB	\$49,679.02						0				
43.4	Change of Waste Gas Burner Feeder Circuit Breaker (CR-234) PR 21146 (4286) Task 3510	B	FBB	\$4,434.15						0				
44	Approved by Exe. Director of Engineering and Water Quality Approved on June 29, 2016				\$74,912.99	\$5,186,537.84	\$5,261,450.83	3.22%	\$168,727,390.83	0	0	0	1,278	10/28/2016
44.1	Electrical and Telephonic Modifications for Elevators for Solids Handling Building and Digester Control Building (CR-037A) PR 4286 Task 3510	C	FBB	\$38,882.06						0				
44.2	Odor Control Recirculation Pump Selector Switch SCADA Modifications (CR-343) PR 4286 Task 3510	A	IRWD	\$9,294.71						0				
44.3	SCADA Valve Matrix Tables Animation Clarification for Milestone 1 (CR-353) PR 4286 Task 3510	A	IRWD	\$9,195.86						0				
44.4	PLC Status Object Update (CR-234) PR 4286 Task 3510	B	FBB	\$4,783.14						0				
44.5	Elevator Safety Beam in the Digester Control Building (CR-302) PR 4286 Task 3505	C	FBB	\$3,830.95						0				
44.6	Masonry Changes to the North Retaining Wall (CR-365) PR 4286 Task 3505	B	IRWD	\$8,926.27						0				
45	Approved by Board of Directors Approved on July 25, 2016/December 20, 2016				\$9,250,000.00	\$5,261,450.83	\$14,511,450.83	8.88%	\$177,977,390.83	368	0	368	1,646	10/31/2017
45.1	Recovery Plan PR 4286 Task 3510	B	FBB	\$9,250,000.00						368				

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46	Approved by General Manager Approved on January 27, 2017				\$94,696.76	\$14,511,450.83	\$14,606,147.59	8.94%	\$178,072,087.59	0	368	368	1,646	10/31/2017
46.1	Additional Masonry Anchor in the Solids Handling Building (CR-200) PR 4286 Task 3510	C	IRWD	\$1,457.22						0				
46.2	Additional Auto Dialer (CR-234A) PR 4286 Task 3510	A	IRWD	\$6,081.90						0				
46.3	Grating and Handrail Modifications at Bulk Polymer Storage Platform (CR-300) PR 4286 Task 3505	A	IRWD	\$5,568.83						0				
46.4	SCADA IP Address Update (CR-309) PR 4286 Task 3510	A	IRWD	\$1,227.96						0				
46.5	Masonry Modifications at Solids Handling Building Stairwell (CR-324) PR 4286 Task 3505	C	FBB	\$5,939.45						0				
46.6	Change in Valve Operator at the Centrate Treatment Facility (CR-329) PR 4286 Task 3520	A	IRWD	\$4,824.29						0				
46.7	Boot Wash Landing Addition (CR-349) PR 4286 Task 3505	C	FBB	\$1,834.60						0				
46.8	Updating Valve Analog SCADA Template (CR-354) PR 4286 Task 3510	A	IRWD	\$692.72						0				
46.9	Additional Light Fixtures and Lamps (CR-355A) PR 4286 Task 3510	A	IRWD	\$8,508.46						0				
46.10	Addition of Rebate Angle in the FOG Unloading Sump Area (CR-363) PR 4286 Task 3505	A	IRWD	\$763.62						0				
46.11	MCC-4103 Hot Water Circulation Pump Breakers Change (CR-366) PR 4286 Task 3510	B	IRWD	\$2,316.03						0				
46.12	MCC-4100/4101 Cake Transfer Pump Breakers Change (CR-370) PR 4286 Task 3510	B	IRWD	\$23,720.61						0				
46.13	MCC-4102 Breaker Change (CR-374) PR 4286 Task 3510	B	IRWD	\$2,316.03						0				
46.14	SCADA Programming Modifications During Benchtest No 1 for Areas 1900 and 2000 (CR-376) PR 4286 Task 3510	A	IRWD	\$24,092.32						0				
46.15	Additional Light Fixture Above Door in Digester Control Building Gas Room (CR-399) PR 4286 Task 3510	A	IRWD	\$1,478.19						0				
46.16	Change in Size of Disconnect Switches for Digested Sludge Mixers (CR-408) PR 4286 Task 3510	B	FBB	\$1,290.10						0				
46.17	Additional Thickening Feed Grinder Control Panel Circuits (CR-438) PR 4286 Task 3510	B	IRWD	\$1,286.63						0				
46.18	Thickness and Glazing Change for Windows (CR-438) PR 4286 Task 3510	C	IRWD	\$1,297.80						0				

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47	Pending Approval from General Manager Pending Approval on February 23, 2017				\$96,414.36	\$14,606,147.59	\$14,702,561.95	8.99%	\$178,168,501.95	0	368	368	1,646	10/31/2017
47.1	Relocation of Neutralization Tank Drainage Piping PR 4286 Task 3520	B	FBB	\$2,312.08										
47.2	Modifications to Digester Control Building Door and Piping Due to Heating Water Expansion Tank Pad Adjustment (CR-221) PR 4286 Task 3505	C	FBB	\$5,500.74										
47.3	PLC-3100 Changes (CR-284) PR 4286 Task 3510	C	FBB	\$1,070.38										
47.4	Additional Angle Support to Acid Phase Digester Bridges (CR-298) PR 4286 Task 3505	C	FBB	\$4,986.21										
47.5	Additional Potable Water Gate Valves (CR-332) PR 4286 Task 3520	A	IRWD	\$3,892.44										
47.6	T-4 Kirk Key Interlock Installation (CR-335) PR 4286 Task 3510	B	IRWD	\$6,924.69										
47.7	Solids Handling Building Dumpster Room Channel Frames Modifications (CR-338) PR 4286 Task 3505	C	FBB	\$5,093.87										
47.8	PCS Server Configuration Clarification (CR-352) PR 4286 Task 3510	A	IRWD	\$6,824.35										
47.9	Additional Anchorage Support for Ledgers of the Digester Control Building Roof (CR-361) PR 4286 Task 3505	C	FBB	\$13,794.95										
47.10	Change of MCC-4103 Hot Water Circulation Pump Breakers (CR-366B) PR 4286 Task 3510	A	IRWD	\$1,336.13										
47.11	Centrate Treatment Facility Pull Boxes Duct Bank Settlement (CR-383) PR 4286 Task 3510	B	FBB	\$3,300.13										
47.12	Modifications to the MCC-4100/4101/4102/4103 (CR-405) PR 4286 Task 3510	B	FBB	\$7,418.52										
47.13	Cake Storage Hopper Modifications (CR-421) PR 4286 Task 3510	C	FBB	\$2,250.67										
47.14	Removing Installed Lighting in the Solids Handling Building (CR-427) PR 4286 Task 3510	A	IRWD	\$8,947.37										
47.15	Electrical Changes for Generator MPC (CR-430) PR 4286 Task 3510	A	IRWD	\$10,950.14										
47.16	Electrical Modifications to MCC-4100 and 4103 (CR-431) PR 4286 Task 3510	A	FBB	\$4,500.00										
47.17	Occupancy Sensors in the Solids Handling Building Shower Areas (CR-444) PR 4286 Task 3510	C	FBB	\$1,601.36										
47.18	Digester Gas Pre-Treatment In-Slab Conduit Size Change (CR-454) PR 4286 Task 3510	C	FBB	\$5,710.33										

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48	Pending Approval by Board of Directors Pending Approval on February 27, 2017				\$728,237.74	\$14,702,561.95	\$15,430,799.69	9.44%	\$178,896,739.69	0	368	368	1,646	10/31/2017
48.1	Structural Modifications of the Elevator Shafts (CR-037) PR 4286 Task 3505200) PR 4286 Task 3505	B	FBB	\$58,705.90						0				
48.2	SCADA Programming Update of Polymer Feed and Storage System (CR-148A) PR 4286 Task 3510	A	FBB	\$23,685.14						0				
48.3	Stairs and Platform at SHB Load-Out Area (CR-149) PR 4286 Task 3505	C	FBB	\$39,622.65						0				
48.4	Additional Polymer Dilution Flow Meters and Associated Conduits and Cables (CR-159B) PR 4286 Task 3510	A	IRWD	\$38,978.70						0				
48.5	Miscellaneous Andritz Items (CR-205) PR 4286 Task 3520	A	IRWD	\$41,246.71						0				
48.6	RIO-4001 Changes (CR-286) PR 4286 Task 3510	A	IRWD	\$27,889.74						0				
48.7	RIO-3102 Changes (CR-310) PR 4286 Task 3510	A	IRWD	\$18,280.62						0				
48.8	Additional Outlet and Data Locations in the SHB (CR-419) PR 4286 Task 3510	A	IRWD	\$13,261.60						0				
48.9	New Lighting in the SHB First Floor Area (CR-427A) PR 4286 Task 3510	A	IRWD	\$102,503.46						0				
48.10	Additional Conduits and Cables for Thermocouples for Several Pumps (CR-424, CR-424A through CR-424F) PR 4286 Task 3510	B	FBB	\$54,982.68						0				
48.11	Additional Wall Panel Framework at the SHB (CR-445) PR 4286 Task 3505	C	FBB	\$128,000.00						0				
48.12	Changes in Uninterruptible Power Supply Units (CR-162/CR-162A) PR 4286 Task 3510	A	IRWD	\$128,052.94						0				
48.13	Addition of Circuit Breaker at Transformer T-14 (CR-474) PR 4286 Task 3510	A	IRWD	\$53,027.60						0				
49	Pending Approval by Board of Directors Pending Approval on February 27, 2017				(\$47,099.20)	\$15,430,799.69	\$15,383,700.49	9.41%	\$178,849,640.49	0	368	368	1,646	10/31/2017
49.1	Related Mechanical Piping Modifications Due to Change in Chemical Pumps in CCO No. 42 (CR-054A) PR 4286 Task 3520	E	FBB	(\$23,897.73)						0				
49.2	Changing the Solids Handling Building Roofing from EPDM to PVC (CR-255) PR 4286 Task 3505	E	FBB	(\$9,000.00)						0				
49.3	Net Reduction of Scope of Work in CR-353 – SCADA Valve Matrix Tables Animation Clarifications (CR-353B/353C) PR 4286 Task 3510	A	IRWD	(\$4,429.09)						0				
49.4	Change in Starters for MCC-4100/4101 Cake Transfer Pump Breakers (CR-370A) PR 4286 Task 3510	A	IRWD	(\$4,047.43)						0				
49.5	Deletion of Insulation for the Solids Handling Building Foundation (CR-393) PR 4286 Task 3505	A	IRWD	(\$5,724.95)						0				

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Category	Total Amount	% of Original Contract
A - District Convenience/Initiation - Project Related	\$ 1,679,794.65	1.03%
B - Differing Site Conditions	\$ 11,569,878.80	7.08%
C - Design Oversight	\$ 2,116,620.28	1.29%
D - District Convenience/Initiation - Non-Project Related	\$ -	0.00%
E - Contractor Convenience/Initiation	\$ 17,406.76	0.01%
TOTAL (A + B + C + D)	\$ 15,383,700.49	9.41%

Category	Total Amount	% of Original Contract
IRWD-Initiation/Driven	\$ 2,534,210.37	1.55%
FBB-Initiation/Driven	\$ 12,678,769.90	7.76%
Not applicable	\$ 170,720.22	0.10%
TOTAL	\$ 15,383,700.49	9.41%

March 13, 2017

Submitted by: P. Weghorst

Approved by: Paul Cook 

ACTION CALENDAR

AGREEMENT FOR LONG-TERM EXCHANGE PROGRAM WITH DUDLEY RIDGE WATER DISTRICT

SUMMARY:

The IRWD long-term unbalanced exchange program with Buena Vista Water Storage District (BVWSD) allows BVWSD to store its supplies on a 2-for-1 basis in the Strand Ranch Integrated Banking Project (Water Bank). In order to maximize the benefits of this water, staff has been pursuing the implementation of a Long-Term Exchange Program with Dudley Ridge Water District (DRWD) that would provide IRWD with State Water Project (SWP) water that could be used in its service area. The Supply Reliability Programs (SRP) Committee has provided input to the negotiation and development of the proposed 2017 Agreement Between Dudley Ridge Water District and Irvine Ranch Water District for the Long-Term Exchange Program. Staff recommends that the Board authorize the General Manager to execute the agreement subject to any substantive changes being approved by the Supply Reliability Programs Committee.

BACKGROUND:

The existing IRWD-BVWSD unbalanced exchange program provides IRWD access to non-SWP supplies that are stored in the Water Bank. Staff has been pursuing the implementation of a mutually beneficial Long-Term Exchange Program with DRWD that would allow IRWD to exchange its non-SWP water for an equal amount of SWP Table A water. The new program would provide drought assistance to DRWD landowners with agricultural operations in both Kern County and the DRWD service area through the use IRWD's non-SWP water during water-short years. IRWD would benefit by receiving SWP water that could be used in IRWD's service area consistent with the Coordinated Operating and Exchange Agreement with Metropolitan Water District of Southern California (Metropolitan) and Municipal Water District of Southern California (Coordinated Agreement). Following is an overview of the negotiation process for a Long-Term Exchange Program with DRWD. An overview of the terms of an agreement that would facilitate the program is also provided.

Negotiation Process:

In April 2016, staff reviewed with the SRP Committee terms for a Long-Term Exchange Program with DRWD. An agreement based on these terms was developed and then reviewed with the DRWD Board of Directors. The DRWD Board provided feedback and staff worked with DRWD and some of its landowners to revise the proposed agreement to provide additional mutual benefits. On January 30, 2017, the SRP Committee provided input on language associated with these additional benefits and a second draft of the agreement was prepared. On February 8, 2017, DRWD staff presented the second draft of the agreement to the DRWD Board of Directors. The DRWD Board approved the agreement subject to several requested modifications acceptable to DRWD's Board President and General Manager.

Preparation of Final Draft Agreement:

Following the DRWD Board meeting on February 8, 2017, staff worked with the General Manager of DRWD to make further revisions to the agreement that are consistent with the modifications that were requested by the DRWD Board. These requested modifications were reviewed with the SRP Committee on February 16, 2017. Since then several revisions have been made that more clearly describe the losses that will be applied to water returned by DRWD in fulfilling the requirements of each exchange. In addition, minor revisions were made that allow DRWD to request information from IRWD on the availability of non-SWP water in storage in IRWD's Water Bank including the Stockdale Integrated Banking Project. The final negotiated agreement is attached as Exhibit "A". A version of the agreement that highlights the revisions made since February 16, 2017, is provided as Exhibit "B".

Overview of Long-Term Exchange Program Agreement:

The proposed Long-Term Exchange Program Agreement would allow IRWD to recover and deliver up to 40,000 AF of its non-SWP water that is stored in IRWD's Water Banks to DRWD in exchange for SWP water provided by DRWD. The SWP water would need to be returned to IRWD within five years, whenever the June 1 SWP Allocation is 65% or higher. The return deliveries can be made to either IRWD's Water Banks or to Metropolitan's reservoirs in Southern California consistent with the Coordinated Agreement. Deliveries to IRWD's Water Banks can be made either through underground transfers from the Kern Water Bank or on the surface for direct recharge. Return deliveries made through underground transfers or to Metropolitan's reservoirs would not incur any losses. Deliveries made to IRWD's Water Bank by direct recharge would incur 10% losses and DRWD would need to deliver enough SWP water into storage to ensure the completion of a 1-for-1 exchange. The agreement would expire on November 4, 2035.

Option to Pre-Deliver SWP Water:

The agreement provides DRWD the opportunity to pre-deliver SWP water to IRWD's Water Banks in exchange for non-SWP water that IRWD would recover and deliver to DRWD within five years. DRWD's pre-delivery of water would be subject to IRWD's approval and confirmation that IRWD has non-SWP water in storage to complete the exchange.

Allocation of Costs:

All costs associated with the program would be allocated on an equitable basis between IRWD and DRWD as set forth in the agreement. IRWD would be responsible for all costs for the acquisition, storage, recovery and conveyance of non-SWP water made available to DRWD. DRWD would be responsible for all costs for the acquisition, conveyance and recharge of SWP water returned to IRWD.

Required Approvals:

Implementation of the Long-Term Exchange Program would require approval by the Department of Water Resources (DWR), Metropolitan, and Kern County Water Agency (KCWA). Similar to

IRWD's existing unbalanced exchange program with DRWD, an Exchange and Point of Delivery Agreement among DWR, DRWD, Metropolitan and KCWA will be developed and executed that would allow for a multi-year exchange of non-SWP water for SWP water. Metropolitan's consent is required for IRWD to secure SWP water as specified in the Coordinated Agreement. The execution of the Long-Term Exchange Program Agreement between IRWD and DRWD with Metropolitan providing its signed consent would initiate the process for DWR to develop the Exchange and Point of Delivery Agreement.

At the Board meeting, staff will present further details associated with the proposed Long-Term Exchange Program Agreement with DRWD. Staff recommends that the Board authorize the General Manager to execute the agreement, subject to substantive changes approved by the SRP Committee.

FISCAL IMPACTS:

The proposed Long-Term Exchange Program Agreement with DRWD would equalize the cost of water to both IRWD and DRWD. Consistent with the Coordinated Agreement, IRWD would pay Metropolitan the full service Tier-1 rate for either treated or untreated water delivered to IRWD's service area as a result of the Long-Term Exchange Program with DRWD.

ENVIRONMENTAL COMPLIANCE:

Both the Strand Ranch and Stockdale Integrated Banking Projects are subject to the California Environmental Quality Act (CEQA). In compliance with CEQA, the California Public Resources Code Section 21000 et. seq., and per the California CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3, Rosedale-Rio Bravo Water Storage District as a lead agency, filed Notices of Determinations with the County of Kern and with the California State Clearinghouse for the Strand Ranch Integrated Banking Project Final Environmental Impact Report (EIR) and the Stockdale Integrated Banking Project Final EIR. IRWD, as a Responsible Agency, filed Notices of Determinations with the Counties of Orange and Kern and with the California State Clearinghouse for both the Strand Ranch and Stockdale Integrated Banking Projects Final EIRs.

RECOMMENDATION:

That the Board authorize the General Manager to execute the 2017 Agreement Between Dudley Ridge Water District and Irvine Ranch Water District for Long-Term Exchange Program subject to any substantive changes being approved by IRWD's Supply Reliability Programs Committee.

LIST OF EXHIBITS:

- Exhibit "A" – 2017 Agreement Between Dudley Ridge Water District and Irvine Ranch Water District for Long-Term Exchange Program
- Exhibit "B" – 2017 Agreement Between Dudley Ridge Water District and Irvine Ranch Water District for Long-Term Exchange Program with tracked changes from version presented to the Supply Reliability Programs Committee on February 16, 2017

EXHIBIT A

DRAFT 3/3/17

**2017 AGREEMENT BETWEEN
DUDLEY RIDGE WATER DISTRICT AND
IRVINE RANCH WATER DISTRICT FOR
LONG-TERM EXCHANGE PROGRAM**

THIS AGREEMENT (the "Agreement"), dated this _____ day of _____, 2017, is made and entered into by and between DUDLEY RIDGE WATER DISTRICT ("DRWD") and IRVINE RANCH WATER DISTRICT ("IRWD"), each of the foregoing a California Water District formed under and existing pursuant to Section 34000 *et seq.* of the California Water Code (together, the "Parties" and each a "Party").

RECITALS:

WHEREAS, IRWD has developed and continues to develop the Integrated Banking Project (defined below) in Kern County with storage, recharge and recovery capacities which it operates with Rosedale-Rio Bravo Water Storage District ("Rosedale"); and

WHEREAS, DRWD as an agricultural district holds a long-term Water Supply Contract with the California Department of Water Resources ("DWR") dated December 13, 1963, as amended, pursuant to which it is entitled to receive certain quantities of water from the State Water Project ("SWP"), including without limitation water derived from DRWD's Table A Amount ("Table A Water"); and

WHEREAS, IRWD has entered into the agreement entitled "Coordinated Operating, Water Storage, Exchange and Delivery Agreement" dated as of April 21, 2011 (the "COA"), by and among the Metropolitan Water District of Southern California ("Metropolitan"), the Municipal Water District of Orange County and IRWD; and

WHEREAS, each Party seeks to increase its flexibility and improve water management and reliability by implementing a long term exchange program beginning in 2017, in which IRWD, as a landowner in DRWD, will, at its discretion, recover up to 40,000 acre feet of non-SWP water from the Integrated Banking Project for delivery to DRWD, for use within DRWD's service area or within Kern County, in exchange for which IRWD will receive an equal amount of DRWD's Table A Water in accordance with the COA as provided herein; and

WHEREAS, DRWD will implement such program as a part of, and consistent with, the 2015 Update to its 2012 Agricultural Water Management Plan ("2015 AWMP"); and

WHEREAS, IRWD and DRWD desire to enter into this Agreement for the purpose of setting forth the terms and conditions of the Exchange Program (defined below); and

WHEREAS, Kern County Water Agency ("KCWA") supports a portion of IRWD's non-SWP water originating from Kern River supplies to be used by DRWD landowners within DRWD's service area or within Kern County.

DRAFT 3/3/17

WHEREAS, the Parties intend that this Agreement shall be consistent with that certain Water Banking and Exchange Program Agreement between Rosedale and IRWD dated as of January 13, 2009, as amended (the "Banking Agreement"), and that certain Water Banking, Recovery and Exchange Program Agreement [Stockdale West and Stockdale East Properties] between Rosedale and IRWD dated as of February 4, 2016, understanding that DRWD is not a party to nor bound by either of such agreements.

NOW, THEREFORE, in consideration of the promises and covenants herein contained, DRWD and IRWD agree as follows:

AGREEMENT:

Section 1. Definitions of Certain Terms.

1.1 COA means the agreement entitled "Coordinated Operating, Water Storage, Exchange and Delivery Agreement", dated as of April 21, 2011, by and among Metropolitan, the Municipal Water District of Orange County and IRWD.

1.2 Exchange Program means the program generally described in Section 2 and implemented under this Agreement.

1.3 Exchange Water means the amount of up to 40,000 acre feet of non-SWP water that IRWD determines, at its discretion, is available to recover from the Integrated Banking Project for delivery to DRWD under the Exchange Program while this Agreement is in effect.

1.4 Integrated Banking Project means, consistent with the COA, the project described in the Banking Agreement and such other banking assets or components or interests as IRWD may determine to operate in conjunction with the recharge, storage and recovery facilities on the property known as "Strand Ranch" and other property.

1.5 DRWD POD means the Integrated Banking Project turn-ins on the Cross Valley Canal (the "CVC"), to which IRWD delivers Exchange Water to DRWD or for its account pursuant to Section 3.

1.6 IRWD POD means the Integrated Banking Project turn-outs in Reach 2 of the CVC to which DRWD delivers Return Water to IRWD or for its account pursuant to the option for physical delivery of Return Water to the Integrated Banking Project described in Section 4.1.

1.7 Return Water means Table A Water or other SWP supplies available to or controlled by DRWD that will be delivered to IRWD in exchange for Exchange Water as provided herein.

1.8 Table A Water means water derived from DRWD's Table A Amount under DRWD's long-term Water Supply Contract with DWR.

Section 2. Exchange Program. IRWD shall make up to 40,000 AF of Exchange Water available at IRWD's discretion for delivery to DRWD over the term of this Agreement when and if DRWD requests Exchange Water and such request is approved by IRWD, in exchange for an equal amount of Return Water, to be delivered by DRWD to IRWD pursuant to Section 4 of this Agreement. IRWD may use for this purpose any water supplies that IRWD banks under a program that may be recovered and delivered to or as directed by DRWD in a manner acceptable to DRWD for its use either in or out of Kern County.

Section 3. Conveyance of Exchange Water.

3.1 IRWD will utilize its recovery capacity to recover and deliver the Exchange Water to the DRWD POD.

3.2 DRWD will take possession of the Exchange Water at the DRWD POD, when it is physically able to take delivery of Exchange Water, and will be responsible for conveying the Exchange Water for use by DRWD landowners.

Section 4. Return Water.

4.1 General. The timing and the location for the delivery of Return Water shall be as provided in this Section 4.1.

4.1.1 Within five (5) years of receiving a delivery of Exchange Water (the "Return Period"), and when the June 1 SWP allocation is 65% or greater, at a time of the year selected by DRWD, DRWD shall deliver an equivalent amount of Return Water, as provided herein, to IRWD. If the Return Period ends without a year with a June 1 SWP allocation of 65% or greater, then the Return Period will be extended one year at a time until a year occurs with the June 1 SWP allocation of 65% or greater which will trigger the delivery of the Return Water to IRWD. No more than five (5) one-year extensions would be provided. In the event five (5) extensions occur, DRWD's delivery of the Return Water shall be completed prior to the end of the fifth extension year. DRWD may also deliver Return Water to IRWD in any year when the June 1 SWP allocation is less than 65%.

4.1.2 With IRWD's approval, at the request of DRWD, DRWD may also pre-deliver Return Water prior to receiving a delivery of Exchange Water, up to an amount equal to, but not greater than, the amount of non-SWP water then stored by IRWD in the Integrated Banking Project. Within five (5) years of receiving a pre-delivery of Return Water, at a time of year selected by IRWD, and when DRWD is physically able to take delivery of Exchange Water and has demand therefor, IRWD shall, unless otherwise mutually agreed upon by IRWD and DRWD, deliver an equivalent amount of Exchange Water, as provided in Section 3. Exchange Water delivered as a result of a pre-delivery of Return Water shall be at an annual rate of twenty (20) percent of the pre-delivered amount until the return obligation has been fulfilled. At DRWD's request, IRWD may at IRWD's sole discretion provide Exchange Water at an increased rate per year. If by the end of the fifth year of a pre-delivery of Return Water, DRWD has not had the physical ability and demand to take delivery of all Exchange Water, then not more than one additional year would be allowed for Exchange Water deliveries.

4.1.3 Delivery of Return Water shall be made by either (i) if preferred by DRWD, an in-ground transfer of DRWD Table A Water from DRWD's Kern Water Bank account to the Integrated Banking Project, or otherwise (ii) as directed by Metropolitan, (A) delivery of Return Water from the California Aqueduct to the IRWD POD or (B) delivery to Metropolitan for subsequent delivery to Southern California. DRWD shall provide thirty (30) days written notice to IRWD before it delivers Return Water and will confer with IRWD as to the date(s) and location(s) of delivery.

4.2 Return Water To Constitute Program Water. The Parties acknowledge and agree that Return Water shall be deemed by IRWD to be Program Water, as defined in the COA, including Return Water delivered by in-ground transfer as provided in clause (i) of Section 4.1 and Return Water delivered as directed by Metropolitan as provided in clause (ii) of Section 4.1. However, all obligations to comply with the COA with respect to Return Water shall be borne by IRWD.

4.2.1 In accordance with the COA, Program Water delivered to the Metropolitan service area shall be under the control of Metropolitan, and any transfer, exchange or other transaction for water to be moved to Metropolitan's service area or to be made Program Water requires Metropolitan's prior consent; Metropolitan's consent to the Exchange Program shall be obtained as provided in Section 7 below.

4.2.2 Any provisions of Sections 10.2 and 10.3 to the contrary notwithstanding, control, carriage, handling, use, disposal, or distribution of water that has been delivered to Metropolitan for subsequent delivery to Southern California turnouts shall be governed as provided in the COA and DRWD shall have no responsibility therefor.

Section 5. Delivery Schedule.

5.1 General. As and when requested by DRWD and approved by IRWD, and pursuant to a schedule established pursuant to Section 5.2, IRWD may deliver Exchange Water and DRWD may pre-deliver Return Water within the first fifteen (15) years of the execution of this Agreement. DRWD shall provide Return Water on a first-in and first-out basis as provided in Section 4 and any pre-delivered Return Water shall be credited to DRWD as directed by DRWD for such purpose. All Return Water shall be delivered to IRWD by the end of the term of this Agreement. All Exchange Water to be provided upon the pre-delivery of Return Water shall be delivered as provided in Section 3 by the end of the term of this Agreement.

5.2 Exchange Water. At DRWD's request, IRWD will provide a preliminary accounting of the amount of Exchange Water that IRWD has determined to be available. In any calendar year when DRWD requests and IRWD approves an Exchange Water delivery, DRWD shall supply a preliminary delivery schedule with dates and amounts to IRWD by May 1. IRWD will confirm its determination of the quantity of Exchange Water available, the Parties will meet and confer as necessary and shall finalize the delivery schedule by June 1 of such calendar year. Exchange Water delivery shall be scheduled in coordination with the KCWA.

5.3 Return Water. The delivery of Return Water shall be scheduled in accordance with the applicable agreements governing Table A Water and the COA, and also in coordination with KCWA when the Return Water is returned to the Integrated Banking Project.

Section 6. Losses. Losses will be accounted for on an equitable basis. Exchange Water will be delivered to DRWD's POD net of losses determined in accordance with the applicable "Memorandum of Understanding" between Rosedale and adjoining entities which amount to 15 percent for water that was diverted to the Integrated Banking Project by IRWD. DRWD may incur other losses up to 2 % through the CVC conveyance as assigned by KCWA or any other losses that may be incurred with delivery to DRWD's service area. To ensure a 1-for-1 exchange, all Return Water (including water pre-delivered in accordance with this Agreement) will be delivered to IRWD considering applicable losses, such that the quantity of Return Water delivered by in-ground transfer or delivered to the IRWD POD or to the point where Metropolitan takes control of the water under the COA if delivered to Southern California, as determined pursuant to Section 4.1, is equal to the amount necessary to provide for the applicable losses associated with the method of return. For example, if the Return Water is delivered by in-ground transfer or delivered to Southern California, then there would be no losses to provide for. If the Return Water is delivered to the IRWD POD by DRWD, then 10% losses associated with the Memorandum of Understanding will need to be provided for in the Return Water deliveries. Exhibit "A" provides the adjustment factors to be used in providing for losses for each method of delivering Return Water. Exhibit "A" also includes examples of adjusting for losses associated with each method of making Return Water deliveries to ensure a 1-for-1 exchange. IRWD may incur other losses up to 2 % through the CVC conveyance as assigned by KCWA or any other losses that may be incurred with delivery to the IRWD POD.

Section 7. Coordination of Approvals and Agreements.

7.1 Coordination and Costs. The Exchange Program will require approvals from DWR, KCWA, and Metropolitan. IRWD and DRWD shall jointly coordinate using their respective staff resources in the development of all agreements necessary to deliver Exchange Water to DRWD and to deliver Return Water to IRWD. IRWD and DRWD shall each be responsible for their own costs associated with such coordination. IRWD and DRWD shall each execute reasonable indemnification agreements, consistent with their respective responsibilities as set forth in Section 10, to the extent required in connection with such approvals; provided, that neither Party shall be required to execute any such agreement that is unacceptable to its board of directors.

7.2 Contingent Effectiveness. The effectiveness of this Agreement shall be contingent upon consent to the herein-described Exchange Program by Metropolitan, as indicated by its signature below, and approval of the herein-described Exchange Program by DWR as required for SWP delivery between SWP contractors, and approval by KCWA to the extent required by such DWR authorizing agreement(s). If within one (1) year of the execution of this Agreement by the Parties (the "Contingent Effectiveness Period"), any of the approvals described in the preceding sentence are not obtained, this Agreement shall cease to be effective; provided, the Parties may mutually agree to and make any modifications of this Agreement that they determine are necessary to gain such consent or approval.

Section 8. Costs.

8.1 Per Acre Foot Costs. All per acre foot costs associated with the Exchange Program will be paid as set forth in this Section. An illustrative table that assumes that Return Water is delivered to the IRWD POD using current approximate costs is set forth in Exhibit "B" attached and incorporated herein. As indicated in Exhibit "B", the use of assumed non-SWP water costs and SWP allocation percentage reflect the Parties' overall intent to approximately equalize to each Party the per acre foot cost, and if the assumptions materially change, the Parties agree to make adjustments to the cost responsibilities in Sections 8.1.1 and 8.1.2 to approximately equalize the allocation of costs. The costs listed in Exhibit "B" are by way of example and not limitation, and if a new per acre foot cost attributed to the Exchange Program is incurred that was not anticipated in the costs listed in Exhibit "B", each of the Parties shall be responsible for one-half of the new cost unless the Parties agree otherwise.

8.1.1 Exchange Water Costs. Notwithstanding any other provision of this Agreement, IRWD shall be responsible for all per acre foot costs for acquisition and storage of Exchange Water prior to its delivery to the DRWD POD. IRWD shall be responsible for all costs of recovery of the Exchange Water, including recovery operation and maintenance, Rosedale administrative charges for recovery and CVC conveyance to the DRWD POD. Each of the Parties shall be responsible for one-half of all KCWA fees, including transaction set-up fees, per acre foot transaction request fees and third-party out-of-county fees.

8.1.2 Return Water Costs. Notwithstanding any other provision of this Agreement, DRWD shall be responsible for all per acre foot costs for Return Water. DRWD shall be responsible for all costs of delivery of the Return Water to the IRWD POD, including CVC pumping to the IRWD POD, CVC conveyance to the IRWD POD, and Rosedale administrative charges for recharge in the Integrated Banking Project. For water delivered to the IRWD POD via the CVC or to Southern California, the water delivery costs charged by the DWR (variable OMP&R and off-Aqueduct charges) are to be paid by Metropolitan under the COA. The costs of providing for applicable losses upon the delivery of Return Water to the IRWD POD can be allocated to equalize the cost per acre foot paid by the Parties as shown in the example provided as Exhibit "B".

8.2 Out of Pocket Costs Other Than Coordination Costs Or Per Acre Foot Costs. Without limiting the generality of Section 10.1 of this Agreement in any way, each Party shall bear its own expenses and costs incurred in connection with activities undertaken by such Party relating to the Exchange Program, except for costs of coordination otherwise provided for in Section 7.1 or per acre foot costs described and otherwise provided for in Section 8.1. A Party's expenses to be borne by such Party under this Section include without limitation (i) actual out-of-pocket expenses incurred by such Party (including costs of its staff), (ii) the actual amount of legal fees, consulting fees and similar third-party charges incurred by such Party in connection with the Exchange Program, including without limitation the costs incurred by such Party in connection with preparing and reviewing any environmental documentation, (iii) all costs of litigation (including without limitation attorneys' fees) actually incurred by such Party in defending any action brought by a third party as the result of or challenging such Party's actions in connection with the Exchange Program, and (iv) damages actually payable by such Party relating to any activities such Party undertakes in connection with the Exchange Program, except

to the extent such damages were the direct result of the willful misconduct of the other Party that would otherwise be indemnified under Section 10 unless otherwise mutually agreed by the Parties.

8.3 Payments. The Parties agree to promptly process statements, invoices, payments, and reimbursements as needed to effectuate this Section 8 and Section 7.1.

Section 9. Environmental Compliance. On May 27, 2008 Rosedale certified an environmental impact report (SCH 2007041080) for the Integrated Banking Project (“Strand Ranch EIR”) and subsequently on said date IRWD approved the Strand Ranch EIR as a responsible agency. On January 14, 2010 IRWD certified a Negative Declaration (SCH 2009111097) for the IRWD / Jackson Ranch Water Allocation Project (“Jackson ND”). On December 8, 2015 Rosedale certified an environmental impact report (SCH 2010091076) for the Stockdale Integrated Banking Project (“Stockdale EIR”) and subsequently on December 14, 2015 IRWD approved the Stockdale EIR as a responsible agency. The Strand Ranch and Stockdale EIRs evaluated, among other things, the banking project facilities and the delivery of water from the facilities to IRWD for use in the IRWD service area.

DRWD has adopted a Negative Declaration (SCH 201621110) for DRWD’s 2015 AWMP that addresses long-term banking and exchange programs, including the (a) IRWD Strand Ranch and Stockdale Integrated Banking Projects, (b) transfers with other SWP contractors or their member units, and (3) transfers with other SWP contractors or their member units with established water banking or exchange programs. Accordingly DRWD has determined that the Exchange Program has been adequately addressed by California Environmental Quality Act (“CEQA”) action(s). Additionally, not as a requirement, but as an accommodation to approval agencies, DRWD has adopted a Notice of Exemption prior to DRWD taking action on this Agreement.

Section 10. Indemnification.

10.1. In the event of an administrative challenge and/or litigation related to the Exchange Program, this Agreement or either of the Parties’ environmental compliance in connection therewith (a “Challenge”), the Parties will promptly meet and confer to perform a risk assessment of the Challenge and cooperate in good faith to determine how to proceed in light of the Challenge. In the event of a Challenge, either Party may at any time elect to terminate the Agreement by 20 days’ written notice to the other Party; provided, that upon any such termination, this Agreement shall remain in effect solely with respect to any Return Water that must be provided as of the date of the termination notice. If neither Party elects to terminate the Agreement and the Challenge is not withdrawn, the Parties shall jointly defend the Challenge with counsel mutually acceptable to the Parties. All out of pocket costs of the joint defense and any damages, awards or losses resulting therefrom shall be split equally by the Parties. Any costs associated with a Challenge incurred by counsel or other third parties engaged by only one of the Parties shall be borne solely by that Party.

10.2 IRWD, its officers, agents, and employees shall not be liable for the control, carriage, handling, use, disposal, or distribution of Exchange Water downstream of the DRWD POD, or for the control, carriage, handling, use, disposal, or distribution of Return Water upstream of the IRWD POD, nor for any claim of damage of any nature whatsoever, including

but not limited to property damage, personal injury or death, arising out of or connected with the control, carriage, handling, use, disposal or distribution of such water, unless such damages or claims are a result of negligent, intentional or reckless misconduct on the part of IRWD.

10.3 DRWD, its officers, agents, and employees shall not be liable for the control, carriage, handling, use, disposal, or distribution of Return Water downstream of the IRWD POD or downstream of the point of delivery of Return Water to Metropolitan for delivery to Southern California or for the control, carriage, handling, use, disposal, or distribution of Exchange Water upstream of the DRWD POD, nor for any claim of damage of any nature whatsoever, including, but not limited to, property damage, personal injury or death, arising out of or connected with the control, carriage, handling, use, disposal, or distribution of such water, unless such damages or claims are a result of negligent, intentional or reckless misconduct on the part of DRWD.

10.4 In-ground transfers which are accounting transfers not involving a physical delivery or POD are not deemed to be subject to the provisions of the preceding two paragraphs.

10.5 Neither IRWD nor DRWD shall be liable to the other for any claims related to the impairment of the quality of water as a result of storage in any Party's banking facilities or the aquifer from any cause.

10.6 Except as otherwise provided in Section 10.1, each Party shall at all times indemnify, defend and save the other Party free and harmless from, and pay in full, any and all causes of action, claims, liabilities, obligations, demands, losses, judgments, damages or expenses, including reasonable attorney fees and costs ("claims") in any manner arising out of or connected with the indemnifying Party's activities in its performance under the Agreement or its diversion, control, carriage, handling, use, disposal or distribution of water into and out of storage, and any claims relating to any third party claiming a prior right, or interference with their right, to water delivered from one Party to the other, and any claims made by landowners in the respective Party's service area as a result of activities of the indemnifying party or its diversion, control, carriage, handling, use, disposal or distribution of water into and out of storage, excepting any loss, damage or expense and claims for loss, damage or expense resulting in any manner from the negligent act or acts of the other Party, or its Board of Directors, officers, representatives, consultants, contractors, agents or employees.

10.7 In the event a Party entitled to indemnification is made a party to any action, lawsuit, or other adversarial proceeding alleging negligent or wrongful conduct on the part of an indemnifying Party, then (1) the indemnifying Party shall provide a defense to the other or, at the indemnitee's option, reimburse the indemnitee its costs of defense, including reasonable attorneys' fees, incurred in defense of such claims, and (2) the indemnifying Party shall promptly pay any final judgment or portion thereof rendered against the indemnitee(s).

Section 11. **Notices.** All written notices required to be given pursuant to the terms of the Agreement shall be either (i) personally delivered, (ii) deposited in the United States express mail or first class mail, registered or certified, return receipt requested, postage prepaid, (iii) delivered by overnight courier service, or (iv) delivered by facsimile transmission or e-mail, provided that the original of such notice is sent by certified United States mail, postage prepaid, or by overnight courier, no later than one (1) business day following such facsimile transmission

or email. All such notices shall be deemed delivered upon actual receipt (or upon first attempt at delivery pursuant to the methods specified in clauses (i), (ii) or (iii) above if the intended recipient refuses to accept delivery). All such notices shall be delivered to the addresses shown in the Agreement or to such other address as the receiving Party may from time to time specify by written notice to the other Party given in the manner provided herein.

Section 12. Mediation. The Parties agree that any and all disputes, claims or controversies regarding the Exchange Program or this Agreement shall be submitted to mediation in a mutually agreeable venue and if the matter is not resolved through mediation, then it may be submitted to any court of competent jurisdiction. Any affected Party may commence mediation by providing the other Party a written request for mediation, setting forth the subject of the dispute and the relief requested. The Parties shall cooperate with one another in selecting a mediator and in scheduling the mediation proceedings. The Parties covenant that they shall participate in the mediation in good faith, and that they shall share equally in costs charged by the mediator. All offers, promises, conduct and statements, whether oral or written, made in the course of the mediation by any of the Parties, their agents, employees, experts and attorneys, and by the mediator or any of the mediator's employees, are confidential, privileged and inadmissible for any purpose, including impeachment, in any arbitration or other proceeding involving the Parties, provided that evidence that is otherwise admissible or discoverable shall not be rendered inadmissible or non-discoverable as a result of its use in the mediation. The provisions of this Agreement with respect to mediation may be enforced by any Court of competent jurisdiction, and the Party seeking such enforcement shall be entitled to an award of all costs, fees and expenses, including attorneys' fees, to be paid by the Party against whom such enforcement is ordered.

Section 13. Entire Agreement. This Agreement constitutes the entire agreement between the IRWD and DRWD with respect to the subject matter hereof. This Agreement supersedes all prior negotiations, discussions, contracts, agreements or understandings between the parties hereto, and no evidence of any prior or contemporaneous parol agreement or understanding shall be admissible to vary its terms. This Agreement shall not be amended or modified in any way except by a written instrument executed by each party hereto. The foregoing notwithstanding, this Agreement shall not supersede the Agreement Between Dudley Ridge Water District and Irvine Ranch Water District, dated February 25, 2010.

Section 14. Termination For Breach. Either Party may terminate the Agreement if the other Party breaches any material obligation under the Agreement and such breach continues for a period of sixty (60) days, or such other period as may be reasonable under the circumstances, after the date on which written notice is issued by the non-breaching Party. The non-breaching Party shall be entitled to seek any and all legal or equitable damages and/or remedies as a result of the breaching Party's breach.

In the event that either IRWD or DRWD is in material default of the Agreement, the non-defaulting Party shall provide written notice to the defaulting Party, identifying with reasonable specificity the nature of the claimed default. If the defaulting Party has not cured the event(s) of material default which is (are) identified in the notice required by this section within twenty (20) business days after receipt of written notification, or such other period as is reasonable under the circumstances, the non-defaulting Party shall be entitled to any and all remedies which may be

available to it at law or in equity. This provision is not intended to provide a separate termination right, which is set forth in the first paragraph of this Section.

Section 15. Choice of Laws; Venue. The Agreement shall be governed and construed in accordance with the laws of the State of California. Venue for any action brought for the purpose of enforcing any provision of the Agreement shall be in Kern County, California.

Section 16. Cumulative Rights; Waiver. No failure by either Party to exercise, and no delay in exercising any rights, shall be construed or deemed to be a waiver thereof, nor shall any single or partial exercise by either Party preclude any other or future exercise thereof or the exercise of any other right. Any waiver of any provision or of any breach of any provision of this Agreement must be in writing, and any waiver by either party of any breach of any provision of this Agreement shall not operate as or be construed to be a waiver of any other breach of that provision or of any breach of any other provision of this Agreement.

Section 17. Further Action. The Parties agree to and shall take such further action and execute and deliver such additional documents as may be reasonably required to effectuate the Exchange Program, consistent with each and all of the terms and conditions of this Agreement.

Section 18. Assignment. Neither Party shall assign or otherwise transfer its rights or obligations in, under or to the Exchange Program or this Agreement, in whole or in part, without the prior written consent of the other Party, which may be withheld in such other Party's sole and absolute discretion.

Section 19. Force Majeure; Change In Law. The respective obligations of each Party hereto shall be suspended while it is prevented from complying by acts of God; war; riots; civil insurrection; acts of civil or military authority; fires; floods; earthquakes; labor accidents or incidents; rules and regulations of any federal, state, or other governmental agency (other than the Parties themselves); changes in law, rules, or regulations of any federal, state or other governmental agency (other than the Parties themselves); or other cause of the same or other character any of which are beyond the reasonable control of such Party (collectively, "Force Majeure"). In the event of a suspension due to the foregoing, the Party whose obligations are suspended shall promptly notify the other Party in writing of such suspension and the cause and estimated duration of such suspension.

The Party providing such notice shall be excused from fulfilling its obligations under the Agreement until such time as the Force Majeure has ceased to prevent performance or other remedial action is taken, at which time the Party shall promptly notify the other Party of the resumption of its obligations under the Agreement. Any Party rendered unable to fulfill any of its obligations by reason of a Force Majeure shall exercise due diligence to remove such inability with reasonable dispatch within a reasonable time period and mitigate the effects of the Force Majeure. The relief from performance shall be of no greater scope and of no longer duration than is required by the Force Majeure.

Section 20. Interpretation. It is agreed and acknowledged by the parties that the Agreement has been arrived at through negotiation involving their respective counsel, and that each Party has had a full and fair opportunity to revise the terms of the Agreement. Consequently, the

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DUDLEY RIDGE WATER DISTRICT

By _____
President

By _____
Secretary

APPROVED AS TO FORM:

By _____

IRVINE RANCH WATER DISTRICT

By _____
President

By _____
Secretary

APPROVED AS TO FORM:

By _____

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CONSENT:

In accordance with Paragraph 3.2 of that agreement entitled “Coordinated Operating, Water Storage, Exchange and Delivery Agreement,” (the “COA”) dated as of April 21, 2011, by and among The Metropolitan Water District of Southern California (“Metropolitan”), the Municipal Water District of Orange County and the Irvine Ranch Water District, and in accordance with Section 15(d) of Metropolitan’s State Water Project Contract with the California Department of Water Resources, THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA hereby provides its written consent to IRWD’s acquisition of State Water Project Water on Metropolitan’s behalf as described in the Exchange Program defined herein, so long as that water meets the requirements of the COA.

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

By: _____
Title:

By: _____
Secretary

EXHIBIT “A”

**Adjustment Factors for Losses Associated with
Methods of Delivery of Return Water to
Ensure a 1-for-1 Exchange¹**

Method of Delivery of Return Water	In-ground Transfer from Kern Water Bank to IRWD Integrated Banking Project	Metropolitan Takes Delivery to Southern California	Delivery to IRWD Integrated Banking Project via Cross Valley Canal²
Adjustment Factor for Losses	1.0	1.0	1.10

1/ IRWD and DRWD may each incur their own conveyance losses up to 2% through the Cross Valley as assigned by KCWA.

2/ Deliveries to the IRWD Integrated Banking Project are subject to losses defined in the “Memorandum of Understanding” between Rosedale and adjoining entities. Accordingly, Return Water deliveries to the Integrated Banking Project by DRWD as a *SWP Agricultural Contractor* will be subject to 10% losses.

Example 1: If IRWD provides Exchange Water in an amount of 1,000 AF and Return Water is delivered to IRWD’s Integrated Banking Project via the Cross Valley Canal, then the following calculations would provide for Memorandum of Understanding losses upon the delivery of Return Water (10% percent losses would be required):

Exchange Water delivered = 1,000 AF
 Return Water delivered = 1,000 AF * 1.10 = 1,100 AF
 Net Return Water = 1,000 AF

Example 2: If IRWD provides Exchange Water in an amount of 1,000 AF and Return Water is delivered through in-ground transfer, then the following calculations would provide for losses upon the delivery of Return Water:

Exchange Water delivered = 1,000 AF
 Return Water delivered = 1,000 AF * 1.0 = 1,000 AF
 Net Return Water = 1,000 AF

Example 3: If IRWD provides Exchange Water in an amount of 1,000 AF and Return Water is delivered to Southern California, then the following calculations would provide for losses upon the delivery of Return Water:

Exchange Water delivered = 1,000 AF
 Return Water delivered = 1,000 AF * 1.0 = 1,000 AF
 Net Return Water = 1,000 AF

DRAFT 3/3/17

EXHIBIT “B”

**Example of Equalizing the Cost Per Acre-Foot
Associated with the Exchange Program**

All per acre foot costs associated with the Exchange Program will be paid as set forth in Section 8. An illustrative table using current approximate costs for Exchange Water delivered to DRWD and Return Water delivered (or pre-delivered) to IRWD’s Integrated Banking Project via Cross Valley Canal is set forth in this Exhibit B

Estimated per Acre-Foot Costs by Participant (in current dollars)

	DRWD	IRWD	Metropolitan
Exchange Water Costs			
Stored Exchange Water		\$ 84.00	
KCWA Fees: transaction set up fee, per AF transaction request fees, third party out of county fee	\$ 2.50	\$ 2.50	
Recovery of Exchange Water		\$ 72.00	
Recovery operations, maintenance costs		\$ 2.00	
Rosedale admin. charge for recovery at Integrated Banking Project		\$ 3.00	
CVC conveyance of Exchange Water to DRWD		\$ 3.00	
Return Water Costs			
DRWD Table A (assumes 65% SWP allocation)	\$151.00		
Water Toll			\$ 28.00
CVC pumping to Integrated Banking Project	\$ 7.00		
CVC conveyance of Return Water to Integrated Banking Project	\$ 3.00		
Rosedale admin charge for recharge at Integrated Banking Project	\$ 3.00		
Estimated cost with 10% losses associated with delivery of Return Water to Integrated Banking Project via the Cross Valley Canal. Calculated in this example as: $(\$151+\$7+\$3+\$3)*0.10/2$	\$ 8.20	\$ 8.20	
Totals	\$ 174.70	\$ 174.70	\$ 28.00

EXHIBIT B
DRAFT 32/317/17

**2017 AGREEMENT BETWEEN
DUDLEY RIDGE WATER DISTRICT AND
IRVINE RANCH WATER DISTRICT FOR
LONG-TERM EXCHANGE PROGRAM**

THIS AGREEMENT (the "Agreement"), dated this _____ day of _____, 2017, is made and entered into by and between DUDLEY RIDGE WATER DISTRICT ("DRWD") and IRVINE RANCH WATER DISTRICT ("IRWD"), each of the foregoing a California Water District formed under and existing pursuant to Section 34000 *et seq.* of the California Water Code (together, the "Parties" and each a "Party").

RECITALS:

WHEREAS, IRWD has developed and continues to develop the Integrated Banking Project (defined below) in Kern County with storage, recharge and recovery capacities which it operates with Rosedale-Rio Bravo Water Storage District ("Rosedale"); and

WHEREAS, DRWD as an agricultural district holds a long-term Water Supply Contract with the California Department of Water Resources ("DWR") dated December 13, 1963, as amended, pursuant to which it is entitled to receive certain quantities of water from the State Water Project ("SWP"), including without limitation water derived from DRWD's Table A Amount ("Table A Water"); and

WHEREAS, IRWD has entered into the agreement entitled "Coordinated Operating, Water Storage, Exchange and Delivery Agreement" dated as of April 21, 2011 (the "COA"), by and among the Metropolitan Water District of Southern California ("Metropolitan"), the Municipal Water District of Orange County and IRWD; and

WHEREAS, each Party seeks to increase its flexibility and improve water management and reliability by implementing a long term exchange program beginning in 2017, in which IRWD, as a landowner in DRWD, will, at its discretion, recover up to 40,000 acre feet of non-SWP water from the Integrated Banking Project for delivery to DRWD, for use within DRWD's service area or within Kern County, in exchange for which IRWD will receive an equal amount of DRWD's Table A Water in accordance with the COA as provided herein; and

WHEREAS, DRWD will implement such program as a part of, and consistent with, the 2015 Update to its 2012 Agricultural Water Management Plan ("2015 AWMP"); and

WHEREAS, IRWD and DRWD desire to enter into this Agreement for the purpose of setting forth the terms and conditions of the Exchange Program (defined below); and

WHEREAS, Kern County Water Agency ("KCWA") supports a portion of IRWD's non-SWP water originating from Kern River supplies to be used by DRWD landowners within DRWD's service area or within Kern County.

WHEREAS, the Parties intend that this Agreement shall be consistent with that certain Water Banking and Exchange Program Agreement between Rosedale and IRWD dated as of January 13, 2009, as amended (the "Banking Agreement"), and that certain Water Banking, Recovery and Exchange Program Agreement [Stockdale West and Stockdale East Properties] between Rosedale and IRWD dated as of February 4, 2016, understanding that DRWD is not a party to nor bound by either of such agreements.

NOW, THEREFORE, in consideration of the promises and covenants herein contained, DRWD and IRWD agree as follows:

AGREEMENT:

Section 1. Definitions of Certain Terms.

1.1 COA means the agreement entitled "Coordinated Operating, Water Storage, Exchange and Delivery Agreement", dated as of April 21, 2011, by and among Metropolitan, the Municipal Water District of Orange County and IRWD.

1.2 Exchange Program means the program generally described in Section 2 and implemented under this Agreement.

1.3 Exchange Water means the amount of up to 40,000 acre feet of non-SWP water that IRWD determines, at its discretion, is available to recover from the Integrated Banking Project for delivery to DRWD under the Exchange Program while this Agreement is in effect.

1.4 Integrated Banking Project means, consistent with the COA, the project described in the Banking Agreement and such other banking assets or components or interests as IRWD may determine to operate in conjunction with the recharge, storage and recovery facilities on the property known as "Strand Ranch" and other property.

1.5 DRWD POD means the Integrated Banking Project turn-ins on the Cross Valley Canal (the "CVC"), to which IRWD delivers Exchange Water to DRWD or for its account pursuant to Section 3.

1.6 IRWD POD means the Integrated Banking Project turn-outs in Reach 2 of the CVC to which DRWD delivers Return Water to IRWD or for its account pursuant to the option for physical delivery of Return Water to the Integrated Banking Project described in Section 4.1.

1.7 Return Water means Table A Water or other SWP supplies available to or controlled by DRWD that will be delivered to IRWD in exchange for Exchange Water as provided herein.

1.8 Table A Water means water derived from DRWD's Table A Amount under DRWD's long-term Water Supply Contract with DWR.

Section 2. Exchange Program. IRWD shall make up to 40,000 AF of Exchange Water available at IRWD's discretion for delivery to DRWD over the term of this Agreement when and if DRWD requests Exchange Water and such request is approved by IRWD, in exchange for an equal amount of Return Water, to be delivered by DRWD to IRWD pursuant to Section 4 of this Agreement. IRWD may use for this purpose any water supplies that IRWD banks under a program that may be recovered and delivered to or as directed by DRWD in a manner acceptable to DRWD for its use either in or out of Kern County.

Section 3. Conveyance of Exchange Water.

3.1 IRWD will utilize its recovery capacity to recover and deliver the Exchange Water to the DRWD POD.

3.2 DRWD will take possession of the Exchange Water at the DRWD POD, when it is physically able to take delivery of Exchange Water, and will be responsible for conveying the Exchange Water for use by DRWD landowners.

Section 4. Return Water.

4.1 General. The timing and the location for the delivery of Return Water shall be as provided in this Section 4.1.

4.1.1 Within five (5) years of receiving a delivery of Exchange Water (the "Return Period"), and when the June 1 SWP allocation is 65% or greater, at a time of the year selected by DRWD, DRWD shall deliver an equivalent amount of Return Water, as provided herein, to IRWD. If the Return Period ends without a year with a June 1 SWP allocation of 65% or greater, then the Return Period will be extended one year at a time until a year occurs with the June 1 SWP allocation of 65% or greater which will trigger the delivery of the Return Water to IRWD. No more than five (5) one-year extensions would be provided. In the event five (5) extensions occur, DRWD's delivery of the Return Water shall be completed prior to the end of the fifth extension year. DRWD may also deliver Return Water to IRWD in any year when the June 1 SWP allocation is less than 65%.

4.1.2 With IRWD's approval, at the request of DRWD, DRWD may also pre-deliver Return Water prior to receiving a delivery of Exchange Water, up to an amount equal to, but not greater than, the amount of non-SWP water then stored by IRWD in the Integrated Banking Project. Within five (5) years of receiving a pre-delivery of Return Water, at a time of year selected by IRWD, and when DRWD is physically able to take delivery of Exchange Water and has demand therefor, IRWD shall, unless otherwise mutually agreed upon by IRWD and DRWD, deliver an equivalent amount of Exchange Water, as provided in Section 3. Exchange Water delivered as a result of a pre-delivery of Return Water shall be at an annual rate of twenty (20) percent of the pre-delivered amount until the return obligation has been fulfilled. At DRWD's request, IRWD may at IRWD's sole discretion provide Exchange Water at an increased rate per year. If by the end of the fifth year of a pre-delivery of Return Water, DRWD has not had the physical ability and demand to take delivery of all Exchange Water, then not more than one additional year would be allowed for Exchange Water deliveries.

4.1.3 Delivery of Return Water shall be made by either (i) if preferred by DRWD, an in-ground transfer of DRWD Table A Water from DRWD's Kern Water Bank account to the Integrated Banking Project, or otherwise (ii) as directed by Metropolitan, (A) delivery of Return Water from the California Aqueduct to the IRWD POD or (B) delivery to Metropolitan for subsequent delivery to Southern California. DRWD shall provide thirty (30) days written notice to IRWD before it delivers Return Water and will confer with IRWD as to the date(s) and location(s) of delivery.

4.2 Return Water To Constitute Program Water. The Parties acknowledge and agree that Return Water shall be deemed by IRWD to be Program Water, as defined in the COA, including Return Water delivered by in-ground transfer as provided in clause (i) of Section 4.1 and Return Water delivered as directed by Metropolitan as provided in clause (ii) of Section 4.1. However, all obligations to comply with the COA with respect to Return Water shall be borne by IRWD.

4.2.1 In accordance with the COA, Program Water delivered to the Metropolitan service area shall be under the control of Metropolitan, and any transfer, exchange or other transaction for water to be moved to Metropolitan's service area or to be made Program Water requires Metropolitan's prior consent; Metropolitan's consent to the Exchange Program shall be obtained as provided in Section 7 below.

4.2.2 Any provisions of Sections 10.2 and 10.3 to the contrary notwithstanding, control, carriage, handling, use, disposal, or distribution of water that has been delivered to Metropolitan for subsequent delivery to Southern California turnouts shall be governed as provided in the COA and DRWD shall have no responsibility therefor.

Section 5. Delivery Schedule.

5.1 General. As and when requested by DRWD and approved by IRWD, and pursuant to a schedule established pursuant to Section 5.2, IRWD may deliver Exchange Water and DRWD may pre-deliver Return Water within the first fifteen (15) years of the execution of this Agreement. DRWD shall provide Return Water on a first-in and first-out basis as provided in Section 4 and any pre-delivered Return Water shall be credited to DRWD as directed by DRWD for such purpose. All Return Water shall be delivered to IRWD by the end of the term of this Agreement. All Exchange Water to be provided upon the pre-delivery of Return Water shall be delivered as provided in Section 3 by the end of the term of this Agreement.

5.2 Exchange Water. At DRWD's request, IRWD will provide a preliminary accounting of the amount of Exchange Water that IRWD has determined to be available. In any calendar year when DRWD requests and IRWD approves an Exchange Water delivery, DRWD shall supply a preliminary delivery schedule with dates and amounts to IRWD by May 1. IRWD will confirm its determination of the quantity of Exchange Water available, tThe Parties will meet and confer as necessary and shall finalize the delivery schedule by June 1 of such calendar year. Exchange Water delivery shall be scheduled in coordination with the KCWA.

5.3 Return Water. The delivery of Return Water shall be scheduled in accordance with the applicable agreements governing Table A Water and the COA, and also in coordination with KCWA when the Return Water is returned to the Integrated Banking Project.

Section 6. Losses. Losses will be accounted for on an equitable basis. Exchange Water will be delivered to DRWD's POD net of losses determined in accordance with the applicable "Memorandum of Understanding" between Rosedale and adjoining entities which amount to 15 percent ~~for water that was diverted to the Integrated Banking Project by IRWD~~. DRWD may incur other losses up to 2 % through the CVC conveyance as assigned by KCWA or any other losses that may be incurred with delivery to DRWD's service area. To ensure a 1-for-1 exchange, all Return Water (including water pre-delivered in accordance with this Agreement) will be delivered to IRWD, ~~to the extent necessary~~, considering applicable losses, such that the quantity of Return Water delivered by in-ground transfer or delivered to the IRWD POD or to the point where Metropolitan takes control of the water under the COA if delivered to Southern California, as determined pursuant to Section 4.1, is equal to the amount necessary to provide for the applicable losses associated with the method of return. For example, if the Return Water is delivered by in-ground transfer or delivered to Southern California, then there would be no losses to provide for. If the Return Water is delivered to the IRWD POD by DRWD, then ~~up to 105%~~ losses associated with the Memorandum of Understanding ~~may will~~ need to be provided for in the Return Water deliveries. Exhibit "A" provides the adjustment factors to be used in providing for losses for each method of delivering Return Water. Exhibit "A" also includes examples of adjusting for losses associated with each method of making Return Water deliveries to ensure a 1-for-1 exchange. IRWD may incur other losses up to 2 % through the CVC conveyance as assigned by KCWA or any other losses that may be incurred with delivery to the IRWD POD.

Section 7. Coordination of Approvals and Agreements.

7.1 Coordination and Costs. The Exchange Program will require approvals from DWR, KCWA, and Metropolitan. IRWD and DRWD shall jointly coordinate using their respective staff resources in the development of all agreements necessary to deliver Exchange Water to DRWD and to deliver Return Water to IRWD. IRWD and DRWD shall each be responsible for their own costs associated with such coordination. IRWD and DRWD shall each execute reasonable indemnification agreements, consistent with their respective responsibilities as set forth in Section 10, to the extent required in connection with such approvals; provided, that neither Party shall be required to execute any such agreement that is unacceptable to its board of directors.

7.2 Contingent Effectiveness. The effectiveness of this Agreement shall be contingent upon consent to the herein-described Exchange Program by Metropolitan, as indicated by its signature below, and approval of the herein-described Exchange Program by DWR as required for SWP delivery between SWP contractors, and approval by KCWA to the extent required by such DWR authorizing agreement(s). If within one (1) year of the execution of this Agreement by the Parties (the "Contingent Effectiveness Period"), any of the approvals described in the preceding sentence are not obtained, this Agreement shall cease to be effective; provided, the Parties may mutually agree to and make any modifications of this Agreement that they determine are necessary to gain such consent or approval.

Section 8. Costs.

8.1 Per Acre Foot Costs. All per acre foot costs associated with the Exchange Program will be paid as set forth in this Section. An illustrative table that assumes that Return Water is delivered to the IRWD POD using current approximate costs is set forth in Exhibit "B" attached and incorporated herein. As indicated in Exhibit "B", the use of assumed non-SWP water costs and SWP allocation percentage reflect the Parties' overall intent to approximately equalize to each Party the per acre foot cost, and if the assumptions materially change, the Parties agree to make adjustments to the cost responsibilities in Sections 8.1.1 and 8.1.2 to approximately equalize the allocation of costs. The costs listed in Exhibit "B" are by way of example and not limitation, and if a new per acre foot cost attributed to the Exchange Program is incurred that was not anticipated in the costs listed in Exhibit "B", each of the Parties shall be responsible for one-half of the new cost unless the Parties agree otherwise.

8.1.1 Exchange Water Costs. Notwithstanding any other provision of this Agreement, IRWD shall be responsible for all per acre foot costs for acquisition and storage of Exchange Water prior to its delivery to the DRWD POD. IRWD shall be responsible for all costs of recovery of the Exchange Water, including recovery operation and maintenance, Rosedale administrative charges for recovery and CVC conveyance to the DRWD POD. Each of the Parties shall be responsible for one-half of all KCWA fees, including transaction set-up fees, per acre foot transaction request fees and third-party out-of-county fees.

8.1.2 Return Water Costs. Notwithstanding any other provision of this Agreement, DRWD shall be responsible for all per acre foot costs for Return Water. DRWD shall be responsible for all costs of delivery of the Return Water to the IRWD POD, including CVC pumping to the IRWD POD, CVC conveyance to the IRWD POD, and Rosedale administrative charges for recharge in the Integrated Banking Project. For water delivered to the IRWD POD via the CVC or to Southern California, the water delivery costs charged by the DWR (variable OMP&R and off-Aqueduct charges) are to be paid by Metropolitan under the COA. The costs of providing for ~~any~~ applicable losses upon the delivery of Return Water to the IRWD POD can be allocated to equalize the cost per acre foot paid by the Parties as shown in the example provided as Exhibit "B".

8.2 Out of Pocket Costs Other Than Coordination Costs Or Per Acre Foot Costs. Without limiting the generality of Section 10.1 of this Agreement in any way, each Party shall bear its own expenses and costs incurred in connection with activities undertaken by such Party relating to the Exchange Program, except for costs of coordination otherwise provided for in Section 7.1 or per acre foot costs described and otherwise provided for in Section 8.1. A Party's expenses to be borne by such Party under this Section include without limitation (i) actual out-of-pocket expenses incurred by such Party (including costs of its staff), (ii) the actual amount of legal fees, consulting fees and similar third-party charges incurred by such Party in connection with the Exchange Program, including without limitation the costs incurred by such Party in connection with preparing and reviewing any environmental documentation, (iii) all costs of litigation (including without limitation attorneys' fees) actually incurred by such Party in defending any action brought by a third party as the result of or challenging such Party's actions in connection with the Exchange Program, and (iv) damages actually payable by such Party

relating to any activities such Party undertakes in connection with the Exchange Program, except to the extent such damages were the direct result of the willful misconduct of the other Party that would otherwise be indemnified under Section 10 unless otherwise mutually agreed by the Parties.

8.3 Payments. The Parties agree to promptly process statements, invoices, payments, and reimbursements as needed to effectuate this Section 8 and Section 7.1.

Section 9. Environmental Compliance. On May 27, 2008 Rosedale certified an environmental impact report (SCH 2007041080) for the Integrated Banking Project (“Strand Ranch EIR”) and subsequently on said date IRWD approved the Strand Ranch EIR as a responsible agency. On January 14, 2010 IRWD certified a Negative Declaration (SCH 2009111097) for the IRWD / Jackson Ranch Water Allocation Project (“Jackson ND”). On December 8, 2015 Rosedale certified an environmental impact report (SCH 2010091076) for the Stockdale Integrated Banking Project (“Stockdale EIR”) and subsequently on December 14, 2015 IRWD approved the Stockdale EIR as a responsible agency. The Strand Ranch and Stockdale EIRs evaluated, among other things, the banking project facilities and the delivery of water from the facilities to IRWD for use in the IRWD service area.

DRWD has adopted a Negative Declaration (SCH 201621110) for DRWD’s 2015 AWMP that addresses long-term banking and exchange programs, including the (a) IRWD Strand Ranch and Stockdale Integrated Banking Projects, (b) transfers with other SWP contractors or their member units, and (3) transfers with other SWP contractors or their member units with established water banking or exchange programs. Accordingly DRWD has determined that the Exchange Program has been adequately addressed by California Environmental Quality Act (“CEQA”) action(s). Additionally, not as a requirement, but as an accommodation to approval agencies, DRWD has adopted a Notice of Exemption prior to DRWD taking action on this Agreement.

Section 10. Indemnification.

10.1. In the event of an administrative challenge and/or litigation related to the Exchange Program, this Agreement or either of the Parties’ environmental compliance in connection therewith (a “Challenge”), the Parties will promptly meet and confer to perform a risk assessment of the Challenge and cooperate in good faith to determine how to proceed in light of the Challenge. In the event of a Challenge, either Party may at any time elect to terminate the Agreement by 20 days’ written notice to the other Party; provided, that upon any such termination, this Agreement shall remain in effect solely with respect to any Return Water that must be provided as of the date of the termination notice. If neither Party elects to terminate the Agreement and the Challenge is not withdrawn, the Parties shall jointly defend the Challenge with counsel mutually acceptable to the Parties. All out of pocket costs of the joint defense and any damages, awards or losses resulting therefrom shall be split equally by the Parties. Any costs associated with a Challenge incurred by counsel or other third parties engaged by only one of the Parties shall be borne solely by that Party.

10.2 IRWD, its officers, agents, and employees shall not be liable for the control, carriage, handling, use, disposal, or distribution of Exchange Water downstream of the DRWD POD, or for the control, carriage, handling, use, disposal, or distribution of Return Water

upstream of the IRWD POD, nor for any claim of damage of any nature whatsoever, including but not limited to property damage, personal injury or death, arising out of or connected with the control, carriage, handling, use, disposal or distribution of such water, unless such damages or claims are a result of negligent, intentional or reckless misconduct on the part of IRWD.

10.3 DRWD, its officers, agents, and employees shall not be liable for the control, carriage, handling, use, disposal, or distribution of Return Water downstream of the IRWD POD or downstream of the point of delivery of Return Water to Metropolitan for delivery to Southern California or for the control, carriage, handling, use, disposal, or distribution of Exchange Water upstream of the DRWD POD, nor for any claim of damage of any nature whatsoever, including, but not limited to, property damage, personal injury or death, arising out of or connected with the control, carriage, handling, use, disposal, or distribution of such water, unless such damages or claims are a result of negligent, intentional or reckless misconduct on the part of DRWD.

10.4 In-ground transfers which are accounting transfers not involving a physical delivery or POD are not deemed to be subject to the provisions of the preceding two paragraphs.

10.5 Neither IRWD nor DRWD shall be liable to the other for any claims related to the impairment of the quality of water as a result of storage in any Party's banking facilities or the aquifer from any cause.

10.6 Except as otherwise provided in Section 10.1, each Party shall at all times indemnify, defend and save the other Party free and harmless from, and pay in full, any and all causes of action, claims, liabilities, obligations, demands, losses, judgments, damages or expenses, including reasonable attorney fees and costs ("claims") in any manner arising out of or connected with the indemnifying Party's activities in its performance under the Agreement or its diversion, control, carriage, handling, use, disposal or distribution of water into and out of storage, and any claims relating to any third party claiming a prior right, or interference with their right, to water delivered from one Party to the other, and any claims made by landowners in the respective Party's service area as a result of activities of the indemnifying party or its diversion, control, carriage, handling, use, disposal or distribution of water into and out of storage, excepting any loss, damage or expense and claims for loss, damage or expense resulting in any manner from the negligent act or acts of the other Party, or its Board of Directors, officers, representatives, consultants, contractors, agents or employees.

10.7 In the event a Party entitled to indemnification is made a party to any action, lawsuit, or other adversarial proceeding alleging negligent or wrongful conduct on the part of an indemnifying Party, then (1) the indemnifying Party shall provide a defense to the other or, at the indemnitee's option, reimburse the indemnitee its costs of defense, including reasonable attorneys' fees, incurred in defense of such claims, and (2) the indemnifying Party shall promptly pay any final judgment or portion thereof rendered against the indemnitee(s).

Section 11. Notices. All written notices required to be given pursuant to the terms of the Agreement shall be either (i) personally delivered, (ii) deposited in the United States express mail or first class mail, registered or certified, return receipt requested, postage prepaid, (iii) delivered by overnight courier service, or (iv) delivered by facsimile transmission or e-mail, provided that the original of such notice is sent by certified United States mail, postage prepaid,

or by overnight courier, no later than one (1) business day following such facsimile transmission or email. All such notices shall be deemed delivered upon actual receipt (or upon first attempt at delivery pursuant to the methods specified in clauses (i), (ii) or (iii) above if the intended recipient refuses to accept delivery). All such notices shall be delivered to the addresses shown in the Agreement or to such other address as the receiving Party may from time to time specify by written notice to the other Party given in the manner provided herein.

Section 12. Mediation. The Parties agree that any and all disputes, claims or controversies regarding the Exchange Program or this Agreement shall be submitted to mediation in a mutually agreeable venue and if the matter is not resolved through mediation, then it may be submitted to any court of competent jurisdiction. Any affected Party may commence mediation by providing the other Party a written request for mediation, setting forth the subject of the dispute and the relief requested. The Parties shall cooperate with one another in selecting a mediator and in scheduling the mediation proceedings. The Parties covenant that they shall participate in the mediation in good faith, and that they shall share equally in costs charged by the mediator. All offers, promises, conduct and statements, whether oral or written, made in the course of the mediation by any of the Parties, their agents, employees, experts and attorneys, and by the mediator or any of the mediator's employees, are confidential, privileged and inadmissible for any purpose, including impeachment, in any arbitration or other proceeding involving the Parties, provided that evidence that is otherwise admissible or discoverable shall not be rendered inadmissible or non-discoverable as a result of its use in the mediation. The provisions of this Agreement with respect to mediation may be enforced by any Court of competent jurisdiction, and the Party seeking such enforcement shall be entitled to an award of all costs, fees and expenses, including attorneys' fees, to be paid by the Party against whom such enforcement is ordered.

Section 13. Entire Agreement. This Agreement constitutes the entire agreement between the IRWD and DRWD with respect to the subject matter hereof. This Agreement supersedes all prior negotiations, discussions, contracts, agreements or understandings between the parties hereto, and no evidence of any prior or contemporaneous parol agreement or understanding shall be admissible to vary its terms. This Agreement shall not be amended or modified in any way except by a written instrument executed by each party hereto. The foregoing notwithstanding, this Agreement shall not supersede the Agreement Between Dudley Ridge Water District and Irvine Ranch Water District, dated February 25, 2010.

Section 14. Termination For Breach. Either Party may terminate the Agreement if the other Party breaches any material obligation under the Agreement and such breach continues for a period of sixty (60) days, or such other period as may be reasonable under the circumstances, after the date on which written notice is issued by the non-breaching Party. The non-breaching Party shall be entitled to seek any and all legal or equitable damages and/or remedies as a result of the breaching Party's breach.

In the event that either IRWD or DRWD is in material default of the Agreement, the non-defaulting Party shall provide written notice to the defaulting Party, identifying with reasonable specificity the nature of the claimed default. If the defaulting Party has not cured the event(s) of material default which is (are) identified in the notice required by this section within twenty (20) business days after receipt of written notification, or such other period as is reasonable under the

circumstances, the non-defaulting Party shall be entitled to any and all remedies which may be available to it at law or in equity. This provision is not intended to provide a separate termination right, which is set forth in the first paragraph of this Section.

Section 15. Choice of Laws; Venue. The Agreement shall be governed and construed in accordance with the laws of the State of California. Venue for any action brought for the purpose of enforcing any provision of the Agreement shall be in Kern County, California.

Section 16. Cumulative Rights; Waiver. No failure by either Party to exercise, and no delay in exercising any rights, shall be construed or deemed to be a waiver thereof, nor shall any single or partial exercise by either Party preclude any other or future exercise thereof or the exercise of any other right. Any waiver of any provision or of any breach of any provision of this Agreement must be in writing, and any waiver by either party of any breach of any provision of this Agreement shall not operate as or be construed to be a waiver of any other breach of that provision or of any breach of any other provision of this Agreement.

Section 17. Further Action. The Parties agree to and shall take such further action and execute and deliver such additional documents as may be reasonably required to effectuate the Exchange Program, consistent with each and all of the terms and conditions of this Agreement.

Section 18. Assignment. Neither Party shall assign or otherwise transfer its rights or obligations in, under or to the Exchange Program or this Agreement, in whole or in part, without the prior written consent of the other Party, which may be withheld in such other Party's sole and absolute discretion.

Section 19. Force Majeure; Change In Law. The respective obligations of each Party hereto shall be suspended while it is prevented from complying by acts of God; war; riots; civil insurrection; acts of civil or military authority; fires; floods; earthquakes; labor accidents or incidents; rules and regulations of any federal, state, or other governmental agency (other than the Parties themselves); changes in law, rules, or regulations of any federal, state or other governmental agency (other than the Parties themselves); or other cause of the same or other character any of which are beyond the reasonable control of such Party (collectively, "Force Majeure"). In the event of a suspension due to the foregoing, the Party whose obligations are suspended shall promptly notify the other Party in writing of such suspension and the cause and estimated duration of such suspension.

The Party providing such notice shall be excused from fulfilling its obligations under the Agreement until such time as the Force Majeure has ceased to prevent performance or other remedial action is taken, at which time the Party shall promptly notify the other Party of the resumption of its obligations under the Agreement. Any Party rendered unable to fulfill any of its obligations by reason of a Force Majeure shall exercise due diligence to remove such inability with reasonable dispatch within a reasonable time period and mitigate the effects of the Force Majeure. The relief from performance shall be of no greater scope and of no longer duration than is required by the Force Majeure.

Section 20. Interpretation. It is agreed and acknowledged by the parties that the Agreement has been arrived at through negotiation involving their respective counsel, and that each Party

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DUDLEY RIDGE WATER DISTRICT

By _____
President

By _____
Secretary

APPROVED AS TO FORM:

By _____

IRVINE RANCH WATER DISTRICT

By _____
President

By _____
Secretary

APPROVED AS TO FORM:

By _____

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CONSENT:

In accordance with Paragraph 3.2 of that agreement entitled “Coordinated Operating, Water Storage, Exchange and Delivery Agreement,” (the “COA”) dated as of April 21, 2011, by and among The Metropolitan Water District of Southern California (“Metropolitan”), the Municipal Water District of Orange County and the Irvine Ranch Water District, and in accordance with Section 15(d) of Metropolitan’s State Water Project Contract with the California Department of Water Resources, THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA hereby provides its written consent to IRWD’s acquisition of State Water Project Water on Metropolitan’s behalf as described in the Exchange Program defined herein, so long as that water meets the requirements of the COA.

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

By: _____
Title:

By: _____
Secretary

EXHIBIT "A"

**Adjustment Factors for Losses Associated with
Methods of Delivery of Return Water to
Ensure a 1-for-1 Exchange¹**

Method of Delivery of Return Water	In-ground Transfer from Kern Water Bank to IRWD Integrated Banking Project	Metropolitan Takes Delivery to Southern California	Delivery to IRWD Integrated Banking Project via Cross Valley Canal²
Adjustment Factor for Losses	1.0	1.0	1.105

1/ IRWD and DRWD may each incur their own conveyance losses up to 2% through the Cross Valley as assigned by KCWA.

2/ Deliveries to the IRWD Integrated Banking Project are subject to losses defined in the "Memorandum of Understanding" between Rosedale and adjoining entities. ~~which may be up to 15 percent.~~ Accordingly, Return Water deliveries to the Integrated Banking Project by DRWD as a SWP Agricultural Contractor will be subject to 10% losses.

Example 1: If IRWD provides Exchange Water in an amount of 1,000 AF and Return Water is delivered to IRWD's Integrated Banking Project via the Cross Valley Canal, then the following calculations would provide for Memorandum of Understanding losses upon the delivery of Return Water (~~example assumes 105%~~ percent losses would be required):

Exchange Water delivered = 1,000 AF
 Return Water delivered = 1,000 AF * 1.105 = 1,1050 AF
 Net Return Water = 1,000 AF

Example 2: If IRWD provides Exchange Water in an amount of 1,000 AF and Return Water is delivered through in-ground transfer, then the following calculations would provide for losses upon the delivery of Return Water:

Exchange Water delivered = 1,000 AF
 Return Water delivered = 1,000 AF * 1.0 = 1,000 AF
 Net Return Water = 1,000 AF

Example 3: If IRWD provides Exchange Water in an amount of 1,000 AF and Return Water is delivered to Southern California, then the following calculations would provide for losses upon the delivery of Return Water:

Exchange Water delivered = 1,000 AF
 Return Water delivered = 1,000 AF * 1.0 = 1,000 AF
 Net Return Water = 1,000 AF

EXHIBIT "B"

Example of Equalizing the Cost Per Acre-Foot
Associated with the Exchange Program

All per acre foot costs associated with the Exchange Program will be paid as set forth in Section 8. An illustrative table using current approximate costs for Exchange Water delivered to DRWD and Return Water delivered (or pre-delivered) to IRWD's Integrated Banking Project via Cross Valley Canal is set forth in this Exhibit B

Estimated per Acre-Foot Costs by Participant (in current dollars)

	DRWD	IRWD	Metropolitan
Exchange Water Costs			
Stored Exchange Water		\$ 84.00	
KCWA Fees: transaction set up fee, per AF transaction request fees, third party out of county fee	\$ 2.50	\$ 2.50	
Recovery of Exchange Water		\$ 72.00	
Recovery operations, maintenance costs		\$ 2.00	
Rosedale admin. charge for recovery at Integrated Banking Project		\$ 3.00	
CVC conveyance of Exchange Water to DRWD		\$ 3.00	
Return Water Costs			
DRWD Table A (assumes 65% SWP allocation)	\$151.00		
Water Toll			\$ 28.00
CVC pumping to Integrated Banking Project	\$ 7.00		
CVC conveyance of Return Water to Integrated Banking Project	\$ 3.00		
Rosedale admin charge for recharge at Integrated Banking Project	\$ 3.00		
Estimated cost assuming with 105% losses associated with delivery of Return Water to Integrated Banking Project via the Cross Valley Canal. Calculated in this example as: $(\$151 + \$7 + \$3 + \$3) * 0.105/2$	\$ 8.20 12.30	\$ 8.20 12.30	
Totals	\$ 174.708 .80	\$ 174.708 .80	\$ 28.00