

AGENDA

IRVINE RANCH WATER DISTRICT ENGINEERING AND OPERATIONS COMMITTEE TUESDAY, MARCH 19, 2019

CALL TO ORDER 7:30 a.m., IRWD's Operations Center, First Floor Committee Room
3512 Michelson Drive, Irvine, California 92612

ATTENDANCE Committee Chair: Doug Reinhart _____
Committee Member: Mary Aileen Matheis _____

<u>ALSO PRESENT</u>	Paul Cook _____	Jose Zepeda _____	Steve Malloy _____
	Kevin Burton _____	Eric Akiyoshi _____	Paul Weghorst _____
	Rich Mori _____	Wendy Chambers _____	Tom Roberts _____
	Kelly Lew _____	Jim Colston _____	Ken Pfister _____
	Lars Oldewage _____	Barkev Meserlian _____	Scott Toland _____
	Malcolm Cortez _____	Bruce Newell _____	_____
	John Dayer _____	Richard Mykitta _____	_____
	_____	_____	_____

NOTICE

If you wish to address the Committee on any item, please file your name with the Committee. Forms are provided on the table outside of the Committee Room. Remarks are limited to three minutes per speaker on each subject.

COMMUNICATIONS

1. Notes: Burton
2. Public Comments
3. Determine the need to discuss and/or take action on item(s) introduced that came to the attention of the District subsequent to the agenda being posted.
4. Determine which items may be approved without discussion.

ACTION

5. AMENDMENT NO. 8 TO THE SANTIAGO AQUEDUCT COMMISSION
JOINT POWERS AGREEMENT – BURTON

Recommendation: That the Board approve Amendment No. 8 to the Santiago Aqueduct Commission Joint Powers Agreement.

ACTION - Continued

6. MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES CHANGE ORDER, VARIANCES, AND BUDGET INCREASE – MALLOY/BURTON

Recommendation: That the Board approve Change Order No. 99 in the amount of \$330,609.60, with Filanc/Balfour Beatty for items including hardscaping, soil remediation, paving, mechanical and electrical changes, and SCADA programming modifications; authorize the General Manager to execute Variance No. 8 with Black & Veatch in the amount of \$2,865,066 for supplemental contract administration, construction phase, start-up, and commissioning services; authorize the General Manager to execute Variance No. 3 with Arcadis, Inc. in the amount of \$664,138 for supplemental construction management and document control system services; authorize the General Manager to execute Variance No. 3 with EI&C Engineering, Inc. in the amount of \$835,860 for supplemental process control system (PCS) oversight, construction management services, start-up testing, and various engineering tasks; and authorize a budget increase in the amount of \$10,969,000 from \$227,573,100 to \$238,542,100, to the FY 2018-19 Capital Budget for the Michelson Water Recycling Plant Biosolids and Energy Recovery Facilities, Project 04286.

OTHER BUSINESS

7. Directors' Comments

8. 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 above-named Committee in connection with a matter subject to discussion or consideration at an open meeting of the Committee 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 Committee 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 Committee Members, except that if such writings are distributed one hour prior to, or during, the meeting, they will be available at the entrance of the meeting room at the District's Operations Committee Room at 3512 Michelson, Irvine, California. The Irvine Ranch Water District's Committee 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) 453-5312 during business hours at least seventy-two (72) hours prior to the scheduled meeting.

March 19, 2019

Prepared and

submitted by: K. Burton 

Approved by: Paul A. Cook 

ENGINEERING AND OPERATIONS COMMITTEE

AMENDMENT NO. 8 TO THE SANTIAGO AQUEDUCT COMMISSION JOINT POWERS AGREEMENT

SUMMARY:

IRWD and The Irvine Company executed an agreement in 2018 to transfer The Irvine Company's 2.5 cubic feet per second (cfs) capacity in Reach 1U of the Baker Pipeline to IRWD. Amendment No. 8 to the Santiago Aqueduct Commission (SAC) Joint Powers Agreement recognizes the transfer of capacity and the resulting allocation of costs of maintenance, capital repairs and capital improvements to the Baker Pipeline. Amendment No. 8 also updates the member and represented agencies of the Santiago Aqueduct Commission following IRWD's consolidation with former member agency Los Alisos Water District and IRWD's capacity transfer with The Irvine Company. Staff recommends that the Board approve Amendment No. 8 to the Santiago Aqueduct Commission Joint Powers Agreement.

BACKGROUND:

IRWD and The Irvine Company executed an *Assignment and Assumption Agreement (Transfer Agreement)* in 2018 to transfer The Irvine Company's 2.5 cfs capacity in Reach 1U of the Baker Pipeline to IRWD. The Transfer Agreement is attached as Exhibit "A". The transfer of capacity rights and the resulting allocations of maintenance, capital repairs, and capital improvement costs became effective July 1, 2018.

The intent of Amendment No. 8 to the SAC Joint Powers Agreement is to memorialize the effect of the Transfer Agreement and acknowledge that each of the SAC member and represented agencies not participating in the Transfer Agreement will retain the same capacity rights identified in Amendment No. 7 to the SAC Joint Powers Agreement. Additionally, Amendment No. 8 updates the member and represented agencies of SAC following IRWD's consolidation with former member agency Los Alisos Water District and IRWD's capacity transfer with The Irvine Company. Amendment No. 8 is attached as Exhibit "B".

The capacity of each SAC member and represented agency in each reach of the Baker Pipeline is shown in Exhibit "A" of Amendment No. 8. The maintenance, capital repair and capital improvement cost shares for each member and represented agency in each reach, and for the Baker Pipeline as a whole, are shown in Exhibit "B" of Amendment No. 8. The capacities and allocation of costs of maintenance, capital repairs and capital improvements of the non-participating Transfer Agreement SAC member and the represented agencies remain unchanged from Amendment No. 7.

Amendment No. 8 has been reviewed by IRWD's legal counsel and will be presented to SAC for review on March 21, 2019.

FISCAL IMPACTS:

Effective July 1, 2018 the allocation of costs for maintenance, capital repairs and capital improvements will be allocated between the participating member agencies and represented agencies as shown in Exhibit “B”. IRWD’s capacity purchase will have an added annual maintenance cost of approximately \$600.

ENVIRONMENTAL COMPLIANCE:

This activity is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15306 which provides exclusion for projects involving basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded.

RECOMMENDATION:

That the Board approve Amendment No. 8 to the Santiago Aqueduct Commission Joint Powers Agreement.

LIST OF EXHIBITS:

- Exhibit “A” – Assignment and Assumption Agreement between Irvine Ranch Water District and The Irvine Company
- Exhibit “B” – Amendment No. 8 to the Santiago Aqueduct Commission Joint Powers Agreement

EXHIBIT "A"

ASSIGNMENT AND ASSUMPTION AGREEMENT

This ASSIGNMENT AND ASSUMPTION AGREEMENT ("**Agreement**") is dated July 1, 2018 (the "**Effective Date**") and is between **IRVINE RANCH WATER DISTRICT**, a California water district, organized under Division 13 of the California Water Code ("**IRWD**"), and The Irvine Company LLC, a Delaware limited liability company, as successor-in-interest to The Irvine Company, a Delaware corporation ("**TIC**"). IRWD and TIC are each a "**Party**" and together are the "**Parties**."

On or about April 13, 1961, the Los Alisos Water District, the El Toro Water District, and the Orange County Municipal Water District entered into the Santiago Aqueduct Commission Joint Powers Agreement (the "**JPA**"). The JPA created the Santiago Aqueduct Commission ("**Commission**") to construct, maintain, repair and manage the Santiago Aqueduct ("**Aqueduct**"), which would transmit water to the parties to the JPA.

The JPA was amended seven times, by: Amendment to the JPA (on or about September 11, 1961); Amendment No. 2 to the JPA (on or about January 1, 1978) ("**Amendment 2**"); Amendment No. 3 to the JPA (on or about January 13, 1978) ("**Amendment 3**"); Amendment No. 4 to the JPA (on or about September 1, 1981) ("**Amendment 4**"); Amendment No. 5 to the JPA (on or about October 22, 1986); Amendment No. 6 to the JPA (on or about July 8, 1999); and Amendment No. 7 to the JPA (on or about June 19, 2014). These Amendments, along with all exhibits and attachments thereto, are collectively identified in this Agreement as the "**Amendments**." TIC was not a signatory to the JPA nor any of the Amendments other than Amendment 3 and Amendment 4.

Amendment 2 added IRWD as a party and as a member of the Commission and TIC as a party to the JPA with respect to certain matters. That amendment, and various other leases and subleases issued pursuant to the Amendments, granted the Parties certain rights and obligations with respect to the construction, maintenance, operation of water lines to be constructed parallel to the Aqueduct to supply water to, among others, the Parties. Pursuant to the JPA Amendments, TIC possesses 2.5 cfs capacity in Reach 1U of the Aqueduct, also known as the Baker Pipeline.

The Parties intend by this Agreement to assign and transfer TIC's rights and obligations under the JPA, the Amendments, and any other leases or subleases related thereto, to IRWD for valuable consideration.

The Parties therefore agree as follows:

1. Assignment. In exchange for IRWD's payment to TIC of the sum of \$56,410.00 (the "**Transfer Fee**") concurrent with the delivery of this Agreement, TIC hereby assigns and transfers to IRWD all of TIC's right, title, interest and obligations under the JPA and the Amendments (collectively, the "**TIC Interest**") effective as of July 1, 2018. Upon assignment and transfer of the TIC Interest as set forth in this section, IRWD accepts from TIC all such TIC Interest, subject to the terms and conditions set forth in this Agreement.

2. Assumption. IRWD assumes and agrees to perform and fulfill all the terms, covenants, conditions, and obligations required to be performed and fulfilled by TIC under the JPA and the Amendments.

3. Assignor Representations. TIC represents that, to TIC's knowledge, (a) TIC has not transferred or assigned any portion of the TIC Interest (including the 2.5 cfs capacity in Reach 1U as set forth in the Amendments), (b) TIC has not amended, modified or terminated the JPA or the Amendments except as set forth therein, and (c) TIC has not breached the JPA or the Amendments. As used herein, "to TIC's knowledge" shall mean and refer to the current knowledge of Peter Changala, who is the employee of TIC's affiliate (Irvine Management Company) who is most likely to know about the status of the TIC Interest.

4. As-Is; Where-Is. Except as otherwise set forth in Section 3 above, IRWD acknowledges and agrees that it is accepting the assignment and conveyance of the TIC Interest based solely upon IRWD's inspection and investigation of the same and all documents related thereto, or its opportunity to do so, and the TIC Interest is assigned in an "AS IS, WHERE IS" condition, without relying upon any representation or warranties, express, implied or statutory, of any kind. Notwithstanding anything to the contrary, TIC's aggregate liability in connection with this Agreement shall not exceed the amount of the Transfer Fee.

5. Successors and Assigns. This Agreement will be binding on and inure to the benefit of the Parties, their heirs, executors, administrators, successors in interest, and assigns.

6. Choice of Law and Venue. All matters relating to this Agreement are governed by the laws of the State of California, and venue for any action related to the Agreement shall be the Superior Court of Orange County.

7. Notice. Any notice will be deemed given by depositing it in the United States Mail, first class, return receipt requested, or by courier or overnight delivery service and addressed as follows:

If to IRWD:

Irvine Ranch Water District
16500 Sand Canyon Avenue
P.O. Box 5700
Irvine, CA 92619-7000
Attn: Paul A. Cook, General Manager

If to TIC:

The Irvine Company LLC
550 Newport Center Drive
Newport Beach, CA 92660
Attn: General Counsel

8. Amendment. Any amendment or modification of this Agreement must be written and properly executed by both Parties.

9. Interpretation. Each Party has participated in negotiating and drafting this Agreement, so if an ambiguity or a question of intent or interpretation arises, this Agreement is to be construed as if the Parties had drafted it jointly, as opposed to being construed against a party because it was responsible for drafting one or more provisions of this Agreement.

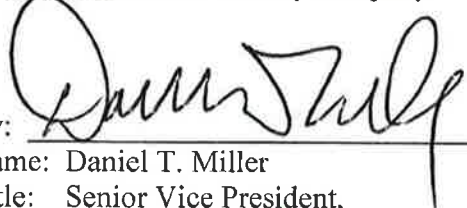
10. Further Assurances. The Parties shall take such actions, or execute, acknowledge and deliver, or obtain the execution, acknowledgment, and delivery of such instruments as are reasonably necessary, appropriate or desirable to give effect to the provisions of this Agreement.

11. Entire Agreement. This Agreement constitutes the entire agreement between the Parties regarding TIC's assignment and IRWD's assumption of all of the TIC Interest. This Agreement supersedes all prior or contemporaneous agreements, commitments, conditions, discussions, instruments, offers, promises and/or proposals between the Parties regarding TIC's assignment and IRWD's assumption of all of the TIC Interest, whether oral or written.

12. Authority. The Parties represent that the individuals executing this Agreement have the legal power, right and actual authority to bind that Party to the terms and conditions of this Agreement.

IRWD and TIC are signing this Agreement to be effective as of the Effective Date.

THE IRVINE COMPANY LLC,
a Delaware limited liability company

By: 
Name: Daniel T. Miller
Title: Senior Vice President,
Entitlement & Public Affairs

By: 
Name: Peter J. Changala
Title: Vice President, Ag Operations

IRVINE RANCH WATER DISTRICT

By: 
Paul A. Cook, General Manager

APPROVED AS TO FORM:

Lewis Brisbois Bisgaard & Smith, LLP

By: 
General Counsel

EXHIBIT "B"

AMENDMENT NO. 8 TO THE SANTIAGO AQUEDUCT COMMISSION JOINT POWERS AGREEMENT

This Amendment No. 8 to the Santiago Aqueduct Commission Joint Powers Agreement (**"Amendment No. 8"**) is effective March 21, 2019, and is between the following six member agencies of the SANTIAGO AQUEDUCT COMMISSION (the **"Commission"**) created by a Joint Powers Agreement dated September 11, 1961 (as amended, the **"Joint Powers Agreement"**):

EL TORO WATER DISTRICT;
IRVINE RANCH WATER DISTRICT (**"IRWD"**) on its own behalf and as assignee of
The Irvine Company;
MOULTON NIGUEL WATER DISTRICT;
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY (formerly known as Orange
County Municipal Water District) (**"MWDOC"**) on behalf of represented
agencies EAST ORANGE COUNTY WATER DISTRICT (**"EOCWD"**) and the
County of Orange (the **"County"**);
SANTA MARGARITA WATER DISTRICT; and
TRABUCO CANYON WATER DISTRICT (formerly known as Santa Ana Mountains
County Water District).

The member agencies are also sometimes referred to as the **"Parties."** Together EOCWD and the County are the **"represented agencies"** but are not member agencies.

The Joint Powers Agreement has been previously amended by the following amendments: the first Amendment (December 20, 1974); Amendment No. 2 (January 13, 1978); Amendment No. 3 (November 1, 1978); Amendment No. 4 (September 1, 1981); Amendment No. 5 (October 22, 1986); Amendment No. 6 (July 8, 1999); and Amendment No. 7 (June 19, 2014).

The Joint Powers Agreement (as amended) establishes certain hydraulic grade lines and capacity rights for the member agencies and represented agencies in the various reaches of the Santiago Aqueduct, also known as the Baker Pipeline. The costs of maintenance, capital repairs and capital improvements to the Baker Pipeline are allocated to the member agencies and represented agencies in proportion to each party's capacity rights in each reach as compared with the total capacity for each reach and in proportion to the length of each reach as compared with the entire length of the Baker Pipeline.

Capacity rights in the Baker Pipeline have been transferred among various member agencies and represented agencies, as previously reflected in the tables set forth in Amendment No. 7.

In 2018, IRWD and The Irvine Company executed an *Assignment and Assumption Agreement* (the **"Transfer Agreement"**) to transfer The Irvine Company's capacity in the Baker

Pipeline to IRWD. The transfer of capacity rights and the resulting allocations of maintenance, capital repairs, and capital improvement costs became effective as of July 1, 2018. The Parties intend by this Amendment No. 8 to memorialize the effect of the Transfer Agreement and acknowledge that each of the Parties and represented agencies not participating in the Transfer Agreement will retain the same capacity rights identified in Amendment No. 7. The Parties also intend by this Amendment No. 8 to clarify the members of the Commission following IRWD's consolidation in 2010 with former member agency Los Alisos Water District.

Therefore, the Parties amend the Joint Powers Agreement as follows:

SECTION 1. Exhibit A to this Amendment No. 8 depicts the capacities and hydraulic grade lines in the Baker Pipeline resulting from the Transfer Agreement. Exhibit B to this Amendment No. 8 depicts the corresponding allocation of costs of maintenance, capital repairs, and capital improvements for each reach of the Baker Pipeline and the Baker Pipeline in its entirety. Both exhibits are incorporated by reference into the Joint Powers Agreement and shall amend and supersede in their entirety the capacities and hydraulic grade lines in the Baker Pipeline as well as the allocation of costs previously set forth in the Joint Powers Agreement.

SECTION 2. In order to reflect the consolidation of Los Alisos Water District with IRWD, and the transfer of The Irvine Company's capacity to IRWD, the first two paragraphs of Section 3 of the Joint Powers Agreement, as amended by Amendment No. 6, are amended to read as follows:

"The Commission shall consist of six (6) regular members, one (1) regular member to be selected by each of the following member agencies:

El Toro Water District;
Irvine Ranch Water District;
Moulton Niguel Water District;
Municipal Water District of Orange County;
Santa Margarita Water District; and
Trabuco Canyon Water District.

The Commission shall maintain and operate the Baker Pipeline. Each member agency shall have one vote. MWDOC shall represent itself, EOCWD and the County of Orange. Each member agency may appoint two alternate members, designated a first alternate member and a second alternate member, to the Commission."

SECTION 3. Except as modified by this Amendment No. 8, the Parties reaffirm the Joint Powers Agreement as amended by the prior seven amendments described above. The Parties shall execute this Amendment No. 8 in duplicate, each identical duplicate of which will be considered an original.

[Signatures appear on following pages.]

The Parties have executed this Amendment No. 8 on the dates set forth below.

DATED: _____

EL TORO WATER DISTRICT

By: _____
President

By: _____
Secretary

APPROVED AS TO FORM:
Redwine and Sherrill, LLP

By: _____
District Counsel

DATED: _____

IRVINE RANCH WATER DISTRICT

By: _____
President

By: _____
Secretary

APPROVED AS TO FORM:
Lewis Brisbois Bisgaard & Smith, LLP

By: _____
District Counsel

DATED: _____

MOULTON NIGUEL WATER DISTRICT

By: _____
President

By: _____
Secretary

APPROVED AS TO FORM:
Best Best & Krieger LLP

By: _____
District Counsel

DATED: _____

MUNICIPAL WATER DISTRICT OF ORANGE
COUNTY

By: _____
President

By: _____
Secretary

APPROVED AS TO FORM:
Best Best & Krieger, LLP

By: _____
District Counsel

DATED: _____

SANTA MARGARITA WATER DISTRICT

By: _____
President

By: _____
Secretary

APPROVED AS TO FORM:
Best Best & Krieger, LLP

By: _____
District Counsel

DATED: _____

TRABUCO CANYON WATER DISTRICT

By: _____
President

By: _____
Secretary

APPROVED AS TO FORM:
Atkinson, Andelson, Loya, Ruud & Romo, LLP

By: _____
District Counsel

EXHIBIT A

SANTIAGO AQUEDUCT COMMISSION
BAKER PIPELINE
PIPELINE CAPACITIES

	Reach 1U	Reach 2U	Reach 3U	Reach 4U	Reach 5U
Length (LF)	9,400	10,425	7,950	28,500	6,070
HGL Elevation at End of Reach ¹	816	788	770	703	690
Agency	CFS	CFS	CFS	CFS	CFS
East Orange County Water District	10.00	-	-	-	-
County of Orange	1.00	1.06	1.06	1.06	-
Irvine Ranch Water District	49.00	14.59	10.54	10.54	10.50
Santa Margarita Water District	13.00	13.08	13.05	13.05	13.00
Trabuco Canyon Water District	8.00	8.05	8.03	8.03	8.00
El Toro Water District	5.00	5.00	5.00	5.00	5.00
Moulton Niguel Water District	13.00	13.00	13.00	13.00	13.00
Total Capacity	99.00	54.78	50.68	50.68	49.50

¹ Beginning HGL elevation of 832 at OC-33

Exhibit B

Pipeline Capacities
Maintenance, Capital Repair, and Capital Improvement Share, Total and By Reach

Length (LF)	Reach 1U 9,400		Reach 2U 10,425		Reach 3U 7,950		Reach 4U 28,500		Reach 5U 6,070		Total Pipeline 62,345	
	Capacity Length	%	Capacity Length	%	Capacity Length	%	Capacity Length	%	Capacity Length	%	Capacity Length	%
East Orange County Water District	94,000	9.53%	-	-	-	-	-	-	-	-	94,000	2.58%
County of Orange	9,400	0.95%	11,051	2.33%	8,427	2.33%	30,210	2.33%	-	-	59,088	1.62%
Irvine Ranch Water District	460,600	49.84%	152,101	26.52%	83,793	20.73%	300,390	20.73%	63,735	21.22%	1,060,619	29.06%
Santa Margarita Water District	122,200	13.35%	136,359	23.65%	103,747	25.61%	371,925	25.61%	78,910	26.26%	813,141	22.28%
Trabuco Canyon Water District	75,200	8.15%	83,921	14.64%	63,839	15.81%	228,855	15.81%	48,560	16.16%	500,375	13.71%
El Toro Water District	47,000	5.05%	52,125	9.13%	39,750	9.87%	142,500	9.87%	30,350	10.10%	311,725	8.54%
Moulton Niguel Water District	122,200	13.13%	135,525	23.73%	103,350	25.65%	370,500	25.65%	78,910	26.26%	810,485	22.21%
Total	930,600	100%	571,082	100%	402,906	100%	1,444,380	100%	300,465	100%	3,649,433	100%

March 19, 2019

Prepared by: S. Malloy

Submitted by: K. Burton *KL.B.*

Approved by: Paul A. Cook *[Signature]*

ENGINEERING AND OPERATIONS COMMITTEE

MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES CHANGE ORDER, VARIANCES, AND BUDGET INCREASE

SUMMARY:

Filanc/Balfour-Beatty (FBB) is constructing the Michelson Water Recycling Plant (MWRP) Biosolids and Energy Recovery Facilities (Biosolids Project). The Biosolids Project is scheduled to be extended to June 30, 2020. The services of various consultants are needed to supplement the construction management team of the Biosolids project through this time extension. Additionally, staff has resolved several change requests and recommends approval for Change Order No. 99. Staff recommends that the Board:

- Approve Change Order No. 99 in the amount of \$330,609.60 for items including hardscaping, soil remediation, paving, mechanical and electrical changes, and SCADA programming modifications;
- Authorize the General Manager to execute Variance No. 8 with Black & Veatch in the amount of \$2,865,066 for supplemental construction contract administration, start-up, and commissioning services;
- Authorize the General Manager to execute Variance No. 3 with Arcadis, Inc. in the amount of \$664,138 for supplemental construction inspection, construction management, and document control system services;
- Authorize the General Manager to execute Variance No. 3 with EI&C Engineering, Inc. in the amount of \$835,860 for supplemental process control system (PCS) services, construction management services, start-up testing, and various engineering support tasks; and
- Authorize a budget increase in the amount of \$10,969,000, from \$227,573,100 to \$238,542,100, to the FY 2018-19 Capital Budget for the Michelson Water Recycling Plant Biosolids and Energy Recovery Facilities, Project 04286.

BACKGROUND:

Construction of the Biosolids Project was awarded to FBB in March 2013 in the amount of \$163,465,940. The Biosolids Project will provide biosolids digestion, dewatering, energy production, and on-site sludge drying. The project includes excavation for subsurface structures; installation of 3,009 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 existing Operations Center, maintenance shops, water quality laboratory, and warehouse.

Change Order No. 99

Staff negotiated with FBB and agrees to the labor and material costs contained in Change Order No. 99 in the amount of \$330,609.60. Change Order No. 99 includes the following items:

- *Regenerative Thermal Oxidizer (RTO) Stack Bypass Re-route in the amount of \$42,305.48* – So that the dryer off-gasses can be treated, the RTO stack bypass was re-routed to the odor control system of the Solids Handling Building. As originally designed the gasses would have been exhausted to atmosphere. This item is for the labor and material to re-route the bypass to the odor control system.
- *Additional Soil Remediation on the South Road of Biosolids Site in the amount of \$43,444.97* – Upon the recommendation of the design geotechnical engineer, a portion of the South Road of the Biosolids site was over-excavated and re-compacted to provide more stability in an area that has experienced settlement in the past. This item is for the labor and equipment to perform the remediation.
- *Additional Base and Paving in the amount of \$21,619.30* – An additional area on the south side of the Biosolids site of about 2,900 square feet required base and paving from the original design. This item is for the labor and materials to install additional base and paving.
- *Odor Scrubber Recirculation Piping and Pipe Support Modifications in the amount of \$103,308.35* - The recirculation piping and pipe support for the odor scrubber needed to be modified. The piping needed to be upgraded to larger sized diameter pipes. More valves, fittings, and appurtenances were also required. This item is for the labor and materials to make the necessary modifications.
- *Electrical Modifications in the Control Room of the Solids Handling Building in the amount of \$9,371.28* – To meet operational needs, electrical modifications in the Operations Control Room of the Solids Handling Building were necessary. These modifications included additional lighting, receptacles, and power conduits. This item is for the labor and material to make these modifications.
- *Modifications to the Acoustical Panels in the Solids Handling Building in the amount of \$14,704.14* – Modifications to various acoustical panels in the Solids Handling Building were necessary due to installation of large heating and ventilation ducts directly in front of the acoustical panels. This item is for the labor and material to relocate these acoustical panels to more effective locations.
- *New 480 V Power Source for Vacuum System in the Dryer Room in the amount of \$9,995.96* – To provide electrical power to the vacuum system in the dryer room, a 480V power source is necessary. The power source was not shown in the Contract Documents. This item is for the labor and material to install the new power source.

- *Explosion Proof Duct Smoke Detector in the Digester Control Building Gas Room in the amount of \$25,719.23* – An explosion proof duct smoke detector is required in the Digester Control Building Gas Room. This change request is for the labor and materials to install the explosion proof duct detector.
- *SCADA Programming Update to the Centrate Treatment Area in the amount of \$38,467.14* – This item modifies the control logic to synchronize the operation of the centrate basins so that one basin is accepting flow at all times. This modification makes the system easier to operate and prevents the operator from making an error when setting up the time durations for each phase of the process. This request is for the labor to make the necessary changes to the SCADA programming.
- *SCADA Programming Update to Digester Gas System in the amount of \$21,673.75* – This item is for programming changes to add backup control based on pressure for the digester gas system in the event of a loss of signal from the level transmitter at the Digester Gas Holder. This backup control enhances the reliability of the digester gas system. This item is for labor to make the necessary SCADA programming changes.

Staff recommends approval of Change Order No. 99 with FBB in the amount of \$330,609.60. Change Order No. 99 is attached as Exhibit “A” and the Change Order Log is attached as Exhibit “B”.

Variance No. 8 with Black & Veatch:

Black & Veatch (B&V) has provided contract administration, construction inspection, and construction management services since 2013. The scope of Variance No. 8 is summarized below:

- Additional Submittal Reviews – It is anticipated that 3,600 submittals will be reviewed by the completion of the project. The original estimate was 2,400.
- Additional Review of Requests for Information (RFIs) – It is anticipated that 3,300 RFIs will be reviewed and processed by the completion of the project. The original estimate was 2,500.
- Additional Schedule Review
- Claims Review and Dispute Resolution
- Supplemental Onsite Design Team Representative, electrical and instrumentation/controls inspections, and civil/mechanical field engineering
- Electronic O&M Manual Development
- Pre-Start-Up Process Overview Training
- Start-Up Testing Coordination
- Post-Start-Up Services

Black & Veatch staff is being extended on a case-by-case basis based upon their need to be involved on the project on various tasks. Staff has reviewed this staff utilization plan to support project startup and closeout activities. Variance No. 8, shown as Exhibit “C”, with Black &

Veatch in the amount of \$2,865,066 is for supplemental contract administration, construction phase, and start-up and commissioning services.

Variance No. 3 with Arcadis, Inc.:

Arcadis has provided construction inspection, construction management, and document control system services since the start of the Biosolids project. Through Variance No. 3, Arcadis will negotiate and prepare change orders, provide as-needed construction management support, assist with resolving project claims and delays submitted by FBB, and assist in project close-out activities. These services will be provided through June 30, 2020. Arcadis will also provide document control services until June 30, 2020, including assistance with the archiving of vital project documents. Variance No. 3 with Arcadis, Inc., attached as Exhibit “D”, is for construction management and document control support in the amount of \$664,138.

Variance No. 3 with EI&C Engineering, Inc.:

EI&C Engineering has provided technical oversight of the process control system (PCS) development and will continue in this role through June 30, 2020. Additionally, EI&C will provide additional automation staff to support start-up testing when it is anticipated that multiple start-up tests are scheduled simultaneously. Also, EI&C will provide engineering support for air permitting, start-up testing, and other engineering tasks. Variance No. 3, shown as Exhibit “E”, with EI&C Engineering, Inc. in the amount of \$835,860 is for supplemental PCS construction management services, start-up testing, development of PCS operations manuals, and associated PCS training presentations.

Additional Budget:

With the extension of the project to June 30, 2020, an increase in the capital budget for the Biosolids Project is required. Additional budget is being requested to fund the future change orders, consultants, Construction Management staff, legal and claims staff to resolve more complex construction items, Operations and Maintenance staff during start-up and training, landscaping, and the MWRP Construction Trailer and supplies.

The estimated expenses are itemized below:

Future Change Orders	\$1,250,000
Consultants	\$4,267,000
Legal	\$3,500,000
IRWD Staff	\$1,741,000
Start-Up and Training	\$200,000
Landscaping	\$700,000
<u>Contingency</u>	<u>\$1,000,000</u>
Total Expenses	\$12,658,000

There is currently approximately \$1,689,000 left in the existing Biosolids budget. Staff is requesting a budget increase of \$10,969,000 to cover the estimated expenses.

Schedule:

The estimated phasing schedule of the consultants is attached as Exhibit “F”.

FISCAL IMPACTS:

The MWRP Biosolids and Energy Recovery Facilities, Project 04286 is included in the FY 2018-19 Capital Budget. Staff requests a budget increase in the amount of \$10,969,000, for the reasons stated above, as shown in the table below:

Project No.	Current Budget	Addition <Reduction>	Total Budget
04286	\$227,573,100	\$10,969,000	\$238,542,100

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, SCH # 2011031091, was certified by IRWD on October 22, 2012. The City of Irvine Planning Commission approved a conditional use permit for the IRWD Biosolids Project on December 6, 2012.

RECOMMENDATION:

That the Board approve Change Order No. 99 in the amount of \$330,609.60, with Filanc/Balfour Beatty for items including hardscaping, soil remediation, paving, mechanical and electrical changes, and SCADA programming modifications; authorize the General Manager to execute Variance No. 8 with Black & Veatch in the amount of \$2,865,066 for supplemental contract administration, construction phase, start-up, and commissioning services; authorize the General Manager to execute Variance No. 3 with Arcadis, Inc. in the amount of \$664,138 for supplemental construction management and document control system services; authorize the General Manager to execute Variance No. 3 with EI&C Engineering, Inc. in the amount of \$835,860 for supplemental process control system (PCS) oversight, construction management services, start-up testing, and various engineering tasks; and authorize a budget increase in the amount of \$10,969,000 from \$227,573,100 to \$238,542,100, to the FY 2018-19 Capital Budget for the Michelson Water Recycling Plant Biosolids and Energy Recovery Facilities, Project 04286.

LIST OF EXHIBITS:

Exhibit “A” – Change Order No. 99 with Filanc/Balfour-Beatty
Exhibit “B” – Change Order Log
Exhibit “C” – Variance No. 8 with Black & Veatch
Exhibit “D” – Variance No. 3 with Arcadis, Inc.
Exhibit “E” – Variance No. 3 with EI&C Engineering, Inc.
Exhibit “F” – Estimated Phasing Schedule of Consultants

EXHIBIT "A"

CONTRACT CHANGE ORDER



Irvine Ranch Water District

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

C.O. No. 99

☐ Final

Project No. 04286

MWRP Biosolids and Energy Recovery Facilities

Project Title

Date: 03/06/2019

THE FOLLOWING CHANGE TO CONTRACT, DRAWINGS AND SPECIFICATIONS IS PROPOSED.	\$ ADDITIONS	\$ DELETIONS	DAYS ±
1. Regenerative Thermal Oxidizer Stack Bypass Re-route (CR-153) PR 04286 Task 5.31	\$42,305.48	\$0.00	See Notes
2. Additional Soil Remediation on the South Road of Biosolids Site (CR-327) PR 04286 Task 5.29	\$43,444.97	\$0.00	See Notes
3. Additional Base and Paving (CR-331C) PR 04286 Task 5.29	\$21,619.30	\$0.00	See Notes
4. Odor Scrubber Recirculation Piping and Pipe Support Modifications (CR-402/CR-402A) Task 5.31	\$103,308.35	\$0.00	See Notes
5. Electrical Modifications in the Control Room of the Solids Handling Building (CR-453A) PR 04286 Task 5.30	\$9,371.28	\$0.00	See Notes
6. Modifications to the Acoustical Panels in the Solids Handling Building (CR-723) PR 04286 Task 5.30	\$14,704.14	\$0.00	See Notes
7. New 480 V Power Source for Vacuum System in the Dryer Room (CR-733) PR 04286 Task 5.30	\$9,995.96	\$0.00	See Notes
8. Explosion Proof Duct Detector in the Digester Control Building Gas Room (CR-744) PR 04286 Task 5.30	\$25,719.23	\$0.00	See Notes
9. SCADA Programming Update to the Centrate Treatment Area (CR-748) PR 04286 Task 5.29	\$38,467.14	\$0.00	See Notes
10. SCADA Programming Update to Digester Gas System (CR-754) PR 04286 Task 5.29	\$21,673.75	\$0.00	See Notes
Notes: 1. For all items noted above, the Contractor reserves the right to compensable and/or excusable time extensions provided that time impacts to the Project's critical path are demonstrated to be beyond the Contractor's control. 2. Contractor reserves any and all rights it has and otherwise does not waive or release any claims it may have for additional compensation related to impact, including but not limited to the cumulative effect of the number, nature, or extent of any changes or design clarifications. 3. The project completion date of October 31, 2017 per CCO No. 45 is unchanged by this Change Order.			
TOTAL	\$330,609.60	\$0.00	0

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.

			DAYS +
1. NET AMOUNT THIS CHANGE ORDER	=	\$330,609.60	0
2. ORIGINAL CONTRACT AMOUNT	=	\$163,465,940.00	1,278
3. TOTAL PREVIOUS CHANGE ORDER(S)	=	\$20,449,700.30	368
4. TOTAL BEFORE THIS CHANGE ORDER (2+ 3)	=	\$183,915,640.30	1,646
5. PROPOSED REVISED CONTRACT AMOUNT TO DATE (1+4)	=	\$184,246,249.90	1,646

We hereby agree to make the above change subject to the terms of this change order for the sum of: _____
 -----Three Hundred Thirty Thousand Six Hundred and 60/100 -----Dollars

Date _____ Contractor <u>Filanc/Balfour-Beatty</u>		By: Omar Rodea, President _____	
SIGNATURE		DATE	
IRWD Engineer or Consulting Engineer <u>Steve Malloy</u>		Date <u>3-11-19</u>	
Principal Engineer <u>Ravi S. Bhatia</u>		Date <u>3-12-19</u>	
Executive Director of Engineering & Water Quality _____		Date _____	
General Manager _____		Date _____	
		APPROVAL LEVEL REQUIRED	
		Department Director Approval Required ☐	
		Executive Director Approval Required ☐	
		General Manager Approval Required ☐	
		Board Approval Required ☒	
		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 "B"

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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

A - District Convenience/Initiation - Project Related
B - Differing Site Conditions
C - Design Oversight
D - District Convenience/Initiation - Non-Project Related
E - Contractor Convenience/Initiation
F - Contractor Requested Inspection Overtime

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
7	Approved by Exe Dir of Eng & Water Quality Approved on April 21, 2014				\$24,725.00	\$857,876.45	\$882,601.45	0.54%	\$164,348,541.45	0	0	0	1,278	10/28/2016
7.1	Meter Shop Discharge Pipe Leak Investigation and Repair (CR-013) PR 21146 (4286) Task 3505	B	IRWD	\$2,542.00						0				
7.2	Additional Reinforcement and Lifting Eyes for Removable Slabs at Solids Handling Building (CR-021) PR 21146 (4286) Task 3505	C	FBB	\$14,059.00						0				
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	C	FBB	\$8,124.00						0				
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 (CR- Credit for Primavera 7.0 Project Portfolio Management Software (CR-002) PR 21146 (4286) Task 3235	A	IRWD	(\$14,611.00)						0				
8.2	21146 (4286) Task 3235	A	IRWD	(\$2,700.00)						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				

A - District Convenience/Initiation - Project Related
B - Differing Site Conditions
C - Design Oversight
D - District Convenience/Initiation - Non-Project Related
E - Contractor Convenience/Initiation
F - Contractor Requested Inspection Overtime

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

Contractor: Filano/Balfour-Beatty
Design Engineer: 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
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				
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				

A - District Convenience/Initiation - Project Related
B - Differing Site Conditions
C - Design Oversight
D - District Convenience/Initiation - Non-Project Related
E - Contractor Convenience/Initiation
F - Contractor Requested Inspection Overtime

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
	12.9	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 3,373.2CY 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				
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				

A - District Convenience/Initiation - Project Related
B - Differing Site Conditions
C - Design Oversight
D - District Convenience/Initiation - Non-Project Related
E - Contractor Convenience/Initiation
F - Contractor Requested Inspection Overtime

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
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 3510	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				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
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 costs 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				

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

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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				
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				

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

Contractor: Filano/Balfour-Beatty
Design Engineer: Black & Veatch

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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 3510	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				
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				

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

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

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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				

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

Contractor: Filanc/Balfour-Beatty
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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	E	FBB	(\$81,948.33)						0				
30.5	Deletion of Waterstops at Methane Digester Complex (CR-102) PR 21146 (4286) Task 3505	A	IRWD	(\$2,505.79)						0				
30.6	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				
30.7	Electrical and Gas Modifications (CR-146) PR 21146 (4286) Task 3510	C	IRWD	\$363,978.41						0				
30.8	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				
30.9	Credit for Travel Cost of On-Site Inspection for Acid Phase Digester (CR-175) PR 21146 (4286) Task 3520	B	IRWD	(\$683.39)						0				
30.1	Heat Dryer I/O Modifications per RFI-0626 (CR-179) PR 21146 (4286) Task 3510	A	IRWD	\$11,191.41						0				
30.11	Decant Trough I/O Modifications per RFI-0979 (CR-202) PR 21146 (4286) Task 3510	A	IRWD	\$9,960.55						0				
30.12	Deletion of Interior Coating of Methane Digesters (CR-188) PR 21146 (4286) Task 3520	A	IRWD	(\$398,571.00)						0				
30.13	Piping Modifications and Addition of Carbon Canisters (CR-218) PR 21146 (4286) Task 3520	A	IRWD	\$88,076.01						0				
30.14	Pickling and Passivation of Sludge Mixers (CR-248) PR 21146 (4286) Task 3520	C	IRWD	\$73,997.23										
30.15	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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**MWRP Biosolids and Energy Recovery Facilities
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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 Building	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	F	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				

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

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

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
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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				

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**MWRP Biosolids and Energy Recovery Facilities
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Design Engineer: Black & Veatch

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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				

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

Contractor: Filane/Balfour-Beatty
Design Engineer: Black & Veatch

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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 3520	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	F	FBB	(\$17,710.00)						0				
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										
43.4	Change of Waste Gas Burner Feeder Circuit Breaker (CR-344) 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				

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45	Approved by Board of Directors Approved on July 25, 2016/December 20, 2016 Recovery Plan PR 4286 Task 3510	B	FBB	\$9,250,000.00	\$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
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	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	Approved by General Manager Approved on February 28, 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						0				
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						0				
47.3	PLC-3100 Changes (CR-284) PR 4286 Task 3510	C	FBB	\$1,070.38						0				
47.4	Additional Angle Support to Acid Phase Digester Bridges (CR-298) PR 4286 Task 3505	C	FBB	\$4,986.21						0				
47.5	Additional Potable Water Gate Valves (CR-332) PR 4286 Task 3520	A	IRWD	\$3,892.44						0				
47.6	T-4 Kirk Key Interlock Installation (CR-335) PR 4286 Task 3510	B	IRWD	\$6,924.69						0				
47.7	Solids Handling Building Dumpster Room Channel Frames Modifications (CR-338) PR 4286 Task 3505	C	FBB	\$5,093.87						0				
47.8	PCS Server Configuration Clarification (CR-352) PR 4286 Task 3510	A	IRWD	\$6,824.35						0				
47.9	Additional Anchorage Support for Ledgers of the Digester Control Building Roof (CR-361) PR 4286 Task 3505	C	FBB	\$13,794.95						0				
47.10	Change of MCC-4103 Hot Water Circulation Pump Breakers (CR-366B) PR 4286 Task 3510	A	IRWD	\$1,336.13						0				
47.11	Centrate Treatment Facility Pull Boxes Duct Bank Settlement (CR-383) PR 4286 Task 3510	B	FBB	\$3,300.13						0				
47.12	Modifications to the MCC-4100/4101/4102/4103 (CR-405) PR 4286 Task 3510	B	FBB	\$7,418.52						0				
47.13	Cake Storage Hopper Modifications (CR-421) PR 4286 Task 3510	C	FBB	\$2,250.67						0				
47.14	Removing Installed Lighting in the Solids Handling Building (CR-427) PR 4286 Task 3510	A	IRWD	\$8,947.37						0				
47.15	Electrical Changes for Generator MPC (CR-430) PR 4286 Task 3510	A	IRWD	\$10,950.14						0				
47.16	Electrical Modifications to MCC-4100 and 4103 (CR-431) PR 4286 Task 3510	A	FBB	\$4,500.00						0				
47.17	Occupancy Sensors in the Solids Handling Building Shower Areas (CR-444) PR 4286 Task 3510	C	FBB	\$1,601.36						0				
47.18	Digester Gas Pre-Treatment In-Slab Conduit Size Change (CR-454) PR 4286 Task 3510	C	FBB	\$5,710.33						0				

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**MWRP Biosolids and Energy Recovery Facilities
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48	Approved by Board of Directors				\$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
	Approved on March 13, 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	Mini Power Center - 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				

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				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
49	Approved by Board of Directors Approved on March 13, 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				
50	Approved by Executive Director of Engineering & Water Quality Approved on March 31, 2017				\$72,150.89	\$15,383,700.49	\$15,455,851.38	9.46%	\$178,921,791.38	0	368	368	1,646	10/31/2017
50.1	Electrical Modifications to FOG Local Control Panel 70-LCP-0710 (CR-304) PR 4286 Task 5.30	A	IRWD	\$6,614.77						0				
50.2	Condensate Modifications at Digester Gas Pre-Treatment Area (CR-312) PR 4286 Task 5.31	C	FBB	\$9,826.09						0				
50.3	Installation of Lindapters Instead of Eye Bolts (CR-413) PR 4286 Task 5.29	A	FBB	\$13,346.01						0				
50.4	T-5 Connection to Biosolids Switch-14 (CR-480) PR 4286 Task 5.30	A	IRWD	\$35,170.26						0				
50.5	Polymer Feeder Blender Skids Flow Element Grounding Conductor (CR-482) PR 4286 Task 5.30	C	IRWD	\$7,193.76						0				
51	Approved by Executive Director of Engineering & Water Quality Approved on March 31, 2017				(\$126,390.00)	\$15,455,851.38	\$15,329,461.38	9.38%	\$178,795,401.38	0	368	368	1,646	10/31/2017
51.1	Credit for Overtime Inspection Hours From 1/1/2016 to Through 12/31/2016 (CR-089C) PR 4286 Task 4.0	F	IRWD	(\$97,570.00)						0				
51.2	Credit for Overtime Inspection Hours From 1/1/2017 to Through 03/31/2017 (CR-089D) PR 4286 Task 4.0	E	IRWD	(\$28,820.00)						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
52	Approved by General Manager Approved on April 28, 2017				\$98,342.16	\$15,329,461.38	\$15,427,803.54	9.44%	\$178,893,743.54	0	368	368	1,646	10/31/2017
52.1	Removal of Unsuitable Alluvium (CR-146H) PR 4286 Task 5.29	B	FBB	\$3,564.32						0				
52.2	Polymer Dilution Water Flowmeters (CR-159A) PR 4286 Task 5.31	A	IRWD	\$14,090.39						0				
52.3	Aluminum Handrail and Guardrail Modifications at Liquid Chemical and Polymer Areas (CR-171) PR 4286 Task 5.30	A	IRWD	\$13,765.20						0				
52.4	Modifications Due to Solids Handling Building Electrical Room Equipment Clearance Issues (CR-196) PR 4286 Task 5.30	C	FBB	\$9,382.01						0				
52.5	Data and Telephone Outlets in Solids Handling Building (CR-261) PR 4286 Task 5.30	A	IRWD	\$27,620.21						0				
52.6	HVAC Duct Modifications in Dewatering Feed Pump Station (CR-268) PR 4286 Task 5.31	C	FBB	\$16,023.50						0				
52.7	Coating of 8 Roll-up doors (CR-358) PR 4286 Task 5.29	A	IRWD	\$5,710.32						0				
52.8	Upsizing Wire Size of Dewatering Feed Pump Station Main Breaker Light Panel LP-3501 (CR-390) PR 4286 Task 5.30	A	IRWD	\$1,449.75						0				
52.9	Modifications to the Roofs of the Solids Handling Building and Digester Control Building (CR-528) PR 4286 Task 5.29	A	IRWD	\$6,736.46						0				
53	Exe. Director of Water Quality and Engineering Approved on June 5, 2017				\$42,281.96	\$15,427,803.54	\$15,470,085.50	9.46%	\$178,936,025.50	0	368	368	1,646	10/31/2017
53.1	Modifications to Regenerative Thermal Oxidizer (RTO) Drainage and Utility Water Piping (CR-267) PR 4286 Task 5.31	C	IRWD	\$33,814.80						0				
53.2	Modifications to Liquid Chemical Feed Control Panel Wiring (CR-396) per RFI-1602 PR 4286 Task 5.30	C	FBB	\$8,467.16						0				
54	Approved by General Manager Approved on June 19, 2017				\$44,210.51	\$15,470,085.50	\$15,514,296.01	9.49%	\$178,980,236.01	0	368	368	1,646	10/31/2017
54.1	Modifications to Thickening and Dewatering Platforms (CR-195) PR 4286 Task 5.29	C	FBB	\$44,210.51						0				
55	Approved by General Manager Approved on July 3, 2017				\$94,352.43	\$15,514,296.01	\$15,608,648.44	9.55%	\$179,074,588.44	0	368	368	1,646	10/31/2017
55.1	Additional Pipe Supports of 54-Inch Fiberglass Reinforced Air Duct (CR-106A) PR 4286 Task 5.29	C	FBB	\$14,211.18						0				
55.2	Natural Gas Step Down Manifolds and Gas Transition Piping (CR-146G) PR	B	IRWD	\$20,489.32						0				
55.3	Modifications to the West End Stair Landing of the Solids Handling Building (CR-315) PR 4286 Task 5.29	B	IRWD	\$5,622.11						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
55.4	Regenerative Thermal Oxidizer (RTO) Pad Modifications (CR-400) PR 4286 Task 5.29	C	FBB	\$8,471.16						0				
55.5	Addition of Thin Client at the Dryer Facility (CR-485) PR 4286 Task 5.30	A	IRWD	\$36,874.10						0				
55.6	Change in Size to 2 Check Valves in the Digester Control Building (CR-514) PR 4286 Task 5.31	C	FBB	\$8,684.56						0				
56	Approved by Board Approved on July 24, 2017				\$201,744.33	\$15,608,648.44	\$15,810,392.77	9.67%	\$179,276,332.77	0	368	368	1,646	10/31/2017
56.1	Addition Of Stairs and Platform to RTO (CR-266) PR 4286 Task 5.29	A	IRWD	\$101,744.33						0				
56.2	Microturbine CLC (ESC Capstone) per RFI 1141 (CR-277) PR 4286 Task 5.30	B	FBB	\$100,000.00						0				
57	Approved by General Manager Approval on August 5, 2017				\$98,886.90	\$15,810,392.77	\$15,909,279.67	9.73%	\$179,375,219.67	0	368	368	1,646	10/31/2017
57.1	Additional Support at Digester Control Building (CR-342) PR 04286 Task 5.29	C	IRWD	\$2,522.47						0				
57.2	Pipe and Duct Hanger Modifications (CR-362) PR 04286 Task 5.29	C	IRWD	\$4,083.12						0				
57.3	Increase Wire Size of Main Breaker PP-3501 (CR-418) PR 04286 Task 5.30	C	FBB	\$696.66						0				
57.4	Roof Vent at DCB Elevator/Stair Tower (CR-437) PR 04286 Task 5.29	B	IRWD	\$8,563.72						0				
57.5	T-14 Fixed Type Manual Operator per Submittal 16443-0016A (CR-540) PR 04286 Task 5.31	C	IRWD	\$1,945.62						0				
57.6	Area Classification at Methane Digesters to meet NFPA Table 6.2(a) - Plug Valves Limit Switches (CR-557) PR 04286 Task 5.30	C	FBB	\$64,195.15						0				
57.7	Area Classification at Methane Digesters to meet NFPA Table 6.2(a) - Sump Pump Cable Retrofit PR 04286 Task 5.30	C	FBB	\$16,880.16						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
58	Approved by Board of Directors Approval on August 28, 2017				\$182,938.94	\$15,909,279.67	\$16,092,218.61	9.84%	\$179,558,158.61	0	368	368	1,646	10/31/2017
58.1	Concrete Cap over Shallow Pipe Crossings (CR-348) PR 04286 Task 5.31	B	FBB	\$7,923.00						0				
58.2	Additional Conduit and Wiring for Sludge Screen Moisture Sensors (CR-381) PR 04286 Task 5.30	C	FBB	\$8,355.32						0				
58.3	SCADA Programming Modifications (CR-433/476/546/547/551) PR 04286 Task 5.30	A	IRWD	\$15,758.38						0				
58.4	Polymer Storage Power Panels Wire and Breaker Modifications (CR-456) PR 04286 Task 5.30	C	FBB	\$24,238.65						0				
58.5	Odor Control Starter Modifications (CR-466) PR 04286 Task 5.30	B	FBB	\$41,436.09						0				
58.6	Odor Control Fan Remote Temperature Device Revisions (CR-522) PR 04286 Task 5.30	A	IRWD	\$52,484.50						0				
58.7	Re-location of Digester Control Building Gas Room Local Control Panels (CR-534) PR 04286 Task 5.30	A	FBB	\$32,743.00						0				
59	Approved by Exe. Director of Water Quality and Engineering Approval on September 6, 2017				\$98,988.68	\$16,092,218.61	\$16,191,207.29	9.90%	\$179,657,147.29	0	368	368	1,646	10/31/2017
59.1	Modifications to Building 101 (CR-212) PR 04286 Task 5.30	E	FBB	\$26,500.00										
59.2	Change in Conduit Size in Area 20 (CR-292) PR 04286 Task 5.10	C	FBB	\$1,946.70						0				
59.3	Centrifuge Discharge Cake Conveyors Schematic Modifications (CR-422) PR 04286 Task 5.10	C	FBB	\$6,410.04						0				
59.4	Power Monitor Programming Modifications (CR-539) PR 04286 Task 5.10	A	IRWD	\$2,595.60						0				
59.5	SCADA Programming Modifications (CR-547A) PR 04286 Task 5.10	A	IRWD	\$1,574.86						0				
59.6	Change in Area Classification at Methane Digesters to meet NFPA Standards - MOVs (CR-557B) PR 04286 Task 5.10	C	FBB	\$54,736.73						0				
59.7	FOG Heating Disconnect Switch Relocation (CR-559) PR 04286 Task 5.10	C	FBB	\$5,224.75						0				
60	Approved by Exe. Director of Water Quality and Engineering Approval on September 5, 2017				(\$34,540.00)	\$16,191,207.29	\$16,156,667.29	9.88%	\$179,622,607.29	0	368	368	1,646	10/31/2017
60.1	Credit for Overtime Inspection Hours From 4/1/2017 Through 6/30/2017 (CR-089E) PR 04286 Task 4.0	F	FBB	(\$34,540.00)						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
61		Approved by Exe. Director of Water Quality and Engineering Approved on September 6, 2017				(\$1,752.39)	\$16,156,667.29	\$16,154,914.90	9.88%	\$179,620,854.90	0	368	368	1,646	10/31/2017
	61.1	Credit for Bulk Polymer Storage Changes per RFI-0863 and Submittal 15140-013B (CR-168) PR 04286 Task 5.16	E	FBB	(\$1,752.39)					0					
62		Approved by Board of Directors Approved on October 9, 2017				\$708,162.72	\$16,154,914.90	\$16,863,077.62	10.32%	\$180,329,017.62	0	368	368	1,646	10/31/2017
	62.1	Fats, Oil, and Grease (FOG) Modifications (CR-223A) PR 04286 Task 5.30	A	IRWD	\$52,174.90										
	62.2	Density Meter Conduit and Cabling Modifications (CR-326) PR 04286 Task 5.30	A	IRWD	\$52,518.11						0				
	62.3	Fiber Optic Modifications (CR-356) PR 04286 Task 5.30	A	IRWD	\$20,607.14						0				
	62.4	Sludge Screen Pneumatic Control Panel Conduit and Cabling (CR-380) PR 04286 Task 5.30	C	IRWD	\$8,859.95						0				
	62.5	Additional Circuits for Control of the Thickening Centrifuges (CR-386) PR 04286 Task 5.30	C	FBB	\$376,674.08						0				
	62.6	Upsize of Power Panel PP-8001 Circuit Breaker (CR-414) PR 04286 Task 5.30	A	IRWD	\$50,135.26						0				
	62.7	Electrical Power Feeders to Electric Water Heater (CR-426) PR 04286 Task 5.30	B	FBB	\$16,551.27						0				
	62.8	Chemical Sump Pump Control Panel Space Heater Wiring Modifications (CR-461) PR 04286 Task 5.30	A	IRWD	\$12,822.26						0				
	62.9	Relocate Electrical Feeders to Generator Bus (CR-462) PR 04286 Task 5.30	A	IRWD	\$22,785.74						0				
	62.10	Electrical and Instrumentation Related Components for the Installation of Thin Client at Dryer Facility (CR-485A) PR 04286 Task 5.30	A	IRWD	\$49,908.43						0				
	62.11	Polymer Room Eye Wash Station Flow Switches (CR-535) PR 04286 Task 5.30	A	IRWD	\$24,567.89						0				
	62.12	Chemical Storage and Feed Modifications (CR-563) PR 04286 Task 5.30	A	IRWD	\$13,055.18						0				
	62.13	PLC Redundancy Hot Standby Status Register (CR-568) PR 04286 Task 5.30	A	IRWD	\$7,502.51						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
63	Approved by General Manager Approved on October 2, 2017				\$91,766.09	\$16,863,077.62	\$16,954,843.71	10.37%	\$180,420,783.71	0	368	368	1,646	10/31/2017
63.1	Electrical Modifications to RIO-2001 (CR-269) PR 04286 Task 5.30	C	IRWD	\$30,563.48						0				
63.2	Modifications to RIO-4002 (CR-285) PR 04286 Task 5.30	C	FBB	\$14,563.39						0				
63.3	Cap for 12-Inch Storm Drain (CR-351) PR 04286 Task 5.16	B	FBB	\$2,394.54						0				
63.4	Access Hatch for Regenerative Thermal Oxidizer Pipe Chase (CR-473) PR 04286 Task 5.31	C	FBB	\$3,958.91						0				
63.5	Electrical Upgrades to RIO-4002 (CR-447) PR 04286 Task 5.30	A	FBB	\$40,285.77						0				
64	Approved by Board of Directors Approved on October 23, 2017				\$231,100.22	\$16,954,843.71	\$17,185,943.93	10.51%	\$180,651,883.93	0	368	368	1,646	10/31/2017
64.1	Modifications to Centrate Treatment Facility Stairs (CR-379) PR 04286 Task 5.29	B	FBB	\$9,758.16						0				
64.2	Modifications to Ductwork in Solids Handling Building (CR-401) PR 04286 Task 5.31	C	FBB	\$9,537.05						0				
64.3	Electrical Conduits and Wires for Additional Bridge Breakers for Cake Receiving Pumps (CR-416) PR 04286 Task 5.30	B	FBB	\$21,678.83						0				
64.4	Handrail Modifications at the Methane Digesters (CR-472) PR 04286 Task 5.29	B	FBB	\$22,154.53						0				
64.5	Electrical and Instrumentation Related Components for the Installation of Thin Client at Dryer Facility (CR-485B) PR 04286 Task 5.30	A	IRWD	\$53,090.84						0				
64.6	Electrical Modifications at the Motor Control Centers for the Acid Phase Sludge Heating Recirculation Pumps (CR-517) PR 04286 Task 5.30	A	IRWD	\$47,611.11						0				
64.7	FOG Receiving Pumps Thermocouple and Thermostat Wiring (CR-525) PR 04286 Task 5.30	C	FBB	\$37,826.58						0				
64.8	SCADA Programming Changes (CR-537/570/573/573A) PR 04286 Task 5.30	A	IRWD	\$23,694.13						0				
64.9	Change of Limit Switches for Buried Service (CR-560) PR 04286 Task 5.30	C	FBB	\$5,748.99						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
65	Approved by Board of Directors Approved on October 23, 2017				\$149,591.14	\$17,185,943.93	\$17,335,535.07	10.60%	\$180,801,475.07	0	368	368	1,646	10/31/2017
65.1	Additional Conduits and Wires for the Engine Generator, Switchgear-16, and Switchgear-16 Programmable Logic Controller (CR-204) PR 04286 Task 5.30	C	FBB	\$100,000.00						0				
65.2	Modifications to Spirac Conveyor in the Solids Handling Building (CR-409) PR 04286 Task 5.31	B	FBB	\$13,641.00						0				
65.3	Additional Metal Bridge Walkway Structural Support Angles (CR-420) PR 04286 Task 5.29	B	FBB	\$35,950.14						0				
66	Approved by General Manager Approved on November 30, 2017				\$98,201.20	\$17,335,535.07	\$17,433,736.27	10.67%	\$180,899,676.27	0	368	368	1,646	10/31/2017
66.1	SCADA Programming Modifications and Updates (CR-247A/CR-469/CR-485C/CR-571/CR-575A/CR-579/CR-580/CR-585) PR 04286 Task 5.30	A	IRWD	\$61,734.78						0				
66.2	Installation of Sump Pump Floats (CR-452) PR 04286 Task 5.31	A	IRWD	\$17,228.56						0				
66.3	Electrical Work Associated with Air Handling/Heating Units, Recycle Bin Feed Conveyor, and Recycle Bucket Elevator in the Solids Handling Building (CR-457/CR-529) PR 04286 Task 5.30	B	IRWD	\$11,003.85						0				
66.4	Additional Wires and Conduits for FOG Receiving Valves (CR-565) PR 04286 Task 5.30	B	FBB	\$6,368.21						0				
66.5	Additional Door Cover Plates for MCC-4100 and MCC-4101	B	IRWD	\$1,865.80						0				
67	Approved by Exe. Dir of Engineering and Water Quality Approved on November 30, 2017				(\$53,626.83)	\$17,433,736.27	\$17,380,109.44	10.63%	\$180,846,049.44	0	368	368	1,646	10/31/2017
67.1	Credit for Overtime Inspection Hours from 07/1/2017 to 09/30/2017 (CR-089F) PR 04286 Task 4.0	F	FBB	(\$19,140.00)						0				
67.2	Credit for Additional Conduits and Wires for the Engine Generator, Switchgear-16, and Switchgear-16 Programmable Logic Controller (CR-204A) PR 04286 Task 5.30	E	FBB	(\$13,591.83)						0				
67.3	Deletion of Pavement Prime Coat (CR-331D) PR 04286 Task 5.29	A	IRWD	(\$20,895.00)						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
68	Approved by Board of Directors Approved on December 11, 2017				\$569,553.19	\$17,380,109.44	\$17,949,662.63	10.98%	\$181,415,602.63	0	368	368	1,646	10/31/2017
68.1	Fats, Oil, and Grease (FOG) Modifications (CR-223) PR 04286 Task 5.30	A	IRWD	\$83,648.47						0				
68.2	Additional Electrical Outlets and Circuits in the Solids Handling Building (CR-453) PR 04286 Task 5.30	A	IRWD	\$44,054.83						0				
68.3	Control Panel Modifications in the Methane Digester Complex (CR-545) PR 04286 Task 5.30	C	IRWD	\$55,414.03						0				
68.4	Additional Electrical, Instrumentation, and Controls for the Heat Dryer System (CR-270 and CR-471A through CR-471G, CR-496, and CR-555) PR 04286 Task 5.30	B	FBB	\$386,435.86						0				
69	Approved by General Manager Approved on December 20, 2017				\$90,846.69	\$17,949,662.63	\$18,040,509.32	11.04%	\$181,506,449.32	0	368	368	1,646	10/31/2017
69.1	Power Supply Failure Alarms for Acid Gas Boosters (CR-477) PR 04286 Task	A	IRWD	\$10,965.90						0				
69.2	Addition of Waste Gas Burner Instrument Air Compressor System (Electrical) (CR-484A) PR 04286 Task 5.30	C	IRWD	\$8,046.52						0				
69.3	Circuit Breaker for MOC-2034 (CR-541) PR 04286 Task 5.30	B	IRWD	\$2,389.56						0				
69.4	Change in Limit Switches Located in the Methane Digester Complex Due Electrical Classification Change (CR-557D) PR 04286 Task 5.30	C	IRWD	\$37,744.12						0				
69.5	Change in Limit Switches Located in the Methane Digester Complex Due Electrical Classification Change (CR-582) PR 04286 Task 5.30	C	IRWD	\$16,228.03						0				
69.6	SCADA Programming Changes – Totalizers (CR-590) PR 04286 Task 5.30	A	IRWD	\$7,830.90						0				
69.7	Control Panel Modifications in the Methane Digester Complex (CR-592) PR 04286 Task 5.30	A	IRWD	\$7,641.66						0				

A - District Convenience/Initiation - Project Related
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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
70		Approved by Exe. Dir of Engineering and Water Quality Approved on January 23, 2018				\$73,972.77	\$18,040,509.32	\$18,114,482.09	11.08%	\$181,580,422.09	0	368	368	1,646	10/31/2017
	70.1	Addition of Limit Switches on Gas Dryer Heat Exchanger (CR-303) PR 04286 Task 5.30	A	IRWD	\$17,367.32						0				
	70.2	Change of Electrical Classification of Valve Limit Switches at Acid Phase Digester Complex (CR-415) PR 04286 Task 5.30	C	IRWD	\$24,018.04						0				
	70.3	Power Source to the Solids Handling Building Bridge Cranes (CR-574) PR 04286 Task 5.30	C	IRWD	\$27,479.58						0				
	70.4	Investigation of Street Lights, South side of Biosolids Site (CR-613) PR 04286 Task 5.30	A	IRWD	\$1,204.20						0				
	70.5	Additional Switches in the Solids Handling Building (CR-625) PR 04286 Task 5.30	A	IRWD	\$3,903.63						0				
71		Approved by Exe. Dir of Engineering and Water Quality Approved on January 31, 2018				(\$12,210.00)	\$18,114,482.09	\$18,102,272.09	11.07%	\$181,568,212.09	0	368	368	1,646	10/31/2017
	71.1	Credit for Overtime Inspection Hours from 10/1/2017 to 12/31/2017 (CR-089G) PR 04286 Task 4.0	F	IRWD	(\$12,210.00)						0				
72		Approved by General Manager Approved on January 25, 2018				\$25,256.29	\$18,102,272.09	\$18,127,528.38	11.09%	\$181,593,468.38	0	368	368	1,646	10/31/2017
	72.1	Installation of Breakers for Power Panel PP-8001 (CR-414A) PR 04286 Task 5.30	A	IRWD	\$25,256.29						0				
73		Approved by Board of Directors Approved on March 12, 2018				\$150,755.29	\$18,127,528.38	\$18,278,283.67	11.18%	\$181,744,223.67	0	368	368	1,646	10/31/2017
	73.1	Additional Circuits for Control of the Dewatering Centrifuges (CR-386B) PR 04286 Task 5.30	B	FBB	\$150,755.29						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
74	Approved by General Manager				\$99,467.47	\$18,278,283.67	\$18,377,751.14	11.24%	\$181,843,691.14	0	368	368	1,646	10/31/2017
	Approved on February 22, 2018													
74.1	Access Platform to Heat Dryer Acid Scrubber (CR-485D) PR 04286 Task 5.30	A	IRWD	\$14,637.02						0				
74.2	Modifications to the FRP Ducting in the Solids Handling Building (CR-491) PR 04286 Task 5.31	A	IRWD	\$20,171.39						0				
74.3	Power to Air Compressors and Pre-Action Panels of the Fire Sprinkler System (CR-526) PR 04286 Task 5.30	B	IRWD	\$24,442.16						0				
74.4	Electrical and Instrumentation Revisions to the FOG System (CR-578) PR 04286 Task 5.30	A	IRWD	\$13,035.52						0				
74.5	Addition of Centrate Air Purge System (CR-581) PR 04286 Task 5.30	A	IRWD	\$17,777.95						0				
74.6	Addition of Flame Checks on Foam Separator Digested Sludge Line (CR-587) PR 04286 Task 5.3	A	IRWD	\$3,038.27						0				
74.7	Modifications to 10-Ton Crane Stops (CR-589) PR 04286 Task 5.31	C	FBB	\$6,365.16						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
75	Approved by General Manager Approved on March 2, 2018				\$98,698.78	\$18,377,751.14	\$18,476,449.92	11.30%	\$181,942,389.92	0	368	368	1,646	10/31/2017
75.1	Electrical Modifications to the Acid Phase Digester and Methane Phase Digester System (CR-252C) PR 04286 Task 5.30	A	IRWD	\$31,492.38						0				
75.2	Modifications to the Odor Control Panels (CR-382) PR 04286 Task 5.30	A	IRWD	\$12,726.70						0				
75.3	Additional Lock-Out Switch for the Bridge Breaker (CR-384A) PR 04286 Task 5.30	B	IRWD	\$14,276.72						0				
75.4	Additional On/Off Switch for Duct Fans (CR-384B) PR 04286 Task 5.30	A	IRWD	\$12,100.47						0				
75.5	Aeration Blower MCC Modifications (CR-481) PR 04286 Task 5.30	C	IRWD	\$14,441.86						0				
75.6	Addition of Level Switches and Solenoid Valves for Gas/Foam Separator Tanks (CR-566) PR 04286 Task 5.30	B	IRWD	\$7,568.99						0				
75.7	SCADA Template Update (CR-622) PR 04286 Task 5.30	A	IRWD	\$2,775.05						0				
75.8	Additional Lights in the Shower Stalls of the Solids Handling Building (CR-628) PR 04286 Task 5.30	C	FBB	\$1,639.80						0				
75.9	Relocation of Flow Switch in Sample Analysis Room (CR-637) PR 04286 Task 5.30	A	IRWD	\$1,676.81						0				
76	Approved by Board of Directors Approved on March 26, 2018				\$150,690.04	\$18,476,449.92	\$18,627,139.96	11.40%	\$182,093,079.96	0	368	368	1,646	10/31/2017
76.1	Power Feed to Microturbine CLCs (CR-289) PR 04286 Task 5.30	B	FBB	\$49,534.35						0				
76.2	Upsizing of Electrical Cables related to the Heat Drying System (CR-510) PR 04286 Task 5.30	B	FBB	\$4,670.94						0				
76.3	Additional Cables to MCC-1 (CR-538) PR 04286 Task 5.30	B	FBB	\$5,679.24						0				
76.4	Electrical Code Area Classification Change in the Digester Control Building Gas Room (CR-582A) PR 04286 Task 5.30	C	IRWD	\$8,804.31						0				
76.5	Addition of Water Source for the Foam Separator (CR-583) PR 04286 Task 5.31	C	FBB	\$8,418.23						0				
76.6	SCADA Modifications on Solids Handling Polymer System (CR-620) PR 04286 Task 5.30	A	IRWD	\$7,761.00						0				
76.7	3-Way Valve Graphical Modifications to SCADA (CR-621) PR 04286 Task 5.30	A	IRWD	\$22,540.18						0				
76.8	SCADA Modifications on FOG System (CR-623) PR 04286 Task 5.30	A	IRWD	\$7,970.58						0				
76.9	SCADA Modifications on the Digested Tank Level (CR-626) PR 04286 Task 5.30	A	IRWD	\$8,898.86						0				
76.10	Solids Handling Building Stair Modifications (CR-634) PR 04286 Task 5.29	C	FBB	\$26,412.35						0				

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

Contractor: Filano/Balfour-Beatty
Design Engineer: 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
77	Approved by General Manager Approved on April 30, 2018				\$94,371.12	\$18,627,139.96	\$18,721,511.08	11.45%	\$182,187,451.08	0	368	368	1,646	10/31/2017
77.1	Modifications of Notching Shear Lugs - Solids Handling Building (CR-299A) PR 04286 Task 5.29	C	FBB	\$1,269.23						0				
77.2	Cake Storage Hopper Conveyor Control Changes (CR-384C) PR 04286 Task 5.30	A	IRWD	\$30,869.71						0				
77.3	Electrical Testing for Manual Transfer Switchgear SWGR-14 (CR-474A) PR 04286 Task 5.30	C	FBB	\$5,891.73						0				
77.4	Additional HVAC Fan Coil Power Circuits (CR-593) PR 04286 Task 5.30	B	FBB	\$16,053.47						0				
77.5	Modifications to Digester Control Building Roof Guardrail and Bridge Steps (CR-617) PR 04286 Task 5.29	B	IRWD	\$10,147.48						0				
77.6	Electrical Modifications to the Condensing Unit and Heat Pumps in the Solids Handling Building (CR-635) PR 04286 Task 5.30	A	FBB	\$9,551.13						0				
77.7	SCADA Control Logic Change in the Acid Phase Digester Area (CR-668) PR 04286 Task 5.30	A	IRWD	\$9,741.22						0				
77.8	SCADA Control Logic Change in the Polymer Thickening Tank Area (CR-669) PR 04286 Task 5.30	A	IRWD	\$8,144.54						0				
77.9	Hot Water Circuit Breaker (CR-366A) PR 04286 Task 5.30	A	IRWD	\$2,702.61						0				
78	Approved by Board of Directors Approved on April 26, 2018				\$344,006.55	\$18,721,511.08	\$19,065,517.63	11.66%	\$182,531,457.63	0	368	368	1,646	10/31/2017
78.1	Operator Interface Terminal (OIT) Indusoft Licensing Cost (CR-244) PR 04286 Task 5.30	A	IRWD	\$4,618.13						0				
78.2	Retaining Wall Modifications at Solids Handling Building (CR-331E) PR 04286 Task 5.29	C	IRWD	\$26,508.00						0				
78.3	Andritz Air Compressor Equipment Pad Modifications (CR-550) PR 04286 Task 5.31	C	FBB	\$6,729.00						0				
78.4	Waste Activated Sludge (WAS), Digested Sludge (DS), and Primary Sludge (PS) Piping Modifications (CR-594) PR 04286 Task 5.31	A	IRWD	\$28,967.68						0				
78.5	Modifications to MWRP Biosolids Hardscape (CR-331K) PR 04286 Task 5.29	A	IRWD	\$277,183.74						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
79	Approved by General Manager				\$89,123.41	\$19,065,517.63	\$19,154,641.04	11.72%	\$182,620,581.04	0	368	368	1,646	10/31/2017
	Approved on May 17, 2018													
79.1	Addition of High Temperature Switches for the Primary Sludge/Waste Activated Sludge Wet Well Mixers (CR-377A) PR 04286 Task 5.30	C	FBB	\$12,145.12						0				
79.2	Utility Line Modifications in the Solids Handling Building (CR-521) PR 04286 Task 5.31	A	IRWD	\$2,163.21						0				
79.3	SCADA Programming Changes in the Methane Digester Area (CR-542) PR 04286 Task 5.30	A	IRWD	\$7,191.02						0				
79.4	MCC-4100 Bridge Breaker Modifications in the Bulk Polymer Storage Area (CR-562) PR 04286 Task 5.30	B	IRWD	\$9,905.77						0				
79.5	Electrical Modifications of Exhaust Air Unit in the Solids Handling Building (CR-618) PR 04286 Task 5.30	B	FBB	\$6,391.05						0				
79.6	SCADA Programming Changes on the Biosolids Conveyor Distribution System (CR-630) PR 04286 Task 5.30	A	IRWD	\$7,226.35						0				
79.7	Electrical Modifications to the Dewatering Conveyors in the Solids Handling Building (CR-672) PR 04286 Task 5.30	B	FBB	\$21,239.15						0				
79.8	Additional Space Heater for Regenerative Thermal Oxidizer Draft Fan (CR-675) PR 04286 Task 5.30	A	FBB	\$9,351.07						0				
79.9	SCADA Programing Update on the Acid Phase Sludge Transfer Pumps (CR-689) PR 04286 Task 5.30	A	IRWD	\$13,510.67						0				

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

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

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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
80	Approved by Board of Directors Approved on May 29, 2018				\$313,076.14	\$19,154,641.04	\$19,467,717.18	11.91%	\$182,933,657.18	0	368	368	1,646	10/31/2017
80.1	Modifications to MCC-4100, MCC-4101 and MCC-4102 (CR-384) PR 04286 Task 5.30	C	FBB	\$36,158.66						0				
80.2	Modifications to MCC-4102 and MCC-4103 (CR-384D) PR 04286 Task 5.30	C	FBB	\$63,388.51						0				
80.3	Separate Air Compressor System Electrical Panel for Waste Gas Burner (CR-484B) PR 04286 Task 5.3	B	FBB	\$50,723.04						0				
80.4	Additional Power Monitoring Equipment for Self-Generation Incentive Program (CR-577) PR 04286 Task 5.30	A	IRWD	\$34,887.16						0				
80.5	Electrical Modifications for the Gas Compressor Detector and Enclosure Fire Alarm Panel (CR-629) PR 04286 Task 5.30	A	IRWD	\$13,215.42						0				
80.6	Additional Power Circuits for the Solids Handling Building Roll-Up Doors (CR-631) PR 04286 Task 5.30	C	IRWD	\$24,446.58						0				
80.7	Modifications to Digested Sludge Line (CR-648) PR 04286 Task 5.31	C	FBB	\$17,023.42						0				
80.8	Relocation of Local Control Panel in the Solids Handling Building (CR-676) PR 04286 Task 5.30	C	FBB	\$34,619.35						0				
80.9	Additional Manual Valves and Components for Heat Dryer System (CR-683) PR 04286 Task 5.30	C	FBB	\$38,614.00						0				
81	Approved by Executive Director of Engineering and Water Quality Approved on June 1, 2018				\$2,566.55	\$19,467,717.18	\$19,470,283.73	11.91%	\$182,936,223.73	0	368	368	1,646	10/31/2017
81.1	Modifications to Duct and Cable Tray Support in Dryer Room (CR-125) PR 04286 Task 5.30	A	FBB	\$2,566.55						0				
82	Approved by Executive Director of Engineering and Water Quality Approved on June 1, 2018				(\$75,950.64)	\$19,470,283.73	\$19,394,333.09	11.86%	\$182,860,273.09	0	368	368	1,646	10/31/2017
82.1	Credit for Overtime Inspection Hours from 01/01/2018 to 3/31/2018 (CR-089H) PR 04286 Task 4.0	F	FBB	(\$3,740.00)						0				
82.2	Odor Control Fan Platform Modifications (CR-334) PR 04286 Task 5.31	A	IRWD	(\$8,498.82)						0				
82.3	Chemical Piping Modifications Between Chemical Storage and Odor Control Areas (CR-387) PR 04286 Task 5.31	A	IRWD	(\$20,197.71)						0				
82.4	Ferric Chloride Piping Modifications in the Thickened Sludge Area (CR-388) PR 04286 Task 5.31	A	IRWD	(\$26,067.00)						0				
82.5	Ferric Chloride Piping Re-Route South of the Solids Handling Building (CR-423) PR 04286 Task 5.31	A	IRWD	(\$17,447.11)						0				

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

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

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
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83	Approved by General Manager Approved on June 21, 2018				\$81,901.09	\$19,394,333.09	\$19,476,234.18	11.91%	\$182,942,174.18	0	368	368	1,646	10/31/2017
83.1	Andritz Pellet Silo Structure Conflict (CR-554) PR 04286 Task 5.29	C	FBB	\$4,963.98						0				
83.2	Additional Power Circuits for the Solids Handling Building Roll-Up Doors (CR-631A) PR 04286 Task 5.30	C	FBB	\$32,998.95						0				
83.3	SCADA Programming Update – Gas Booster System (CR-670) PR 04286 Task 5.30	A	IRWD	\$14,981.13						0				
83.4	Electrical Receptacles for Deionized Water System (CR-692A) PR 04286 Task 5.30	A	IRWD	\$4,546.34						0				
83.5	Cable Work Related in MCC-1 to Harmonic Filters (CR-694) PR 04286 Task 5.30	A	IRWD	\$6,932.07						0				
83.6	SCADA Update to Sludge Heat Transfer System Valve Matrix (CR-699) PR 04286 Task 5.30	A	IRWD	\$17,478.62						0				
84	Approved by Board of Directors Approved on June 25, 2018				\$105,492.90	\$19,476,234.18	\$19,581,727.08	11.98%	\$183,047,667.08	0	368	368	1,646	10/31/2017
84.1	Electrical Modifications Due to the Addition of Grease Pumps (CR-619) PR 04286 Task 5.30	B	FBB	\$105,492.90						0				
85	Approved by Executive Director of Engineering and Water Quality Approved on July 30, 2018				(\$39,914.23)	\$19,581,727.08	\$19,541,812.85	11.95%	\$183,007,752.85	0	368	368	1,646	10/31/2017
85.1	Credit for Overtime Inspection Hours from 04/01/2018 to 6/30/2018 (CR-089I) PR 04286 Task 4.0	F	FBB	(\$29,150.00)						0				
85.2	Replacement of Network Communication Switches in the Solids Handling Building and Digester Control Building Server Rooms (CR-713) PR 04286 Task 5.30	B	IRWD	(\$10,764.23)						0				

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

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

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
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86	Approved by General Manager Approved on July 30, 2018				\$99,320.53	\$19,541,812.85	\$19,641,133.38	12.02%	\$183,107,073.38	0	368	368	1,646	10/31/2017
86.1	Addition of Waste Gas Burner Instrument Air Compressor System (Material Cost Only) (CR-484) PR 04286 Task 5.31	C	IRWD	\$5,357.20						0				
86.2	Modifications to Piping at the Bulk Liquid Chemical Area (CR-567) PR 04286 Task 5.31	A	IRWD	\$10,248.65						0				
86.3	Modifications to 5-Ton Crane Stops (CR-589A) PR 04286 Task 5.31	C	IRWD	\$6,264.07						0				
86.4	Additional Electrical Conduits and Wires to Connect Andritz Drum Motor (CR-691) PR 04286 Task 5.30	B	IRWD	\$4,419.83						0				
86.5	SCADA Programming Changes to the Digester Gas Final Treatment System (CR-697) PR 04286 Task 5.30	A	IRWD	\$2,374.92						0				
86.6	SCADA Programming Modifications to the Dewatering Feed and Conveyance Systems (CR-700) PR 04286 Task 5.30	A	IRWD	\$29,203.07						0				
86.7	SCADA Programming Modifications to the Heating Water System (CR-703) PR 04286 Task 5.30	A	IRWD	\$22,303.18						0				
86.8	SCADA Programming Modifications to the Centrate Treatment System (CR-705) PR 04286 Task 5.30	A	IRWD	\$17,197.62						0				
86.9	Relocation of 6-Inch CRW Clean-out (CR-716) PR 04286 Task 5.31	A	IRWD	\$1,367.87						0				
86.10	Modifications to Approach Curb in Microturbine Area (CR-718) PR 04286 Task 5.31	A	IRWD	\$584.12						0				

A - District Convenience/Initiation - Project Related
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E - Contractor Convenience/Initiation
F - Contractor Requested Inspection Overtime

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
87	Approval by General Manager Approved on August 31, 2018				\$98,063.60	\$19,641,133.38	\$19,739,196.98	12.08%	\$183,205,136.98	0	368	368	1,646	10/31/2017
87.1	Electrical Work Related to Commissioning of the Solids Handling Building Elevator (CR-037C) PR 04286 Task 5.30	B	IRWD	\$8,180.42						0				
87.2	Excavation Activities to Install Autodialer (CR-234B) PR 04286 Task 5.30	A	IRWD	\$951.88						0				
87.3	Installation of Monitoring Ports for 54-Inch Foul Air Pipe in Solids Handling Building (CR-446) PR 04286 Task 5.31	B	IRWD	\$1,197.96										
87.4	Additional Cladding for Methane Digesters (CR-584) PR 04286 Task 5.29	A	IRWD	\$4,893.64						0				
87.5	SCADA Programming Changes to the Dewatering Centrifuge System (CR-677) PR 04286 Task 5.30	A	IRWD	\$21,537.93						0				
87.6	Water Filter Drain Connections (CR-678) PR 04286 Task 5.31	C	IRWD	\$7,711.86						0				
87.7	Additional Circuits for Dewatering Conveyor (CR-680) PR 04286 Task 5.30	A	IRWD	\$12,268.17						0				
87.8	Dryer Cake Relief Line (CR-693) PR 04286 Task 5.31	A	IRWD	\$4,834.06						0				
87.9	Filling of Abandoned Pipe Sleeves in SHB Elevator Mechanical Room (CR-701) PR 04286 Task 5.31	A	IRWD	\$1,166.06						0				
87.10	FOG Receiving Pump Temperature Switch Modifications (CR-706) PR 04286 Task 5.30	A	IRWD	\$11,775.89						0				
87.11	Temporary Natural Gas Piping to Flare (CR-709) PR 04286 Task 5.31	A	IRWD	\$6,536.47						0				
87.12	SCADA Update to Acid Phase Digesters and Heating Water Loop Controls (CR-719) PR 04286 Task 5.30	A	IRWD	\$17,009.26						0				

A - District Convenience/Initiation - Project Related
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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

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

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
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88	Approved by General Manager Approved on September 26, 2018				\$98,601.54	\$19,739,196.98	\$19,837,798.52	12.14%	\$183,303,738.52	0	368	368	1,646	10/31/2017
88.1	Additional Pipe Supports for 24-Inch Foul Air Ducting in the Solids Handling Building (CR-520) PR 04286 Task 5.31	B	IRWD	\$11,140.47						0				
88.2	Electrical Modifications for Waste Gas Burner Control Panel (CR-524) PR 04286 Task 5.30	B	IRWD	\$9,840.13						0				
88.3	Waste Activated Sludge (WAS), Digested Sludge (DS), and Primary Sludge (PS) Piping Modifications (CR-594A) PR 04286 Task 5.31	A	IRWD	\$24,216.24						0				
88.4	Relocation of Scrubber Pipe and Pipe Support (CR-644) PR 04286 Task 5.31	B	IRWD	\$6,390.20						0				
88.5	Update to SCADA Pipe Color Requirements (CR-704A) PR 04286 Task 5.30	C	IRWD	\$4,819.15						0				
88.6	Routing of Microturbine Conduits (CR-711) PR 04286 Task 5.30	A	IRWD	\$6,420.74						0				
88.7	Electrical Power to Heat Trace Panels and Truck Exhaust Fans (CR-714) PR 04286 Task 5.31	C	IRWD	\$22,038.62						0				
88.8	HVAC Duct Modifications in the Digester Control Building Basement (CR-715) PR 04286 Task 5.31	C	IRWD	\$6,507.45						0				
88.9	Revised Light Fixtures Types Located in Solids Handling Building Second Floor (CR-731) PR 04286 Task 5.30	A	IRWD	\$7,228.54						0				
89	Approved by General Manager Approved on October 17, 2018				\$96,405.88	\$19,837,798.52	\$19,934,204.40	12.19%	\$183,400,144.40	0	368	368	1,646	10/31/2017
89.1	Additional Pipe Cake Pipe Supports (CR-596) PR 04286 Task 5.31	C	IRWD	\$39,259.76						0				
89.2	New Railings at the Solids Handling Building, Bulk Polymer Storage Facility, and Centrate Treatment Facility (CR-707) PR 04286 Task 5.29	A	IRWD	\$17,330.67						0				
89.3	Modifications to Programmable Control Panels Controlling Digester Gas Treatment Process and Liquid Chemicals (CR-710) PR 04286 Task 5.30	A	IRWD	\$11,570.41						0				
89.4	SCADA Modifications to the Acid Gas Boosters System (CR-721) PR 04286 Task 5.30	A	IRWD	\$8,047.39						0				
89.5	Miscellaneous Time and Materials Items (CR-725) PR 04286 Task 5.31	B	IRWD	\$2,955.65						0				
89.6	SCADA Modifications to the Cake Receiving Bins (CR-734) PR 04286 Task 5.30	A	IRWD	\$17,242.00						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
90	Approved by Board of Directors Approved on October 22, 2018				\$259,999.33	\$19,934,204.40	\$20,194,203.73	12.35%	\$183,660,143.73	0	368	368	1,646	10/31/2017
90.1	Biosolids Site Modifications (CR-331L) PR 04286 Task 5.29	C	IRWD	\$40,726.48						0				
90.2	Modifications to the Cake Receiving Bin LCP (CR-597) PR 04286 Task 5.30	A	IRWD	\$75,524.26						0				
90.3	Architectural Modifications in the Centrifuge Area in the Solids Handling Building (CR-681) PR 04286 Task 5.29	A	IRWD	\$10,468.65						0				
90.4	Modifications to the Bulk Polymer Access Platform (CR-708) PR 04286 Task 5.31	B	IRWD	\$53,407.62						0				
90.5	Addition of Cake Hopper Platform (CR-720) PR 04286 Task 5.31	A	IRWD	\$59,714.23						0				
90.6	Modifications to the Dryer System (CR-728) PR 04286 Task 5.30	A	IRWD	\$14,724.76						0				
90.7	Modifications to the Cake Storage System (CR-730) PR 04286 Task 5.30	A	IRWD	\$5,433.33						0				
91	Approved by Executive Director of Engineering and Water Quality Approved on October 18, 2018				(\$20,460.00)	\$20,194,203.73	\$20,173,743.73	12.34%	\$183,639,683.73	0	368	368	1,646	10/31/2017
91.1	Credit for Overtime Inspection Hours from 07/01/2018 to 9/30/2018 (CR-089J) PR 04286 Task 4.0	F	IRWD	(\$20,460.00)						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
92	Approved by Executive Director of Engineering and Water Quality Approved on November 12, 2018				\$73,782.76	\$20,173,743.73	\$20,247,526.49	12.39%	\$183,713,466.49	0	368	368	1,646	10/31/2017
92.1	Addition of Oil Leak Detection Sensor at Nitrogen and Mineral Oil Area (CR-471H) PR 04286 Task 5.30	A	IRWD	\$1,989.71						0				
92.2	Modifications at the Centrate Treatment Decant Wet Well (CR-576) PR 04286 Task 5.31	B	IRWD	\$4,285.46						0				
92.3	Modifications to the Methane Digester Gas Line (CR-664) PR 04286 Task 5.31	A	IRWD	\$2,573.91						0				
92.4	Addition of Cladding at Digester Control Building and Bridge to Methane Digester No. 1 (CR-674) PR 04286 Task 5.31	A	IRWD	\$15,067.18						0				
92.5	Conduits and Wires for Hand Dryers in Solids Handling Building Restrooms (CR-724) PR 04286 Task 5.30	C	IRWD	\$6,617.91						0				
92.6	Miscellaneous IRWD-Directed Work Items (CR-725B/725E) PR-04286 Task 5.30	A	IRWD	\$6,295.31						0				
92.7	Additional Devices for Silo Dust Collector System (CR-729) PR 04286 Task 5.30	A	IRWD	\$8,208.65						0				
92.8	SCADA Modifications to the Cake Storage System (CR-730A) PR 04286 Task 5.30	A	IRWD	\$1,561.76						0				
92.9	Relocation of 2 Gas Lines (CR-732) PR 04286 Task 5.30	A	IRWD	\$5,117.41						0				
92.10	Pipe Support Pedestal Modifications (CR-483) PR 04286 Task 5.29	C	IRWD	\$12,025.46						0				
92.11	Removal of Installed Buried Valves at Centrate Facility (CR-560A) PR 04286 Task 5.31	A	IRWD	\$10,040.00						0				
93	Approved by Executive Director of Engineering and Water Quality Approved on November 12, 2018				(\$35,240.94)	\$20,247,526.49	\$20,212,285.55	12.36%	\$183,678,225.55	0	368	368	1,646	10/31/2017
93.1	Deletion of Insulation on Selected Digester Gas Lines (CR-558) PR 04286 Task 5.31	A	IRWD	(\$30,454.98)						0				
93.2	Deletion of Insulation on Selected Air Piping at Centrate Treatment Facility (CR-736) PR 04286 Task 5.31	A	IRWD	(\$4,785.96)						0				

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

Contractor: Filanc/Balfour-Beatty
Design Engineer: 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
94	Approved by General Manager Approved on January 14, 2019				\$99,830.69	\$20,212,285.55	\$20,312,116.24	12.43%	\$183,778,056.24	0	368	368	1,646	10/31/2017
94.1	Biosolids Site Paving Modifications (CR-331M) PR 04286 Task 5.29	A	IRWD	\$0.00						0				
94.2	Addition of Waste Gas Burner Instrument Air Compressor System (Labor and Equipment Cost) (CR-484C) PR 04286 Task 5.31	C	IRWD	\$13,222.97						0				
94.3	SCADA Programming Modifications to Programmable Control Panels Controlling Digester Gas Treatment Process and Liquid Chemicals (CR-710A) PR 04286 Task 5.3	A	IRWD	\$47,459.22						0				
94.4	Additional Electrical Outlets in the Solids Handling Building and Digester Control Building (CR-717) PR 04286 Task 5.29	A	IRWD	\$2,877.70						0				
94.5	Changes to Aeration Blower Control Panel Circuits (CR-722) PR 04286 Task 5.30	B	IRWD	\$5,998.43						0				
94.6	Relocation of Conduit in the Dryer Area (CR-725D) PR 04286 Task 5.30	A	IRWD	\$1,784.08						0				
94.7	SCADA Programming Modifications to Acid Gas Bypass Valve (CR-738) PR 04286 Task 5.30	A	IRWD	\$10,269.19						0				
94.8	SCADA Programming Modifications to Valve Configuration Logic of the Dewatering Feed System (CR-740) PR 04286 Task 5.30	A	IRWD	\$18,219.10						0				
95	Approved by Exe. Dir. of Engineering and Water Quality Approved on January 15, 2019				(\$2,640.00)	\$20,312,116.24	\$20,309,476.24	12.42%	\$183,775,416.24	0	368	368	1,646	10/31/2017
95.1	Biosolids Site Paving Modifications (CR-331M) PR 04286 Task 5.29	F	IRWD	(\$2,640.00)						0				
96	Approved by General Manager Approved on February 28, 2019				\$96,442.55	\$20,309,476.24	\$20,405,918.79	12.48%	\$183,871,858.79	0	368	368	1,646	10/31/2017
96.1	Additional Recycled Pipe near the Methane Digester Area (CR-441) PR 04286	A	IRWD	\$30,547.94						0				
96.2	Thickening Centrifuge Piping Modifications (CR-488) PR 04286 Task 5.31	B	IRWD	\$9,769.47						0				
96.3	SCADA Control Logic Change in the Polymer Thickening Tank Area (CR-669A) PR 04286 Task 5.30	A	IRWD	\$17,462.04						0				
96.4	Miscellaneous IRWD-Directed Work Items (CR-725G/725H/725I/725K) PR 04286 Task 5.31	A	IRWD	\$25,706.09						0				
96.5	Changes to Heat Dryer System Circuits (CR-737) PR 04286 Task 5.30	B	IRWD	\$4,099.24						0				
96.6	Additional Circuit for Heat Dryer Equipment (CR-743) PR 04286 Task 5.30	B	IRWD	\$2,655.01						0				
96.7	SCADA Programming Changes for Dewatering Biosolids Distribution System (CR-745) PR 04286 Task 5.30	A	IRWD	\$6,202.76						0				

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

Contractor: Filanc/Balfour-Beatty
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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
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97	Approved by Exe Dir of Eng and Water Quality Approved on February 28, 2019				(\$56,137.59)	\$20,405,918.79	\$20,349,781.20	12.45%	\$183,815,721.20	0	368	368	1,646	10/31/2017
97.1	Deletion of CR-232 Addition of Two Doors at the bases of the stairways at Methane Digesters Nos. 1 and No. 2 (CR-232A) PR 04286 Task 5.29	A	IRWD	(\$52,251.65)						0				
97.2	Deletion of Cables for Truck Load-Out Control Panels (CR-685) PR 04286 Task 5.30	B	IRWD	(\$3,885.94)						0				
98	Pending Approval by General Manager Pending Approval on March 15, 2019				\$99,919.10	\$20,349,781.20	\$20,449,700.30	12.51%	\$183,915,640.30	0	368	368	1,646	10/31/2017
98.1	Provide Hollow Metal Door at Digester Control Building (CR-037D) PR 04286 Task 5.29	E	FBB	\$1,747.70						0				
98.2	Modifications to Truck Scale Ramp Area (CR-331A) PR 04286 Task 5.29	E	FBB	\$32,634.50						0				
98.3	Sample Ports for AQMD Monitoring (CR-478) PR 04286 Task 5.31	B	IRWD	\$5,871.96						0				
98.4	Modification of FRP Foul Air Line (CR-638/638A) PR 04286 Task 5.31	B	IRWD	\$14,067.70						0				
98.5	New 208 V Power Source in the Solids Handling Building Sampling Room (CR-725F) PR 04286 Task 5.30	B	IRWD	\$17,725.27						0				
98.6	Test Ports for Southern California Gas (CR-725L) PR 04286 Task 5.31	B	IRWD	\$7,947.83						0				
98.7	Electrical Modifications for Conveyors in the Solids Handling Building (CR-742) PR 04286 Task 5.30	B	IRWD	\$6,903.78						0				
98.8	Additional Light Fixtures in the Digester Control Building and Solids Handling Building (CR-747) PR 04286 Task 5.30	A	IRWD	\$12,425.53						0				
98.9	Offset Saddles for Door Openings in the Solids Handling Building (CR-753) PR 04286 Task 5.29	B	FBB	\$594.83						0				

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

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

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99	Pending approval by Board of Directors				\$330,609.60	\$20,449,700.30	\$20,780,309.90	12.71%	\$184,246,249.90	0	368	368	1,646	10/31/2017
	Pending Approval on March 25, 2019													
99.1	Regenerative Thermal Oxidizer Stack Bypass Re-route (CR-153) PR 04286 Task 5.31	A	IRWD	\$42,305.48						0				
99.2	Additional Soil Remediation on the South Road of Biosolids Site (CR-327) PR 04286 Task 5.29	B	IRWD	\$43,444.97						0				
99.3	Additional Base and Paving (CR-331C) PR 04286 Task 5.29	B	IRWD	\$21,619.30						0				
99.4	Odor Scrubber Recirculation Piping and Pipe Support Modifications (CR-402/CR-402A) Task 5.31	B	IRWD	\$103,308.35						0				
99.5	Electrical Modifications in the Control Room of the Solids Handling Building (CR-453A) PR 04286 Task 5.30	A	IRWD	\$9,371.28						0				
99.6	Modifications to the Acoustical Panels in the Solids Handling Building (CR-723) PR 04286 Task 5.30	A	IRWD	\$14,704.14						0				
99.7	New 480 V Power Source for Vacuum System in the Dryer Room (CR-733) PR 04286 Task 5.30	C	IRWD	\$9,995.96						0				
99.8	Explosion Proof Duct Detector in the Digester Control Building Gas Room (CR-744) PR 04286 Task 5.30	C	IRWD	\$25,719.23						0				
99.9	SCADA Programming Update to the Centrate Treatment Area (CR-748) PR 04286 Task 5.29	A	IRWD	\$38,467.14						0				
99.10	SCADA Programming Update to Digester Gas System (CR-754) PR 04286 Task 5.29	A	IRWD	\$21,673.75						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
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Category				Total Amount	% of Original Contract									
A - District Convenience/Initiation - Project Related				\$ 4,074,004.30	2.49%									
B - Differing Site Conditions				\$ 13,095,723.37	8.01%									
C - Design Oversight				\$ 3,795,907.49	2.32%									
D - District Convenience/Initiation - Non-Project Related				\$ -	0.00%									
E - Contractor Convenience/Initiation				\$ 132,684.74	0.08%									
F - Contractor Requested Inspection Overtime				\$ (318,010.00)	-0.19%									
TOTAL (A + B + C + D + E + F)				\$ 20,780,309.90	12.71%									

Category		Total Amount	% of Original Contract
IRWD-Initiation/Driven		\$ 5,638,111.24	3.45%
FBB-Initiation/Driven		\$ 14,971,478.44	9.16%
N/A		\$ 170,720.22	0.10%
TOTAL		\$ 20,780,309.90	12.71%

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PROFESSIONAL SERVICES VARIANCE

Project Title: MWRP Biosolids & Energy Recovery Facilities – Construction Phase ServicesProject No.: 04286 (21146)Date: March 8, 2019Purchase Order No.: 609918Variance No.: 8Originator: ☒ IRWD ☐ ENGINEER/CONSULTANT ☐ Other (Explain) _____

Description of Variance (*attach any back-up material*): At the request of IRWD provide additional services associated with (1) project management, (2) submittal reviews, (3) RFI reviews, (4) claims avoidance, (5) onsite design representative, (6) electrical inspections, (8) I&C inspections, and (9) startup testing coordination. See attached detailed scope of work description.

Engineering & Management Cost Impact:

Classification	Manhours	Billing Rate	Labor \$	Direct Costs	Subcon. \$	Total \$
See attached summary level of effort						
Total \$ =						2,865,066

Schedule Impact:

Task No.	Task Description	Original Schedule	Schedule Variance	New Schedule
All		April 30, 2019	14 months	June 30, 2020

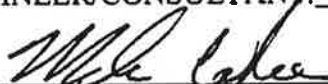
Required Approval Determination:

Total Original Contract	\$ <u>12,509,031</u>	☐ Director: Cumulative total of Variances less than or equal to \$50,000.
Previous Variances \$	<u>9,016,568</u>	
This Variance \$	<u>2,865,066</u>	☐ Executive Director: Cumulative total of Variances less than or equal to \$75,000.
Total Sum of Variances	\$ <u>11,881,634</u>	
New Contract Amount	\$ <u>24,390,665</u>	☐ General Manager: Cumulative total of Variances less than or equal to \$100,000.
Percentage of Total Variances to Original Contract	<u>95.0%</u>	☒ Board: Cumulative total of Variances greater than \$100,000.

ENGINEER/CONSULTANT: Black & Veatch Corp.

IRVINE RANCH WATER DISTRICT

Company Name


 Project Engineer/Manager

March 8, 2019
 Date


 Department Director

3/12/19
 Date


 Engineer's/Consultant's Management

March 8, 2019
 Date

General Manager/Board

Date

IRVINE RANCH WATER DISTRICT

PROFESSIONAL SERVICES VARIANCE REGISTER

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

Project No.: 04286 (21146) Project Manager: Steve Malloy

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	04-11-17	\$215,500

7	Additional Services for: (1) project management, (2) submittal reviews, (3) RFI reviews, (4) schedule reviews, (5) structural observations, (6) claims avoidance, (7) onsite design representative (8) electrical inspections, (9) I&C inspections, (10) electrical/automation field engineering, (11)civil/mechanical field engineering, (12) EOM development, (13) startup testing coordination, and (14) record drawings	10-18-17	11-28-17	\$3,190,018
8	Additional Services for: (1) project management, (2) submittal reviews, (3) RFI reviews, (4) claims avoidance, (5) onsite design representative, (6) electrical inspections, (7) I&C inspections, (8) electrical/automation field engineering, and (9) startup testing coordination	03-08-19	Pending	\$2,865,066

MEMORANDUM

Irvine Ranch Water District
MWRP Biosolids & Energy Recovery Facilities
Proposed Variance #8 – Additional Field and Construction Phase Services

179900
March 8, 2019

To: Steve Malloy – Principle Engineer

From: Mark Wilson – Project Manager

Thank you for the opportunity to submit **Proposed Variance #8** to IRWD to accommodate the anticipated time extension for FBB (Contractor), extending our construction phase services completion schedule from April 30, 2019 to June 30, 2020 (14 month time extension). The amount of this **Proposed Variance #8** is **\$2,865,066**. Attached are the following documents that make up our proposal to IRWD.

- IRWD Professional Services Variance Form – Proposed Variance #8
- Scope of Services
- Budget Projection Worksheet
- Proposed Level of Effort and Engineering Fee Spreadsheet

We hope that the above information is satisfactory for you to review our proposal, approve the proposed engineering fee, and to submit for Board approval. As always, we are ready to discuss any of the items described above, or anything else that is of concern in support of moving your approval process forward.

Thank you once again for offering this opportunity to the Black & Veatch.

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

**VARIANCE #8
March 8, 2019**

SCOPE OF WORK

BACKGROUND

The Irvine Ranch Water District (IRWD) owns and operates the Michelson Water Recycling Plant (MWRP). New biosolids and energy recovery facilities are currently under construction by Filanc-Balfour Beatty (FBB), the construction contractor. The current FBB Project Schedule Update shows a Final Construction Completion Date of March 1, 2019. However, FBB appears to be showing excessive time for completing their startup activities such that Black & Veatch recommends assuming a Final Completion Date of March 31, 2020 for this variance. This results in a time extension for the contract completion date, from April 2019 (assumed date for Variance #7) to June 2020 (a 14 month time extension). At the request of IRWD Black & Veatch will furnish additional project management; construction administration support; construction field support; electronic O&M manual; and training, commissioning, and start-up services to cover the additional time period and also cover out of scope work requested by IRWD.

BASIS FOR VARIANCE

The MWRP Biosolids & Energy Recovery Facilities Project (Biosolids Project) is currently under construction. The following events have occurred that resulted in this proposed variance for Black & Veatch:

- ***Contract Time Extension*** - It is anticipated that the project completion date will be extended from the current date of April 2019 to June 2020 (14 month time extension). This time extension directly affects the following scope of work tasks by extending the number of months that Black & Veatch services are required:
 - Task 1 - Project Management
 - Task 2.4 – Schedule Review
 - Task 2.7 – Claims Avoidance and Dispute Resolution Assistance
 - Task 3.1 thru 3.8 – On-Site Design Team Representative
 - Task 3.9 – Electrical Inspection
 - Task 3.10 – Instrumentation and Control Inspections
 - Task 3.14 – Electrical/Automation Field Engineering
 - Task 3.15 – Civil/Mechanical Field Engineering

- **Scope Task 1 – Construction Phase Project Management (B&V Phase 101)** - Due to delays by FBB, this task will experience a budget overrun. Assuming a completion date of June, 2020, a budget overrun of approximately \$161,000 is anticipated.
- **Submittal Reviews (Scope Task 2.1 – B&V Phase 201)** – The number of submittals (2,776) through October 16, 2017 has significantly exceeded the estimated number of submittals (2,400). A total of 3,600 submittals (including approximately 200 new and 100 record copy submittals) are now anticipated for the project. As of February 8, 2019, the actual expenditures were at approximately 101.4% of the budget allowance and a variance is necessary. Black & Veatch believes that the increase in the number of submittals is primarily due to the large number of re-submittals that have occurred. To date, 1,734 re-submittals have occurred compared with 1,676 initial submittals – this represents a very high re-submittal rate of 97% for FBB. B&V assumed a resubmittal rate of about 20% during the scope/fee development for this project and a re-submittal rate of about 20-40% is typical on projects. At the estimated 3,600 submittals we anticipated an overrun of approximately \$225,000.
- **RFIs (Scope Task 2.2 – B&V Phase 202)** – The current number of RFIs (3,206) has exceeded the estimated number of RFIs (2,500). A total of 3,300 RFIs are now anticipated for the project. As of February 8, 2019, the actual expenditures were at 106.6% of budget allowance and a variance is necessary. Following are several reasons for the number of RFIs exceeding the estimated number.
 - IRWD has initiated a number of owner generated RFIs. This provides excellent documentation but is beyond what we normally experience on our projects.
 - There are a large number of programming/configuration RFIs required for this project due to the very detailed specifications and specific IRWD standards – much higher than a normal B&V project.
 - In some cases, RFIs were submitted by the contractor just to clarify what was in the contract documents or request additional design information and did not represent a design change.
 - The contractor has initiated changes to the work due to his lack of proper coordination of suppliers and subcontractors.
 - The contractor has initiated additional RFIs because he has proceeded at risk with fabrication of some electrical/I&C equipment without complete approved mechanical shop drawings, resulting in revisions.

We estimate a total of 3,300 submittals for the project and a cost overrun of approximately \$87,300.

- **Scope Task 2.4 – Schedule Review (B&V Phase 204)** – This task has exceeded the budget amount due to FBB delays. Schedule reviews were completed through the end of the anticipated completion of construction in March 2019, we estimate an overrun of approximately \$68,800.

- ***Claims Avoidance and Dispute Resolution (Scope Task 2.7 – B&V Phase 207 –***
The contractor (FBB) has made several claims for extra cost and delays on this project. B&V anticipates these contractor claims to continue throughout this project and we are recommending an increase in the budget for this task to accommodate responding to the anticipated increase in activity by FBB. Also, IRWD has been making requests from Black & Veatch to support the work of the District's third-party claims consultant, HKA. Assuming a completion date of June, 2020, a budget overrun of approximately \$123,000 is anticipated.
- ***Scope Tasks 3.1 thru 3.8 – Onsite Design Team Representative (B&V Phase 301)***
- Due to delays by FBB, this task will experience a budget overrun. Assuming on-site representation through the end of September, 2019, a budget overrun of approximately \$276,000 is anticipated.
- ***Scope Task 3.9 – Electrical Inspections (B&V Phase 302)*** - Due to delays by FBB, this task will experience a budget overrun. Assuming a staff on-site through the end of December 2019, and an additional 2 months at the completion of the project, a budget overrun of approximately \$458,000 is anticipated. This was included in draft Proposed Variance #8 submitted to IRWD.
- ***Scope Task 3.10 – I&C Inspections (B&V Phase 303)*** - Due to delays by FBB, this task will experience a budget overrun. Assuming a completion of this task at the end of May, 2020, a budget overrun of approximately \$328,000 is anticipated. This was included in draft Proposed Variance #8 submitted to IRWD.
- ***Scope Task 3.14 – Electrical/Automation Field Engineering (B&V Phase 307) -***
Due to delays by FBB, this task will experience a budget overrun. Assuming a completion date for this task in the end of May, 2020, a budget overrun of approximately \$616,000 is anticipated. This was included in Proposed Variance #8 submitted to IRWD.
- ***Scope Task 3.15 – Civil/Mechanical Field Engineering (B&V Phase 308) –***IRWD requested that Black & Veatch provide temporary field inspection services for the period April 26 thru May 18, 2018 while John Walker was on vacation. Ramiro Ojeda has completed this work for B&V at a total cost of \$22,165. This work was previously approved by IRWD and the additional fee will be included in future Variance #8. Due to delays by FBB, this task will experience a budget overrun. Assuming a completion date for this task of August, 2019, a total budget overrun of approximately \$306,000 is anticipated (including Ramiro Ojeda time). This was included in draft Proposed Variance #8 submitted to IRWD.
- ***Scope Task 4.1 thru 4.2 – Electronic O&M Manual Development (B&V Phase 401)*** - At the request of IRWD, the preventive maintenance lists written for the major process equipment will be replaced with a list of the equipment and links to the vendor operations and maintenance manuals for the equipment within in each chapter. Also, additional appendices will be added to the electronic O&M manuals for items deemed by IRWD staff necessary to put into the electronic manual. These

items include spare parts list from the contractor, electrical shutdown plan, and training PowerPoint presentations. A budget overrun of approximately \$50,000 is anticipated due to out of scope work.

- ***Scope Task 5.2 – Pre-Startup Process Overview Training*** – Due to delays from the contractor, pre-startup process overview training activities have stretched from 2016 to 2019. Since the start of process training, there has been some turnover of IRWD staff and extensive time between training of existing operators. It will be necessary to have repeat sessions with operators over material that have been covered in previous sessions to train new IRWD staff and provide refresher training for the existing IRWD staff. IRWD requested additional services to repeat all process training sessions for all seven milestones due to the 11-month delay by FBB. A budget overrun of approximately \$104,000 is anticipated due to out of scope work.
- ***Start-Up Testing Coordination (Scope Task 5.3 – B&V Phase 503)*** – Due to contractor (FBB) delays, startup coordination is needed to engage the IRWD staff and contractor with startup and commissioning activities. This requires additional monthly meetings, technical transfer sessions, and additional assistance to FBB for startup activities such as combining Milestone 4A/4B and Milestone 5 and reviewing the Milestone 2 System Operational Test document.

Additional process evaluations have been performed that were not included in the original scope of the startup services. These include:

- a) additional process evaluation for digester startup without seed sludge, and
- b) additional process evaluation for return ammonia loads from centrate treatment.

The process evaluation for the digester startup without seeding was performed using Biowin model to provide information for IRWD staff to establish a plan on whether hauling seed from Orange County Sanitation District (OCS D) would be worth the any extra benefit in commissioning the digesters.

The other process evaluation includes Biowin modelling to predict return ammonia loads from the biosolids return from the centrate treatment to the liquid process. The IRWD staff wanted an estimate of ammonia concentration to determine return stream management strategies that may be necessary to treat the ammonia from the centrate treatment system.

A budget overrun of approximately \$205,000 is anticipated due to out of scope work.

- ***Scope Task 6.1 – Post Start-up Services (B&V Phase 601)*** – IRWD requested additional services for the development of ECPs, SOPs, eO&M set-up, additional operations training not identified in other tasks as well as completion of and asset

management tasks. A budget overrun of approximately \$48,000 is anticipated due to out of scope work.

- ***Reallocation of Budget*** – We are proposing a reallocation of engineering fee from Task 2.5 – Structural Observations (\$995) and from Task 3.11 – Edison Savings by Design Grant Application Support (\$20,198) to Task 4.5 – Asset Management Data Collection (\$21,193). Task 2.5 and Task 3.11 are complete and these tasks may be closed. Task 4.5 experienced a cost overrun and at that time Black & Veatch proposed waiting to see if other phases came in under budget such that an engineering fee reallocation could be implemented. Black & Veatch is proposing to implement this fee reallocation as part of Variance #8. All work is complete for Task 4.5 and after this fee reallocation, this task will be closed.

SCHEDULE AND LEVEL OF EFFORT

The level of effort has been estimated by projecting expenditures through the end of the new contract completion date of June 30, 2020 (a 14 month time extension) for the tasks identified above – see Attachment A. The assumptions made for these projections are given in the attachment. The cumulative costs for each task on this project are shown for the thirty-three (33) total project tasks. Nineteen (19) tasks are not affected by the time extension since the work effort is the same regardless of the timing of the work. Fourteen (14) tasks are affected by the time extension or IRWD requests for out of scope work. These tasks are listed above and shaded in pink color in the attachment.

The following B&V field staff and key team members will continue in their current role on this project through June 30, 2020 unless otherwise approved by IRWD:

- Jim Clark – Project Director.
- Mark Wilson– Project Manager.
- Neil Massart – Commissioning Manager.
- Jon Hay – Onsite Design Team Representative.
- Keene Matsuda – Electrical Field Inspector.
- Marc Zamora – I&C Inspector.
- Mark Lowe – Structural Field Engineer.
- Nick Pailma - Civil/Mechanical Field Engineer.
- Shawn Rohr – Electrical/Automation Field Engineer.
- Sheila Moredo - Electrical/Automation Field Engineer.
- Thomas Cherian – Schedule Reviewer.

LEVEL OF EFFORT FOR VARIANCE #8 - March 8, 2019	Project Director/VP	Project Manager 3	Engineer 7	Engineer 6	Engineer 4	Construction Manager 7	Construction Manager 5	Construction Manager 4	O&M Specialist 6	O&M Specialist 4	Engineer 2	Clerical	Technician 3	Manhours	Miscellaneous Expenses and Travel Costs	Variance #8 Fees
Hourly Rate	\$315	\$260	\$220	\$210	\$175	\$225	\$170	\$155	\$175	\$140	\$120	\$100	\$100			
Variance #8 Tasks																
Task 1 - Project Management	112	320										280		712	\$15,411	\$161,891
Task 2.1 - Submittal Reviews		96	165	320					120		480	46		1,227	\$13,501	\$225,161
Task 2.2 - RFI Reviews		40	70	120					40		165	40		475	\$5,500	\$87,300
Task 2.3 - Meetings/Technical Site Visits																(\$79,755)
Task 2.4 - Schedule Reviews							380							380	\$4,189	\$68,789
Task 2.5 - Structural Observations (reallocate fee to Task 4.5)																(\$995)
Task 2.6 - Contractor Change Orders																(\$113,688)
Task 2.7 - Claims Avoidance and Dispute Resolution	50	110	136	80		100						38		514	\$5,349	\$122,719
Task 3.1 thru Task 3.8 - Onsite Design Team Representative				1,220										1,220	\$20,368	\$276,568
Task 3.9 - Electrical Inspection			1,970											1,970	\$24,762	\$458,162
Task 3.10 - I&C Inspections					1,750									1,750	\$22,171	\$328,421
Task 3.11 - Edison Savings by Design Grant Application Assistance (reallocate fee to Task 4.5)																(\$20,199)
Task 3.14 - Electrical/Automation Field Engineering				1,460	1,460									2,920	\$54,327	\$616,427
Task 3.15 - Civil/Mechanical Field Engineering						1,200			128					1,328	\$13,639	\$306,039
Task 4.1 thru Task 4.2 - Electronic O&M Manual Development, Installation, and Training									140	120				260	\$8,301	\$49,601
Task 4.5 - Asset Mangement Data Collection (reallocate fee from Task 2.5 and Task 3.11)																\$21,194
Task 5.2 - Pre-Startup Overview Training									350	200				550	\$14,490	\$103,740
Task 5.3 - Startup Testing Coordination Services						350			415	250				1,015	\$18,941	\$205,316
Task 6.1 - Post Start-up Services									80	200				280	\$6,375	\$48,375
Total - Variance #8	162	566	2,341	3,200	3,210	1,650	380		1,193	570	645	404	0	14,321	\$220,949	\$2,865,066

Variance 8 - Attachment A

B&V Phase/Task Description	Projected Future Costs through Final Completion (beyond 8-10-18)	Projected Total Costs through Final Completion	Current Approved Task Budget	Current Approved Budget Minus Projected Total Costs	Adjustment for DFB/EI&C	Proposed Variance #8 Amount to Cover Deficit	Comments Regarding Remaining Work Assumptions
Task 1 - Construction Phase Project Management (Including Variances #5 and #7)	\$273,787.32	\$1,293,142.06	\$1,131,251.55	(\$161,890.51)		(\$161,890.51)	Assume current burn rate thru March 31, 2019 and 60% of current burn rate thru March 31, 2020. Added 3 months at 60% of current burn rate
Task 2.1 - Submittal Reviews (including Variances #5 and #7)	\$219,697.00	\$4,638,543.12	\$4,413,381.77	(\$225,161.35)		(\$225,161.35)	Projected cost overrun based on 3,600 submittals
Task 2.2 - Requests for Information (RFIs) - (including Variances #5 and #7)	\$30,083.51	\$1,719,146.73	\$1,631,846.73	(\$87,300.00)		(\$87,300.00)	Projected cost overrun based on 3,300 RFIs
Task 2.3 - Meetings/Technical Site Visits	\$130,672.13	\$799,364.72	\$908,400.00	\$109,035.28	\$29,280.00	\$79,755.28	Assume current burn rate thru December 31, 2019.
Task 2.4 - Schedule Review (including Variances #5 and #7)	\$67,980.94	\$642,499.02	\$573,710.27	(\$68,788.75)		(\$68,788.75)	Assume current burn rate thru December 31, 2018
Task 2.5 - Structural Observations (including Variance #7)	\$995.21	\$311,725.84	\$311,725.84	\$0.00		\$0.00	Propose reallocating from Task 2.5/Phase 205 to Task 4.5/Phase 405 and close this phase
Task 2.6 - Proposed Contractor Change Orders	\$79,361.68	\$359,622.31	\$473,310.00	\$113,687.69		\$113,687.69	Assume current burn rate thru December 31, 2019.
Task 2.7 - Claims Avoidance and Dispute Resolution Assistance (including Variance #7)	\$287,691.68	\$474,776.56	\$300,230.00	(\$174,558.56)	\$51,840.00	(\$122,718.56)	Assume current burn rate thru December 31, 2019.
Task 2.8 - Final Walk-Through	\$112,560.00	\$112,560.00	\$112,560.00	\$0.00		\$0.00	No cost overrun
Task 3 - Construction Administration Support Services							
Tasks 3.1 thru 3.8 - On-Site Design Team Representative & Document Control (including Variance #7)	\$514,836.00	\$2,486,399.24	\$2,209,831.09	(\$276,568.15)		(\$276,568.15)	Assume 100% for Jon Hay thru Sept 31, 2019 thru completion of as-built drawings
Task 3.9 - Electrical Inspection (including Variance #7)	\$512,941.80	\$1,442,353.05	\$984,191.04	(\$458,162.01)		(\$458,162.01)	Assume 85% for Keene Matsuda thru June 30, 2019 (thru as-built drawings) and 50% June thru Oct (startup) Added 2 additional months at 85% and 2 months at 50% at completion
Task 3.10 - Instrumentation and Control Inspections (including Variance #7)	\$525,907.20	\$1,297,765.54	\$969,344.43	(\$328,421.11)		(\$328,421.11)	Assume 65% for Marc Zamora thru December 31, 2019. Added 5 months at 65% utilization
Task 3.11 - Edison Savings by "Design Grant" Application Support	\$0.00	\$19,801.25	\$19,801.25	\$0.00		\$0.00	No further costs anticipated. Propose closing this phase and reallocating \$20,198.75 to Phase 4.5/Task 404
Task 3.12 - Control System Configuration & Programming Services (E&I) (including FR #1)	\$0.00	\$349,640.00	\$349,640.00	\$0.00		\$0.00	Closed
Task 3.13 - Mechanical Inspections	\$12,941.35	\$38,160.00	\$38,160.00	\$0.00		\$0.00	No cost overrun
Task 3.14 - Electrical/Automation Field Engineering (Variances #1, #5, and #7)	\$612,558.95	\$1,862,315.71	\$1,245,888.47	(\$616,427.24)		(\$616,427.24)	Assume current burn rate thru March 31, 2019 (Shawn Rohr and Sheila Moredo), then 65% of current burn rate thru December 31, 2019. Added 5 additional months at 65% of current burn rate.
Task 3.15 - Civil/Mechanical Field Engineering (Variances #3 and #7)	\$244,410.00	\$1,513,981.28	\$1,207,941.89	(\$306,039.39)		(\$306,039.39)	Assume 100% for Nick Palma thru December 31, 2018 plus 50% thru August 31, 2019 plus \$21,390 for Ramiro Ojeda subbing for JW
Task 4 - Construction Field Support Services							
Tasks 4.1 thru 4.2 - Electronic O&M Manual Develop, Install, and Training (including Variances #5 and #7)	\$205,715.66	\$532,593.00	\$482,993.00	(\$49,600.00)		(\$49,600.00)	Additional scope of work for links to vendor O&Ms and new appendices for (a) spare parts, (b) electrical shutdown plans, and (c) training presentations
Task 4.3 - Energy Control Procedures (ECPs)	\$40,903.49	\$203,156.00	\$203,156.00	\$0.00		\$0.00	No cost overrun
Task 4.4 - Job Safety Analysis (JSA) Documents	\$317,411.36	\$420,857.00	\$420,857.00	\$0.00		\$0.00	No cost overrun
Task 4.5 - Asset Management Data Collection (including Variance #5)	\$0.00	\$204,198.75	\$204,198.75	\$0.00		\$0.00	Propose reallocating from Task 3.11/Phase 305 and Task 2.5/Phase 205 to Task 4.5/Phase 404 and close phase
Task 4.6 - Odor Control Maintenance & Monitoring Program (Variance #2)	\$47,051.41	\$112,665.00	\$112,665.00	\$0.00		\$0.00	No cost overrun
New Task 4.7 - Prepare Summary Standard Operating Procedures (SOPs) (Variance #5 and Variance #6)	\$270,353.30	\$323,653.00	\$323,653.00	\$0.00		\$0.00	No cost overrun
Task 5 - Electronic O&M Manual							
Task 5.1 - Contractor/Vendor Training & Commissioning Meetings	\$81,454.00	\$81,454.00	\$81,454.00	\$0.00		\$0.00	No cost overrun
Task 5.2 - Pre-Startup Process Overview Training	\$150,944.13	\$313,848.00	\$210,108.00	(\$103,740.00)		(\$103,740.00)	Additional scope of work to repeat all training sessions for all seven milestones due to 11 month delay by FBB. Also, two additional process evaluations: (a) compare digester startup with and without seed sludge and (b) evaluation of return ammonia loads.
Task 5.3 - Start-Up Testing Coordination (including Variances #4, #5, and #7)	\$376,600.00	\$1,172,903.81	\$967,586.92	(\$205,316.89)		(\$205,316.89)	Additional monthly meetings, technical transfer sessions, and additional coordination with FBB to combine milestones - due to 11 month delay by FBB. Also, two additional process evaluations: (a) compare digester startup with and without seed sludge and (b) evaluation of return ammonia loads.
Task 5.4 - Factory/Equipment and Air Source Witness Testing	\$65,495.67	\$124,504.00	\$124,504.00	\$0.00	\$14,520.00	\$0.00	No cost overrun
Task 5.5 - 5.6 - Commissioning & Process Optimization Services	\$666,333.64	\$788,896.00	\$788,896.00	\$0.00	\$26,700.00	\$0.00	No cost overrun
Task 5.7 - Air Quality Permit Services (including Variance #5 and FR #1)	\$15,602.60	\$133,419.00	\$133,419.00	\$0.00	\$4,320.00	\$0.00	No cost overrun
Task 6 - Training, Commissioning and Start-Up Services							
Task 6.1 - Post Start-Up Services	\$102,475.00	\$102,475.00	\$54,100.00	(\$48,375.00)		(\$48,375.00)	Added time for post startup development of ECPs, SOPs, eO&M set-up & training, and asset management
Task 6.2 - Update Electronic O&M Manual	\$21,013.75	\$22,300.00	\$22,300.00	\$0.00		\$0.00	No cost overrun
Task 6.3 - Record Drawings & Alias Update (including Variance #7)	\$435,733.87	\$470,792.00	\$470,792.00	\$0.00		\$0.00	No cost overrun
Task 6.4 - Project Closeout	\$43,712.00	\$43,712.00	\$43,712.00	\$0.00		\$0.00	No cost overrun
Task 6 - Post Construction Services							
Total:	\$6,469,224.66	\$24,413,225.00	\$21,525,599.00	(\$2,887,626.00)	\$126,660.00	(\$2,865,066.00)	= B&V Variance #8 Cost
					EI&C Variance		

EXHIBIT "D"
IRVINE RANCH WATER DISTRICT
PROFESSIONAL SERVICES VARIANCE

Project Title: MWRP Biosolids and Energy Recovery Facilities

Project No.: 04286

Date: March 19, 2019

Purchase Order No.: 609917

Variance No.: 02

Originator: ☐ IRWD ☒ ENGINEER/CONSULTANT ☐ Other (Explain) _____

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

Provide supplemental construction management services through June 30, 2020

Engineering & Management Cost Impact:

Classification	Manhours	Billing Rate	Labor \$	Direct Costs	Subcon. \$	Total \$
Sr. Construction Manager 2	2324	\$235-247	\$559,112			\$559,112
Document Control System			\$44,650			\$44,650
Administration/ODCs						\$60,376
Total \$ =						\$664,138

Schedule Impact:

Task No.	Task Description	Original Schedule	Schedule Variance	New Schedule
	CM and Inspection Services	October 31, 2016	+12 months	June 30, 2020

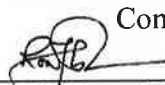
Required Approval Determination:

Total Original Contract	\$ <u>2,931,368.00</u>	☐ Director: Cumulative total of Variances less than or equal to \$50,000.
Previous Variances	\$ <u>2,796,928</u>	☐ Executive Director: Cumulative total of Variances less than or equal to \$75,000.
This Variance	\$ <u>664,138</u>	☐ General Manager: Cumulative total of Variances less than or equal to \$100,000.
Total Sum of Variances	\$ <u>3,461,066</u>	☒ Board: Cumulative total of Variances greater than \$100,000.
New Contract Amount	\$ <u>6,392,434</u>	
Percentage of Total Variances to Original Contract	<u>118%</u>	

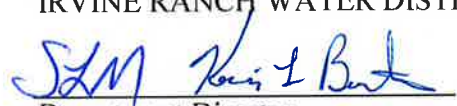
ENGINEER/CONSULTANT: Arcadis

Company Name

IRVINE RANCH WATER DISTRICT


Project Engineer/Manager

Date


Department Director

Date

Engineer's/Consultant's Management

Date

General Manager/Board

Date

IRVINE RANCH WATER DISTRICT

PROFESSIONAL SERVICES VARIANCE REGISTER

Project Title: MWRP Biosolids and Energy Recovery Facilities

Project No.: 04286 Project Manager: Ron Esmilla

Variance No.	Description	Dates		Variance Amount
		Initiated	Approved	
01	Supplemental CM & Inspection Services	8/29/2016	10/29/2016	\$1,345,755
02	Supplemental CM & Inspection Services	10/18/2017	10/18/2017	\$1,451,173
03	Supplemental CM & Inspection Services	3/1/2019		\$664,138

Steve Malloy
Principal Engineer – MWRP Construction
Michelson Water Recycling Plant
3512 Michelson Drive
Irvine, CA 92612

Arcadis U.S., Inc.
320 Commerce
Suite 200
Irvine
California 92602
Tel 714 730 9052
Fax 714 730 9345
www.arcadis.com

Subject:
MWRP Biosolids and Heat Recovery Facilities PR 04286
Variance No. 3 – Service Extension to June 2020

Water - Construction

Dear Steve:

Date:
March 7, 2019

We are submitting Variance No. 3 to our scope of work to account for extended project duration.

Contact:
Ron Esmilla

We have organized and listed the tasks below to follow the contract task numbering. This variance seeks to reconcile all remaining work items to arrive at a final project scope and budget based on the terms set forth in this letter.

Phone:
714-488-7677

The requested fee for Variance 3 is \$664,138 and is summarized in the attached Variance No. 3 Fee Summary. These attachments supplement the summary and descriptions below. I will provide the construction management services.

Email:
Ron.Esmilla@arcadis.com

Our ref:
01120038.0000

TASK 10000 – CONSTRUCTION MANAGEMENT SUPPORT SERVICES

I will provide construction management support services through June 30, 2020. I will negotiate and prepare change orders and provide as-needed construction management support, assist with resolving project claims and delays submitted by the Contractor, and assist in project close-out activities. My 2019 hourly rate is \$235 and 2020 hourly rate is \$247.

TASK 20000 – CONSTRUCTION INSPECTION SERVICES

This task is not included in this Variance.

TASK 30000 – DOCUMENT CONTROL SYSTEM SUPPORT

Provide DCS support through June 30, 2020 including help with the archiving of vital project documents. This effort will also be for project close-out activities, coordinating with IRWD's information services and engineering library on capturing project documentation.

Malloy
March 1, 2019

TASK 00000 – CONTRACT ADMINISTRATION/OTHER DIRECT COSTS

The ODCs also include the maintenance of computers and servers that store the document control system.

Sincerely,

Arcadis U.S., Inc.



Ron J. Esmilla, PE
Sr. Construction Manager

Copies:
Jon Westervelt, PE

Enclosures:

Attachments

- 1 Variance No. 3
- 2 Variance No. 3 Fee Summary

Irvine Ranch Water District
MWRP Biosolids and Heat Recovery Facilities
PR 04286
Variance No. 3 Fee Summary

Task	Description	Effort (Hrs)		Fee, Dollars		Fee, Dollars
		05/1/2019 to 12/31/2019	01-2020 thru 06- 2020	05/1/2019 to 12/31/2019	01-2020 thru 06-2020	Total
10000	Construction Management	1220	1104	\$ 286,700	\$ 272,412	\$ 559,112
20000	Inspection					
	Regular Time	0	0	\$ -	\$ -	\$ -
	Overtime (25%) (1.5 X Regular)	0	0	\$ -	\$ -	\$ -
30000	DCS Support	50	140	\$ 11,750	\$ 32,900	\$ 44,650
	Subtotal			\$ 298,450	\$ 305,312	\$ 603,762
00000	Administration/ODCs (10%)			\$ 29,845	\$ 30,531	\$ 60,376
	Variance No. 3 Request			\$ 328,295	\$ 335,843	\$ 664,138

EXHIBIT "E"
IRVINE RANCH WATER DISTRICT
PROFESSIONAL SERVICES VARIANCE

Project Title: MWRP Biosolids & Energy Recovery Facilities

Project No.: 4286 Date: February 25, 2019

Purchase Order No.: 609963 (formerly 518742) Variance No.: 3

Originator: ☐ IRWD ☒ ENGINEER/CONSULTANT ☐ Other (Explain) _____

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

Extend contractor for Construction Management Services due to project schedule extension. For detailed explanation of
Scope of Work see attached.

Engineering & Management Cost Impact:

Classification	Hours	Billing Rate	Labor \$	Direct Costs	Subcon. \$	Total \$
Associate Automation Engineer	1040	135	140,400			\$ 140,400
Start-up Test Engineer	1040	138	143,520			\$ 143,520
Senior Civil Engineer	672	150	100,800			\$ 100,800
Principal Civil Engineer	592	180	106,560	20,100		\$ 126,660
Principal Start-up Engineer	1040	177	184,080			\$ 184,080
Associate Automation Engineer	1040	135	140,400			\$ 140,400
Total \$ =						\$ 835,860

Schedule Impact:

Task No.	Task Description	Original Schedule	Schedule Variance	New Schedule
1	Construction Management Support	May 2014 – December 2017	February 2019 - June 2020	May 2014 – June 2020

Required Approval Determination:

Total Original Contract	\$ <u>1,239,007</u>	☐ Director: Cumulative total of Variances less than or equal to \$50,000.
Previous Variances \$	<u>1,693,320</u>	☐ Executive Director: Cumulative total of Variances less than or equal to \$75,000.
This Variance \$	<u>835,860</u>	☐ General Manager: Cumulative total of Variances less than or equal to \$100,000.
Total Sum of Variances	\$ <u>2,529,180</u>	☒ Board: Cumulative total of Variances greater than \$100,000.
New Contract Amount	\$ <u>3,768,187</u>	
Percentage of Total Variances to Original Contract	<u>204%</u>	

ENGINEER/CONSULTANT: El&C Engineering Inc.
Company Name

Sandra Thomas Feb 25, 2019
Project Engineer/Manager Date

Sandra Thomas Feb 25, 2019
Engineer's/Consultant's Management Date

IRVINE RANCH WATER DISTRICT

SJM Kim + Burt 3/12/19
Department Director Date

General Manager/Board Date

IRVINE RANCH WATER DISTRICT

PROFESSIONAL SERVICES VARIANCE REGISTER

Project Title: MWRP Biosolids & Energy Recovery Facilities

Project No.: 4286 Project Manager: Steve Malloy

Variance No.	Description	Dates		Variance Amount
		Initiated	Approved	
1	Expansion of Construction Management Support	8/16/2016		\$734,600
2	Expansion of Construction Management Support	9/08/2017		\$958,720
3	Expansion of Construction Management Support	2/20/2019		\$835,860

February 25, 2019

Irvine Ranch Water District
Steve L. Malloy, PE
Principal Engineer, MWRP Construction
15600 Sand Canyon Avenue
Irvine, CA 92618-3101

Re: Proposal for Variance 3 for Purchase Order No. 609963 (formerly 518742)
for the MWRP Biosolids and Energy Recovery Facilities Project

Dear Steve,

Enclosed is a proposal for a variance for El&C Engineering Inc. to furnish additional engineering services to support construction management team for the Michelson Water Recycling Plant (MWRP) Biosolids and Energy Recovery Facilities Project to support an accelerated start-up test schedule and added support services. The period of service for additional engineering is February 1, 2019 through June 30, 2020 based on the anticipated completion of FBB startup activities by December 31, 2019.

Task	Role	Year	Hours	Rate	Fee
1a	Associate Automation Engineer	2019	1040	\$135	\$140,400
1b	Start-up Test Engineer	2019	1040	\$138	\$143,520
1c	Senior Civil Engineer	2019	672	\$150	\$100,800
1d	Principal Civil Engineer	2019	592	\$180	\$106,560
1e	Principal Start-up Engineer	2020	1040	\$177	\$184,080
1f	Associate Automation Engineer	2020	1040	\$135	\$140,400
Expenses					\$20,100
					\$835,860

Enclosed is the scope of work, the schedule and fee breakdown for your consideration. If you have any questions or need additional information please call me at 714-334-8912 or email me at lthomas@eiceinc.com.

Sincerely,

Laura Thomas

Laura Thomas, PE
CEO, Principal Engineer

Enclosure

Section 1

Scope of Work

Scope of Work

The schedule for the Biosolids and Energy Recovery Facilities Project (Biosolids Project) has been extended to the end of August 2020. EI&C Engineering Inc. will provide additional engineering resources to support an accelerated start-up test schedule for an earlier project completion of December 31, 2019. In addition this variance provides budget to extend resources currently working on the project an additional six months to June 30, 2020. The duties and responsibilities of staff are described herein.

- **Task 1: Additional Construction Management support staff to December 31, 2019 and extension current staff for the project until June 20, 2020.**
 - 1a: Associate Automation Engineer
 - 1b: Start-up Test Engineer
 - 1c: Senior Civil Engineer
 - 1d: Principal Civil Engineer
 - 1e: Principal Start-up Engineer
 - 1f: Associate Automation Engineer

Task 1a: Associate Automation Engineer

The Associate Automation Engineer will have the following duties:

- Witness start-up testing of the Process Control System including loop checks, equipment functional tests and Process Control systems tests.
- Witness communication network validation.
- Enforce IRWD cyber security requirements.
- Enforce IRWD software development standards.
- Review start-up submittals including test procedures and test schedules.
- Develop test procedures for Systems Operational and Reliability Tests.
- Witness Systems Operational and Reliability Tests.
- Produce and maintain daily logs of test issues.
- Produce and maintain deficiency and punch lists.

Task 1b: Start-up Test Engineer

The Start-up Test Engineer will have the following duties:

- Witness the field testing including loop checks, equipment functional tests for live mechanical equipment, local control panels, and instrumentation.

IRWD MWRP Biosolids and Energy Recovery Facilities Project
Variance 3 for PO 518742
EI&C Engineering Inc.

- Witness functional acceptance testing of Process Control System where multiple systems are tested together under process conditions.
- Witness Systems Operational and Reliability Tests.
- Produce and maintain daily logs of test issues.
- Produce and maintain deficiency and punch lists.

Task 1c: Senior Civil Engineer

The Senior Civil Engineer will have the following duties:

- Review and respond to Requests for Information (RFIs) from the General Contractor with regard to civil site issues including mechanical piping, process requirements for equipment and calculations.
- Review and respond to Change Requests (CRs) from the General Contractor with regard to civil site issues including mechanical piping, process requirements for equipment and calculations.
- Coordinate with IRWD Operations and Maintenance personnel during start-up testing.
- Review temporary piping plans to support start-up testing.

Task 1d: Principal Civil Engineer

The Principal Civil Engineer will have the following duties:

- Meetings and Technical Site Visits – Visit the site once per month for two days each trip. Attend relevant meetings and provide input to IRWD regarding ongoing construction and startup activities being performed by FBB while on site.
- Claims Avoidance and Dispute Resolution Support – Provide input to IRWD regarding any ongoing claims by FBB against IRWD. No site trips are anticipated for this task.
- Air Permit Source Testing Statement of Qualifications (SOQ) Preparation – Prepare the final SOQ for qualified firms to perform the onsite source testing as required by the South Coast Air Quality Management District (SCAQMD) permit to construct. No site trips are anticipated for this task.
- Air Permit Source Witness Testing – Conduct a site walk for qualified and interested source testing contractors prior to the submittal of proposals by the contractors to identify source testing locations, inspect the sample ports available, and review the requirements of the contract. Assist IRWD with contractor proposal review and selection. Witness onsite source testing by the contractor. Three site visits are anticipated for this task with a duration of two days each.
- Commissioning and Process Optimization Services – Provide engineering support services to IRWD during the commissioning and process optimization phase of the

project regarding the centrifuge thickening and centrifuge dewatering facilities. This includes witnessing the performance testing by GEA-Westfalia for the thickening and dewatering centrifuges. Three site visits are anticipated for this task with a duration of five days each.

Task 1e: Principal Start-up Engineer

The role of Process Control Start-up Engineer would extend beyond software development to control system start-up testing and coordination. This role allows the construction management team to retain the institutional knowledge in order to perform project close-out activities.

The Process Control Start-up Engineer will have the following duties:

- Participate in “Start-up testing” including but not limited to witnessed Process Control System field checks, communication network validation, and system functional testing.
- Attend project meetings.
- Coordinate key decisions with IRWD staff including operations and the CM team.
- Coordinate start-up testing with CM team members
- Review start-up submittals including test procedures and test schedules.
- Develop SCADA training program for operators including SCADA Operations and Maintenance Manual developed with as-built Process Control Descriptions, SCADA Operations and Maintenance training presentations and training videos showing operation of live SCADA screens.
- Develop test procedures for Systems Operational Testing and Systems Reliability Testing.
- Witness Systems Operational Testing and Systems Reliability Testing.
- Participate in project close-out activities including validation of final punch lists, verification of as-built documentation and support of construction cost assessments.

Task 1f: Associate Automation Engineer

The Associate Automation Engineer will have the following duties:

- Witness the field testing for the Process Control System with live mechanical equipment, local control panels, and instrumentation.

IRWD MWRP Biosolids and Energy Recovery Facilities Project
Variance 3 for PO 518742
EI&C Engineering Inc.

- Witness functional acceptance testing of Process Control System where multiple systems are tested together under process conditions.
- Witness Systems Operational Testing and Systems Reliability Testing.
- Produce and maintain daily logs of test issues.
- Produce and maintain deficiency and punch lists for PCS related issues.
- Support SCADA training program for operators including SCADA Operations and Maintenance Manual, SCADA Operations and Maintenance training presentations and training videos showing operation of live SCADA screens.
- Configure and maintain trending software to support reporting of process variables during System Operability and Reliability acceptance tests as well as performance testing.

Section 2

Schedule and Fee Breakdown

Schedule and Fee Breakdown

This variance includes the cost to provide additional engineering support services to augment the construction management team as well as an extension of current staff for an additional 6 months to support project close-out activities. The Associate Automation Engineer and Start-up Test Engineer will be full time on-site for six months. The Senior Civil Engineer will be part time at 60% utilization for seven months. The Principal Civil Engineer will be part time at 30% utilization for 11 months. The extended staff of Principal Start-Up Engineer and Associate Automation Engineer will be full time for 6 months.

Table 1: Schedule

Task	Role	Start	Finish	Weeks
1a	Associate Automation Engineer	April 1, 2019	October 1, 2019	26
1b	Start-up Test Engineer	April 1, 2019	October 1, 2019	26
1c	Senior Civil Engineer	February 1, 2019	September 1, 2019	28
1d	Principal Civil Engineer	February 1, 2019	December 31, 2019	48
1e	Principal Start-up Engineer	January 1, 2020	June 30, 2020	26
1f	Associate Automation Engineer	January 1, 2020	June 30, 2020	26

Table 2: Hourly Estimate

Task	Role	Weeks	Utilization	Hours
1a	Associate Automation Engineer	26	100%	1040
1b	Start-up Test Engineer	26	100%	1040
1c	Senior Civil Engineer	28	60%	672
1d	Principal Civil Engineer	48	30%	592
1e	Principal Start-up Engineer	26	100%	1040
1f	Associate Automation Engineer	26	100%	1040

IRWD MWRP Biosolids and Energy Recovery Facilities Project
Variance 3 for PO 518742
EI&C Engineering Inc.

Table 3: Fee Estimate for Variance 3

Task	Role	Year	Hours	Rate	Fee
1a	Associate Automation Engineer	2019	1040	\$135	\$140,400
1b	Start-up Test Engineer	2019	1040	\$138	\$143,520
1c	Senior Civil Engineer	2019	672	\$150	\$100,800
1d	Principal Civil Engineer	2019	592	\$180	\$106,560
1e	Principal Start-up Engineer	2020	1040	\$177	\$184,080
1f	Associate Automation Engineer	2020	1040	\$135	\$140,400
Expenses					\$20,100
					\$835,860

EXHIBIT "F"

BIOSOLIDS COMPLETION SCHEDULE FOR FY 2018/19 CAPITAL BUDGET

Milestone	Description	Finish	FY 2018/19					FY 2019/20												FY 2020/21																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Legend: ***** Indicates where additional consultant support is required by variances.