Central Marin Sanitation Agency

COMMISSION REGULAR MEETING AGENDA
Tuesday, January 8, 2019
at the Agency Office
7:00 p.m.

Members of the public may directly address the Board on any item appearing on the Agenda. They may address the Board when the item is called by the Board Chair and he/she indicates it is the time for the public to speak to the agenda item. Audio and video recordings will be made of this meeting and will be posted to the Agency website.

1. **7:00 p.m.: Call Meeting to Order/Pledge of Allegiance**
2. **Roll Call**
3. **Open Period for Public Participation**
   Open time for public expression, up to two minutes per speaker, on items within CMSA's jurisdiction and not on the Board of Commissioners' agenda. The Board will not discuss or take action during open time.
4. **Consent Calendar**
   Matters listed under this item are considered routine and will be enacted by one motion. The consent calendar may include resolutions; therefore, the motion, second, and vote will also be applicable to the resolution and recorded accordingly. There will be no separate discussion of these items unless requested by a member of the Board or the public prior to the time the Board votes on the motion to adopt.

   a) Minutes—Special Board Meeting—December 13, 2018
   b) Treasurer's Report—Operating Account—December 2018
   c) Schedule of Investments and its Capital Reserve Summary—December 2018
   d) NPDES, Process, and Maintenance Report—December 2018
   e) Performance Metric Report—December 2018
   f) Cogeneration System Design and Construction Project – Resolutions for Clean Water State Revolving Fund Financial Assistance Application
   g) Natural Gas Services Agreement Renewal
   h) FY 2019 Asset Management Program – 2nd Quarter Report
   i) San Quentin Pump Station FY 19 CIP – Electrical, Instrumentation, and Mechanical Design Service Agreement with GHD

OVER

5. **CMSA Secretary Appointment**
   Recommendation: Nominate and appoint a Commission Secretary, and take other actions as appropriate.

6. **Proposed Debt Issuance Plan**
   Recommendation: Approve the Debt Issuance Plan, and provide direction to the Finance Committee and/or staff, as appropriate

7. **2019 Compensation Market Survey for the Agency's Job Classifications**
   Recommendation: Authorize the General Manager to conduct a compensation market survey for the Agency's represented and unrepresented job classifications.

8. **2018 California Water Environment Association Awards – Redwood Empire Section**
   Recommendation: Adopt the Resolution of Appreciation (No. 334) to Agency staff for receiving the 2018 organizational, regional, and individual awards from the Redwood Empire Section of the California Water Environment Association.

9. **Cogeneration Predesign Evaluation Project – Technology Assessment**
   Recommendation: Informational – provide comments or direction to the General Manager, as appropriate.

10. **Proposed Revisions to the 2018 Joint Power Agreement**
    Recommendation: Informational, provide comments or direction to staff, as appropriate.

11. **January Informational Items**

12. **North Bay Watershed Association (NBWA) Report***

13. **Oral Reports by Commissioners/General Manager***

14. **Next Scheduled Meeting**
    Tuesday, February 12, 2019 at 7:00 p.m. at the Agency office.

*Information not furnished with Agenda

Central Marin Sanitation Agency

COMMISSION SPECIAL MEETING MINUTES
Thursday, December 13, 2018
at the Agency Office

Note: The minutes are an official record of the Board meeting.
There are also official audio and video recordings available on the Agency's website at www.cmsa.us.
The time stamps on these minutes refer to the items' start times on the video recording of the meeting.
Please contact CMSA at 415-459-1455 for information about receiving a copy of these records.

1. **Call Meeting to Order/Pledge of Allegiance**
   Vice-Chair Boorstein called the meeting to order at 7:00 p.m. A quorum was present.

2. **Roll Call** **00:01:07**

Present:	Vice-Chair Michael Boorstein; Secretary Dean DiGiovanni; Commissioners Eli Beckman, Maribeth Bushey, and Doug Kelly; Alternate Commissioner Dan Hillmer
Absent:	None
Staff present:	Jason Dow, General Manager, and Kate Brouillet, Recording Secretary
Public present:	Felicia Newhouse, Ross Valley Sanitary District

3. **Open Time for Public Participation** **00:01:26**
   There were no comments from the public.

4. **Consent Calendar** **00:01:51**
   a) Minutes—Regular Board Meeting—November 13, 2018
   b) Treasurer's Report—Operating Account—November 2018
   c) Schedule of Investments and its Capital Reserve Summary—November 2018
   d) NPDES, Process, and Maintenance Report—November 2018
   e) Performance Metric Report—November 2018
   f) Resolution of Appreciation for Diane Furst
   g) CASA 2019 Winter Conference
   h) Regulatory Compliance Manager Classification
   i) Biosolids Disposal and Management Agreement with Redwood Landfill

   Vice-Chair Boorstein stated he would like to pull item 4f, Resolution of Appreciation for Diane Furst, and asked if any other Consent Calendar items needed to be pulled for discussion.

Commissioner DiGiovanni asked to pull item 4h, Regulatory Compliance Manager Classification.

Comments from the Public:
There were no comments from the public.

Vice-Chair Boorstein asked for a motion on the remaining items.

ACTION: Commissioner Hillmer moved to approve Consent Calendar items #4a through #4e, and items #4g and #4i; second, Commissioner Kelly.

VOTE: The vote was passed unanimously.

Vice-Chair Boorstein read the Resolution of Appreciation for Diane Furst aloud, and expressed the Board's gratitude for her service.

Vice-Chair Boorstein opened discussion on item #4h.

Commissioner DiGiovanni asked if there were any fiscal impacts with the new Regulatory Compliance Manager classification, and for an explanation of the staffing plan.

GM Dow responded that the new position replaces the current Laboratory Directory position, and has additional source control program management responsibilities. He described the staffing adjustments that have been made in the department over the last few years, and the fiscal impacts.

DIRECTION: Staff to include the section "Fiscal Impacts" on all Board memos going forward.

Comments from the Public:
There were no comments from the public.

ACTION: Commissioner DiGiovanni moved to approve Consent Calendar item #4h; second, Commissioner Bushey.

VOTE: The vote was passed unanimously.

5. Public Hearing for the Agency's Sewer Use Ordinance (2018-2) Entitled "An Ordinance Providing for and Regulating the Acceptance of Industrial Waste and Contaminated Groundwater into the Water Pollution Control System of the Central Marin Sanitation Agency" **00:13:10**

GM Dow stated that at the November 13 Board meeting, staff summarized the proposed changes to the Agency's Sewer Use Ordinance 2018-2 (SUO), and the Board set the public hearing for it at this meeting. He said a summary of the proposed SUO was published in the Marin IJ newspaper from 12/5-12/7, and no public comments were received. He said that there are no fiscal impacts to the Agency or the regulated dischargers with the new Ordinance.

Vice-Chair Boorstein opened the public hearing.

The Board had a short discussion and asked GM Dow a few questions regarding the Ordinance and its enforcement.

GM Dow responded to the Board's questions.

Comments from the Public:
There were no comments from the public.

Vice-Chair Boorstein closed the public hearing and asked for a motion.

ACTION: Commissioner Hillmer moved to pass the proposed Sewer Use Ordinance 2018-2, and authorize publication of a summary of the passed Ordinance in the Marin IJ newspaper; second, Commissioner Bushey.

VOTE: The vote was passed unanimously.

6. FY 2018 Comprehensive Annual Financial and Popular Annual Financial Reports **00:22:10**

GM Dow stated that the Agency's FY 18 Comprehensive Annual Financial Report (CAFR) and Popular Annual Financial Report (PAFR) were enclosed for Board review and acceptance in the Agenda packets. He said that the CAFR consists of three sections: introductory, financial, and statistical. He said the introductory section summarizes Agency programs, projects, and services, the financial section contains the audited financial statements that were accepted at the November Board meeting, and the statistical section presents financial and operational trend information presented on a multi-year basis. GM Dow stated that the Agency participates in the GFOA Certificate of Achievement and Outstanding Achievement award programs for its CAFR and its PAFR, respectively.

The Board had a brief discussion and asked GM Dow various questions.

GM Dow responded to the Board's questions.

GM Dow said that for transparency, and to provide financial information to different users, the Agency also prepares a PAFR, a condensed and easy-to-read version of the CAFR. He said he would respond to any questions or comments.

The Board suggested that for the industry terms in the PAFR be spelled out more frequently, with fewer acronyms, to increase readability.

The Board commented favorably on the work that finance and administrative staff have done on the two reports.

Comments from the Public:
There were no comments from the public.

ACTION: Commissioner Hillmer moved accept the FY 18 Comprehensive Annual Financial and Popular Annual Financial Reports; second, Commissioner Kelly.

VOTE: The vote was passed unanimously.

7. Pavement Rehabilitation Project – Adopt Contact Documents (CMSA Contract No. 19-24) **00:35:10**

GM Dow reviewed the project scope of work, and said that approximately 11,000 square-feet of pavement will be replaced. He stated that staff has prepared the construction contract documents for the project, which were made available for review at the Agency's administrative office.

GM Dow said that if pubic bidding is authorized, staff will issue the public bid advertisement immediately after the Board meeting and intends to bring a construction contract award recommendation to the February Board meeting. He said that construction should begin in April 2019, will be substantially completed by the summer, and the Engineer's Estimate is $151,000.

The Board had a brief discussion and asked GM Dow a few questions regarding the Project's budget.

GM Dow responded to the Board's questions.

Comments from the Public:
There were no comments from the public.

ACTION: Commissioner Kelly moved to adopt the Pavement Rehabilitation Project construction contract documents, and authorize the General Manager to advertise the contract for public bidding; second, Commissioner Beckman.

VOTE: The vote was passed unanimously.

8. Andersen Drive Landslide Repairs Project (CMSA Contract No. 19-13) **00:39:18**

GM Dow reviewed this project, and stated that during the February 2017 storms, five landslides occurred on the Andersen Drive hillside and staff hired a contractor to make emergency repairs to stabilize the hillside. He said that staff later applied to FEMA and Cal OES for funding assistance for the emergency repairs, and to design and construct permanent improvements to prevent future landslides. He said that CMSA received a letter from Cal OES stating the funding assistance request had been approved by FEMA, and on October 5, 2018, FEMA and Cal OES authorized proceeding with formally bidding the Project. He said that on November 13, 2018, the Notice of Obligation was received to provide funding assistance for Project design and construction.

He stated that if the Board approves the recommendation, staff will first file a CEQA Notice of Exemption with the County of Marin, and will then issue the public bid advertisement in the near future, and bring a construction contract award recommendation to the February meeting for Board consideration of approval.

The Board had a brief discussion regarding the Andersen Drive hillside repairs, and the possibility of eventually developing a plan for the Andersen hillside property management and/or sale.

GM Dow responded to the Board's questions, and said that exploring uses for the Andersen hillside property could be included in the next fiscal year's Agency business plan.

Comments from the Public:
There were no comments from the public.

ACTION: Commissioner Hillmer moved to authorize staff to: (1) Adopt the contract documents for the Andersen Drive Landslide Repairs Project and authorize the General Manager to advertise the contract for public bidding; and (2) File a California Environmental Quality Act (CEQA) Notice of Exemption with the County of Marin for construction of the Project; second, Commissioner Kelly.

VOTE: The vote was passed unanimously.

DIRECTION: Staff to include an item on a future agenda for discussion of the Agency's Andersen Drive hillside property.

9. Cogeneration System Design and Construction Project – Clean Water State Revolving Fund Financial Assistance Application **00:48:35**

GM Dow stated that during a recent debt issuance planning meeting with the Board's Finance Committee, staff informed the Committee that the future Cogeneration System Design and Construction Project (Project) may be eligible for a Clean Water State Revolving Fund (CWSRF) loan through its Green Project Reserve (GPR) program. He stated that if the Project is selected, it can be removed from the list of capital projects currently included in the Agency's planned future debt issuance. He said that since that meeting, staff has learned that CWSRF applications, including a Board resolution, for FY 20 funding must be submitted by December 31, 2018.

The Board had a short discussion on the financial benefits to the Agency of obtaining the CWSRF loan, and the future debt issuance.

Comments from the Public:
There were no comments from the public.

ACTION: Commissioner DiGiovanni moved to adopt Resolution No. 333, authorizing the General Manager to execute and deliver documents to the State Water Resources Control Board to complete the financial assistance application for a Clean Water State Revolving Fund Loan to finance the Cogeneration System Design and Construction Project; second, Commissioner Bushey.

VOTE: The vote was passed unanimously.

10. CMSA Commission Chair Appointment **00:54:45**

GM Dow reviewed the current Board appointments and said with Diane Furst leaving the Board after the November 13 meeting, there is vacancy in the Commission Chair office. He said that prior to leaving the Commission, Chair Furst suggested, and Vice-Chair Boorstein agreed, that the Board should consider nominating and appointing a Chair to serve the remainder of the fiscal year.

The Board discussed the history and method of selecting Board officers and their terms.

Comments from the Public:
There were no comments from the public.

ACTION: Commissioner Bushey moved to nominate Commissioner DiGiovanni as Board Chair to serve for the remainder of the fiscal year; second, Commissioner Kelly.

VOTE: The vote was passed unanimously.

11. December Informational Items **01:12:10**

GM Dow stated that to allow for Board member comment or discussion on the monthly Informational Items that normally accompany the Board Agenda Packet, they will now be included as the last item on the agenda.

The Board asked about the Grand Jury tour that was held in November.

GM Dow responded that 14 members toured CMSA and were impressed with the facilities and operation.

Comments from the Public:
There were no comments from the public.

This item was informational and no action was taken.

12. North Bay Watershed Association (NBWA) Report **01:13:52**

Vice-Chair Boorstein stated that he attended the December 7, 2018 NBWA Board meeting. He said that the majority of the meeting was spent codifying their mission statement, and that there was a presentation by Mitch Avalon of the Contra Costa County Public Works Department, entitled "Possible New Stormwater Legislation."

Vice-Chair Boorstein asked if the Board would like for him to routinely make available to Board members the abstracts of the presentations that are normally held at the meetings. The Board agreed it would be appropriate.

13. Oral Reports by Commissioners/General Manager **01:20:41**

GM Dow referred to his handout, and reported that the Agency received a letter from the City of Larkspur stating they would like to withdraw from the CMSA JPA. He said that as the Joint Powers Agreement has no specific process for a withdrawal of a member, the JPA managers will decide the appropriate actions, and nothing will change until the JPA is amended.

The Board expressed their appreciation to Alternate Commissioner Dan Hillmer for service to the CMSA Board up to this point.

14. Next Scheduled Meeting

Tuesday, January 8, 2019 at 7:00 p.m. at the Agency office.

Vice-Chair Boorstein adjourned the meeting at 8:25 p.m.

Respectfully submitted,

_____ _____

Kate Brouillet, Recording Secretary Dean DiGiovanni, Secretary

Central Marin Sanitation Agency
Treasurer's Report - Operating Account
For the Month of December 2018

I. Accounts Summary: Bank & Investment Accounts

Summary of Bank & Money Market Accounts		
Westamerica Bank - Account Activity shown below	$	713,517.12
Local Agency Investment Fund (LAIF) - Refer to Schedule of Investments		15,442,968.91
California Asset Management Program (CAMP) - Refer to Schedule of Investments		369,592.58
Total Bank & Investment Accounts: Ending Balance on December 31, 2018	$	16,526,078.61

II. Account Activity for Westamerica Bank

Beginning Balance on December 1, 2018		590,558.09
Cash Receipts (Deposits into Westamerica):		
Transfers from LAIF		850,000.00
Capacity Charges: RVSD - FY19: 3 Residential		18,282.84
Permit and Inspection Fees		188.80
RVSD - FOG Program (FY19 1Q: July-September)		2,169.83
SRSD - FOG Program (FY19 1Q: July-September)		2,071.79
Revenue from Haulers & RVs		7,315.15
Revenue from Organic Waste Programs		12,617.95
SD 2 Operations & Maintenance Contract (FY19: September-November)		84,134.77
SQSP Wastewater Services Contract (FY19: November)		84,680.67
SQ Village Operations & Maintenance Contract (FY19: October)		644.32
Interest Income: CalCARD Incentive Payment		473.30
COBRA Health Benefit Payments from separated employees/retirees		89.44
Expense Reimbursement from NSD for Hearing Tests		430.19
Void check #17707		378.08
Total Cash Receipts	$	1,063,477.13
Cash Disbursements (Withdrawals from WestAmerica):		
December 2018 Operating account disbursements register (see attached)		$585,267.66
Regular Payroll paid 12/01/18		149,875.62
Regular Payroll paid 12/15/18		140,058.19
Transfers to EFTPS Federal Payroll Taxes (12/12, 12/26)		65,219.95
Bank Fee		96.68
Total Cash Disbursements		$940,518.10
Ending Balance on December 31, 2018	$	713,517.12

Prepared by: _____
Kenneth Spray, Administrative Services Manager

Reviewed by: _____
Jason Dow, General Manager

Central Marin Sanitation Agency
Operating Account Disbursements Register
For the Month of December 2018

Check Number	Date	Vendor/Payee	Amount	Description
-17752				Last check # from prior month's register
17753	12/03/18	Phillip Frye	212.97	Reimbursement for retiree health benefits by check
17754	12/03/18	James L. Johnson	183.34	Reimbursement for retiree health benefits by check
17755	12/03/18	Byron Jones	80.24	Reimbursement for retiree health benefits by check
17756	12/10/18	AT&T	126.93	Fax and emergency phone service, 11/13-12/07/2018
17757	12/10/18	Jenny Bender	400.00	Employee expense reimb: Safety glasses
17758	12/10/18	Christopher J Wilson	271.01	Business cards
17759	12/10/18	County of Marin	5,466.00	Annual Certified Unified Program Agency (CUPA) Permit
17760	12/10/18	Nicholas Gaunt	150.00	Employee expense reimb: SWB Grade III Operator renewal
17761	12/10/18	GHD Inc	6,336.75	Prof Svcs: Asset Management Program Evaluation, 10/21-11/17/2018
17762	12/10/18	Jose Gutierrez	251.00	Employee per diem advance: P3S Annual Conference, February, 2019
17763	12/10/18	Koff & Associates, Inc.	5,774.00	Prof Svcs: E/I Tech recruitment, payment #1
17764	12/10/18	Lystek International LTD	9,557.67	Biosolids beneficial reuse fee, November 2018
17765	12/10/18	OCCUMETRIC	345.00	E/S Analyst recruitment: Pre-employment physical
17766	12/10/18	P.G.& E.	17,430.43	Electricity service, 10/16-11/14/2018 (2 invoices)
17767	12/10/18	Polydyne, Inc.	50,836.50	Clarifloc polymer (1 delivery)
17768	12/10/18	Mary Jo Ramey	251.00	Employee per diem advance: P3S Annual Conference, February, 2019
17769	12/10/18	Roy's Sewer Service, Inc.	2,500.00	Organic Waste Receiving Facility quarterly cleaning
17770	12/10/18	SPURR	4,502.26	Natural gas supply, October 2018
17771	12/10/18	SWRCB FEES	52,378.00	NPDES permit fee, 07/01/2018-06/30/2019
17772	12/10/18	Synagro West, Inc.	1,155.00	Biosolids land application fee, October 2018
17773	12/10/18	Thomas Fish Company	138.50	Rainbow trout for monthly bioassay test
17774	12/10/18	Univar USA Inc	8,941.96	Sodium Hypochlorite (1 delivery), Sodium Bisulfite (1 delivery)
17775	12/10/18	California State Disbursement	250.50	EE Garnishment, PPE 12/01/2018 (Note A)
17776	12/10/18	ICMA Retirement Trust-457	3,500.00	Deferred compensation contributions, PPE 12/01/2018 (Note A)
17777	12/10/18	Navia Benefit Solutions	657.68	Flexible spending account, PPE 12/01/2018
17778	12/10/18	SEIU Local 1021	1,009.24	Union dues, PPE 12/01/2018
17779-17804		Void		
17805	12/13/18	AireSpring	820.37	Telephone service, November 2018
17806	12/13/18	Aramark Uniform Services	1,190.27	Uniform service, November 2018
17807	12/13/18	Katherine Brouillet	89.94	Employee expense reimb: Holiday pot luck supplies
17808	12/13/18	California Public Employee	3,590.16	Contribution to Retiree Health Benefits Trust Fund, December 2018 (Note C)
17809	12/13/18	Abraham Clark	295.00	Employee expense reimb: SWB Grade III Operator exam
17810	12/13/18	Comcast	193.38	Internet service, 12/04/2018-01/03/2019
17811	12/13/18	CWEA TCP	290.00	Membership renewal (1 employee)
17812	12/13/18	Everfi Inc	2,500.02	Employee online HR/employment law training service
17813	12/13/18	Chris Finton	142.79	Employee expense reimb: CALPELRA Annual Conference, December 2018
17814	12/13/18	Alan Fiore	987.00	Employee expenses eligible for Agency dental reimbursement
17815	12/13/18	Foster Flow Control	423.76	Rotork repair equipment
17816	12/13/18	Holt of California	539.38	Replacement backrest for forklift
17817	12/13/18	Home Depot Credit Services	1,542.58	Lithium/Ion battery, safety and paint supplies, November 2018
17818	12/13/18	IEDA, Inc.	809.00	Labor relations consulting, December 2018
17819	12/13/18	Jackson's Hardware	287.51	Safety and maintenance supplies, November 2018 (6 invoices)

Central Marin Sanitation Agency
Operating Account Disbursements Register
For the Month of December 2018

Check Number	Date	Vendor/Payee	Amount	Description
17820	12/13/18	JM Squared & Associates, Inc.	6,342.78	SD2 PS FY 19 CIP: Spare pump (Note B)
17821	12/13/18	Marin Sanitary Service	5,473.50	Recycling, organics, rag bin disposal, November 2018
17822	12/13/18	Marin Resource Recovery Center	204.00	Demo/debris box disposal; October 2018
17823	12/13/18	Nitel Inc	1,046.89	Primary telephone & internet service, December 2018
17824	12/13/18	Jeremy Schwarm	155.00	Employee expense reimb: SWB Grade II Operator exam
17825	12/13/18	Southwest Valve LLC	1,651.85	Pressure isolator ring
17826	12/13/18	Kenneth R Spray	950.35	Employee expense reimb: CALPELRA Annual Conference, December 2018
17827	12/13/18	Stanley Convergent Security	2,515.32	Fire alarm system maintenance, 01/01-12/31/2019
17828	12/13/18	Synagro West, Inc.	288.75	Biosolids land application fee (1 load)
17829	12/13/18	Thatcher Company of	11,262.78	Ferric Chloride (2 deliveries)
17830	12/13/18	Toyota Material Handling	261.08	Windshield for Agency vehicle
17831	12/13/18	Waste Management	16,540.82	Redwood Landfill biosolids reuse fee, November 2018
17832	12/18/18	Automation Direct Co., Inc.	479.00	Fittings and line reactor for VFDs
17833	12/18/18	Brandon Tire	405.33	Tires for Agency vehicles (4 invoices)
17834	12/18/18	Christopher J Wilson	271.01	Business cards
17835	12/18/18	Katherine Brouillet	360.39	Employee expense reimb: Holiday pot luck supplies
17836	12/18/18	BWS Distributors, Inc.	212.55	Oxygen sensor
17837	12/18/18	CAL-CARD	7,997.12	State of California Purchase Card, October-November 2018
17838	12/18/18	Cal Steam	5.36	Fittings
17839	12/18/18	Carollo Engineers, Inc.	878.10	Prof Svcs: PG&E Interconnection Design Project, November 2018
17840	12/18/18	ChemStation of Northern Cal.	3,116.20	Odor control materials
17841	12/18/18	Dee Consultants LLC	720.00	Prof Svcs: Construction Management Support, November 2018
17842	12/18/18	Evoqua Water Tech LLC	419.72	Deionized water tanks for lab
17843	12/18/18	FactoryMation	656.00	Electrical supplies and panels
17844	12/18/18	Fastenal Company	620.51	Maintenance vending machine replenishment
17845	12/18/18	Chris Finton	212.00	Commuter Reimbursement Program, November 2018
17846	12/18/18	Foster Flow Control	149.49	SD2 PS: valve (Note B)
17847	12/18/18	Graybar	55.07	Lighting supplies
17848	12/18/18	Horizon Dist. Inc	137.61	Irrigation supplies
17849	12/18/18	Kaman Industrial Technologies	40,232.05	CIP FY 19: Expansion joints; primary clarifier replacement equipment
17850	12/18/18	Marin County Clerk	50.00	Processing fee for CEQA Notice of Exemption
17851	12/18/18	Marin Independent Journal	309.75	Subscription renewal
17852	12/18/18	Marin Office Supply	283.08	Office supplies, November 2018
17853	12/18/18	Medical Center of Marin	40.00	Audiometric exam (1 employee)
17854	12/18/18	Northern Tool & Equipment	80.04	Membership fee and tools, November 2018
17855	12/18/18	Ricoh USA Inc	317.99	Admin copier lease, 11/23-12/22/2018
17856	12/18/18	Safety-kleen Systems, Inc	257.20	Parts washer cleaning
17857	12/18/18	Calmat Co./Shamrock Materials	86.50	Propane
17858	12/18/18	VWR International	89.91	Lab supplies
17859	12/18/18	Wiley Price & Radulovich	2,942.50	Prof Svcs: Employment law services, November 2018
17860	12/21/18	Amazon	1,154.21	Computer equpiment, office supplies
17861	12/21/18	AT&T Dataplan	400.77	Wireless service, 11/02-12/01/2018
17863	12/21/18	BKF Engineers	4,130.00	SD2 PS: Supplies, parts & equipment (Note B)
17864	12/21/18	California Chamber of Commerce	73.61	Labor law poster
17865	12/21/18	Eromosele J Esoimeme	89.90	Employee expense reimb: DMV report and mileage to pre-employment physical

Central Marin Sanitation Agency
Operating Account Disbursements Register
For the Month of December 2018

Check Number	Date	Vendor/Payee	Amount	Description
17866	12/21/18	Evoqua Water Tech LLC	20,011.05	Peroxide (2 deliveries)
17867	12/21/18	Grainger	3,476.38	Motor, hazardous materials meter, flow meter, and misc. maint and electrical supplies, November 2018 (18 invoices)
17868	12/21/18	Hach Company	1,250.14	Chemicals, vials, and solutions, November 2018
17869	12/21/18	Harrington Industrial Plastics	1,178.42	PVC parts, November 2018
17870	12/21/18	Peter Kistenmacher	99.08	Employee expense reimb: CALPELRA Annual Conference, December 2018
17871	12/21/18	Mark Koekemoer	220.61	Employee expense reimb: CALPELRA Annual Conference and ELTAC meeting, December 2018
17872	12/21/18	Koff & Associates, Inc.	11,994.00	Prof Svcs: E/S Analsyt recruitment, payments #3 & #4; E/I Tech recruitment, payments #2 & #3 (3 invoices)
17873	12/21/18	Kone Inc	136.70	Elevator maintenance, December 2018
17874	12/21/18	McMaster-Carr Supply Co.	5,457.72	Landscaping tools, valves, belts, mountings, couplings, copper tubing, brackets, filters, November 2018 (34 invoices)
17875	12/21/18	Marin Municipal Water District	1,696.66	Water service, 10/10-12/07/2018 (5 invoices)
17876	12/21/18	OCCUMETRIC	345.00	E/I Tech recruitment: Pre-employment physical
17877	12/21/18	Mike Silva	218.00	Commuter Reimbursement Program, December 2018
17878	12/21/18	Anthony Smith	169.26	Employee expense reimb: Forklift training
17879	12/21/18	Russ Turnbull	184.46	Employee expense reimb: Safety glasses
17880	12/21/18	Univar USA Inc	12,312.47	Sodium Hypochlorite (2 deliveries), Sodium Bisulfite (1 delivery)
17881	12/21/18	Water Components & Bldg. Supp.	526.38	Piping, valves, concrete, hoses, grout, November 2018 (Note B)
17882	12/21/18	California State Disbursement	250.50	EE Garnishment, PPE 12/15/2018 (Note A)
17883	12/21/18	ICMA Retirement Trust-457	2,850.00	Deferred compensation contributions, PPE 12/15/2018 (Note A)
17884	12/21/18	Navia Benefit Solutions	607.68	Flexible spending account, PPE 12/15/2018
17885	12/21/18	SEIU Local 1021	1,009.24	Union dues, PPE 12/15/2018
17886	12/27/18	Bay Power LLC	260.00	Cogeneration engine repair consulting fee
17887	12/27/18	Caltest Analytical Laboratory	3,099.17	Lab analyses, November 2018
17888	12/27/18	Carollo Engineers, Inc.	32,678.29	Prof Svcs: Cogeneration System Predesign Evaluation Project, November, 2018
17889	12/27/18	CWEA TCP	188.00	Membership renewal (1 employee)
17890	12/27/18	Fisher Scientific	1,946.09	Filters, buffers, chemicals for laboratory (7 invoices)
17891	12/27/18	Ryan Joslin	149.97	Employee expense reimb: Mileage to pre-employment physical
17892	12/27/18	Moore Industries	1,058.10	Ethernet interface equipment
17893	12/27/18	NACWA	10,815.00	Annual membership fee (10/01/2018-09/30/2019)
17894	12/27/18	Darin James Reinholdt	4,500.00	Remote alarm system for underground storage tank
17895	12/27/18	State Water Resources Ctrl Brd	170.00	Membership renewal (1 employee)
17896	12/27/18	VWR International	49.94	Lab supplies

Payments by Automatic Clearing House:

12/4/2018	Payments to 25 retirees	7,614.27	Reimbursement for retiree health benefits
12/4/2018	CalPERS Medical ins	64,710.62	Medical insurance, November 2018
12/4/2018	Delta Dental	7,790.35	Dental insurance, November 2018
12/4/2018	Lincoln Life Ins	2,294.31	Life insurance, November 2018
12/4/2018	Vision Service Plan -(CA)	943.30	Vision insurance, November 2018
12/12/2018	CalPERS	35,689.34	Retirement pension contribution: Agency and employees,

Central Marin Sanitation Agency
Operating Account Disbursements Register
For the Month of December 2018

Check Number	Date	Vendor/Payee	Amount	Description
				PPE 12/01/2018 (Note C)
	12/12/2018	EDD	13,067.83	State & SDI Taxes, PPE 12/01/2018
	12/24/2018	EDD	11,828.77	State & SDI Taxes, PPE 12/15/2018
	12/12/2018	NRS/PEHP-3 and Z	7,711.41	Deferred compensation and MARA contribution, PPE 11/03/2018
	12/24/2018	NRS/PEHP-3 and Z	8,361.41	Deferred compensation and MARA contribution, PPE 11/17/2018
	12/21/2018	Michael Owen Boorstein	450.00	Stipends for 12/07 NBWA and 12/13/2018 Board meetings
	12/21/2018	Maribeth Bushey	225.00	Stipend for 12/13/2018 Board meeting
	12/21/2018	Dean DiGiovanni	225.00	Stipend for 12/13/2018 Board meeting
17862	12/21/2018	Eli Beckman	225.00	Stipend for 12/13/2018 Board meeting
	12/21/2018	Diane L. Furst	225.00	Stipend for 12/13/2018 Board meeting
	12/21/2018	Doug Kelly	225.00	Stipend for 12/13/2018 Board meeting
	12/14/2018	PG&E	4,439.51	PG&E renewable energy expansion, October 2018
		Grand Total	585,267.66	

Notes:
A: Not an Agency Expense. Expense funded through Payroll deduction.
B: Not an Agency Expense. CMSA will be reimbursed for this expense.
C: CMSA is partially reimbursed for this expense per Employee Labor Agreements.

CENTRAL MARIN SANITATION AGENCY
SCHEDULE OF INVESTMENTS
As of the Month Ended December 31, 2018

Description	Book Value	Market Value (1)	% Port	Projected Year End
I. Pooled Investments with California Asset Management Program (CAMP)				
Money Market Funds (< 1 year in maturity)				
CAMP Cash Reserve Pool: 2.46% at 12/31/18				
b1. Operating Reserve (Unrestricted) (2)	$ 19,592.58	$ 19,592.58		Sum b1. Below
b2. Emergency Reserve (Unrestricted)	250,000.00	250,000.00		$ 250,000
b3. Insurance Reserve (Unrestricted)	100,000.00	100,000.00		$ 100,000
Total with CAMP	**$ 369,592.58**	**$ 369,592.58**	**2.3%**	
II. Pooled Investments with Local Agency Investment Fund (LAIF)				
Money Market Funds (< 1 year in maturity)				
Local Agency Investment Fund (LAIF): 2.208% at 11/30/18				
a1. Current Operating Fund	$ 2,129,719.49	$ 2,129,719.49		
b1. Operating Reserve (Unrestricted) (2)	$ 2,935,907.42	$ 2,935,907.42		$ 2,955,500
c1. Capital Reserves (Restricted) (3)	$ 1,042,824.00	$ 1,042,824.00		$ 993,301
c2. Capital Reserves (Unrestricted) (4)	$ 9,334,518.00	$ 9,334,518.00		$ 7,258,146
Total with LAIF	**$ 15,442,968.91**	**$ 15,442,968.91**	**97.7%**	
TOTAL INVESTMENTS	**$ 15,812,561.49**	**$ 15,812,561.49**	**100.0%**	

NOTES:
(1) Market values are per the fiscal agent's respective monthly statements
(2) Operating reserves calculated at 25% operating budget
(3) Includes capacity charges and debt service coverage
(4) Includes capital fee charges

Statement of Compliance

The above portfolio of investments is in compliance with the Agency's investments policy, adopted annually, and California Government Code Section 53601, authorized investments, and 53646, investments policy. In addition, the Agency does have the financial ability to meet its cash flow requirements for the next six months.

Kenneth Spray, CPA
Administrative Services Manager

CENTRAL MARIN SANITATION AGENCY
CAPITAL RESERVES SUMMARY FOR THE SCHEDULE OF INVESTMENTS

Year-to-Date as of the Month Ended December 31, 2018

Restricted Capital Reserves Sources and Uses	Monthly Amounts Received (Used)	YTD Amounts Received (Used)
Capacity charges revenue	$ 18,283	$ 65,375
Debt coverage collection revenue	-	792,269
Total restricted capital reserve funding sources	18,283	857,644
Capacity charges usage for capital (1st)	(18,283)	(65,375)
Debt coverage usage for capital (2nd)	(76,467)	(739,922)
Total restricted capital reserve uses	(94,750)	(805,297)
Net change		52,347
Balance - beg of year		990,477
Balance - end of year		$ 1,042,824
Unrestricted Capital Reserves Sources and Uses		
Capital fee revenue	$ -	$ 405,630
Unrestricted operating-reserve-transfer-in	-	703,289
SRF/FEMA cost reimb proceeds received	-	359,354
Total unrestricted capital reserve funding sources	-	1,468,273
Capital fee usage to fund CIP (3rd)	-	-
Unrestricted capital reserve draw (4th)	-	-
Total unrestricted capital reserve uses	-	-
Net change		1,468,273
Balance - beg of year		7,866,245
Balance - end of year		$ 9,334,518
Total capital reserve balances		$10,377,342
Total approved CIP budget		$ 2,862,500
Total CIP funded from capital reserve sources		805,297
Total approved capital budget remaining		$ 2,057,203

Central Marin Sanitation Agency

BOARD MEMORANDUM

January 4, 2019

To: CMSA Commissioners and Alternates

From: Chris Finton, Treatment Plant Manager

Approved: Jason Dow, General Manager

Subject: December 2018 NPDES Permit Compliance, Treatment Process, and Maintenance Activities Report

Recommendation: Accept the December 2018 NPDES Permit Compliance, Treatment Process, and Maintenance Activities Report.

I. NPDES Permit Compliance

Our NPDES permit testing for December showed that the CMSA treatment plant effluent was in compliance with all permit limits. The Monthly Compliance Summary Table shows the results by permitted parameter, the sample's frequency, the sample results, and the permit limit. We successfully passed the December 96-hour flow through bioassay test. CMSA's NPDES permit specifies quarterly monitoring for enterococcus bacteria and for each wet weather blend event, to verify compliance with established effluent limits. The enterococcus quarterly geometric mean monitoring sample was 2.0 MPN, well below our monthly limit of 35 MPN.

II. Influent Flow

In December, central Marin County experienced cooler daily temperatures and wet weather storm events produced a total of 2.46 inches of rain as recorded by the CMSA rain gauge. The treatment plant did not exceed the maximum secondary capacity of 30 MGD during the month, and reported zero blend events on the Agency's website. The facility's average daily influent flow was 12.2 MGD.

The CMSA treatment plant and each satellite collection agency's daily average and total monthly influent flows are shown in the table below:

December Monthly Influent Flows	**San Rafael (SRSD)**	**Ross Valley (RVSD)**	**San Quentin (SQSP)**	**Corte Madera (SD#2)**	**CMSA Plant Total**
Average Daily (MGD)	4.6 MGD	5.9 MGD	0.55 MGD	1.2 MGD	12.2 MGD
Total for Month (MG)	143.0 MG	182.9 MG	16.9 MG	36.2 MG	379.0 MG
Percent of Flow	38.0 %	48.0 %	4.0 %	10.0 %	100 %

Wet Weather Peak Flows*	San Rafael (SRSD)	Ross Valley (RVSD)	San Quentin	Corte Madera (SD#2)	CMSA
12/17 Total Days Flow	7.4 MG	8.8 MG	0.60 MG	1.5 MG	18.3 MG
Peak Flow Rate	18.6 MGD	19.2 MGD	1.7 MGD	2.3 MGD	37.8 MGD

*The time for peak flows and maximum day's flow varies depending on an area's rainfall during the storm

III. Treatment Process

There was only one significant rain event and a series of smaller storms in December. Operators were busy placing process equipment in and later taking it out of service as needed for adequate treatment throughout the month. The Mixed Liquor Suspended Solids (MLSS) inventory averaged 1,230 mg/l in December, a minimal increase in inventory from last month. This aligned with our target biomass concentration range of 1,100 to 1,300 mg/L.

Graph No. 3 shows the coliform most probable number (MPN), which represents the effectiveness of the disinfection process. All fifteen coliform samples collected in December were above our KPI of 30 MPN, and remained well below our daily permit limit of 10,000 MPN. The total coliform monthly geometric mean for December was 1.9 MPN, well below our permit's monthly limit of 240 MPN.

Graph No. 4 shows the Total Suspended Solids (TSS), which is a good indicator of the effluent quality. The TSS monthly average in December was 5.4 mg/l, which is 36.0% of our Key Performance Indicator (KPI) of 15 mg/l, and is 18.0% of our permit's monthly average limit of 30 mg/l.

IV. Maintenance Activities

The cogeneration system was in service the entire month of December and produced 95.0% of the Agency's power needs, and MCE supplied the balance. The system was temporarily removed from service on December 17 to allow technicians to replace a failing spark plug.

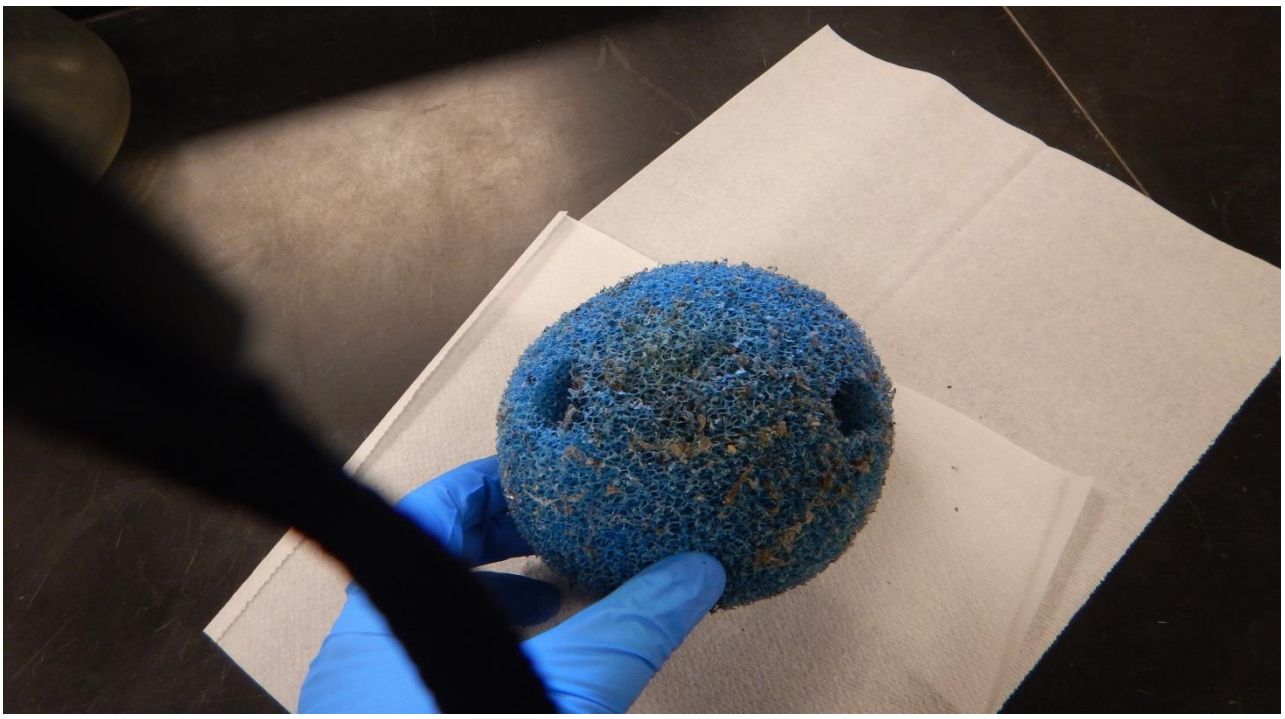
The majority of December's work activities were spent performing process equipment corrective maintenance. In addition, project work included replacing both augers and a grinder cartridge at the San Quentin pump station; replacing the hose and glycerin on a feed pump at the Organic Waste Receiving Facility; replacing a worn lobe on a thickened waste pump; and installing a new level sensor into the wet well at Sanitary District No. 2's Tamalpais pump station. Utility staff continued a painting project in the Biotower basement which includes coating all of the piping and pump equipment.

Attachment:

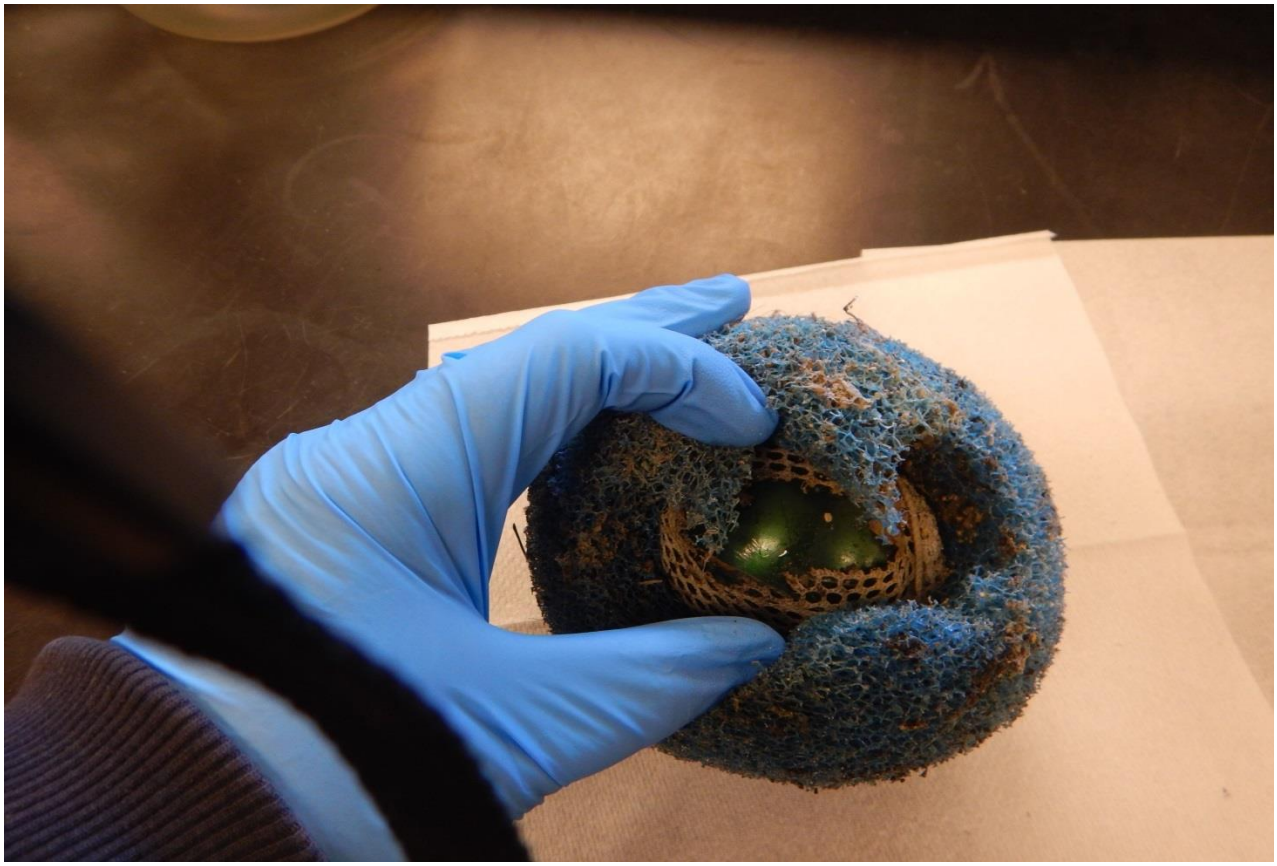
- December 2018 NPDES Permit Compliance, Treatment Process, and Maintenance Activities Report

NPDES Permit Compliance, Treatment Process, and Maintenance Activities Report

December 2018



A SmartBall, used in sewer systems for leak and gas pocket detection



This SmartBall was used to inspect sewer lines for SRSD and was retrieved out of a debris bin by Agency staff on December 17

Monthly Compliance Summary Table

Central Marin Sanitation Agency

December, 2018

Final Effluent Monitoring

Parameter	Frequency	Units	Results	Limit
Carbonaceous BOD Highest Weekly Average	Weekly	mg/L	6.0	Maximum 40
Carbonaceous BOD Monthly Average	Monthly	mg/L	4.3	Maximum 25
Carbonaceous BOD Monthly Removal Rate	Monthly	%	97.6	Minimum 85
Total Suspended Solids Highest Weekly Average	Weekly	mg/L	8.4	Maximum 45
Total Suspended Solids Monthly Average	Monthly	mg/L	5.4	Maximum 30
Total Suspended Solids Monthly Removal Rate	Monthly	%	98.2	Minimum 85
Chlorine Residual Instant Limit	Instant	mg/L	ND	Maximum 0.0
Ammonia Monthly Average	Monthly	mg/L	21.1	Maximum 60
Ammonia Maximum Daily	Daily	mg/L	27.4	Maximum 120
pH Lower Limit	Continuous	SU	6.8	Minimum 6
pH Upper Limit	Continuous	SU	7.5	Maximum 9
Bacteriological Analysis				
Total Coliform Monthly Geometric Mean	3 X Week	MPN/100mL	1.9	Maximum 240
Total Coliform Daily Maximum	3 X Week	MPN/100mL	5.9	Maximum 10,000
Enterococcus Quarterly Geometric Mean	Quarterly	MPN/100mL	2.0	Maximum 35
Flow Through Bioassay				
Acute Toxicity 11 Sample 90th Percentile	Monthly	% survival	100	Minimum 70
Acute Toxicity 11 Sample Median	Monthly	% survival	100	Minimum 90
Metals Analysis				
Copper Daily Limit	Monthly	ug/L	3.3	Maximum 85
Copper Monthly Average	Monthly	ug/L	3.3	Maximum 49
Cyanide Daily Limit	Monthly	ug/L	J1.0	Maximum 41
Cyanide Monthly Average	Monthly	ug/L	J1.0	Maximum 21
Mercury Weekly Average	Weekly	ug/L	0.0039	Maximum 0.072
Mercury Monthly Average	Monthly	ug/L	0.0039	Maximum 0.066
Mercury Monthly Loading	Monthly	kg/mo	0.00427	
Mercury Annual Loading (watershed permit)	Jan-Dec	kg/yr	0.05161	Maximum 0.11
Permit Analysis				
Dioxin - Total Equivalents (TEQ) Daily Maximum	1/Permit Cycle	ug/L	*	Maximum 2.8E-08
Dioxin - Total Equivalents (TEQ) Monthly Average	1/Permit Cycle	ug/L	*	Maximum 1.4E-08
Polychlorinated Biphenyls (PCBs) Daily Limit	1/Permit Cycle	ug/L	*	Maximum 0.017
Polychlorinated Biphenyls (PCBs) Monthly Limit	1/Permit Cycle	ug/L	*	Maximum 0.012
Semiannual and Quarterly Analysis				
Oil and Grease Daily Limit	Semiannual	mg/L	ND	Maximum 20
Oil and Grease Monthly Average	Semiannual	mg/L	ND	Maximum 10
Chronic Bioassay Toxicity	Quarterly	Tuc	5.8	Maximum 20
Chronic Bioassay Toxicity (3 sample median)	Quarterly	Tuc	ND	Maximum 10
Flow Analysis	**Daily Max**	**Hourly Max**	**5 minute Max**	**Monthly Average**
Effluent Flow	17.3	26.2	27.5	10.6
Influent Flow	18.2	34.3	37.8	12.2
# Days Blended				0

* Monitoring Not Required This Month ND = None Detected X = Data not available at report time J = Detected by not Quantified

Glossary of Terms
NPDES Permit Compliance Summary Table

- **Ammonia**: CMSA's NPDES permit requires that we analyze the final effluent for ammonia due to its toxicity to aquatic organisms and potential for providing nutrients to algae in the San Francisco Bay. The permit has a maximum daily limit of 120 mg/L and a monthly average limit of 60 mg/L. The maximum daily limit is the number that cannot be exceeded on any sample and the monthly average applies to all samples collected in any month (although typically we are required to take only one sample).

- **Biochemical Oxygen Demand (BOD)**: The amount of dissolved oxygen needed by microorganisms (biomass) to stabilize organic material in the effluent. The permit limits for our effluent require that removal of 85% influent BOD, and meet a weekly average of less than 40 mg/L and a monthly average of less than 25 mg/L BOD.

- **Chlorine Residual:** The secondary effluent is disinfected with hypochlorite (chlorine "bleach"), and then the residual chlorine is neutralized with sodium bisulfite to protect the Bay environment. The final effluent chlorine residual limit is 0.0 mg/l, which is monitored continuously.

- **Bacteria:** Coliform and enterococcus bacteria are the indicator organisms for the determination of the effectiveness of the disinfection process.

- **Dioxin - Total Equivalents:** These are 17 dioxin-like compounds that we analyze for twice per year which have permit limits.

- **Oils and Grease:** We are required to monitor our effluent for Oils and Grease quarterly.

- **Flow Through Bioassay:** A 96-hour test in which we test the toxicity of our effluent to young rainbow trout (15-30 days old) in a flow-through tank to determine their survivability under continuous exposure to CMSA effluent. The permit requires that we maintain a 90^{th} percentile survival of at least 70% and an 11-sample median survival of at least 90%. In layman's terms, this means that out of the last 11 samples, only one bioassay may fall below 70% survival, and the middle value—when all 11 samples are placed in numerical order—must be at least 90%.

- **Metals Analysis:** Our permit requires that we analyze our effluent for many different metals on a monthly basis. We have permit limits for three of the metals. The limits are stated as a maximum daily limit and a monthly average limit.

- **pH:** pH is a measurement of acidity, with pH 7.0 being neutral and higher pH values being basic and lower pH values being acidic. Our permit effluent pH must stay within the range of 6.0 to 9.0, which we monitor continuously.

- **Total Suspended Solids (TSS):** Measurement of suspended solids in the effluent. Our permit requires that we remove at least 85% of the influent TSS and that the effluent limit is less than 45 mg/L as a weekly average and less than 30 mg/L as a monthly average.

Executive Summary Process Performance Data
December 2018

The removal efficiencies shown are based on the monthly average of the following treatment processes that were in service.

Primary Clarifier Performance

			Expected removal efficiencies as outlined in Metcalf & Eddy Wastewater Engineering Manual
Average Total Suspended Solids (TSS) in:	331.9	mg/l	
Average TSS out:	79.0	mg/l	
Average Percent Removal Achieved:	73.9	%	Design 50-70% Removal
Average Total Carbonaceous Biochemical Oxygen Demand (CBOD) in:	191.3	mg/l	
Average CBOD out:	112.7	mg/l	
Average Percent Removal Achieved:	41.0	%	Design 25-40% Removal
Average Plant Influent Flows:	12.2	MGD	

Biotower Performance

Average TSS out:	88.2	mg/l	
Average CBOD out:	65.0	mg/l	
Average Percent CBOD Removal Achieved:	44.1	%	Design 25-30% Removal

Aeration Tanks/Activated sludge

Dissolved Oxygen set point:	1.9	mg/l
Average MLSS:	1,230	mg/l
Average MCRT:	4.07	Days
Average SVI:	183	

Secondary Clarifiers

Average WAS concentration:	7,093	mg/l

Final Effluent

Average Effluent TSS for the month was:	5.4	mg/l	(Maximum Limit: 30mg/l)
Week #1 weekly average	3.7		(Maximum Limit: 45mg/l)
Week #2 weekly average	2.9		"
Week #3 weekly average	4.4		"
Week #4 weekly average	8.4		
Week #5 weekly average	6.3		"
Monthly average TSS removal efficiency through the plant was:	98.2	%	(Minimum Limit: 85%)
Average Effluent CBOD was:	4.3	mg/l	(Maximum Limit: 25mg/l)
Week #1 weekly average	3.7		(Maximum Limit: 40mg/l)
Week #2 weekly average	2.7		"
Week #3 weekly average	3.0		"
Week #4 weekly average	6.0		
Week #5 weekly average	5.7		"
Monthly average CBOD removal efficiency through the plant was:	97.6	%	(Minimum Limit: 85%)

Disinfection Dosing Rate:	4.2	mg/l	monthly average
Total Coliform Monthly Geometric Mean:	1.9	MPN	(Maximum 240)
The Daily Maximum Total Coliform Count for the month was:	5.9	MPN	(Maximum 10,000)
Enterococcus Quarterly Geometric Mean:	2.0	MPN	(Maximum 35 MPN)
Effluent pH for the month was: Min	6.8		(Min 6.0)
Max	7.5		(Max 9.0)

Digester Treatment

Average Thickened Waste Concentration from the RDT was:	6.4	%		
Average percent of Volatile Solids destroyed was:	84.5	%		
Cubic feet of biogas produced was:	9,554,550	(Total)	308,211	(Daily Average)
Average temperature of the digester was:	102.0	degrees Fahrenheit		

Executive Summary Process Performance Data
December 2018

The removal efficiencies shown are based on the monthly average of the following treatment processes that were in service.

Dewatering

Average Centrifuge Feed concentration was:	2.9	%
Average Biosolids concentration was:	26.6	%
Average TSS of the Centrate was:	195	mg/l
Solids capture of the Centrifuge was:	99.4	%
Polymer use per Dry ton of biosolids was:	10.79	#/dry ton
Average polymer feed rate per run was:	3.60	gpm
Average concentration of the polymer batches was:	0.328	%
Average sludge feed rate per run was:	57.9	gpm

Comments:

The treatment plant has been running well with final effluent being of very good quality.

Graph #1:

Depicts the total influent flow (from all collection agencies) entering the treatment plant.
The red graph line represents total influent flows; and the black graph line depicts the CMSA rain gauge recordings for the month.

Graph #2:

Depicts individual collection member agency flows.
The Y-axis is in the dry weather flow range of 0-20 MGD.

Graph #3:

Depicts the coliform most probable number (MPN) results which are an indication of the performance of the disinfection system.
The monthly Total Coliform Geometric Mean was 1.9 MPN through December, which is less than our KPI median of 30 MPN and permit limit of 240 MPN.

Graph #4:

Depicts the total suspended solids in the effluent.
Our monthly average was 5.4 mg/l versus our KPI of 15 mg/l and permit monthly average limit of 30 mg/l.

Graph #5:

Depicts the effluent CBOD which is measuring the oxygen demand of the wastewater.
The December effluent CBOD average was 4.3 mg/l, well below our NPDES limits of 40 mg/l weekly and 25 mg/l for the month.

Graph #6:

Depicts the degree to which the biosolids have been dewatered.
Our biosolids % concentration exceeded our KPI of 25% for the entire month of December.

Graph #7:

Depicts the amount of biogas that is produced in the digesters, and then used to produce electricity.
Biogas production in December averaged 308,211 cubic feet per day, which exceeded our monthly KPI of 200,000 cubic feet per day.

Graph #8:

This graph depicts the amount of energy produced through cogeneration versus the energy purchased from MCE for Agency operations.
The cogeneration engine was online for the entire month of December producing 95.0% of the facility's power needs. The engine was temporarily removed from service on December 17 as depicted on the graph.

Glossary of Terms
Process Performance Data Sheet

- **Aeration Tanks:** A biological process that takes place after the biotowers, where biomass (microorganisms) is mixed with the wastewater to feed on dissolved and suspended organic material. High speed blowers are used to provide compressed air to mix the tank contents.

- **Anaerobic Digesters:** In the anaerobic digestion process, organic material removed in the primary and secondary clarifiers is digested by anaerobic bacteria. The end products are methane, carbon dioxide, water, stabilized organic matter, and some inorganic material.

- **Biosolids:** Anaerobically digested solids that are removed from the two digesters, dewatered, and then beneficially reused. Beneficial reuse may include landfill alternate daily cover (ADC), land application in the summer as a soil amendment and fertilizer, or converted into a liquid fertilizer for agricultural applications.

- **Biotower:** A biological treatment process, occurring after the primary clarifiers and before the aeration tanks, in which the wastewater trickles over a biomass-covered media. The biomass feeds on the dissolved and suspended solids in the wastewater.

- **Centrifuge:** Process equipment used to dewater biosolids prior to beneficial reuse.

- **Cogeneration System:** A system comprised of a dual-fuel engine coupled to an electric generator that is used to produce energy to power the Agency facilities. Fuels the system uses are methane biogas produced in the anaerobic digesters and, when biogas is not available, purchased natural gas. As well as generating electricity, the system supplies heat for plant processes and building heating.

- **Chlorine Contact Tanks (CCTs):** The final treatment process is disinfection and de-chlorination. The CCTs allow contact time for injected chlorine solution to disinfect the wastewater. Sodium bisulfite, the de-chlorination chemical, is introduced at the end of the CCTs to neutralize any residual chlorine to protect the San Francisco Bay environment.

- **Rotary Drum Thickener (RDT):** Waste activated sludge removed from the secondary clarifiers is thickened in rotary drum thickeners before being transported to the anaerobic digesters. Thickening removes some of the sludge's water content, to decrease hydraulic loading to the digesters.

- **Final Effluent:** After all the treatment processes are completed, the final effluent is discharged into to central San Francisco Bay through a 10,000-foot-long deep-water outfall.

- **Mean Cell Residence Time (MCRT):** An expression of the average time that a microorganism will spend in the secondary treatment system.

- **Mixed Liquor Suspended Solids (MLSS):** The liquid in the aeration tanks is called MLSS and is a combination of water, solids, and microbes. Suspended solids in the MLSS measured in milligrams per liter (mg/l).

- **Most Probable Number (MPN):** Concentrations, or number of colonies, of total coliform bacteria are reported as the "most probable number." The MPN is not the absolute count of the bacteria but a statistical estimate of their concentration.

- **Polymer:** Polymer is added to digested sludge prior to dewatering to improve solids coagulation and water separation.

- **Primary Clarifier:** A physical (as opposed to biological) treatment process where solids that settle or float are removed and sent to the digesters for further processing.

- **Return Activated Sludge (RAS):** The purpose of returning activated sludge (biomass) to the aeration tanks is to maintain a sufficient concentration of microbes to consume the wastewater's dissolved solids.

- **Secondary Clarifiers:** Provides settling for the biomass after aeration. Most of the settled biomass is returned to the aeration tank as return activated sludge (RAS) and some is sent to the RDT unit as waste activated sludge.

- **Sludge Volume Index (SVI):** This is a calculation used to indicate the settling ability of the biomass in the secondary clarifiers.

- **Thickened Waste Activated Sludge (TWAS):** Waste activated sludge is thickened in the RDTs, and then the TWAS product is pumped to the digester for processing.

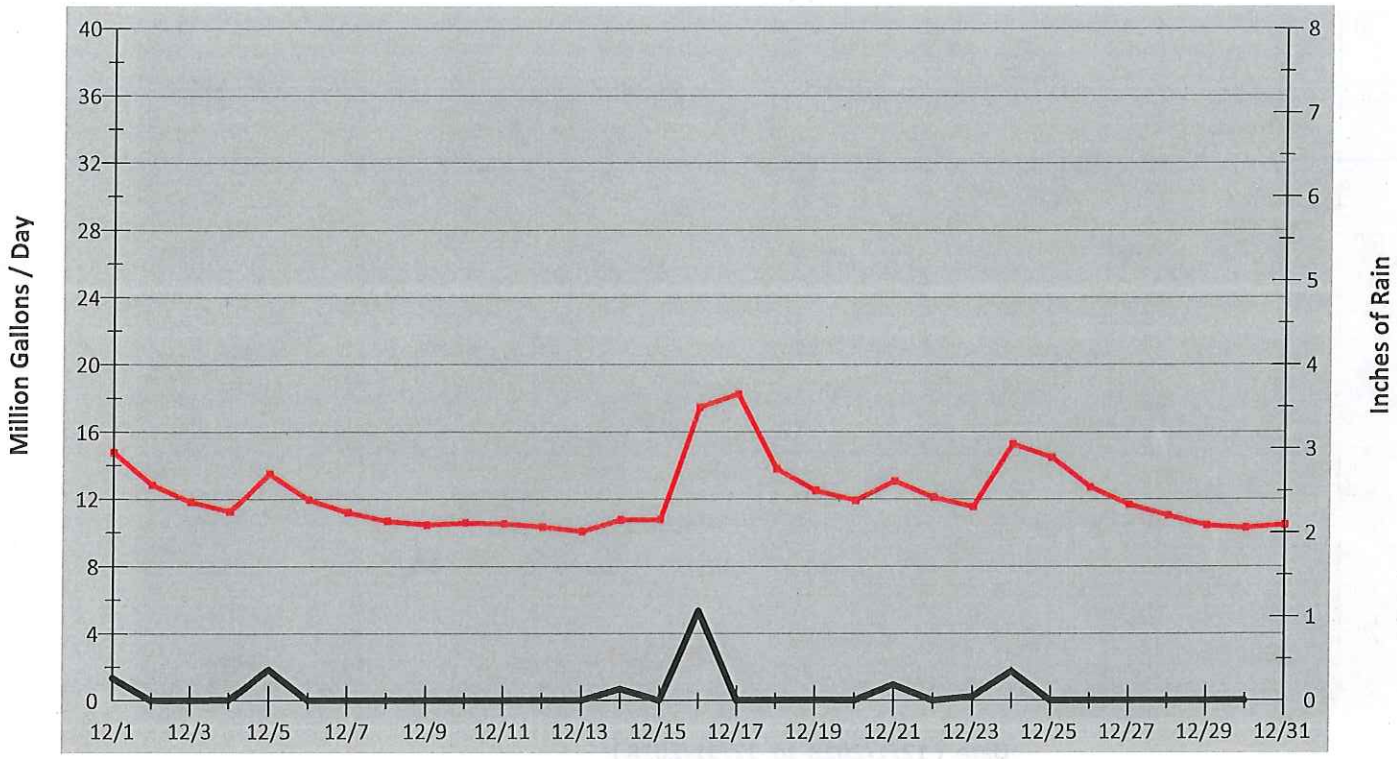
- **Volatile Solids:** Organic content of the wastewater suspended solids.

- **Waste Activated Sludge (WAS):** Biomass that is removed from the secondary clarifiers pumped to the RDTs for thickening.

Units of Measurement

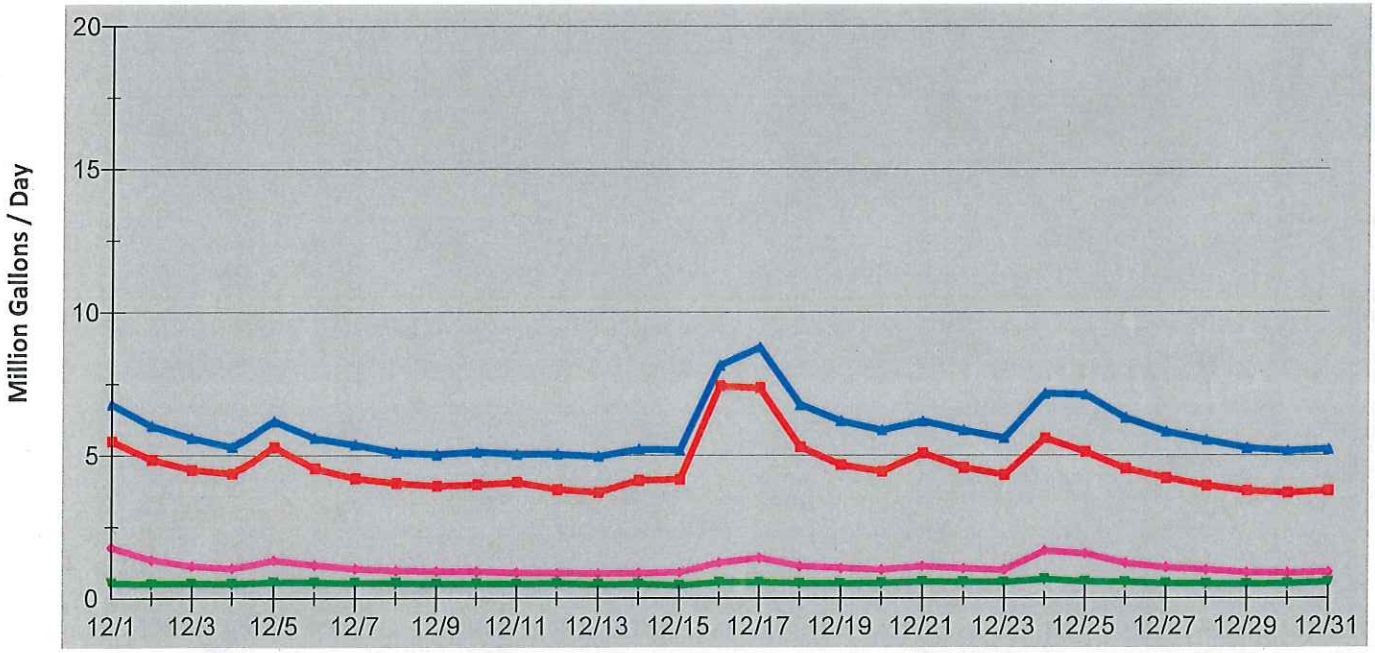
- kg/month (Kilograms per Month): 1 kilogram = 2.205 lbs.
- KPI (Key Performance Indicators): The Agency's process performance goals.
- Kwh (Kilowatt Hours): A unit of electric power equal to using 1 Kw for 1 hour.
- Milligrams per Liter (mg/L): A measure of the concentration by weight of a substance per unit volume. For practical purposes, one mg/L is equal to one part per million (ppm).
- MPN/100mL (Most Probable Number per 100 milliliters): Statistical estimate of a number per 100 milliliters of a given solution.
- Percent by Mass (% by mass): A measure of the combined mass of a solute + solvent.
- Percent by Volume (% by vol): A measure of the volume of a solution.
- ug/L (Micrograms per Liter of Solution): Mass per unit volume.

Graph #1: CMSA Influent Flow



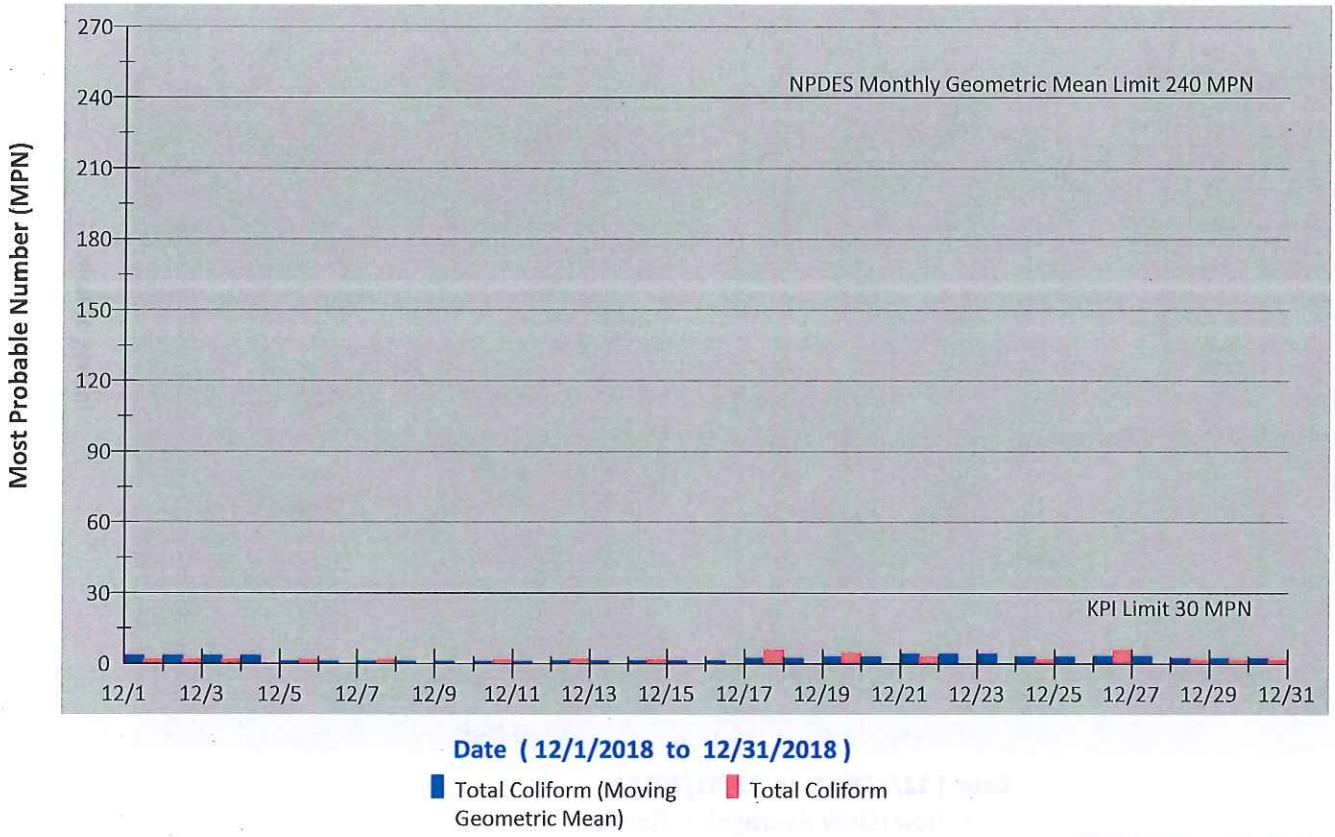
(#1) CMSA Influent Flow

Graph #2: Collection System Influent Flows



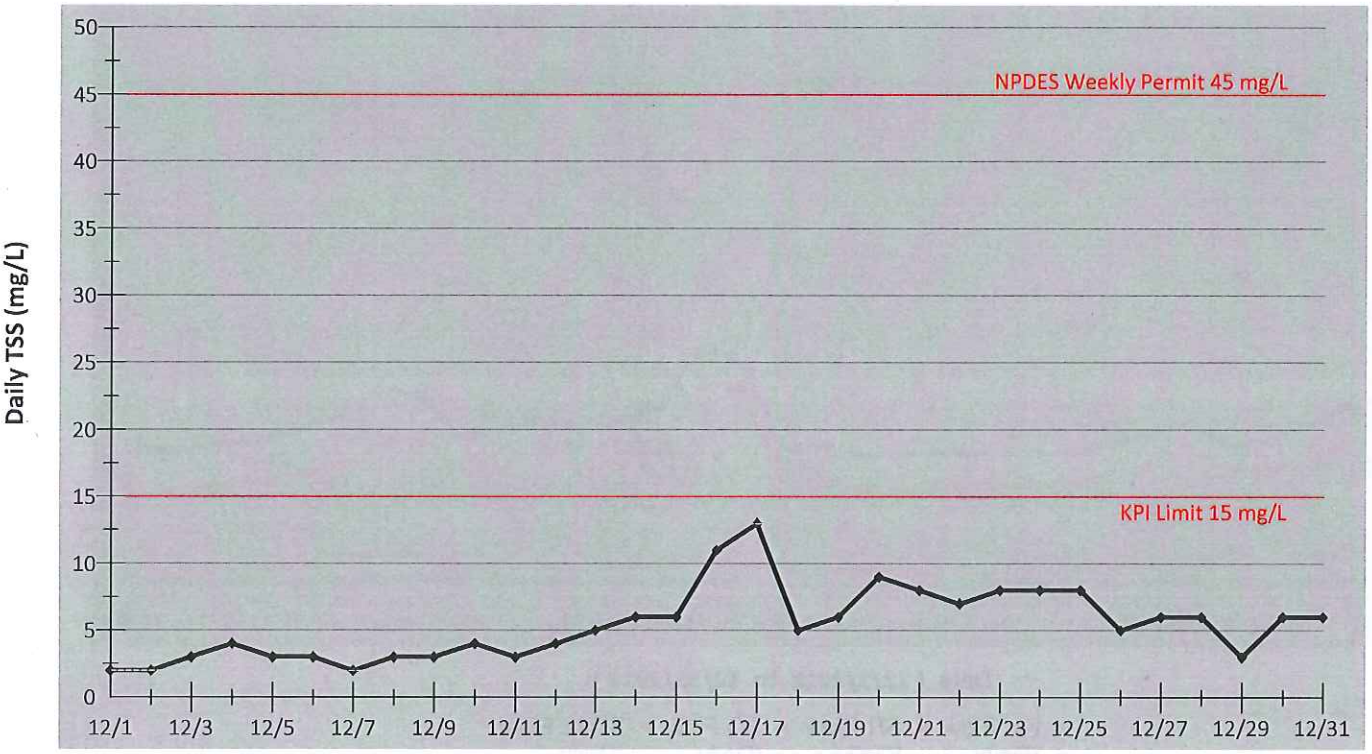
(#2) Collection System Influent Flows

Graph #3: Total Coliform & Monthly Geometric Mean



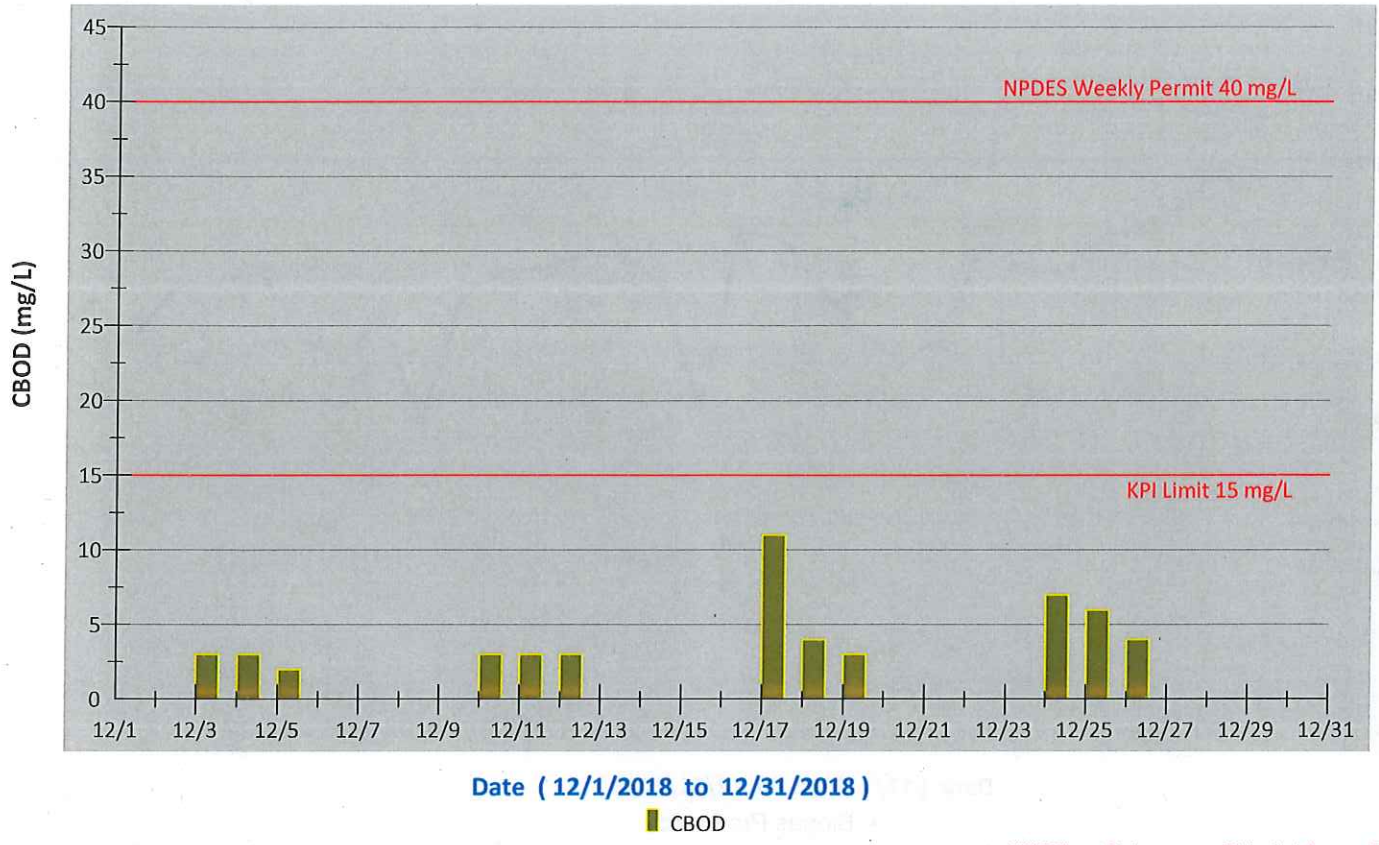
(#3) Total Coliform & Monthly Geometric Mean

Graph #4: Effluent Total Suspended Solids (TSS)



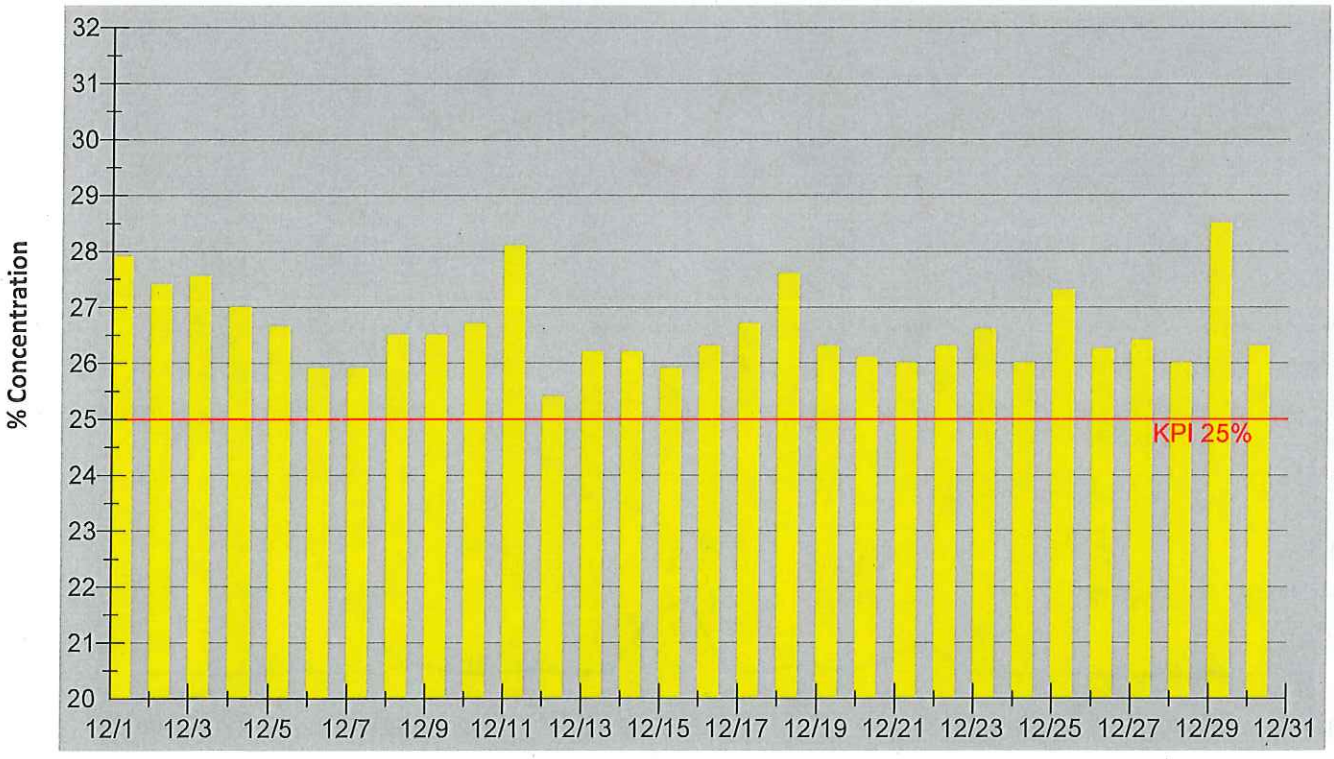
(#4) Effluent Total Suspended Solids (TSS)

Graph #5: Effluent Carbonaceous Biological Oxygen Demand (CBOD)



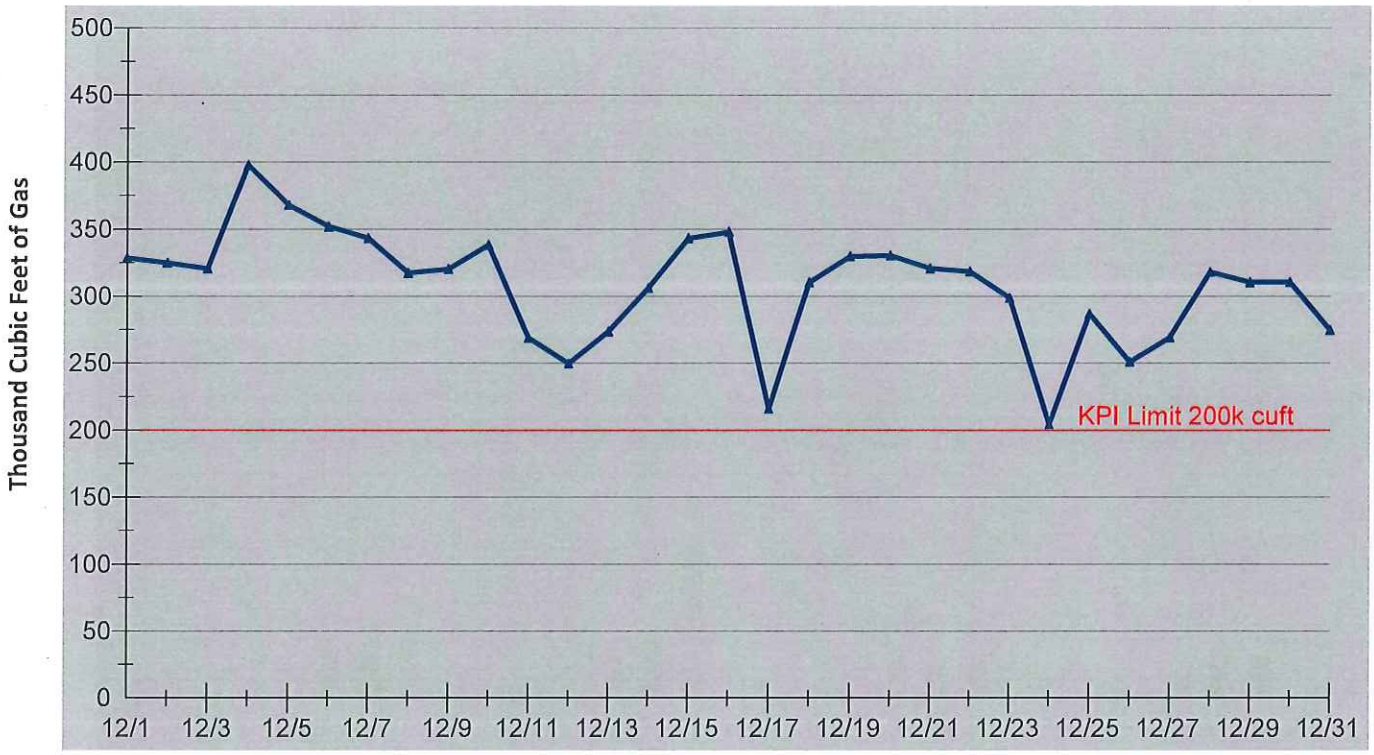
(#5) Effluent Carbonaceous Biological Oxygen Demand (C

Graph #6: Biosolids Concentration



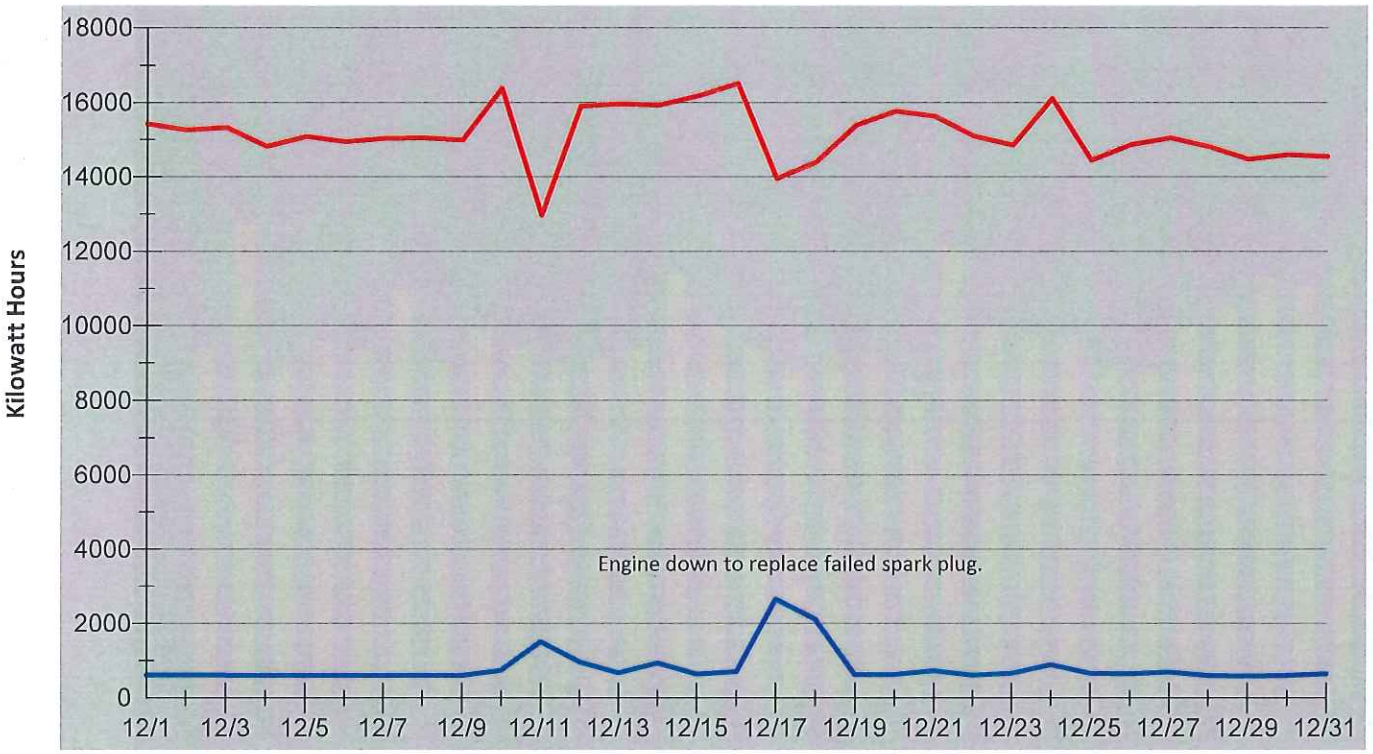
(#6) Biosolids Concentration

Graph #7: Biogas Production



(#7) Biogas Production

Graph #8: Kilowatt Hours Purchased vs. Kilowatts Produced



(#8) Kilowatt Hours Purchased vs. Kilowatts Produced

Central Marin Sanitation Agency

BOARD MEMORANDUM

January 4, 2019

To: CMSA Commissioners and Alternates

From: Jason Dow, General Manager

Subject: Performance Metric Report – December 2018

Recommendation: Accept the December 2018 Performance Metric report.

Performance Summary: The Agency's performance in operations and maintenance activities, regulatory and environmental compliance, and public education and outreach met or exceeded our metric goals/targets. Noteworthy metrics or variances are described below.

Table I – Treatment/Process Metrics

Treatment processes were placed in and taken out of service over the month to accommodate changing influent flows, and final effluent quality was exceptional. Biogas generation exceeded the upper end of our target range (Item 5), due to increased FOG deliveries, and the cogeneration system provided 93% of the Agency's power demand.

Since October, the unit cost of supplied natural gas has increase 30%. Fortunately, the cogeneration system hasn't used much natural gas since then to supplement the biogas fuel. A result of the natural gas cost increase is a higher biogas value metric (Item 6), well outside our target range.

Table II – Employee Metrics

Employees involved with the Agency's asset management program received specialized training from GHD as part of the Asset Management Program Evaluation project. Specific staff from various departments received training on the underground storage tank fueling system, and laboratory staff attended ELAP TNI training seminars. The annual CalPELRA labor relations, employment law, and human resources training conference was attended by the General Manager, General Counsel, and department managers.

Table III - Environmental and Regulatory Compliance Metrics

There weren't any NPDES permit exceedances in December or for the year, making CMSA eligible for a 2018 NACWA Peak Performance Gold Award.

Regulatory reports were submitted on schedule to the EPA and State Water Board.

A new Environmental Services Analyst, Eromosele Esoimeme, started work on 12/17 and is being trained on the Agency's source control programs. With the long time vacancy filled, we anticipate increasing our source control inspections and follow-up activities in 2019.

Table IV - Public Outreach

There were three odor alerts posted to the website in November, and the Agency did not receive any public odor complaints during the month. Alerts were posted for taking process tanks out of service after the storm events, as influent flows subsided.

Monthly public education events may include staff attendance at public outreach events, school classroom and/or juggler show presentations, and Agency tours. Events over the past month are presented below with the event date and number of attendees.

Public Outreach Events: None in December.

School Events – Juggler Show Presentation

Date	School	Attendees
12/12	Coleman Elementary in San Rafael	300
12/19	Meadow Park School in Novato	255

CMSA Tours

Date	Group	Attendees
12/6	General pubic tour group	5

Attachment:

- December 2018 Performance Metric Report

CMSA CY18 PERFORMANCE METRICS – December 2018

TABLE I - TREATMENT/PROCESS METRICS

Metric	Definition	Measurement	Range/Target/Goal
1) Wastewater Treated	Volume of wastewater influent treated and disposed, in million gallons (Mg)	379.0 Mg	165 – 820 Mg
2) Biosolids Reuse	Alternate Daily Cover (ADC) at the Redwood Landfill, in wet tons (wt) Fertilizer and soil amendment at land application sites, in wet tons (wt) Bio-Fertilizer production at the Lystek facility, in wet tons (wt)	437.5 wt 0 wt 157.5 wt	360 – 665 wt
3) Conventional Pollutant Removal	Removal of the conventional NPDES pollutants - Total Suspended Solids (TSS) and Carbonaceous Biological Oxygen Demand (cBOD) a. tons of TSS removed; % TSS removal b. tons of organics removed (cBOD); % cBOD removal	 532.9 tons; 98.2% 306.5 tons; 97.6%	 > 85% > 85%
4) Priority Pollutants Removal	Diversion of priority NPDES metals from discharge to the S.F. Bay: a. % Mercury b. % Copper	 97.8% 92.0%	 88 – 99% 84 – 98%
5) Biogas Production	Biogas generated in our anaerobic digesters, in million cubic feet (Mft^3) Natural gas (methane) equivalent of the biogas, in million cubic feet (Mft^3)	9.55 Mft^3 6.11 Mft^3	6.0 to 9.5 Mft^3 3.8 to 6.1 Mft^3
6) Energy Produced	Energy produced from cogeneration of generated biogas and purchased natural gas - in kilowatt hours Cogeneration system runtime on biogas *, in hours (hrs.); % time during month* Biogas value (natural gas cost equivalent)	469,961 kWh 693 hrs; 93.0% $40,307	380 to 480,000 kWh 540 hrs.; 75% $15,000 to $30,000
7) Efficiency	The cost to operate and maintain the treatment plant per million gallons of wastewater treated, in dollars per million gallons Energy used, kilowatt hours, per million gallons treated	$949/Mg 1,307 kWh/Mg	$451-$1,830/Mg (wet - dry) 670 - 2,400 kWh/Mg

Table II – EMPLOYEE METRICS

Metric	Definition	Measurement	Target/Goal
1) Employee Training	Hours of internal training – safety, web-based, project, vendor, etc. Hours of external training – employment law, technical, regulatory, etc.	Internal = 138 External = 132	variable
2) Work Orders	Preventative maintenance (PM) labor hours Planned corrective maintenance (CM) labor hours; % of CM+UCM hrs. Unplanned corrective maintenance (UCM) labor hours; % of CM+PM hrs. Ratio of PM to total corrective maintenance (CM + UCM);	199 hrs 387 hrs (93.0%) 29.5 hrs (13.0%) 0.48	300 – 500 hrs ≥ 70% total CM hrs ≤ 30% total hours ≥ 0.45
3) Overtime Worked	Monthly hours of OT worked; *Year to date hours of OT (YTD)* % of regular hours worked; *% Year to date (YTD)*	176.5 hrs; *(1,515 hrs)* 2.7%; (1.8*%)*	< 5%

CMSA CY18 PERFORMANCE METRICS – December 2018

Table III - ENVIRONMENTAL AND REGULATORY COMPLIANCE METRICS

Metric	Definition	Measurement	Range/Target/Goal
1) Permit Exceedances	# of NPDES permit exceedances	0	0
2) Regulatory Analyses	# of analyses by the CMSA laboratory for NPDES, Stormwater, and Biosolids regulatory compliance monitoring and reporting	622	150-750
3) Process Control Analyses	# of analyses by the CMSA laboratory for process control monitoring	802	400-1,250
4) Contract Laboratory Analyses	# of analyses by contract laboratories for regulatory compliance reporting	28	0-50
5) Quality Control Testing	# of CMSA performed laboratory analyses for QA/QC purposes	184	100-300
6) Water Quality Sample Analyses	# of ammonia, coliform (total and fecal), enterococcus, and/or sulfide analyses performed for the CMSA member agencies (SSOs, etc.)	5	as-needed
7) Pollution Prevention Inspections	Inspections of industrial and commercial businesses in the Agency's pretreatment and pollution prevention programs and Novato Sanitary District's Mercury Reduction Program – 255 businesses regulated	63	variable
8) FOG Program Inspections	Inspections of food service establishments (FSEs) in the Almonte, TCSD, SD2, RVSD, SRSD, and LGVSD service areas – approx. 316 FSEs are regulated and 63 FSEs have waivers.	8	20 – 50
9) Permits Issued/Renewed	Permits issued for the pretreatment, pollution prevention, and FOG source control programs, and for groundwater discharge	1	variable

Table IV- PUBLIC OUTREACH

Metric	Definition	Measurement	Target/Goal
1) Public Education Events	Attendance at public education outreach events; # of booth visitors; *(YTD)*	0; *(2,572)*	3,500/year
2) School Events	Participation or sponsorship in school outreach events; attendees; *(YTD)*	555; (*3,095)*	variable
3) Agency Tours	Tours given to students and the public; # of people, *(YTD)*	5; *(337)*	variable
4) Odor Notifications	Number of odor alerts posted to the Agency website	3	1-10
5) Odor Complaints	Number of odor complaints received from the public	0	0

Central Marin Sanitation Agency

BOARD MEMORANDUM

January 4, 2019

To: CMSA Commissioners and Alternates

From: Jacky Wong, Assistant Engineer

Approved: Jason Dow, General Manager

Subject: Cogeneration System Design and Construction Project – Resolutions for Clean Water State Revolving Fund Financial Assistance Application

Recommendation: Adopt Resolutions Nos. 335 and 336 for the Clean Water State Revolving Fund financial assistance application package for the Cogeneration System Design and Construction Project.

Summary: At its December 2018 meeting, the Board adopted Resolution No. 333 authorizing the General Manager to sign a Clean Water State Revolving Fund (CWSRF) application package for financial assistance for the Cogeneration System Design and Construction Project (Project) through the CWSRF Green Project Reserve (GPR) Program. Staff also informed the Board that additional related CWSRF resolutions would be brought to the Board at its January 2019 meeting. The initial CWRSF application package was due on 12/31/18, and was successfully submitted on 12/28/18 for the Project amount of up to $10.07 million. As part of the application requirements, the following two additional resolutions are required:

1. The **"Reimbursement Resolution (No. 335)"** states that CMSA intends to reimburse any expenditures on the Project incurred prior to the approval by the State Water Board of the Project funds.
2. The **"Pledged Revenues and Fund(s) Resolution (No. 336)"** is to dedicate and pledge the Wastewater Enterprise Fund and Net Revenues thereof (except member receipts dedicated to repayment of 2015 revenue bonds) to payment of any CWSRF financing received for the Project.

Fiscal Impact: There is no immediate fiscal impact associated with adopting the attached resolutions. However, in the event that CMSA is awarded the requested CWSRF financial assistance and the CMSA Board authorizes staff to proceed with the Project utilizing the CWSRF financial assistance, CMSA would be dedicating and pledging the revenues and fund(s) for this Project.

Discussion: CMSA has an existing CWSRF GPR Loan Agreement (Agreement) for the Renewable Energy Expansion Program, and an amendment to that Agreement is currently being routed to

various State Water Board staff for review and approval. In the Agreement, funding is provided for the Project's CEQA work, air permitting assessment, evaluation of financing alternatives, and development of a project delivery schedule and predesign cost estimate. The amendment incorporates the Project's technology assessment and predesign level work into the Agreement. We anticipate that the amendment will be executed in February 2019.

The Agency's 10-year Capital Improvement Program has $4.3 million allocated for the Project from FY 19 through FY 22, to improve the Agency's cogeneration system reliability and efficiency. Excess power generated from increased biogas production will be sold to Marin Clean Energy through a new PG&E Interconnection Agreement.

Project design and construction funding is not eligible in the existing GPR Agreement, which is limited to planning level project related activities. Funding for design and construction is eligible through a separate GPR agreement and, as presented to the Board at its December 2018 meeting, staff successfully submitted an application for said funding prior to the 12/31/2018 deadline. The CWSRF has a fixed amount of funds available each year for the GPR program, and provides loans to agencies on a first-come-first-served basis with up to 50 percent of the actual GPR eligible costs or a maximum of $4 million as loan forgiveness. Staff anticipates receiving notification of the loan approval status for the Project by spring of 2019. If the loan is approved by the State, staff will return to the Board with a CWSRF Financing Agreement and amendments for consideration of adoption and execution.

As part of the loan application requirements, below are the resolutions that the Board will have to pass before the application is deemed fully complete:

- Resolution No. 333 is the **Authorizing Resolution** which was passed by the Board at its December 2018 meeting.
- Resolution No. 335 is the **Reimbursement Resolution** proposed to be passed at the January 2019 Board Meeting.
- Resolution No. 336 is the **Pledged Revenues and Fund(s) Resolution** proposed to be passed at the January 2019 Board Meeting.

Staff attached a copy of this Board Memorandum to the CWSRF application package submitted on 12/31/18. The final two resolutions, if passed in January 2019, will be amended to the application package.

It was previously anticipated that a separate Rate Adoption Resolution would also be required to be passed by the Board. However, staff has learned that the Board-adopted Multi-Year Revenue Plan will satisfy this application requirement and a separate Rate Adoption Resolution will not be required.

The wording of the two resolutions is advised to remain the same as the template provided by the CWSRF.

Attachments: CMSA Resolutions No. 335 and No.336

CMSA Resolution No. 335

Reimbursement Resolution for the Cogeneration System Design and Construction Project

WHEREAS, the Central Marin Sanitation Agency (the "Agency") desires to finance the costs of constructing the Cogeneration System Design and Construction Project (the "Project"); and

WHEREAS, the Agency intends to finance the construction and/or reconstruction of the Project or portions of the Project with moneys ("Project Funds") provided by the State of California, acting by and through the State Water Resources Control Board (State Water Board); and

WHEREAS, the State Water Board may fund the Project Funds with proceeds from the sale of obligations the interest upon which is excluded from gross income for federal income tax purposes (the "Obligations"), and

WHEREAS, prior to either the issuance of the Obligations or the approval by the State Water Board of the Project Funds the Agency desires to incur certain capital expenditures (the "Expenditures") with respect to the Project from available moneys of the Agency; and

WHEREAS, the Agency has determined that those moneys to be advanced on and after the date hereof to pay the Expenditures are available only for a temporary period and it is necessary to reimburse the Agency for the expenditures from the proceeds of the Obligations.

NOW, THEREFORE, THE AGENCY DOES HEREBY RESOLVE, ORDER AND DETERMINE AS FOLLOWS:

SECTION 1. The Agency hereby states its intention and reasonably expects to reimburse Expenditures paid prior to the issuance of the Obligations or the approval by the State Water Board of the Project Funds.

SECTION 2. The reasonably expected maximum principal amount of the Project Funds is $10,007,000.

SECTION 3. This resolution is being adopted no later than 60 days after the date on which the Agency will expend moneys for the construction portion of the Project costs to be reimbursed with Project Funds.

SECTION 4. Each Agency expenditure will be of a type properly chargeable to a capital account under general federal income tax principles.

SECTION 5. To the best of our knowledge, this Agency is not aware of the previous adoption of official intents by the Agency that have been made as a matter of course for the purpose of reimbursing expenditures and for which tax-exempt obligations have not been issued.

SECTION 6. This resolution is adopted as official intent of the Agency in order to comply with Treasury Regulation §1.150-2 and any other regulations of the Internal Revenue Service relating to the qualification for reimbursement of Project costs.

SECTION 7. All the recitals in this Resolution are true and correct and this Agency so finds, determines and represents.

CERTIFICATION

I do hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the Board of Commissioners held on January 8, 2019.

AYES:

NAYS:

ABSTAIN:

ABSENT:

_____
Dean DiGiovanni, Commission Chair

ATTEST:

By_____
Michael Boorstein, Commission Vice Chair

ATTACHMENT

CMSA Resolution No. 336

Pledged Revenues and Fund(s) Resolution for the Cogeneration System Design and Construction Project

WHEREAS the Central Marin Sanitation Agency (the "Entity") has established the SRF Contingency Reserve fund for the repayment of the Clean Water Revolving Fund financial assistance per the Entity's policy; and

WHEREAS the Board of Commissioners of the Entity approved the Capital Improvement Program that identified the Cogeneration System Design and Construction Project.

THEREFORE BE IT RESOLVED, the Entity hereby dedicates and pledges net revenues of Wastewater Enterprise Fund to payment of any and all Clean Water State Revolving Fund and/or Water Recycling Funding Program financing for the Cogeneration System Design and Construction Project (the "Project"). The Entity commits to collecting such revenues and maintaining such fund(s) throughout the term of such financing and until the Entity has satisfied its repayment obligation thereunder unless modification or change is approved in writing by the State Water Resources Control Board. So long as the financing agreement(s) are outstanding, the Entity's pledge hereunder shall constitute a lien in favor of the State Water Resources Control Board on the foregoing fund(s) and revenue(s) without any further action necessary. So long as the financing agreement(s) are outstanding, the Entity commits to maintaining the fund(s) and revenue(s) at levels sufficient to meet its obligations under the financing agreement(s).

CERTIFICATION

I do hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the Board of Commissioners held on January 8, 2019.

AYES:

NAYS:

ABSTAIN:

ABSENT:

_____
Dean DiGiovanni, Commission Chair

ATTEST:

By_____
Michael Boorstein, Commission Vice Chair

Central Marin Sanitation Agency

BOARD MEMORANDUM

January 4, 2019

To: CMSA Commissioners and Alternates

From: Jacky Wong, Assistant Engineer

Approved: Jason Dow, General Manager

Subject: Natural Gas Services Agreement Renewal

Recommendation: Authorize the General Manager to execute a renewed five-year Natural Gas Services Agreement with the School Project for Utility Rate Reduction (SPURR), and to make appropriate purchasing arrangements to best serve the Agency's interests.

Discussion: The current five-year Natural Gas Services Agreement (Agreement) with SPURR took effect on July 1, 2014 and will expire on June 30, 2019. SPURR has been providing the Agency independent procurement services for the purchase of natural gas from multiple wholesale vendors, which saves staff time and results in lower natural gas purchasing costs. Due to the currently highly variable volumes of biogas production, it is in the Agency's best interest to contract with a natural gas supplier that is capable of delivering a wide range of volumes and offers several purchasing options.

After recently conducting a limited market survey of natural gas supply options, staff recommends contracting with SPURR as they have provided good service, appear to offer the lowest annual cost, and offer a wide range of purchasing options. Staff has been very satisfied with the level of service and responsiveness provided by SPURR. Starting the agreement renewal process in January will allow SPURR to obtain the best market pricing and enable them to offer the Agency the most competitive and flexible rate plan options.

SPURR offers fixed rates, monthly variable rates, and other natural gas purchasing options. For the past several years, CMSA has elected to purchase natural gas based on variable monthly rates. Fixed pricing would allow the Agency to elect to purchase a specific volume of natural gas at rate that is typically lower than the variable spot market rate. Once CMSA's biogas production volume stabilizes, it may be beneficial to consider purchasing a portion of the Agency's natural gas demand as a fixed price. Until then, CMSA would risk over-committing purchases of natural gas, which would require the Agency to resell the natural gas on the spot market, potentially at a loss.

.

Fiscal Impact: Based on recent SPURR natural gas prices and CMSA natural gas demand patterns, staff expects to spend approximately $30,000 per year on natural gas purchases.

Background: SPURR was established in 1989 and is a Joint Powers Authority (JPA) formed by member California public school districts, county offices of education, and community college districts. Other public agencies such as CMSA are allowed to participate in its purchasing programs without becoming a member of the JPA. SPURR accesses the wholesale natural gas market on behalf of their membership to aggregate market power and expertise. This allows SPURR to have a much higher purchasing level than any one JPA member could achieve on its own.

CMSA operates a reciprocating internal combustion cogeneration engine to provide up to 750 kilowatts of electricity. The engine is a dual-fuel engine utilizing either biogas or natural gas, and runs continuously except for scheduled maintenance shutdowns. Because of the cogeneration engine size, CMSA is categorized as a non-core PG&E customer. Since the Agency began operation of the Organic Waste Receiving Facility in early 2014, the Agency's biogas production has increased and, correspondingly, the Agency's natural gas demand has decreased. Historically, the Agency's average natural gas consumption was approximately 30,000 therms per month. Last year, average natural gas consumption decreased to approximately 5,000 therms per month.

As a result of its non-core status, CMSA is required to purchase natural gas from independent suppliers and use PG&E solely for gas transportation purposes. Staff recently conducted a limited market survey of two other non-profit organizations supplying natural gas - State of California General Services Natural Gas Program and the Association of Bay Area Governments (ABAG). Private natural gas suppliers were not surveyed this time as they had been surveyed in the past and were not found to offer pricing advantages. The State program was designed primarily for customers that use significantly more natural gas than CMSA, and ABAG requires a formal membership into their JPA without any apparent pricing or purchasing flexibility advantages. Therefore staff recommends executing the renewed five-year service agreement with SPURR.

Alignment with Strategic and Business Plan: This activity supports Goal 1 in the Agency's FY19 Business Plan as shown below.

Goal One: *CMSA will continue to operate and maintain its wastewater facility to produce high quality effluent and biosolids, with a changing regulatory environment.*

Attachment:
- SPURR Agreement for Natural Gas Services

SPURR
School Project for Utility Rate Reduction

RENEWAL AGREEMENT FOR NATURAL GAS SERVICES
-- COVER PAGE --

Participant:	**Central Marin Sanitation Agency**	**School Project for Utility Rate Reduction ("SPURR")**
Formal Contact for Notice:	Name: Jacky Wong Title: Assistant Engineer	Michael Rochman Managing Director
Formal Contact Mailing Address:	1301 Andersen Drive San Rafael, CA 94901	1850 Gateway Blvd Suite 235 Concord, CA 94520
Formal Contact Phone, Fax, and E-mail:	Phone (415) 459-1455 Ext: 130 Fax: (415) 459-3971 E-mail: Jwong@cmsa.us	Phone: 925-743-1292 Fax: 925-743-1014 E-mail: RochmanM@spurr.org
Operational Contact Information:	Name: Chris Finton Title: Treatment Plant Manager Phone: (415) 459-1455 Ext: 101 Email: cfinton@cmsa.us	Customer Service Phone: (888) 400-2455
Billing Contact Information:	For Billing to Participant: Billing Contact: Ahn Ta Phone: (415) 459-1455 Ext: 123 Email: ata@cmsa.us	For payment to SPURR PO Box 45526 San Francisco, CA 94145-0526 Phone: (888) 400-2455

Effective Date: July 1, 2019 Termination Date: June 30, 2024

SPURR, a California joint powers authority, will exercise natural gas procurement authority and will provide professional services for Participant under the attached General Terms and Conditions (September 1, 2018 revision), which are incorporated by this reference.

In witness whereof, the parties enter into this Agreement as of the Effective Date.

Participant:
Central Marin Sanitation Agency
By: _____
Print Name: _____
Title: _____
Signature Date: _____

SPURR: School Project for Utility Rate Reduction, a California joint powers authority
By: _____
Michael Rochman
Managing Director
Signature Date: _____

Please send signed agreement to SPURR by scan and email to info@spurr.org or by US Mail to the Concord address shown above. SPURR will return countersigned agreement to Participant for its files.

RENEWAL AGREEMENT FOR NATURAL GAS SERVICES
-- GENERAL TERMS AND CONDITIONS --

BACKGROUND

A. SPURR is a California joint powers authority, whose members are California public K-12 school districts, community college districts, and county offices of education.

B. SPURR operates an aggregated natural gas acquisition program (the "Gas Program") for its members, other public agencies, and non-profit educational institutions in California.

C. Participant wishes to participate in the Gas Program. Natural gas will be delivered to Participant's facilities by the local natural gas distribution utility ("Utility").

D. These General Terms and Conditions are part of the Agreement for Natural Gas between SPURR and Participant (this "Agreement").

E. The following information is provided in the cover sheet attached to this Agreement (the "Cover Sheet"):

i. Participant's identity and addresses for notice, operations and billing.

ii. The Effective Date and Termination Date of this Agreement, subject to earlier termination pursuant to section 15 (Term and Termination) of this Agreement.

F. The account list attached to this Agreement (the "Account List") identifies Participant's natural gas accounts (the "Accounts") in the Gas Program, including the Utility's identification number, street address, city, and postal code for each Account.

AGREEMENT

For good and valuable consideration, the parties to this Agreement agree as follows:

1. Full Requirements Supply. Participant will purchase its full natural gas requirements for all of the Accounts exclusively through the Gas Program during the term of this Agreement. Accounts may be added to this Agreement at any time by agreement of the parties. Accounts may be deleted from this Agreement only if Participant ceases to operate the facility served by that Account.

2. Deliveries. SPURR will deliver natural gas supplied under this Agreement (the "Natural Gas") to one or more pipeline interconnections where Utility receives natural gas for service to Utility's natural gas market (the "Delivery Points"). The Natural Gas will be measured in accordance with procedures established by Utility at the Delivery Points. SPURR warrants good title to the Natural Gas upon delivery to the Delivery Points. Title and risk of loss for the Natural Gas will transfer from SPURR to Utility on behalf of Participant at the Delivery Points. Participant is responsible for Utility transportation services from the Delivery Points to Participant's facilities. Participant is responsible for all taxes, fees, levies, penalties, licenses or charges imposed by any government authority ("Taxes") on or with respect to the Natural Gas at the Delivery Points and after the Delivery Points.

3. Authorization. Participant hereby authorizes SPURR (a) to act on behalf of Participant to obtain natural gas under applicable Utility tariffs to (b) complete and deliver on behalf of Participant all documents or instruments reasonably necessary to carry out the purposes of this Agreement and (c) to obtain historical information related to the Accounts from the Utility or from any third party acting on behalf of Utility or Participant.

4. Gas Supply Services. SPURR will provide the following services (the "Services") under the Gas Program with respect to the Accounts:

a. Provide Natural Gas supply service, either "core" or "noncore" as applicable, in accordance with Utility's tariffs, regulations of the California Public Utilities Commission (the "CPUC"), other applicable law or regulation, and any code of conduct adopted by the SPURR Board from time to time.

b. Develop and implement, directly or indirectly, all functions necessary for Natural Gas supply service, including negotiation of prices with wholesale suppliers, transportation to the Delivery Points, scheduling and balancing to the Delivery Points, acquisition and usage of storage, and all related operational transactions.

c. Procure supplies in accordance with applicable law and regulation.

d. Execute and deliver necessary documentation to Utility on behalf of Participant, based upon information to be provided by Participant.

e. Deliver Natural Gas which meets or exceeds the quality, temperature and pressure requirements of Utility at the Delivery Points.

5. Additional Services. Under the Gas Program, SPURR will provide the following additional services (the "Additional Services"), to the extent directed by the SPURR Board of Directors:

a. Provide information to Participants regarding operations and costs under the Gas Program, including periodic updates delivered in electronic form or on paper.

b. Provide information to Participants regarding natural gas market issues and related Utility services and tariffs.

c. Develop and present to Participant for consideration programs designed to reduce or control costs for natural gas or other utilities services, or to provide additional value related to those services.

d. Represent the interests of SPURR constituents as consumers of natural gas and other utility services before the CPUC, the California Legislature, and other governmental or regulatory authorities, or in other legal proceedings.

6. Account Identification. Participant is responsible for identifying the Accounts covered under this Agreement. If SPURR provides a draft Account List, Participant will review and correct the draft as necessary. Participant will notify SPURR of any changes in the Account List within thirty (30) days of such changes.

7. Provisions Specific to Noncore Accounts. For any noncore Account, Participant will do each of the following:

a. Notify SPURR of any change in Participant's operations which may increase or decrease the consumption of natural gas by ten percent (10%) or more as compared to historical levels or to Participant's projected levels provided to SPURR. Participant will provide notice as soon as it is aware of the change(s), in advance where possible, and in each case not two (2) days after the change for any noncore Accounts. Examples of operational changes include addition or deletion of significant facilities or equipment served through an Account, major changes in hours of operation of a facility, scheduled or unscheduled shutdowns of facilities or equipment and renovation of facilities or equipment. Participant shall be responsible for any costs incurred by SPURR as a result of any failure to advise SPURR of operational changes.

b. Provide SPURR with good faith estimates of monthly consumption for the 12 months following the Effective Date.

8. Administrative Fees. As consideration for the Services and the Additional Services, Participant will pay fees to SPURR (the "Administrative Fees"). The amount of the Administrative Fees will be established by the SPURR Board on an annual basis, in accordance with the SPURR JPA Agreement. The Administrative Fees will be based on volumes consumed by Participant. The Administrative Fees will be subject to annual audit, as part of the annual financial audit of SPURR. A copy of the completed annual SPURR financial audit will be delivered to Participant at any time upon request.

9. Invoicing and Payment. Participant shall pay SPURR for Natural Gas in accordance with monthly invoices rendered by SPURR in commercially reasonable detail. SPURR shall provide Participant with summary invoices for all of its core Accounts or, if requested by Participant, with "cost center" invoices for sets of core Accounts.

10. Rates. The default rates for of Natural Gas charged to Participant under this Agreement will include Participant's pro rata share of all costs, expenses, and charges arising from acquisition, possession, and delivery of the Natural Gas under the Gas Program, the Administrative Fees, applicable Taxes, and any necessary, documented adjustments. SPURR will provide notice of rates and rate plans, including default rate plans, to the extent customary under the Gas Program. Specific arrangements other than default rate plans may be negotiated by the parties and documented as separate confirmations.

11. Late Payment. Invoices shall be due upon presentment and will be past due thirty (30) days after the invoice date. Late payment charges may be imposed by SPURR at a rate equal to one and one-half percent (1.5%) per month on all outstanding balances. SPURR may also bill Participant for reasonable charges associated with costs of collection on past due accounts as well as reasonable charges associated with suspension and resumption of service under this Agreement. Payments not received within sixty (60) days from the invoice date are subject to journal voucher transfer by Participant's county office of education or county superintendent of schools.

12. Collection of Utility's Transportation Charges. As a convenience to Participant, SPURR will accept from Utility invoices for Utility's transportation charges (including any applicable Taxes) for Participant's core Accounts. SPURR will pay Utility as invoiced and will include such charges in SPURR's invoices to Participant. Utility transportation charges will be passed through to Utility upon collection by SPURR. SPURR reserves the right to cease collecting Utility's transportation charges, upon sixty (60) days notice to Participant. SPURR will not collect Utility transportation charges for noncore Accounts except pursuant to express agreement between the parties.

13. Escrow Account. SPURR has established an escrow account for Gas Program receipts and payments. The instructions for this escrow account have been approved by the Board of Directors of SPURR, and include a list of the authorized recipients of payments from the account. Only SPURR management may authorize release of funds from the escrow account.

14. Indemnification. Each party will indemnify and hold harmless the other party, together with their respective board members, officers, directors, employees, agents, and representatives, from and against all claims, damages, losses and expenses (including reasonable attorney's fees), but exclusive of consequential damages, arising out of or resulting from (a) any action or inaction related to the Natural Gas during the period when title to the Natural Gas is vested in the indemnifying party or (b) any breach of a covenant, representation or warranty under this Agreement by the indemnifying party. As a condition of its indemnification obligations, the indemnifying party must receive prompt notice of the indemnified claim and must have the right to control the investigation, defense, and settlement of such claim.

15. Term and Termination.

a. Service Start Date. Service under this Agreement will commence for each Account on the earliest practicable date on or after the Effective Date on which Utility recognizes SPURR or its nominee as providing gas to an Account.

b. Scheduled Termination. Subject to earlier termination as provided below, this Agreement will terminate on the Termination Date.

c. Early Termination by Participant. Participant may terminate this Agreement, for any or all Accounts, effective on June 30 of any year by giving

SPURR notice of such termination on or before March 1 of that year.

d. Early Termination By SPURR. SPURR may terminate this Agreement (i) upon thirty (30) days notice to Participant if Participant has failed to comply with any material obligations under this Agreement, including the failure to pay amounts owed to SPURR, (ii) effective on June 30 of any year by giving Participant notice of termination on or before March 1 of that year, or (iii) upon enactment or implementation by the CPUC or other governmental or regulatory authority, or by Utility, of a law, regulation, rule, or practice which conflicts with sound business practices, imposes significant unanticipated risk on either party to this Agreement, or substantially prevents either party from performing its obligations under this Agreement (other than the obligation of Participant to make payments, if any, due to SPURR), upon sixty (60) days notice to Participant, which notice shall specifically identify the regulation, rule, or practice,

e. Surviving Obligations. **Notwithstanding any other provision of this Agreement,** (i) termination of this Agreement will not terminate the obligations of either party arising before the effective date of termination, including any pricing arrangements specifically entered into by the parties, (ii) Participant will pay SPURR for Natural Gas or services, if any, delivered by SPURR and received by Participant at any time, even if after the date of termination, and (iii) if Participant terminates this Agreement before the Termination Date and does not provide Notice of such early termination as prescribed above, Participant shall pay SPURR the commercially reasonable costs and expenses, including administrative overhead, attributable to liquidating forward Natural Gas supply purchases or other arrangements entered by SPURR in reliance on Participant's presence in the Gas Program.

16. Force Majeure. Except for Participant's obligation to make payments to SPURR when due, if either party is delayed, interrupted or prevented from performing any of its obligations under this Agreement, and such delay, interruption or prevention is due to acts of God, governmental act or failure to act, labor dispute, war, riot, civil disturbance, fire, earthquake, landslide, lightening, storm, flood, explosion, unavailability of materials, or any other cause outside the reasonable control of the party claiming suspension, and which, by the exercise of due diligence, that party is unable to prevent or overcome, then the time for performance of the affected obligations will be suspended during the continuance of the effects of the cause. The party whose performance is prevented by Force Majeure must provide Notice to the other party. Initial Notice may be given orally; however, written Notice with reasonably full particulars of the event or occurrence is required as soon as reasonably possible.

17. Representations. Each party represents and warrants to the other that it has the power and is authorized to enter into this Agreement. Participant represents and warrants to SPURR that, as of the Effective Date, the Accounts are subject to any other natural gas aggregation or supply agreement.

18. Further Assurances. The parties will perform such further actions, including execution and delivery of other documents or instruments, as may be necessary or desirable to carry out the purposes of this Agreement.

19. Complete Agreement. This Agreement contains the complete agreement of the parties with respect to its subject matter and supersedes any other agreements between the parties as to that subject matter. This Agreement may be amended only by a writing signed by the parties.

20. Severability. If any term of this Agreement is held by a court of competent jurisdiction to be unenforceable, the remainder of this Agreement will not be affected and will be enforceable to the fullest extent permitted by law.

21. Successors and Assigns. This Agreement is binding on the successors and assigns of the parties.

22. Notices. All, invoices, payments and other communications made pursuant to this Agreement ("Notices") shall be in **writing** and delivered to the addresses specified in writing by the respective parties from time to time. All Notices may be sent by facsimile or mutually acceptable electronic means, a nationally recognized courier service, or hand delivered Notice shall be given when received on a business day by the addressee. In the absence of proof of the actual receipt date, the following presumptions will apply. Notices sent by facsimile shall be deemed to have been received upon the sending party's receipt of its facsimile machine's confirmation of successful transmission. If the day on which such facsimile is received is not a business day or is after 4:00 PM PT on a business day, then such facsimile shall be deemed to have been received on the next following business day. Notice by courier shall be deemed to have been received on the next business day after delivery was confirmed by courier to the sending party.

23. PG&E Required Text. For accounts on the PG&E system, Participant (a) authorizes SPURR to act on Participant's behalf to obtain natural gas under PG&E's tariffs for Core Aggregation Service or noncore service, as applicable, (b) understands that Participant remains responsible for payment of PG&E transportation charges, even if Participant authorizes PG&E to send transportation charges to SPURR, (c) understands that the CPUC does not regulate SPURR under Core Aggregation Service, (d) understands that SPURR is not an agent of PG&E and that PG&E is not liable for SPURR's acts or omissions, and (e) authorizes PG&E to provide SPURR with Participant's billing and payment information related to Natural Gas, including information regarding payment plans entered between PG&E and Participant.

PLEASE VERIFY THE ATTACHED ACCOUNT LIST INCLUDING ACCOUNT NUMBERS AND COMPLETE SITE ADDRESSES.

TO ADD ADDITIONAL ACCOUNTS, PLEASE FAX COPIES OF LATEST UTILITY BILLS TO SPURR AT 925-743-1014 OR EMAIL TO BILLING@SPURR.ORG.

Renewal Agreement for Natural Gas Services
--Account List--

Customer Name: **Central Marin Sanitation Agency**

LDC Account Number	Facility Name	City	Zip
8501751005	**Non Core 1301 Andersen Dr**	SAN RAFAEL	94901-5339

To add accounts, please fax copies of latest utility bills to SPURR at 925-743-1014 or email to billing@spurr.org.

Central Marin Sanitation Agency

BOARD MEMORANDUM

January 4, 2019

To: CMSA Commissioners and Alternates

From: Kevin Lewis, Assistant Maintenance Supervisor

Approved: Jason Dow, General Manager

Subject: FY 2019 Asset Management Program – 2nd Quarter Report

Recommendation: Informational, provide comments or direction to the General Manager, as appropriate.

Summary: Since February 2011, staff has provided the Board with periodic presentations to highlight the progress made on implementing the Agency's Asset Management Program (Program). Staff publishes quarterly Asset Management (AM) reports in October, January, April, and the annual report is presented in July.

Second Quarter Highlights

1. Reclaimed Water Piping Replacement Project – CMSA has seven primary clarifier tanks and five of these were originally installed in 1985. Primary clarification is typically the first step in wastewater treatment in which the wastewater flowing through these tanks is slowed down to allow material in the water to either float to the surface or sink to the bottom of the tank prior to removal. Each clarifier contains several hundred feet of reclaimed water piping with several different applications, such as tank and trough wash-down, and spray bar agitators. Regardless of a robust preventative maintenance program, more than 30 years of exposure to seasonal and UV conditions necessitated the replacement of this piping. This project was initiated in 2016 and was placed into the FY 19 Capital Budget after reviewing several years of maintenance data which revealed that unscheduled corrective maintenance costs had reached the point at which replacement was warranted. As individual clarifiers were removed from service for annual maintenance, technicians removed and replaced the existing piping, isolation valves, and hose spigots. The new piping was also rerouted from the tank sides to under the tank walkways to limit UV exposure. Technicians also employed a new generation of chlorine resistant PVC cement, which will limit solution leaks at solvent welded pipe connections.

2. Centrifuge No. 3 Refurbishment – The Agency utilizes three centrifuges to dewater anaerobically digested sludge prior to off-hauling this renewable resource for beneficial

reuse. Dewatering centrifuges rotate at very high speeds, typically 2,500 rpm, to achieve the separation of liquid from the solids. Rotating assemblies within these machines periodically undergo factory recommended maintenance to refurbish hardened surfaces, replace discharge nozzles, and replace broken tiles. This past quarter, technicians removed one centrifuge's rotating assembly and shipped it to the manufacture's local repair facility for refurbishment. The restoration work took approximately four weeks. CMSA used this time to clean the assembly's carriage, perform maintenance on the unit's hydraulic back drive, and replenish equipment lubricants. The assembly was reinstalled and tested by Agency technicians, and will add an additional five years of service life to this centrifuge.

3. Composite Sampling Units – The Agency deploys composite sampling units, on and off site, which are used for regulatory compliance and daily process control monitoring. Composite sampling consists of a collection of numerous discrete samples taken at regular intervals over a period of time, usually 24 hours. The material being sampled is then collected in a common container over the sampling period, analyzed, and the resulting data is used to drive process or compliance related decisions. Technicians installed two new samplers this quarter, one in the biotower basement and one at Sanitary District No. 2's Paradise pump station. Both samplers were deployed to collect water strength (CBOD/COD) data. These sampler installations required modifications to piping at both facilities, the addition of stilling wells, new drain piping, and additional wiring at the individual installation sites.

4. San Quentin Pump Station Influent Channel Screen Repairs – The headworks of this pump station is divided into two influent channels, each fitted with a grinder and screening removal system. These grinders chop-up rags, clothing, and large clumps of debris entering the station. These macerated solids are then captured by a perforated screen and are ultimately removed from the channel by a rotating auger. These systems receive periodic inspections and maintenance due to the material loading they process, and this past quarter, during annual inspections, significant wear was found on both grinders. Grinder No. 2 was replaced and the worn unit was returned to its manufacturer for refurbishment. Both rotating augers were assessed in 2017 and were determined to be at the end of their lifecycles. Technicians removed each system from service individually and disassembled them to gain access to the auger. New augers were installed along with new brush kits on the wet end of each unit. Concurrently, a coating contractor was hired to apply an industrial coating to the station's pump room piping, equipment, walls, and floors.

Asset Inventory

The Asset Parts Inventory is comprised of critical spare parts for Agency equipment, and consumable items designated for CMSA's contract collection agencies: Sanitary District No. 2, Quentin State Prison, and San Quentin Village Sewer Maintenance District. Spare parts for CMSA and San Quentin Village are kept at CMSA site-specific parts rooms, Sanitary District No. 2 parts and equipment are stored at Paradise pump station, and San Quentin State Prison parts and equipment are stored at the San Quentin pump station.

Staff conducted a review of Agency assets tracked within the computerized maintenance management systems (CMMS) asset tree. This quarterly exercise is performed to verify active assets within the system. As Agency-managed projects or regularly scheduled maintenance work is completed, both new and old assets must be accounted for in an asset inventory count. Along with entering new and removing obsolete assets from the asset tree, staff removed improperly grouped or classified assets. In all, 36 items were entered, reclassified, or removed from the CMMS asset tree this past Quarter.

Asset Locations	Total Assets
CMSA	2,429
Sanitary District #2	364
San Quentin Prison	30
San Quentin Village	15

Parts Inventory	Parts Quantity	Total Value
CMSA	26,431	$1,582,132
Sanitary District #2	283	$168,173
San Quentin Prison	32	$26,485
San Quentin Village	2	$1,124

Asset Improvements, Repairs, and Refurbishment Work

1) CMSA Capital Improvement Project Work

Projects in the table below are capital projects that were completed or were in progress over the past quarter. For some of the projects, CMSA staff performed work alongside contractors.

Project Name	CMSA Staff Cost	Total Cost	Status
Reclaimed Water Pipe Replacement	$55,818	$83,715	Complete
Centrifuge No. 3 Refurbishment	$5,726	$56,512	Complete
Composite Sampler Installations	$4,999	$17,586	Complete
Chemical Storage Building Coating	$3,070	$127,069	Complete
Crack and Leak Repair	$0	$37,500	In Process
Expansion Joint Replacement Gallery “B”	$12,043	$51,640	Complete

2) CMSA Asset Management Improvements

Projects in the table below are considered routine, recurring, and usual maintenance work for the preservation and protection of Agency assets. CMSA labor and materials costs are included to determine the overall cost to perform a specific task.

Area	Equipment	Improvement	Total Cost	Comments
Headworks	Grit Classifiers	Annual PM	$9,193	Replaced augers in Classifiers Nos. 2 and 3. Rebuilt lower bearing housings, replaced lubricants, and inspected machinery.
Headworks	Ferric Chloride Metering Pump	Replaced pump	$4,729	Replaced pump with Pulsafeeder composite pump head.
Primary Clarifiers	Sludge Pump	Installed new pump	$12,032	New progressive cavity pump was installed along with a new stainless pump base and supports.
Solids Handling	Centrifuge No. 2	Replaced scroll drive unit	$37,370	Replaced roto-drive unit, and speed sensor and cables.
Solids Handling	TWAS Pump	Rebuild	$1,084	Replaced rotary lobes and lubricants.
Energy Generation	Cogenerator	2,000 hour maintenance procedure	$3,743	Replaced oil and air filters, and lubricants.
Organic Waste Receiving Facility	Slurry Mixing Pumps	Installed new pumps	$16,146	Replaced pump assemblies.
Organic Waste Receiving Facility	Digester Feed Pump	Installed new hose	$2,191	Replaced EPDM hose and hose lubricant.
Chlorine Contact Tanks	Process Tanks	Annual PM	$1,369	Lubricated and exercised mud valves, skimmers, and sluice gates.
RV Peroxide Station – Odor Control	Metering Pumps	Installed two new pumps	$15,522	Installed gear pumps with new wiring, VFD's, and PLC controls. Integrated controls into SCADA
Gallery C	Sump Pump	Installed new pump	$3,0383	Replaced failed Pump No. 2 with new 3HP unit.
Gallery G	Sump Pump	Installed new pump	$3,095	Replaced one pump, installed a new drip tray, and replaced piping as needed.
Facility	Process Tanks	Installed new kickboards	$6,461	Replaced decayed redwood boards with pressure treated, and installed new stainless fasteners.

Area	Equipment	Improvement	Total Cost	Comments
Facility	Motor Control Centers	Installed power monitoring equipment	$33,843	Installed and identified equipment for energy consumption monitoring.
Facility	Sump Pumps Facility-wide	Replaced discharge piping	$19,232	Replaced corroded and failed steel piping with PVC.

3) CMSA Maintained Assets (San Quentin Prison, Sanitary District No. 2, San Quentin Village)
Maintenance work performed over the year on collection agency assets by CMSA staff, an approved contractor, or service provider.

Asset Owner	Asset	Improvement	Total Cost	Comment
SD2	Trinidad II PS	Installed new pumps	$12,476	Installed two new Gorman Rupp self-priming pumps.
SD2	Paradise PS	Replaced automatic transfer switch	$5,941	Replaced worn contacts, broken springs, HMI display, and gear rack.
San Quentin Prison	Channel Augers	Replaced auger screw scrolls	$18,247	Replaced both auger screws and brushes.
San Quentin Prison	Channel Grinder	Replaced grinder cartridge No. 2	$21,031	Replaced worn grinder cartridge with factory remanufactured unit.
San Quentin Prison	Pump room	Coating of walls and equipment	$17,670	Painted pipes, pumps, motors, valves, floors, and walls.

Work Orders – Second Quarter FY 2019

A work order is a written request that a preventive, corrective, or unplanned corrective maintenance task or project be performed. Work orders are typically generated and sent internally from one department to another. Shown in the table below are the types of work orders prepared by staff, the annual work orders completed, and the total labor hours, by type, to complete the work orders.

Work Order Type	# of WO's	% of Total WO's	Labor Hrs.	% of Total Hrs.
Preventative Maintenance (PM)	231	40.88%	904.25	9.52%
Corrective-Planned	196	34.69%	2227.50	23.44%
Corrective-Unplanned	47	8.32%	275.00	2.89%
Improvement Project Work	2	0.35%	244.50	2.57%
Coating Projects	11	1.95%	112.25	1.18%
Safety	16	2.83%	88.25	0.93%
Professional Development/Staff Meetings	15	2.65%	299.75	3.15%
Facilities Administration/Housekeeping	33	5.84%	1173.25	12.35%
Process Control and Facility Operations	14	2.48%	4,177.25	43.96%
Total	**565**	**100%**	**9502.00**	**100%**

Central Marin Sanitation Agency

BOARD MEMORANDUM

January 4, 2019

To: CMSA Commissioners and Alternates

From: Amy Hwang, Associate Engineer

Approved: Jason Dow, General Manager

Subject: San Quentin Pump Station FY 19 CIP – Electrical, Instrumentation, and Mechanical Design Service Agreement with GHD

Recommendation: Approve the Professional Services Agreement with GHD for the design of electrical, instrumentation, and mechanical improvements at the San Quentin Pump Station, and authorize the General Manager to sign the Agreement.

Summary: Staff has worked with GHD to prepare a scope of work, budget estimate, and project schedule for the engineering design and bid period assistance of electrical, instrumentation, and mechanical improvements at the San Quentin Pump Station (SQPS). If the staff recommendation is approved, GHD will begin the Project in mid-January and complete final design by the end of FY 19.

Fiscal Impact: GHD's proposed fee for the engineering services is $61,473. San Quentin's correctional plant manager has approved the design scope of work and service fee, and CMSA will be reimbursed by the California Department of Corrections (CDCR) for the GHD services.

Discussion: In July 2015, GHD was selected to provide a detailed condition assessment of the SQPS as part of the San Quentin Wastewater Services Agreement with the CDCR. GHD's assessment provided recommendations for various SQPS improvements, including short-term and long-term operational and functional improvements. These recommendations were used by staff to prepare a prioritized CIP for SQPS that was approved by CDCR.

Due to GHD's previous history and experience at SQPS, CMSA selected GHD for the design of various electrical, instrumentation, and mechanical projects that should be grouped together in the same year for efficiency. These projects should be designed and constructed together in order to achieve functionality, highest economic benefit, and streamline implementation of future projects. The design will be completed at one time, but the design package will be split into two bid packages, with the first package intended for construction during FY 20 and the second package intended for construction during FY 21. Improvements planned for FY 20 construction involve replacing components that have reached the end of their useful life, including both motor control centers as well as the pump system controls with a PLC-driven

system. Improvements planned for FY 21 construction involves replacing additional aging components including the emergency generator and the supply and exhaust fans.

With the current service agreement with CDCR expiring on June 30, 2019, CMSA has developed a new five-year CIP project list and budget in order to provide CDCR with more accurate and realistic expectations of future CIP project costs. A new multi-year service agreement is in development, and staff anticipates presenting it to the Board by the June 2019 meeting for consideration of approval.

Alignment with Strategic Plan: This activity is a strategic action to support Goal 4 – Objective 4.2 in the Agency's FY 19 Business Plan as shown below.

Goal 4: *CMSA will lead or actively participate in collaborative efforts to address local and regional environmental opportunities and challenges.*

Objective 4.2: *Promote interagency coordination on capital projects.*

Action: *Administer the FY 19 Capital Improvement Program for the main pump station at San Quentin State Prison.*

Attachment:

- Professional Services Agreement with GHD

CENTRAL MARIN SANITATION AGENCY

SAN QUENTIN PUMP STATION FY 19 CIP:
ELECTRICAL, INSTRUMENTATION, AND MECHANICAL IMPROVEMENTS

PROFESSIONAL SERVICES AGREEMENT

This Professional Services Agreement (hereinafter "Agreement") is made and entered into this _____ day of January 2019 by and between the Central Marin Sanitation Agency (hereinafter referred to as "Agency") and GHD Inc. (hereinafter referred to as "Consultant").

RECITALS:

WHEREAS, the Agency desires to retain Consultant to perform the services (hereinafter referred to as "Services"), which include, but are not limited to, perform design of various electrical, instrumentation, and mechanical improvements at the San Quentin Pump Station and provide assistance to Agency staff during the bidding process; and

WHEREAS, Consultant represents and warrants that it is qualified, competent, and ready to perform such Services;

NOW, THEREFORE, for and in consideration of the promises contained herein, and the payments to be made by Agency, the parties agree to the following:

1. CONSULTANT'S SCOPE OF SERVICES:

Consultant shall provide the Services described in **Exhibit A** attached hereto and by this reference made a part of this Agreement. If the Agency desires to engage Consultant to perform optional or additional services, the Agency and Consultant will prepare and execute an amendment to this Agreement for the performance of the optional or additional services.

2. AGENCY'S OBLIGATIONS:

The Agency shall:

(A) Provide access to and make provisions for the Consultant to enter the Agency's facilities as needed by Consultant in order for it to perform the Services, subject only to Consultant providing the Agency with reasonable advance notice of its need for access to one or more of the Agency's facilities.

(B) Make available to Consultant all pertinent data, contract documents, record drawings, reports, studies, and other records (hereinafter collectively "Information") requested by Consultant for its review and use, and reliance in its performance of the Services.

(C) Provide review comments on project deliverables per the agreed upon activity and

project schedules.

3. FEES:

The fees for furnishing the Services to be performed under this Agreement are set forth in the fee and task proposal which is attached hereto as **Exhibit B** and by this reference incorporated herein and made a part of this Agreement. Said fees shall remain in effect for the entire term of the Agreement.

If during the performance of the Services, Consultant makes a good faith determination that there will be a balance remaining in a task upon its completion, the Consultant, with the Agency's prior agreement, which shall not be unreasonably withheld, may reallocate that amount among other tasks that have not been completed but have exceeded or are estimated to exceed the amount originally allocated for those tasks.

4. PAYMENT:

The Agency shall pay Consultant for proper performance of the Services according to the fee schedule set forth in **Exhibit B**. On a monthly basis, Consultant will provide the Agency with a written invoice setting forth the hours spent by Consultant's assigned personnel along with any reimbursable expenses incurred during that month together with supporting documentation as requested by the Agency. The fees for services under this Agreement shall be due within thirty (30) calendar days after approval by the Agency of the invoice covering the services and reimbursable expenses.

5. AGREEMENT TIME:

This Agreement shall commence on **January 14, 2019** and shall terminate on **September 20, 2019**. Time is of the essence with respect to this Agreement. This Agreement's Time may be extended by mutual agreement of the parties. Consultant's Services shall be performed and the deliverables provided in accordance with the Schedule that is attached hereto as **Exhibit A** and by this reference made a part of this Agreement.

6. INSURANCE:

Consultant shall procure and maintain at all times during the performance of the Agreement at its expense the following insurances:

(A)(i) **Workers' Compensation and Employer's Liability Insurance** for protection of Consultant's employees as required by the State of California and as will protect Consultant from loss or damage because of personal injuries, including death to any of its employees. Employers Liability insurance shall be provided in amounts not less than:

$1,000,000 each accident for bodily injury

$1,000,000 each employee for bodily injury by disease

$1,000,000 policy limit for bodily injury by disease

(A)(ii) **Comprehensive Automobile Liability Insurance** shall provide coverage for bodily injury and property damage liability. This policy shall protect Consultant against all liability arising out of the use of owned or leased automobiles both passenger and commercial. Automobiles, trucks, and other vehicles and equipment (owned, not owned, or hired, licensed or unlicensed for road use) shall be covered under this policy. Limits of liability for Comprehensive Automobile Liability Insurance shall not be less than $1,000,000 per accident for bodily injury and property damage.

(A)(iii) **Comprehensive General Liability Insurance** as will protect Consultant and the Agency from any and all claims for damages or personal injuries, including death, which may be suffered by persons, or for damages to or destruction to the property of others, which may arise from the Consultant's Services under this Agreement. Said insurance shall provide a minimum of $1,000,000 Combined Single Limit coverage for personal injury, bodily injury, and property damage for each occurrence. If a general aggregate limit applies, either the general aggregate limit shall apply separately for this Agreement or the general aggregate limit shall be twice the required occurrence limit. Such insurance will insure Consultant and the Agency from any and all claims arising from the following:

1. Personal injury;
2. Bodily injury;
3. Property damage;
4. Broad form property damage;
5. Independent contractors;
6. Blanket contractual liability.

(A)(iv) **Professional Liability Insurance** shall protect Consultant from claims arising out of negligent acts, errors or omissions of Consultant in the performance of the Service in an amount of not less than $1,000,000. The policy shall cover the indemnity provisions under this Agreement. Consultant shall maintain this insurance for twelve (12) months after the Services required under this Agreement have been completed.

(B) Consultant agrees to procure and maintain such insurances at Consultant's expense in full force and effect in a company or companies satisfactory to the Agency. All coverage shall remain in effect until completion of the Services.

(C) Consultant will furnish the Agency with certificates of insurance issued by Consultant’s insurance carrier(s) and countersigned by an authorized agent or representative of the insurance company. The certificates shall show that the insurance will not be cancelled, altered, or reduced without at least ten (10) days' prior written notice to the Agency. The certificates for liability insurance will show that liability assumed under this Agreement is included.

(D) Consultant hereby grants to CMSA a waiver of any right to subrogation which any insurer of said Consultant may acquire against CMSA by virtue of the payment of any

loss under such insurance. Consultant agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation, but this provision applies regardless of whether or not the CMSA has received a waiver of subrogation endorsement from the insurer.

(E) The general liability and automobile liability insurance policies shall contain or be endorsed to contain the following provisions:

(i) The Agency, its members including San Rafael Sanitation District, City of Larkspur, Ross Valley Sanitary District, Sanitary District No. 2 of Marin County, the City of San Rafael, the Town of Corte Madera, their respective commissioners, directors, councilmembers, officers, officials, employees and volunteers are to be covered as additional insured as respects: liability arising out of activities performed by or on behalf of the Consultant; products and completed operations of the Consultant; premises owned, occupied or used by the Consultant; or automobiles owned, leased, hired or borrowed by the Consultant. The coverage shall contain no special limitations on the scope of protection afforded to the Agency, its members including San Rafael Sanitation District, City of Larkspur, Ross Valley Sanitary District, Sanitary District No. 2 of Marin County, the City of San Rafael, the Town of Corte Madera, their respective commissioners, directors, councilmembers officers, officials, employees and volunteers.

(ii) For any claims related to this Agreement, the Consultant's insurance coverage shall be primary insurance as respects the Agency, its members including San Rafael Sanitation District, City of Larkspur, Ross Valley Sanitary District, Sanitary District No. 2 of Marin County, the City of San Rafael, the Town of Corte Madera, their respective commissioners, directors, councilmembers, officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the Agency, its members including San Rafael Sanitation District, City of Larkspur, Ross Valley Sanitary District, Sanitary District No. 2 of Marin County, the City of San Rafael, the Town of Corte Madera, their respective commissioners, directors, councilmembers, officers, officials, employees and volunteers shall be excess of the Consultant's insurance and shall not contribute to it.

(iii) The Consultant's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

(iv) Each insurance policy required by this clause shall be endorsed to state that coverage shall not be canceled by either party except after ten (10) days' prior written notice by mail, has been given to the Agency. Consultant agrees to provide notification to the Agency in the event the insurance policies are suspended, voided, or reduced in coverage or limits.

(F) Insurance is to be placed with insurers with a current A.M. Best's rating of no less than

A:VII, unless otherwise acceptable to CMSA.

Failure to provide and maintain the insurance required by this Agreement will constitute a material breach of this Agreement. In addition to any other available remedies, Agency may suspend payment to the Consultant for any services provided during any time that insurance was not in effect and until such time as the Consultant provides adequate evidence that Consultant has obtained the required insurance coverage.

CMSA, at its discretion, may waive insurance requirements or reduce the above stated coverage limits based on the Consultant's scope of work and complexity of the associated tasks.

7. NONDISCRIMINATORY EMPLOYMENT:

Consultant and/or any permitted sub-consultant, shall not unlawfully discriminate against any individual based on race, color, religion, nationality, sex, sexual orientation, age, condition of disability, or other protected category. Consultant and/or any permitted sub-consultant understands and agrees that Consultant and/or any permitted sub-consultant is bound by and will comply with the nondiscrimination mandates of all federal, state and local statutes, regulations and ordinances.

8. LICENSING AND PERMITS:

The Consultant shall procure and maintain as required the appropriate licenses and permits required to perform the Services throughout the life of this Agreement.

9. BOOKS OF RECORD AND AUDIT PROVISION:

Consultant shall maintain on a current basis complete books and records relating to this Agreement and the Services performed. Such records shall include, but not be limited to, documents supporting all billings to the Agency for the Services performed. The books and records shall be original entry books with a general ledger itemizing all debits and credits for the work on this Agreement. In addition, Consultant shall maintain detailed payroll records including all subsistence, travel and field expenses, and canceled checks, receipts and invoices for all items. These documents and records shall be retained for at least five years from the completion of this Agreement. Consultant will permit Agency to audit all books, accounts or records relating to this Agreement or all books, accounts or records of any business entities controlled by Consultant who participated in this Agreement in any way. Any audit may be conducted on Consultant's premises or, at Agency's option, Consultant shall provide all books and records within a maximum of fifteen (15) days upon receipt of written notice from Agency. Consultant shall refund any moneys erroneously charged.

10. TITLE TO INFORMATION & DOCUMENTS:

It is understood that any and all documents, including but not limited to Information,

documents, and reports concerning this Agreement's Services prepared by and/or submitted to the Consultant, shall be the property of the Agency. The Agency may provide the Consultant's work product(s) to another person or entity in the future for a separate specific assignment. However, Consultant retains all intellectual property rights, including copyrights, applicable to its work. The Consultant may retain reproducible copies of the documents that it prepares as part of the Services. In the event of the termination of this Agreement, for any reason whatever, Consultant shall promptly deliver all Information, including but not limited to writings, plans, reports and other documents to Agency without exception or reservation.

11. TERMINATION:

(A) **Notice to Cure.** If Consultant at any time fails to properly and diligently perform the Services covered by the Agreement, or has committed a material breach of a provision of this Agreement, the Agency shall give Consultant written notice that within two (2) working days of its receipt of said notice, Consultant shall commence and continue satisfactory correction of such default or breach with diligence and promptness.

(B) **Consultant Default.** If Consultant fails to commence, within two (2) working days after receipt from the Agency of the notice issued under the above paragraph (A) and diligently thereafter, to correct the default or breach, then the Agency may pursue any remedies available by common law, statute, or this Agreement, including, but not limited to, one or more of the following:

(i) withhold any sums due or thereafter to become due to Consultant under the Agreement and during such period such withheld amounts shall not accrue interest; or

(ii) terminate the Agreement.

Within seven (7) business days of Consultant's correction of the default or breach, the Agency shall release to the Consultant any monies withheld.

(C) **Termination for Convenience.** The Agency may for its convenience and at any time and for any reason terminate Consultant's Services and this Agreement. Termination shall be by service of written notice to Consultant at its address for notice set forth below. Upon receipt of such notice, Consultant shall, unless the notice directs otherwise, immediately discontinue performing the Services.

Upon such termination, sub-consultants shall be entitled to payment only for the Services completed as of the date of termination pursuant to the Agreement. Consultant shall not be entitled to any claim or claim for any additional compensation, lost profit, or other damages in the event of such termination.

12. RELATIONSHIP BETWEEN THE PARTIES:

It is expressly understood that in the performances of the Services herein, the Consultant, and the agents and employees thereof, shall act as an independent contractor and not as officers,

employees or agents of the Agency. Consultant shall be solely responsible to pay all required taxes, including but not limited to, all withholding social security, and worker's compensation for its employees.

13. AMENDMENT:

This Agreement may be amended or modified only by written agreement of all parties.

14. ASSIGNMENT OF SERVICES AND PERSONNEL:

The Consultant shall not subcontract or assign any portion of the Services required to be performed pursuant to this Agreement without the prior written approval of the Agency. Further, Consultant shall not substitute any personnel for those specifically named in its proposal unless personnel with substantially equal or better qualifications and experience are provided and are acceptable to Agency, as is evidenced in writing.

15. JURISDICTION AND VENUE:

This Agreement shall be construed in accordance with the laws of the State of California and the parties hereto agree that venue shall be in Marin County, California.

16. INDEMNIFICATION:

Consultant shall indemnify, defend, and hold harmless the Agency, its members including San Rafael Sanitation District, City of Larkspur, Ross Valley Sanitary District, Sanitary District No. 2 of Marin County, the City of San Rafael, the Town of Corte Madera, and their respective commissioners, directors, councilmembers, officers, officials, and employees (collectively "Indemnitees") from any and all claims for damages including, but not limited to, money, expenses, and/or losses (collectively "Claim") to the extent Claim arises from Consultant's negligence, recklessness, and/or willful misconduct in the performance of the Services under this Agreement.

Notwithstanding the foregoing, for any Claim alleging Consultant's negligence, recklessness, and/or willful misconduct, Consultant's obligations and liability for costs of the Indemnitees' defense shall not exceed the Consultant's proportionate percentage of fault for the Claim.

17. STANDARD OF CARE:

Consultant shall complete the services required hereunder in accordance with the prevailing standard of care by exercising the skill and ability ordinarily required to perform the same or similar services, under the same or similar circumstances, in the State of California. Consultant shall, at no cost to the Agency, re-perform any part of the services which fail to satisfy the foregoing standard of care.

18. ESTIMATES AND PROJECTIONS:

Consultant has no control over the cost of labor, materials, equipment or services furnished by others, over the incoming water quality and/or quantity, or over the way the Agency's facilities and/or associated processes are operated and/or maintained. Data projections and estimates are based on Consultant's opinion based on experience and judgment. Consultant cannot and does not guarantee that actual costs and/or quantities realized will not vary from the data projections and estimates prepared by Consultant and Consultant does not and will be not liable to and/or indemnify the Agency and/or any third party related to any inconsistencies between Consultant's data projections and estimates and actual costs and/or quantities realized by the Agency and/or any third party in the future.

19. THIRD PARTIES:

The services to be performed by Consultant are intended solely for the benefit of Agency and its members. No person or entity not a signatory to this Agreement shall be entitled to rely on Consultant's performance of its services hereunder, and no right to assert a claim against Consultant by assignment of indemnity rights or otherwise shall accrue to a third party as a result of this Agreement or the performance of Consultant's services hereunder.

20. FORCE MAJUERE:

Neither Consultant nor Agency shall be considered to be in default of this Agreement if delays in or failure of performance shall be due to uncontrollable forces, the effect of which, by the exercise of reasonable diligence, the nonperforming party could not avoid. The term "uncontrollable forces" shall mean any event which results in the prevention or delay of performance by a party of its obligations under this Agreement and which is beyond the control of the nonperforming party. It includes, but is not limited to, fire, flood, earthquake, storms, lightening, epidemic, war, riot, civil disturbance, sabotage, inability to procure permits, licenses, or authorizations from any state, local, or federal agency or person for any of the supplies, materials, accesses, or services required to be provided by either Consultant or Agency under this Agreement, strikes, work slowdowns or other labor disturbances, and judicial restraint.

21. COMPLIANCE WITH APPLICABLE LAWS:

In performance of the services, Consultant will comply with applicable regulatory requirements including federal, state, and local laws, rules, regulations, orders, codes, criteria, and standards.

22. WAIVER:

A waiver by either the Agency or Consultant of any breach of this Agreement shall not be binding upon the waiving party unless such waiver is in writing and executed by the waiving party. In the event of a written waiver, such a waiver shall not affect the waiving party's rights with respect to any other or further breach.

23. SEVERABILITY:

The invalidity, illegality, or unenforceability of any provision of this Agreement, or the occurrence of any event rendering any portion or provision of this Agreement void, shall in no way affect the validity or enforceability of any other portion or provision of the Agreement. Any void provision shall be deemed severed from the Agreement and the balance of the Agreement shall be construed and enforced as if the Agreement did not contain the particular portion or provision held to be void.

24. INTEGRATION:

This Agreement supersedes all prior agreements, contracts, proposals, representations, negotiations, letters, or other communications between the Consultant and Agency pertaining to this Agreement and the Services to be performed, whether written or oral.

25. NOTICES AND DESIGNATED REPRESENTATIVES:

Amy Hwang is the designated representative for CMSA and will administer this Agreement for CMSA. Rick Guggiana is the designated representative for Consultant. Changes in designated representatives shall occur only by advance written notice to the other party.

All invoices shall be submitted and approved by the designated Agency representative and all notices shall be given to Agency at the following location:

1301 Andersen Drive
San Rafael, CA 94901

Notices shall be given to Consultant at the following address:

GHD Inc.
2235 Mercury Way, Suite 150
Santa Rosa, CA 95407

IN WITNESS WHEREOF, the parties hereunto have executed this Agreement on the date first above written.

APPROVED BY:

CENTRAL MARIN SANITATION AGENCY:

_____

Jason R. Dow, General Manager

CONSULTANT:

_____

Matt Winkelman, Principal

Federal Tax ID #: _____

Exhibit A

December 28, 2018 GHD Ref: 11177640

Engineering Services – San Quentin Pump Station FY19 CIP: Design of Electrical, Instrumentation, and Mechanical Improvements, Central Marin Sanitation Agency, San Rafael, CA

Background and Approach

Central Marin Sanitation Agency (CMSA; Agency) contracted with GHD in 2015 for the detailed condition assessment (CA) of the San Quentin Pump Station (SQPS). The pump station is owned by the California Department of Corrections and Rehabilitation (CDCR) and operated and maintained by CMSA under a multi-year contract established in 2012. As part of the detailed GA, GHD provided recommendations in a report (2016 CA Report) for various pump station improvements, including near-to-long-term operational and functional improvements. CMSA set forth a multi-year CIP under its agreement with CDCR to implement the recommended improvements, with intent to package similar improvements into annual projects.

Recent discussion between CMSA and GHD resulted in the basic scope of services for the Fiscal Year 19 (FY19) project: the design of various electrical, instrumentation, and mechanical improvements identified in the 2016 CA Report. CMSA intends on bidding and constructing the designed improvements during FY20 and FY 21. Design will be split into two bid packages, with the first package intended for construction during Summer 2019 (during FY20); the second in Summer 2020 (during FY21).

Improvements planned for Summer 2019 construction generally include the following:

- Replace the controls with a completely PLC-driven system and appropriate I/O, communications, and programming.
- Replace motor control centers (MCCs) 21.1 and 21.2. This task will include evaluation of whether any pumps benefit from variable speed operation, and includes incorporating any VFDs into the MCCs.

Improvements planned for Summer 2020 construction generally include the following:

- Remove automatic transfer switch (ATS) 21.2
- Replace ATS 21.1
- Replace the existing generator with a new generator located outside of the pump station building, complete with stainless steel sound attenuating enclosure with a 24-hour sub-base fuel tank
- Replace the dry well supply and exhaust fans
- Replace the screening room and generator room exhaust fans

At the completion of the FY 21 construction project, CMSA plans to continue implementation of the multi-year CIP to address additional operational and functional recommendations for the pump station.

Design will begin with a kick-off web conference to discuss the projects' Work Plan, and site visit logistics. Following the kick-off meeting, GHD will conduct a site visit to verify site conditions and discuss project needs with CMSA staff. With the basis for existing conditions and design needs understood, GHD will prepare detailed design documents at the 50 and 90 percent and final design stages. CMSA staff will review each submittal and provide consolidated comments. GHD will also provide assistance to CMSA during the bid and construction phases to respond to questions, requests for information, and to review submittals.

Exhibit A

Scope of Services

The scope of services is divided into three key tasks, as follows:

1. Conduct field investigation;
2. Prepare drawings, technical specifications, and opinion of probable construction costs for the electrical, instrumentation, and mechanical improvements;
3. Provide engineering support services during bid and construction phases.

Task 1 – Project Management

Task 1.1 Kick-Off Web Conference

GHD will conduct a 1-hour kick-off web conference meeting with CMSA. The primary purpose of the kick-off meeting is to introduce the project team members and review the project Work Plan. GHD will prepare a Work Plan in advance of the kick-off meeting that charters the work to be performed, identifies the project purpose and objectives, logistics for the site visit, deliverables, and schedule requirements. The plan will also provide contact information and communication protocols between CMSA and the GHD team. Prior to the kick-off meeting, GHD will request CMSA provide GHD with documentation of any changes at the pump station since the completion of the 2016 CA (i.e., photographs, drawings, O&M documents, or similar) that would be of use in planning the site visit.

Task 1.2 Project QA/QC, Invoicing, Schedule Tracking and Communication (6 months)

Quality control reviews will be performed on project deliverables prior to submission to CMSA. GHD will work closely with the CMSA to manage the project schedule as work progresses, particularly with coordinating workshops and meetings with CMSA staff. GHD's Project Manager will monitor the team's activities against the Work Plan to monitor that schedule and budget are adhered to and project deliverables meet the objectives agreed to in the kick-off meeting. GHD will provide a progress report with each monthly invoice that summarizes work completed over the past period and project to date, and the work scheduled for the coming period. Outstanding issues requiring review and decisions with CMSA will also be noted.

Project management activities for the bid and construction phases are included in Task 4.

Task 1 Deliverables:

- *Kick-off meeting agenda and summary output (including Work Plan)*
- *Monthly invoices (based on a six month project schedule)*

Task 2 – Site Investigation

Prior to the preparing the plans, specifications, and opinion of probable construction cost, GHD will conduct a site visit to review existing site conditions and to investigate existing wiring connections, conduit routing that would be impacted by the electrical upgrades, anticipated location for the standby generator, and supply and exhaust fans to be replaced. Proposed placement of new equipment will be reviewed with CMSA staff to capture operational requirements and preferences. Physical dimensions will be recorded to be used for detailing placement of new electrical equipment.

CMSA will coordinate with CDCR in advance of the site visit regarding gate clearance and to coordinate logistics with CDCR staff, where necessary. GHD plans to bring digital camera and measuring tape to the site visit.

Task 2 Deliverables:

- *Notes and photographs taken during the site visit will be kept on file at GHD and available to CMSA upon request.*

Task 3 – Detailed Design (Plans, Specifications, and Opinion of Probable Construction Cost)

Task 3.1 50% Design

This task includes preparation of the 50% Design documents, including drawings, technical specifications, and opinion of probable construction cost. Effort also includes attending a review meeting with CMSA to review comments. Design documents will be will be developed to establish location, characteristics, and physical size of all major electrical and ventilation system components (such as motor control centers, diesel generator, and will incorporate recommendations and findings from the prior condition assessment and the site investigation.

Task 3.2 90% Design

This task includes preparation of the 90% design documents, incorporating CMSA comments from the previous submittal. This submittal will further develop the design presented in the 50% Design documents, and will include structural design of any required housekeeping pads, equipment support, and anchorage of mechanical and electrical equipment. Effort also includes update of the opinion of probable construction cost, and participating in a phone conference with CMSA to review comments.

Task 3.3 Final Design

This task includes preparation of Final Design documents incorporating comment from the previous submittal. Plans and technical specifications will be signed and ready for bidding. Final documents will be provided in electronic format. CMSA will manage logistics and costs for bid reproduction.

Task 3 Deliverables:

- *50% submittal: half-size plans (11x17), draft technical specifications, and preliminary opinion of probable construction cost – four (4) hard copies and electronic copy (pdf)*
- *90% submittal: half-size plans (11x17), complete technical specifications, and opinion of probable construction cost – four (4) hard copies and electronic copy (pdf)*
- *Final submittal: complete plans and technical specifications in electronic format (pdf) ready for bid reproduction and opinion of probable construction cost*

Task 3.4 Air Permitting

This task includes preparation of permitting documents for the Bay Area Air Quality Management District (BAAQMD) to obtain Authority to Construct for a diesel engine driven emergency generator. It is assumed that Permit to Operate will be secured as a part of construction phase services.

- *BAAQMD application, with supporting site exhibits and technical data*

Task 4 – Bid and Construction Support

This task includes bid phase support for the Phase 1 (FY20) construction project to follow the design services included in previous tasks. This task also includes project management effort for monthly progress reporting during the bid phase.

Construction support for the Phase 1 project, and bid and construction support for the Phase 2 project, are not included in this proposal.

Task 4.1 Bid Assistance

During the bid period, (anticipated Summer 2019), GHD will respond to requests for technical clarification and will assist CMSA with bid evaluation. GHD's scope includes the preparation of up to two (2) addenda.

Task 4.1 Deliverables:

- *Request for Clarification Responses*
- *Bid Addenda (2) for one bid phase*
- *Bid Comments*

Schedule

CMSA anticipates contract execution and notice to proceed for the project in January 2019, and requests that the design phase be completed by the end of June 2019. A preliminary schedule is provided below that reflects anticipated timeframes for the project, including complete design phase, and the bid phase for the FY20 project. It is estimated that the Phase 1 construction duration will be up to 6 months, driven by procurement times for the electrical equipment. The duration will be refined during design development.

NTP anticipated to be early January 2019	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Task 1 - Project Management								
Task 1.1 - Kick-off Meeting								
Task 1.2 - Project Management								
Task 2 – Site Visit								
Task 2 – Site Visit								
Task 3 – Detailed Design								
Task 3.1 – 50% Design								
Task 3.2 – 90% Design								
Task 3.3 – Final Design								
Task 4 – Bid and Construction Phase Support								
Task 4 – Bid Assistance								

Engineering Fee

Compensation for the basic scope of services provided herein shall be on a time and materials basis, for an estimated not-to-exceed fee of $61,473. This total fee is based on the breakdown below. See the attached Exhibit B for a detailed fee estimate.

Design Phase: $59,965 (preparation of two bid packages)

Bid phase: $1,508 (based on one bid phase)

Central Marin Sanitation Agency
Asset Management Program Evaluation
Cost Summary

Exhibit B

Central Marin Sanitation Agency San Quentin Pump Station FY19 CIP Design of Electrical, Instrumentation, and Mechanical Improvements	GHD Inc. (December 24, 2018)	Principal / QA/QC	Project Manager	QA/QC	Structural Engineer	Senior Mechanical Engineer	Senior Electrical Engineer	Electrical/Mechanical Designer	CAD	Word Processing	Electrical Designer	Engineer	Total Hours	Labor Subtotal	Expense Subtotal	Labor + Expenses Total
Task Name and Description	**Deliverables**	**Matt Winkelman**	**Rick Guggiana**	**James Taylor**	**Steve Burns**	**Terry Wong**	**Rick Guggiana**	**Varies**	**Varies**	**Felicia Ballard**	**Jill Kjellsson**					
		$235	$215	$225	$190	$215	$215	$150	$140	$90	$145	TBD				
Task 1 Project Management		1	6		2	4	6	0	0	6	0	0	25	$4,595.00	$150	$4,745
Task 1.1 - Kick-off Meeting	1 hr - Kickoff meeting and associated prep (including development of Work Plan and review of requested CMSA documents)	1	2			2	2						7			
Task 1.2 - Project QA/QC, Invoicing, Schedule Tracking and Communication (6 months)	Monthly invoices (based on a six month project schedule for this task)		4		2	2	4			6			18			
Task 2 Field Investigations		0	0	0	0	8	8	0	0	0	0	0	16	$3,440.00	$96	$3,536
Task 2 Field Investigation	Summary memorandum					8	8						16			
Task 3 Plans, Specifications, and Cost Estimate		2	6	18	18	26	55	116	30	10	0	0	281	$49,145.00	$2,539	$51,684
Task 3.1 - 50% Design	PDF copies of 50% plans, technical specifications, and cost estimate	1	2	8	4	12	20	52	12	4			115			
Task 3.2 - 90% Design	PDF copies of 90% plans, technical specifications, and cost estimate	1	2	8	12	12	24	56	12	4			131			
Task 3.3 - Final Design	PDF copies of Final plans, technical specifications, and cost estimate		1	2	2	2	4	4	2	2			19			
Task 3.4 - BAAQMD Permitting	BAAQMD application, with supporting site plan exhibits and generator technical data		1	0	0	0	7	4	4	0			16			
Task 4 Bid and Construction Support		0	2	0	0	0	2	4	0	0	0	0	8	$1,460.00	$48	$1,508
Task 4.1 - Bid Assistance	Responses to bidder's questions, bid addenda		2			0	2	4					8			
	Total Hours	5	22	20	24	46	79	136	46	16	0	0	394	$58,640.00	$2,833	$61,473
	Staff % Allocation of Project Total Hours	1.3%	5.6%	5.1%	6.1%	11.7%	20.1%	34.5%	11.7%	4.1%	0.0%	0.0%	100.00%			
	Total Cost	$1,175	$4,730	$4,500	$4,560	$9,890	$16,985	$20,400	$6,440	$1,440	$0	#VALUE!				
Rates shown are specific for this project and will not be revised during the project.	Subconsultant are billed at cost plus 5%. Expenses are billed at cost plus 10%.															

Assumptions:
Kickoff meeting will be held via WebEx

Central Marin Sanitation Agency

BOARD MEMORANDUM

January 4, 2019

To: CMSA Commissioners and Alternates

From: Jason Dow, General Manager

Subject: CMSA Secretary Appointment

Recommendation: Nominate and appoint a Commission Secretary, and take other actions as appropriate.

Discussion: Commissioner Dean DiGiovanni was appointed the Commission Chair at the December 13, 2018 meeting to fill the vacancy created by Diane Furst leaving the Board. With that appointment, the commission secretary position is open. In discussions with Chair DiGiovanni after the meeting, we believe it is appropriate to nominate and appoint a commissioner to fill the vacant secretary position through the end of the fiscal year. At the July 2019 meeting, the Board will nominate and appoint officers for the following fiscal year, FY 20.

Commission Chair:	Dean DiGiovanni, San Rafael Sanitation District
Commission Vice-Chair:	Michael Boorstein, Ross Valley Sanitary District
Commission Secretary:	Vacant

Background: The JPA does not include a process or guidance for rotating or nominating officers. Below is an excerpt from Section 7, item B, of the 2018 JPA pertaining to membership and officers.

> *Each commissioner may be an elected official of the governing body of the City or District he/she represents, or may be such other resident of the City or District as selected by the Member. A commissioner shall serve in such a manner and for such term as each Member may determine, and may be removed at the pleasure of the Member appointing such person. The Commission shall annually choose commissioners to serve as Chair, Vice-Chair, and Secretary. Each Member shall determine its method of selection of the person representing the City or District. An elected official or resident of the City or District may be designated by the Member to serve as an alternate to any commissioner.*

Central Marin Sanitation Agency

BOARD MEMORANDUM

January 4, 2019

To: CMSA Commissioners and Alternates

From: Board Finance Committee – Commissioners DiGiovanni, Gaffney, and Boorstein
Jason Dow, General Manager
Ken Spray, Administrative Services Manager

Subject: Proposed Debt Issuance Plan

Recommendation: Approve the Debt Issuance Plan, and provide direction to the Finance Committee and/or staff, as appropriate.

Summary: At the October 2018 meeting, the Board directed its Finance Committee (Committee) and staff to prepare a debt issuance plan for presentation and discussion at the January 2019 meeting. Since then, the Committee has met twice and made several decisions for Board consideration, including postponing the Agency's next debt issuance to FY 21.

Debt Issuance Plan: Here are the key elements of the Agency's debt issuance plan with the Committee recommendation.

Issuance Type: Tax-exempt revenue bonds. CMSA can issue revenue bonds with Board action and JPA member agency approval of a debt service payment agreement.

Timing: Postpone the issuance to early FY 21 (after July 1, 2020) with debt service payments beginning in FY 22.

Financial Advisor: PFM for a service fee of $51,500 for issuance in FY 20. PFM has agreed to the same fee for a FY 21 issuance. PFM was the financial advisor for the 2006 revenue bond issuance and its 2015 refinancing.

Bond/Disclosure Counsel: Hawkins Delafield Wood for a service fee of $67,500, which is valid for a FY 20 or FY 21 issuance. Hawkins has provided bond and disclosure counsel services since the 2006 issuance.

Bond Sale Method: Competitive bid with the sale being awarded to the underwriter with the lowest interest rate bid.

Issuance Amount: Currently the planned amount is approximately $9 million for selected capital projects, in red text, in the attached FY 19 – FY 23 Capital Improvement Plan (CIP). For designated projects in FY 19 and FY 20, funding is from capital reserves with reimbursement from the bond proceeds.

Discussion: Staff and the Board's Finance Committee developed a 5-year Revenue Plan (Plan) last fiscal year that was approved by the Board, shared with the JPA member agencies, and integrated into the Agency's 10-year financial forecast. The revenue plan includes a 3.5% revenue increase each fiscal year, FY 19 – FY 23, and two debt issuances to partially fund the 10-year CIP. In the Plan, the first issuance is currently scheduled for FY 20 with payment of debt service to begin in FY 21, and a second issuance is planned for FY 23 with payment of debt service to begin in FY 24. Funding for the second issuance's debt service is not included in the Plan, and will be considered during development of the subsequent multi-year revenue plan.

The FY 20 issuance provides funding for several capital projects, with the largest two being the design and construction of a new cogeneration system ($4.2 million) and replacement of three biosolids dewatering centrifuges ($3.2 million). In October and November 2018, the Committee reviewed the projects to be financed by the debt proceeds, discussed debt issuance service proposals from the Agency's financial advisor and bond/disclosure counsel, considered alternate ways to sell revenue bonds, and evaluated the benefits and disbenefits of postponing the debt issuance.

The centrifuge replacement project and cogeneration system installation costs in the CIP are based on their prior project costs, in 2002 and 2005, respectively, escalated in each 10-year CIP update by the Engineering News Record Construction Cost Indexes. Carollo Engineers is preparing the predesign for a new cogeneration system, and its total project costs will be significantly more than the allocation in the current CIP.

Key considerations for the timing of the debt issuance are the amount of Agency restricted and unrestricted capital reserves to fund near term capital projects, and the debt service interest savings associated with a FY 21 issuance. During preparation of the Agency's FY 18 Financial Statements, staff accurately determined the amount of unrestricted capital reserves at the beginning of this fiscal year, which increased approximately $1.8 million as compared to the estimated reserve projection in FY 19 budget's financial forecast. This increase results in the Agency having adequate capital reserves to fund next fiscal year's planned capital activities, and reduces the need for the planned debt issuance in FY 20.

Postponing the debt issuance to FY21 saves the Agency about $321,000 in debt service interest payments, assuming a bond interest rate of 3.5% and that rates do not increase over the next year. If rates do increase, as projected by PFM, each 0.1% increase reduces the interest savings by about $120,000. If the Board postpones the issuance, a 0.3% interest rate increase negates the benefit of the debt issuance postponement and increases the overall debt issuance interest payment amount over the term of the debt.

Clean Water State Revolving Fund (CWSRF) Loan: At the December 2018 meeting, the Board adopted a resolution authorizing the General Manager to sign a CWSRF loan application for the design and construction of a new cogeneration system. The application was submitted on December 28, and we anticipate receiving an application status report from the State Water Board in the spring 2019. If this project receives a CWSRF loan, 50% of the total project costs up to $4 million is forgiven, and the loan interest rate will likely be less than a revenue bond interest rate. In this situation, the Committee may recommend having a larger single debt issuance in FY 21 instead of two smaller issuances. The planning level cost estimate for the cogeneration system project is approximately $10 million, and includes funding for design, construction, and construction support services.

Attachments:
1) FY 19 – FY 23 Capital Improvement Program (an excerpt form the adopted 10-Year CIP)
2) Summarized Financial Forecast for FY 19 – FY 23, with $9 million issuance in FY 21

ATTACHMENT 1

Central Marin Sanitation Agency
Capital Improvement Program
FY 19 - FY23

Projects	1 Adopted FY 19	2 FY 20	3 FY 21	4 FY 22	5 FY 23
Facility Improvements					
Effluent Storage Pond Rehabilitation	-	-	-	38,700	1,225,700
Agency Facilities Master Plan (3)	30,000	-	-	-	-
Industrial Coatings & Concrete Rehabilitation	215,000	194,100	99,200	21,000	147,100
Outfall Inspection & Repairs	33,000	34,000	423,200	36,100	37,200
Facility Improvements	44,000	-	-	-	-
Facility Paving/Site Work	200,000	135,900	11,200	11,500	145,100
Hillside Slope Stabilization	35,500	-	-	-	-
Facility Roofs Rehabilitation	-	78,100	953,600	-	9,900
SHB Elevator Control Replacement	-	-	-	-	103,500
Facility Structures Seismic Study	-	207,000	-	-	-
Subtotal	**557,500**	**649,100**	**1,487,200**	**107,300**	**1,565,000**
General Equipment					
Process Control	30,000	31,600	48,800	34,000	34,200
Security / Fire Systems	25,000	4,100	-	4,300	-
Fuel Storage Tanks	-	-	116,300	-	-
IT Hardware and Communication Equip	66,200	44,900	15,300	50,700	16,200
Agency Vehicle Replacement	95,400	40,000	70,000	6,000	41,400
Laboratory Equipment	85,000	90,000	62,500	40,000	120,000
Electrical Equipment	100,000	120,000	100,000	109,000	98,000
Plant Lighting	22,000	14,000	15,000	16,000	10,000
Process Instrumentation	31,000	40,000	25,000	25,800	26,600
Electrical Distribution System Rehabilitation	-	-	1,204,800	-	**194,500**
Subtotal	**454,600**	**384,600**	**1,657,700**	**285,800**	**540,900**
Liquids Treatment Equipment and Systems					
Plant Pumps	63,300	80,000	66,100	67,600	69,100
Chemical Pumps	80,600	77,600	155,200	181,000	67,000
Gates Rehabilitation	436,400	77,500	79,400	81,100	83,600
Headworks Equipment	27,400	28,900	32,100	30,400	361,100
Process Tank Maintenance	70,000	60,000	535,800	63,600	65,500
Primary Clarifiers Rehabilitation	40,000	-	-	347,800	358,300
Secondary Clarifiers Rehabilitation	150,000	507,100	401,800	227,800	-
RAS/WAS Pump Replacement	-	-	389,700	779,500	779,500
Aeration System Rehabilitation	20,000	-	-	-	-
Process Piping Inspection/Repairs/Replacement	190,000	-	-	-	-
Chemical Tanks	45,000	65,100	69,400	100,000	37,200
Piping, Valves & Operators	72,500	58,300	59,600	60,900	62,200
Influent Flow Meter Improvement	25,000	207,000	-	-	-
Subtotal	**1,220,200**	**1,161,500**	**1,789,100**	**1,939,700**	**1,883,500**
Solids Treatment and Energy Generation Equipment and Systems					
Digester Inspection, Cleaning & Cover Replacement	-	-	-	886,500	906,200
Centrifuge Maintenance	40,000	-	500,000	2,703,000	-
Cogeneration Maintenance, and New System	145,000	449,600	2,011,000	1,694,700	64,900
Hot Water Systems	14,900	15,200	15,500	15,800	16,100
Digester Mixing Pump Study		100,000	-	-	-
Boilers and Gas Processing Equipment	74,500	-	-	-	-
Sludge Recirculating Pump Grinders	18,900	19,400	19,800	20,300	20,700
Biosolids Hoppers Maintenance	-	9,300	-	9,600	-
Organic Waste Receiving Facility Equipment	51,700	54,500	55,900	57,400	58,900
PG&E Interconnection Agreement Modification	100,000	-	-	-	-
Subtotal	**445,000**	**648,000**	**2,602,200**	**5,387,300**	**1,066,800**
Staff time	185,200	190,800	196,600	202,600	208,700
Totals	**2,862,500**	**3,034,000**	**7,732,800**	**7,922,700**	**5,264,900**

- Projects in red text are planned to be funded with bond proceeds
- Other projects in the planned FY 23 issuance are the Biotower Distributor Replacement ($988K in FY24) and Primary Clarifier Rehabilitation ($436K in FY24 and $438K in FY25)

ATTACHMENT 2

CENTRAL MARIN SANITATION AGENCY
PROPOSED DEBT IN FISCAL YEAR '21

Line No.	Description	Revenue Program Period: 10-Year CIP Program - Base Year Plus 9 Additional Forecast Years					Service Charges / Capital Fee as Last Authorized			
		Year 1 FY 19	Year 2 FY 20	Year 3 FY 21	Year 4 FY 22	Year 5 FY 23	Year 6 FY 24	Year 7 FY 25	Year 8 FY 26	Year 9 FY 27
	FUNDING FOR PROGRAMS - SUMMARY (See Note below)									
	OPERATING PROGRAM									
1	Total operating costs before debt and capital	$ 11,822,000	$ 12,112,988	$ 12,465,330	$ 12,869,766	$ 13,344,554	$ 13,919,768	$ 14,676,605	$ 14,987,857	$ 15,307,140
2	Service charges and other revenues	12,334,424	12,757,568	13,195,266	13,648,019	14,116,346	14,171,296	14,228,096	14,295,663	14,297,131
3	Total operating surplus (shortfall)	$ 512,424	$ 644,580	$ 729,937	$ 778,253	$ 771,792	$ 251,529	$ (448,510)	$ (692,195)	$ (1,010,009)
	CAPITAL IMPROVEMENT PROGRAM									
4	**Total Annual CIP to Fund (10-Year CIP)**	$ 2,862,500	$ 3,034,000	$ 7,732,800	$ 7,922,700	$ 5,368,400	$ 4,968,200	$ 3,718,900	$ 5,550,800	$ 5,315,500
	RESERVE RECONCILIATION									
14	New debt issuance proceeds	-	-	9,000,000	-	10,000,000	-	-	-	-
15	Project requisition draws (neg number) (use 1st, then reserve)	-	-	(6,273,700)	(2,726,300)	(3,316,437)	(3,780,894)	(2,356,998)	(545,671)	
17	Capacity charges revenue	30,091	30,904	31,738	32,595	33,475	34,379	35,307	36,260	37,239
18	Capacity charges usage for capital	(30,091)	(30,904)	(31,738)	(32,595)	(33,475)	(34,379)	(35,307)	(36,260)	(37,239)
19	Debt coverage collection - current year	993,301	991,833	1,150,752	1,153,002	1,152,927	1,326,595	1,327,127	1,325,845	1,338,189
20	Debt coverage usage - prior year	(990,477)	(993,301)	(991,833)	(1,150,752)	(1,153,002)	(1,152,927)	(1,326,595)	(1,327,127)	(1,325,845)
23	Capital fee revenue	811,259	1,020,824	435,529	640,904	865,486	0	0	0	0
24	Unrestricted operating reserve transfer-in (step 1)	422,574	571,833	641,851	677,144	653,095	107,725	-	-	-
25	Capital fee usage to fund CIP	(811,259)	(1,020,824)	(435,529)	(640,904)	(865,486)	(0)	(0)	(0)	(0)
26	Unrestricted capital reserve draw (enter CIP control total) (step 2)	(1,030,673)	(988,971)	-	(3,372,149)	-	-	-	(3,641,741)	(1,906,933)
28	**Unrestricted capital reserve balance - end**	**$ 7,258,146**	**$ 6,841,008**	**$ 7,482,859**	**$ 4,787,854**	**$ 5,440,949**	**$ 5,548,674**	**$ 5,548,674**	**$ 1,906,933**	**$ 0**
33	**Unrestricted operating reserve balance - end**	**$ 2,955,500**	**$ 3,028,247**	**$ 3,116,332**	**$ 3,217,441**	**$ 3,336,138**	**$ 3,479,942**	**$ 3,031,432**	**$ 2,339,237**	**$ 1,329,228**
34	**(25% of operating costs before debt and capital)**	25%	25%	25%	25%	25%	25%	21%	16%	9%
36	**Reserve balance total - beg**	**$ 9,899,122**	**$ 11,206,947**	**$ 10,861,087**	**$ 14,476,243**	**$ 9,158,298**	**$ 16,613,577**	**$ 13,257,880**	**$ 10,452,904**	**$ 5,572,016**
37	**Reserve balance total - end**	**$ 11,206,947**	**$ 10,861,087**	**$ 14,476,243**	**$ 9,158,298**	**$ 16,613,577**	**$ 13,257,880**	**$ 10,452,904**	**$ 5,572,016**	**$ 2,667,418**
	(25% of operating costs before debt and capital -reference only)	$ 2,955,500	$ 3,028,247	$ 3,116,332	$ 3,217,441	$ 3,336,138	$ 3,479,942	$ 3,669,151	$ 3,746,964	$ 3,826,785

Note: Selected data extracts are shown above for informational purposes only to show sources, uses, and unrestricted reserve balances, and are not all-inclusive to reconcile beg to end balance

Central Marin Sanitation Agency

BOARD MEMORANDUM

January 4, 2019

To: CMSA Commissioners and Alternates

From: Jason Dow, General Manager

Subject: 2019 Compensation Market Survey for the Agency's Job Classifications

Recommendation: Authorize the General Manager to conduct a compensation market survey for the Agency's represented and unrepresented job classifications.

Discussion: Every several years the Agency hires a human resources consultant to perform a compensation market survey for the Agency's SEIU represented and unrepresented job classifications. Koff & Associates has prepared these surveys for the past 20 years utilizing a standard format and negotiated comparator organizations, with the last survey completed in 2014. CMSA's comparator organizations have regional water or wastewater treatment facilities and are either special districts or cities, and include: City of Palo Alto, City of Santa Rosa, City of Sunnyvale, Delta Diablo, Dublin San Ramon Services District, Marin Municipal Water District, Novato Sanitary District, Oro Loma Sanitary District, Silicon Valley Clean Water, Union Sanitary District, and Vallejo Flood and Wastewater District. Napa Sanitation District is also included in the unpresented compensation survey.

CMSA's 2014 Collective Bargaining Agreement with SEIU states the Agency will perform a market survey around March 2019 using the same format as the 2009 market survey. The format includes comparing each CMSA job classification's monthly top salary and value of benefits to each of the above listed comparator organizations. Koff prepares and submits three comparison tables, for top monthly salary, benefits monthly value, and total monthly compensation, which is the monthly value of the classification's salary and benefits. CMSA has an obligation to provide the survey results to the SEIU field representative and meet and confer on them. There is no contractual obligation to implement the survey results.

If the Board authorizes the survey, staff will inform SEIU and our labor relations consultant, Austris Rungis, and offer to meet and discuss the survey format and schedule.

Fiscal Impact: Koff & Associates has provided a compensation survey proposal with a fee of not-to-exceed $11,500. The FY 19 operating budget has funding for the survey. The last survey was performed in 2013 for a service fee of $9,300.

Attachment:
- Page 8 of the 7/1/2014 Collective Bargaining Agreement between CMSA and SEIU 1021

12.2 Conversion of Salary Rates

Any monthly, daily, or hourly rate of pay may be converted into any equivalent rate of pay or to any other time basis when such a conversion is advisable. In determining equivalent amounts on different time bases, the Agency will provide tables or regulations for calculation of payment for service of less than full time, and for use in converting monthly salaries to hourly rates as well as for calculation hourly rates. The base for these calculations will be a 2080-hour work year.

12.3 Cost-of-Living-Adjustments

Effective July 1, 2018, 2019, 2020, and 2021, the Agency will provide a Cost-of- Living (COL) adjustment for each agency classification using the formula as follows: The Annual Consumer Price Index for the previous Calendar Year - All Urban Consumers for the San Francisco-Oakland-San Jose, CA, 82-84=100 up to a maximum of a Three Percent (3.0%) wage increase on 7/1/18 and 7/1/19, and up to a maximum of 4% on 7/1/20 and 7/1/21.

12.4 Market Survey

On or about March 2019, CMSA will perform a Market Survey using the same format as in the 2009 Market Survey, and will meet and confer with the Union within thirty (30) days of the completion of the Survey.

Section 13. Health and Welfare

13.1 Medical

The Agency will provide employees with the option of selecting hospital-medical insurance from the Flexible Benefit Plan.

For employees hired prior to July 1, 2014, the Agency shall contribute the equivalent of the current CalPERS Kaiser Bay Area family (3+ party) rate toward hospital medical insurance.

Additionally, the amount of residual Flex dollar benefit that an employee can receive as cash in the future cannot exceed the amount the employee received on July 1, 2014; even if the employee decides to 1) decrease the number of dependents enrolled in the health plan or 2) opts to no longer enroll in a CalPERS plan. The Agency will set the July 1, 2014 Kaiser family (3+ party) monthly rate of $1,931.07 as the amount for the sole purpose of determining future residual flex dollar benefits to be received as cash for eligible employees.

For employees hired after July 1, 2014, the Agency shall contribute the equivalent of the current CalPERS Kaiser Bay Area single party, two party or family rate family rate toward hospital-medical insurance based on the employee's and his/her eligible dependent enrollment in a CalPERS health plan. An employee hired after July 1, 2014 will not be eligible to receive residual Flex dollar benefit even if s/he opts not to enroll in a CalPERS health plan.

BOARD MEMORANDUM

January 4, 2019

To: CMSA Commissioners and Alternates

From: Jason Dow, General Manager

Subject: 2018 California Water Environment Association Awards – Redwood Empire Section

Recommendation: Adopt the Resolution of Appreciation (No. 334) to Agency staff for receiving the 2018 organizational, regional, and individual awards from the Redwood Empire Section of the California Water Environment Association.

Discussion: The California Water Environment Association (CWEA) is the State's water and wastewater industry association. CWEA provides training programs, conferences and seminars, technical publications, and certification for maintenance, collection system, electrical/instrumentation, laboratory, and environmental compliance staff. CMSA is a member of the Redwood Empire Section of the CWEA, which includes the wastewater agencies in Marin, Sonoma, Napa, and parts of Mendocino and Solano counties.

Each CWEA section administers a competitive award program for individual members to nominate their respective agencies for organizational awards and/or fellow employees for position specific awards, such as Maintenance Technician of the Year. In 2018, CMSA received eight Redwood Empire Section awards in the individual, regional, and organizational categories as shown below.

Individual Awards

Electrical/Instrumentation Person of the Year – *Jon Farr*

Mechanical Technician of the Year – *Jacob Dellinger*

Community Engagement and Outreach Person of the Year – *Mary Jo Ramey*

Operator of the Year – *Ryan Word*

Outstanding Young Professional of the Year – *Amy Hwang*

P3S Person of the Year – *Jose Gutierrez*

Regional Award

Community Engagement and Outreach - *Wastewater Treatment Agencies of Marin for the cooperative public education program*

Organizational Awards

Engineering Achievement of the Year – *Power Delivery Program*

The award recipients will now progress to the state level competition between the award winners in the seventeen CWEA sections. Pursuant to the Board adopted Administrative Policy #58 - Employee Award Recognition, each individual award recipient will receive a $100 monetary award, and specific employees who participated in the cooperative public education program and worked on the Power Delivery Program will receive an additional $100.

Attachment:

- CMSA Resolution No. 334

CMSA Resolution No. 334

RESOLUTION OF APPRECIATION
TO THE EMPLOYEES OF CMSA FOR RECEIVING
2018 CWEA - REDWOOD EMPIRE SECTION AWARDS

WHEREAS, On October 15, 1979, the Central Marin Sanitation Agency (CMSA) was formed through a joint exercise of powers agreement, and a regional treatment facility was constructed and has been operating since January 1985; and

WHEREAS, CMSA staff have operated and maintained the Agency's treatment plant, solids handling facilities, energy production systems, and organic waste receiving facility in an effective, efficient, and safe manner to continuously protect the public health and environment for the residents in Central Marin county; and

WHEREAS, CMSA is a member of the California Water Environment Association's (CWEA) Redwood Empire Section, which includes wastewater organizations in Marin, Sonoma, Napa, Solano, and Mendocino counties;

WHEREAS, the CWEA awarded the Mechanical Technician Person of the Year Award to ***Jacob Dellinger,*** who has been with the Agency for three years, in recognition of his personal growth as a Mechanical Technician, and in the performance of a time- and safety-sensitive chemical process tank replacement and a containment sump replacement project; and

WHEREAS, the CWEA also awarded the Electrical/Instrumentation Person of the Year Award to ***Jon Farr***, who has worked for the Agency for three years, in recognition of his initiative and broad-minded problem solving skills, and for spearheading the Lighting Replacement Program which updates existing metal halide lighting with energy-efficient LED lighting; and

WHEREAS, the CWEA also awarded the Community Engagement and Outreach Person of the Year Award to ***Mary Jo Ramey***, who has been with the Agency for eleven years, in recognition of her outstanding performance as an Environmental Services Analyst who seeks to actively educate our community, and her participation in the Bay Area Pollution Prevention Group (BAPPG); and

WHEREAS, the CWEA also awarded the Operator of the Year Award to ***Ryan Word***, who has been with the Agency for three years, in recognition of his excellence in performing the duties of an operator, and attaining Operator-in-Charge status of the graveyard shift in his short tenure with the CMSA; and

WHEREAS, the CWEA also awarded the P3S Person of the Year Award to ***Jose Gutierrez***, who has been with the Agency for ten years, in recognition of his integral support of CMSA's Fats, Oils and Grease Program, regulatory knowledge, and implementation of CMSA's Pretreatment Program; and

WHEREAS, the CWEA also awarded the Outstanding Young Professional of the Year Award to ***Amy Hwang***, who has been with the Agency for over two years, in recognition of her outstanding performance managing several important CMSA engineering projects, as well as her ongoing support of other important CMSA Technical Services Department assignments; and

WHEREAS, the CWEA also awarded the Community Engagement and Outreach Program of the Year Award to the ***Wastewater Treatment Agencies of Marin County***, for their successful collaborative countywide public education and outreach program, which is administered and managed by CMSA staff, and reached over 6,000 students and adults in 2018; and

WHEREAS, the CWEA also awarded the Engineering Achievement of the Year Award to CMSA for its ***Power Delivery Program***, which is comprised of several Agency projects and initiatives that, when completed, will allow CMSA to deliver power to the PG&E electrical grid and sell it to Marin Clean Energy (MCE); and

NOW, THEREFORE, BE IT RESOLVED that the Board of Commissioners recognizes and appreciates the dedication and commitment of the Agency employees for operating, maintaining, and managing the Agency facilities and conducting Agency business in a manner to achieve the CWEA award recognition.

PASSED AND ADOPTED at the meeting of the Central Marin Sanitation Agency Commissioners, County of Marin, State of California, on January 8, 2019.

_____
Dean DiGiovanni, Commission Chair

ATTEST:

By_____
Michael Boorstein, Commission Vice-Chair

Central Marin Sanitation Agency

BOARD MEMORANDUM

January 4, 2019

To: CMSA Commissioners and Alternates

From: Peter Kistenmacher, Technical Services Manager
Jason Dow, General Manager

Subject: Cogeneration Predesign Evaluation Project – Technology Assessment

Recommendation: Informational – provide comments or direction to the General Manager, as appropriate.

Summary: In October 2018, the Board approved a Professional Service Agreement with Carollo Engineers to prepare a Cogeneration System Predesign Evaluation (Predesign). At the conclusion of the discussion, the Board asked if staff would present the Predesign findings, and staff said that the Cogeneration System Technology Alternative Analysis task would be completed in December and a presentation will be scheduled for the January 2019 meeting.

Carollo is making good progress on the Predesign work and has delivered the Technology Alternative Analysis memorandum, whose key findings are:

- An Internal Combustion (IC) engine is the recommended technology out of three cogeneration technologies considered.

- There are three distinct size options available for a new cogeneration engine: 850kW, 1065kW, and 1,100 kW, which are approximately 33% more energy efficient than CMSA's current 750kW engine.

- Based on CMSA's 2018 biogas production of 190 ft^3/min, each engine upon start-up will provide all CMSA's power demand with excess power delivered to MCE, and each has additional capacity for power generation.

- The existing CMSA biogas treatment system technology was found to be the most suitable technology, and the system has adequate capacity to treat existing biogas quantities with some room for future growth.

Discussion: The existing cogeneration engine has a capacity of 750 kW, an electrical efficiency of around 30 percent and has been in service for over 15 years with more than 130,000 operating hours. An installation of an additional cogeneration unit in the empty bay of the existing solids handling building, along with upgrades to the existing biogas treatment system will improve and provide redundancy and reliability of the cogeneration system. A new IC

cogeneration engine using the latest technology would provide for an higher electrical efficiency of around 40 percent. With CMSA's existing average biogas production, a new higher efficiency engine would be able to provide 100 percent of the Agency's overall electricity usage, and could export a small amount of annual excess electricity generated to the power grid. Under CMSA's existing Power Purchase Agreement with MCE, CMSA would generate revenue by selling excess electricity to MCE up to a contractual annual limit, approximately 1,300,000 kWhr/year. Staff is also currently exploring ways to source additional organic feedstock to approach this existing MCE limit as much as possible using the existing cogeneration engine.

As part of the Predesign, Carollo considered three cogeneration technologies: IC Engine, Microturbine, and Fuel Cell. Fuel Cells were eliminated from consideration due to their poor track record operating on biogas and because the closest available size was 1,400 kW, which will not physically fit within the empty bay inside the solids handling building. Microturbine technology was not found to be as financially attractive as a microturbine operates only at 30 percent electrical efficiency and thus converts only smaller percentage of CMSA's biogas resources into valuable electricity. Additionally, staff is not familiar with operating and maintaining this technology and there are reports of poor microturbine performance on biogas fuel at other California wastewater treatment plants. For these reasons, the cogeneration engine technology is recommended as the preferred option.

The existing biogas treatment system technology, consisting of hydrogen sulfide removal via SulfaTreat, moisture removal, and siloxane removal via adsorption was found to be the most suitable technology based on its successful application at the Agency and other wastewater treatment facilities. The existing biogas treatment system has adequate capacity to treat existing biogas quantities while allowing some spare capacity. However, some improvements to the existing system will be required to improve operation and maintenance of the system, which will be addressed during the predesign phase of the project. Should CMSA decide to expand its biogas production significantly beyond today's production, additional capacity related improvements to the biogas treatment system may need to be completed as part of a future expansion project.

Future Generation Potential: There are three distinct size options, mentioned above, available for a new cogeneration engine. While selecting a larger engine would provide CMSA with significant future spare capacity at comparatively modest incremental costs, there is uncertainty associated with acquiring additional organic feedstocks, and digester operational stability limitations that would prevent CMSA from fully utilizing all of its excess digestion capacity. Other limitations, such as agreements with Marin Clean Energy and/or PG&E, may exist that could prevent CMSA from selling all excess electricity. Staff has begun implementing proactive steps to determine what such limitations may be and initial results of this evaluation are expected to be available by the end of CY 2019.

Background: CMSA has two anaerobic digesters that are fed with wastewater solids and external organic feedstock. The biogas produced in the digesters is used in an existing 750 kW cogeneration system to heat plant process water and to generate electricity to supply the

Agency's power needs. CMSA operates one of only a handful of organic waste receiving facilities in California used to accept both fats, oils, and grease and food waste for addition into anaerobic digesters.

The CMSA 2017 Facilities Master Plan included a task to evaluate alternatives to utilize additional biogas generated in the Agency's anaerobic digesters, as the existing cogeneration engine is reaching the end of its useful life and CMSA was found to have excess digestion capacity to accept increased amounts of external organic waste materials, which would increase biogas production. The Master Plan concluded that that CMSA has substantial excess digestion capacity to increase biogas production and a new cogeneration system was the preferred alternative to use the biogas.

Fiscal Impact: The Agency's 10-year Capital Improvement Program has $4.3 million allocated for a cogeneration system design and installation project from FY 19 through FY 22. On December 28, 2018, staff submitted an application package for financial assistance through the Clean Water State Revolving Fund (CWSRF) Green Project Reserve (GRP) Program, with a total project cost estimate of approximately $10 million. The CWSRF provides low interest loans to agencies on a first-come-first-served basis with up 50 percent of the actual design and construction costs or a maximum of $4 million as loan forgiveness. If the Project is selected, the funding shortfall could be mostly financed through the GRP program and partially removed from the list of capital projects currently included in the Agency's planned future debt issuance. The CWSRF project cost estimate includes a large amount of contingency as is typical for a conceptual level cost estimate. More refined cost estimates will be prepared at the completion of Predesign and later as the project progresses.

Alignment with Strategic Plan: This activity supports Goal 1 – Objective 1.4 and Goal 3 – Objective 3.1 in the Agency's FY19 Business Plan as shown below.

Goal One:	*CMSA will continue to operate and maintain its wastewater facility to produce high quality effluent and biosolids, with a changing regulatory environment.*
Objective 1.4	*Deliver projects from the Agency Facilities Master Plan*
Goal Three:	*CMSA will further incorporate green business principles and consider renewable resource opportunities in its short-and long-term planning.*
Objective 3.1	*Implement steps to supply the Agency's extra power*

Attachment:

- Cogeneration System Technology Alternative Analysis Technical Memorandum – Final Draft

Technical Memorandum 1

Prepared for: Central Marin Sanitation Agency

Project Title: Cogeneration System Predesign Evaluation

Project No: 11256A.00

Technical Memorandum 1 - Final Draft

Subject: Cogeneration System Technology Alternative Analysis

Date: January 3, 2019

To: Peter Kistenmacher, P.E., CMSA Project Manager

From: Rick Chan, P.E., Carollo Project Manager

Prepared by: _____

Elizabeth Charbonnet, P.E., Carollo Engineers

_____

Tom Mossinger, P.E., Carollo Engineers

Reviewed by: _____

Rick Chan, P.E., Carollo Engineers

Carollo Engineers, Inc.,
2700 Ygnacio Valley Road, Suite 300
Walnut Creek, California 94598
Tel: 925-932-1710
Fax: 925-930-0208

Contents

Technical Memorandum 1 Cogeneration System Technology Alternative Analysis

Appendices

Tables

Figures

Technical Memorandum 1

COGENERATION SYSTEM TECHNOLOGY ALTERNATIVE ANALYSIS

1.1 Purpose

The Central Marin Sanitation Agency (Agency) would like to install an additional cogeneration unit in the empty bay of their existing Solids Handling Building at their Wastewater Treatment Plant (WWTP). Before design and construction of this facility can commence, the optimal type of cogeneration system for this location and the associated biogas treatment system needs to be determined. This technical memorandum (TM) summarizes the results of the cogeneration system technology alternatives analysis conducted.

1.2 Summary of Findings and Recommendations

The key findings and recommendations are:

- Three cogeneration technologies were considered for installation at the Agency's WWTP. These include: Internal Combustion (IC) Engine, Microturbine, and Fuel Cell. Out of the technologies considered, an 850 kW cogeneration IC engine appears most favorable financially with the lowest estimated present worth costs based on CMSA's current biogas production only. Should CMSA's biogas production increase substantially in the future, and should the Agency be able to export all excess power, a larger engine size would likely be the most favorable financial option.
- The existing biogas treatment system technology consisting of H2S removal via SulfaTreat, moisture removal, and siloxane removal via adsorption was found to be the most suitable technology based on its successful application at the Agency and other wastewater treatment facilities. The existing 260 SCFM biogas treatment system has adequate capacity to treat existing biogas quantities. However, some improvements to the existing system will be required to improve operation and maintenance (O&M) of the system, which will be addressed during the predesign phase of the project.

1.3 Background

The Agency has two 80 foot diameter anaerobic digesters, each with a side water depth of 30 feet. These digesters were constructed in the early 1980s. The Agency also constructed an Organic Waste Receiving Facility (OWRF) in 2012 to process fats, oils, and grease (FOG) and food waste (FW). The processed FOG and FW is digested along with primary sludge (PS) and thickened waste activated sludge (TWAS) in the Agency's two digesters.

Biogas produced in the digesters is used to heat plant process water and to generate electricity to supplement the Agency's power needs. Electrical power generation is currently accomplished by feeding the biogas to a 750 kilowatt (kW) Waukesha lean-burn, reciprocating engine generator that is housed inside the Solids Handling Building. The cogeneration facility was

constructed with one empty bay adjacent to the existing cogeneration engine. The engine was installed in 2003 and generally has an overall efficiency of around 70 to 80 percent. However, the electrical efficiency of this engine is only 30 to 33 percent efficient.

The Agency's WWTP also has a biogas treatment system ahead of the engine generator to remove hydrogen sulfide (H2S), siloxanes, and moisture to minimize fouling and corrosion of the cogeneration equipment. This biogas treatment system has sufficient capacity to process 260 standard cubic feet per minute (SCFM) of biogas and includes compressors, dryers, and siloxane filters installed in 2003 and H2S scrubbers installed in 2010. A simplified schematic of the existing biogas treatment and cogeneration facility is shown in Figure 1.1.

In 2018 a Biogas Utilization TM was completed as part of the 2017 Facilities Master Plan. This Biogas Utilization TM considered future options for the beneficial use of biogas in excess of the existing cogeneration capacity. As part of this analysis three alternative biogas uses were considered: 1) additional cogeneration system, 2) off-site vehicle refueling, and 3) off-site pipeline injection. The TM concluded that an additional cogeneration system is a viable option with the most favorable implementation considerations.

1.4 Facility Sizing for Alternative Analysis

The 2018 Biogas Utilization TM evaluated historical biogas production, and potential future biogas production if FOG and FW loadings were increased beyond 2017 levels. This evaluation is summarized in Table 1.1.

Table 1.1 Historical and Projected Digester Loading and Biogas Production

Parameter	FY 16/17(1)	Maximize Digestion Capacity Scenario(1)
PS+TWAS VS load, klb VS/d (@8.03 mgd ADWF)	16.2	16.2
FOG VS load, klb, VS/d	3.32	21.50
Food Waste VS load, klb, VS/d	3.84	4.22
PS+TWAS Load Fraction, %	69	39
FOG+Food Waste load fraction, %	31	61
Average biogas gas flow rate, scfm	190	466

Notes:
(1) Values shown are per the 2018 Biogas Utilization TM completed as part of the 2017 Facilities Master Plan.

As shown in Table 1.1, the average biogas produced in fiscal year (FY) 2016/2017 was approximately 190 scfm. If the digesters were operated at their full capacity by adding additional FOG and FW, it is possible the WWTP could produce up to about 466 scfm of biogas in the future. However, this would require a substantial increase in current FOG and FW loadings. This future biogas production is uncertain because it is dependent on the availability of FOG and FW in the surrounding area and it is also dependent on the operational stability of the digesters at higher FOG and FW load fractions. For these reasons and because the Agency wishes to install a cogeneration unit in the near future before large increases in FOG and FW loadings could ever materialize, the amount of biogas produced in FY 2016/2017 was used as the basis of design for sizing the proposed cogeneration system.

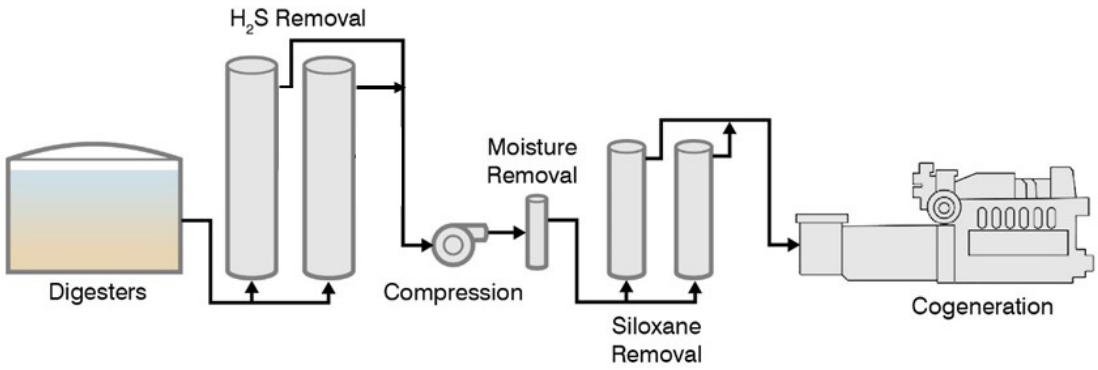


Figure 1.1 Simplified Schematic of the Existing Cogeneration and Biogas Treatment Systems

1.5 Cogeneration Technology Alternatives

Three cogeneration technologies were considered for this alternatives analysis:

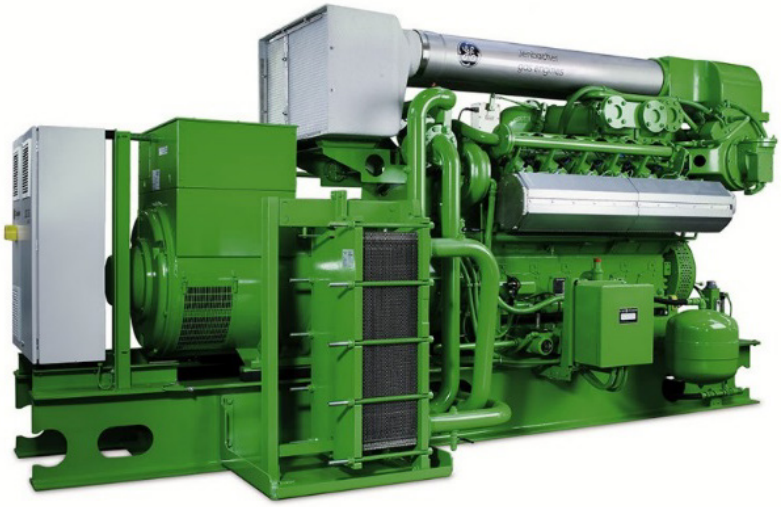
- IC Engine
- Microturbine
- Fuel Cell

1.5.1 IC Engine

Several lean burn reciprocating engine suppliers have new generation, high efficiency, low emission units available for use with biogas including Cummins, Waukesha, Caterpillar, and Jenbacher. Reciprocating engines can be found in applications ranging from 40 KW to over 5-megawatts (MW) per unit. Sizes applicable to this application include an 850 kW unit, a 1,065 kW unit, and a 1,140 kW unit. An example IC Engine is shown in Figure 1.2. These engines typically convert approximately 40 percent (as a percentage of fuel input energy) to electrical output, which stays nearly constant throughout the typical operating range of 50-100 percent engine load. The total overall efficiency of these reciprocating engines is approximately 80-85 percent. The engines are lean-burn, spark-ignited, low emission gas engines and have digester gas burning experience. This type of IC engine is currently used successfully in many wastewater facilities in California, including treatment plants at the City of Hayward, Union Sanitary District, and Silicon Valley Clean Water. Reciprocating engines have the highest emissions of the evaluated cogeneration technologies. Lean burn engines with the use of exhaust emission control devices (SCR/CO) are currently the only known field-proven engine technology that can offer lower emission rates if needed to meet the requirements of local Air Districts. It should be noted that engine emission requirements have been steadily reduced throughout the country and this trend is expected to continue.

1.5.2 Microturbine

Microturbines are essentially small gas turbines operating at very high rpm to produce power and heat. An example Microturbine is shown in Figure 1.3. There are currently several commercial manufacturers offering microturbine power generating units. Only two, FlexEnergy (formally Ingersoll Rand) and Capstone, have experience utilizing digester gas as a fuel source. FlexEnergy offers 250 kW modular units. The Capstone units come in 30, 65, and multiples of 200 kW sizes.



Source: Jenbacher

Figure 1.2 Example IC Engine

FlexEnergy and Capstone have shipped more than 100 units operating on both natural gas and digester gas world-wide. Several dozens of 30 kW and 70 kW units and two 250 kW units are operating on digester gas. Two 250 kW units are in operation on a medium BTU gas at an Oil/Gas Producer in Grand Isle, LA and eight 250 kW units have recently been sold for operation on a medium BTU gas in both the United States and China.

Microturbines typically convert about 29 percent of fuel input energy to electrical output and about 29 percent to recoverable exhaust heat, for a total overall efficiency of approximately 58 percent. Microturbines have very low-emissions. Currently microturbines can be installed in any air district in the US without added emissions control equipment requirements. This is expected to continue in the foreseeable future.

Source: Capstone

Figure 1.3 Example Microturbine

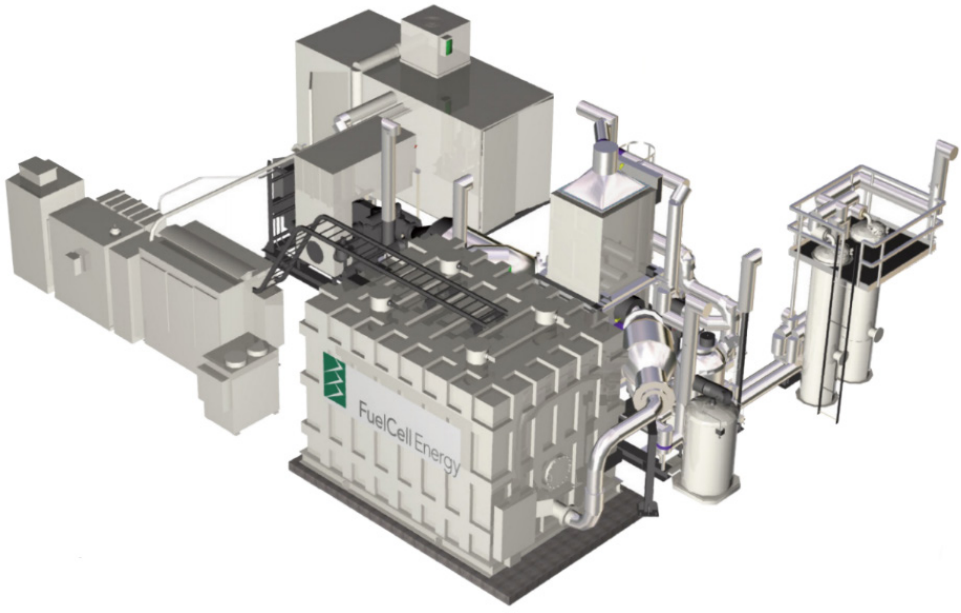
1.5.3 Fuel Cell

Fuel cells utilize the hydrogen present in the methane-rich digester gas as a fuel source in an electrochemical process. The process converts the elemental carbon and hydrogen from the methane into carbon dioxide and hydrogen and in the process releases electrons which are captured as direct current (DC) electricity. The fuel cells evaluated typically convert, as a percentage of fuel input power, about 40-45 percent to electrical output and about 25 percent to recoverable exhaust heat for a total overall efficiency of approximately 65-70 percent. An example Fuel Cell is shown in Figure 1.4.

Two manufacturers, United Technologies Corporation (UTC) and Fuel Cell Energy (FCE), currently offer fuel cells for large-scale power generation with experience on digester gas. One other manufacturer, Bloom Energy, is currently selling similar fuel cell systems but it has no experience with operation on digester gas and does not offer heat recovery. Both FCE and UTC manufacturers have provided fuel cells for applications utilizing digester gas; however, only FCE has units currently in operation. Some of these units operating on biogas are located in California. FCE utilizes a more efficient fuel cell technology than UTC, providing 40-45 percent fuel-to-electricity efficiency versus UTC's 35-40 percent.

As an electrochemical process, fuel cells produce significantly less pollutant byproducts than combustion technologies. Fuel cells have approximately 1/100th the emissions generated by engine-generators. Fuel cells are exempt for air permit requirements.

Fuel cells are currently only available in one size at a capacity of 1,400 kW. This is the smallest size available and would require much more biogas to operate than the Agency's WWTP can produce. In addition, the space requirement of the 1,400 kW unit is too large to fit in the empty bay of the Solids Handling Building at the WWTP and fuel cells have a poor historical track record at California WWTPs. For these reasons, this technology is not a viable alternative and will not be considered further.



Source: Fuel Cell Energy

Figure 1.4 Example Fuel Cell

1.5.4 Cogeneration Technology Alternative Evaluation

A summary of the remaining two cogeneration technology alternatives is shown in Table 1.2. Three sizes were evaluated for the IC engine and two sizes were evaluated for the microturbine alternatives. As discussed above, the FY 2016/2017 biogas production was approximately 190 scfm. All four alternatives evaluated would be capable of handling the total amount of biogas currently produced with some excess capacity for future growth.

However, it should be noted that the Agency's current contract with Marin Clean Energy (MCE) potentially limits the Contract Capacity of the Agency's cogeneration facility to 1,000 kW. Per the MCE contract, the Contract Capacity "is equal to the nameplate rating of the Facility. Seller shall not modify the Facility to increase the Contract Capacity without the prior written consent of MCE." All changes to the MCE agreement that change from the 750 kw existing unit will require written consent, although the Agency has received email indication from MCE that changes that do not increase the annual kwh produced for export beyond what is in the existing agreement could likely be easily incorporated in the existing agreement. Therefore, it is recommended that the Agency pursue further discussions with MCE to determine the possibility of installing an additional cogeneration unit with a capacity that is 1,000 kW or larger.

For this analysis, however, all three sizes of the IC engine and both sizes of the microturbine units were carried forward for comparison purposes in the economic analysis.

Table 1.2 Cogeneration Technology Alternatives

Criteria	IC Engine			Microturbine	
Typical Electrical Efficiency	40%			30%	
Emission Control Requirements	SCR/CO Required			None Needed	
Staff Familiarity	Yes			No	
Design Capacity(1)	850 kW	1,065 kW	1,140 kW	800 kw	1,000 kw
Design Biogas Throughput	208 scfm(2)	261 scfm(2)	278 scfm(2)	237 scfm(3)	296 scfm(3)
Fit within the Existing Bay	Yes	Yes	Yes	Yes	Yes

Notes:
(1) Design capacities shown are based on equipment capacities of Jenbacher IC engines and Capstone Microturbines.
(2) Biogas throughput was calculated using a fuel rate of 8,500 BTU/kWh and a biogas LHV of 580 BTU/scf.
(3) Biogas throughput was calculated using a fuel rate of 10,300 BTU/kWh and a biogas LHV of 580 BTU/scf.

Construction and O&M Costs Evaluation

Table 1.3 presents the estimated relative equipment construction and annual operations and maintenance (O&M) costs for the five cogeneration alternatives considered. Costs presented reflect a November 2018 ENR of 12110 and are based on major cogeneration equipment cost only for comparison purposes and do not include common cost items that would be required of all alternatives, such as civil, mechanical, structural, electrical, and instrumentation improvements. O&M costs include maintenance, labor, and power costs.

Table 1.3 Relative Construction and O&M Costs for Cogeneration System Alternatives

	850 kW IC Engine	1,065 kW IC Engine	1,140 kW IC Engine	800 Kw Microturbine	1,000 kW Microturbine
Construction Cost[1]	$2,926,000[2]	3,135,000[2]	$3,211,000[2]	$2,910,000[3]	$3,638,000[3]
Annual O&M Cost - Based on Current Agency Biogas Supply[4]	$209,000[5]	$209,000[5]	$209,000[5]	$223,000[6]	$223,000[6]
Annual O&M Cost - Supplementing with Future Additional Biogas[4]	$226,000[5]	$264,000[5]	$277,000[5]	$264,000[6]	$312,000[6]

Notes:
(1) Equipment construction costs shown do not include costs common to each alternative. Refer to Appendix 1A for a breakdown of the cost estimates.
(2) Based on equipment budget quotes from Jenbacher.
(3) Based on equipment budget quotes from Capstone.
(4) Annual O&M costs shown is the average O&M cost over the 20-year period considered.
(5) O&M cost calculated assuming $0.90/MMBTU of biogas treated and $0.015/kWh of electricity generated.
(6) O&M cost calculated assuming $0.90/MMBTU of biogas treated and $0.02/kWh of electricity generated.

Life Cycle Cost Evaluation

Table 1.4 presents the estimated present worth cost of the five cogeneration alternatives assuming the cogeneration units are only fueled with the Agency's current biogas supply. Table 1.5 presents the estimated present worth cost of the five cogeneration alternatives assuming the cogeneration units are supplemented with future additional biogas to run at their nameplate capacity and that the Agency would be able to sell all excess biogas to MCE. Positive values indicate a cost for the Agency while negative values indicate a revenue for the Agency. The present worth cost analysis conducted uses a 20-year discounted cash flow model to determine the net present cost of each alternative. The model includes estimated construction and O&M costs, as well as projected revenue streams from sale of electricity and known applicable credits and/or incentives. For an equivalent comparison using the available data, the model assumed all alternatives would be implemented in 2020.

The following key assumptions were used in the economic analysis:

1. Biogas flows remain constant at 190 scfm for the analysis duration. This constant biogas flow rate implies that no increases in FOG and FW loadings are assumed. With 190 scfm of biogas, the IC engines can produce around 780 kW and the microturbines can produce around 640 kW.
2. Plant electrical demands remain constant at 2017 values for the analysis duration. A plant electrical demand of around 15,500 kWh/day was used based on the Agency's 2017 PG&E bill. As described in the 2017 Facilities Master Plan, WWTP flows and loads are not anticipated to increase in the near future. Thus no increases in power usage are expected.
3. The price of electricity sold to MCE remains at $0.105/kWh for the duration of the analysis. This is consistent with the Agency's existing contract with MCE which runs

through 2028. It was assumed that the price for electricity would remain the same even after the MCE contract expired.

4. The cost of electricity (combined demand and usage charge) is assumed to be $0.145/kWh inflated at 4 percent per year. This is consistent with Bay Area wastewater facilities with similar flow capacities that do not employ cogeneration on site. The assumed cost is also consistent with the costs observed at the Agency in January of 2017 when the cogeneration engine was not in service ($0.13/kWh). As the cost of electricity is lower in the winter than in the summer, a yearly average of $0.145/kWh was assumed to be reasonable for use in this analysis.
5. A demand charge of $12,000 per month inflated at 4 percent per year was used. This demand charge is reasonable given the Agency's 2017 electricity bill.
6. A gross discount rate of 5 percent per year was used.
7. A construction and O&M cost inflation rate of 3 percent per year was used.

As shown in Table 1.4, the expected 20-year present worth cost to the Agency for the five alternatives considered ranges from around $7 million to $10 million. The lowest present worth cost to the Agency is for the 850 kW cogeneration IC engine alternative.

Furthermore, as shown in Table 1.5, any of the three cogeneration IC engines are expected to have a present worth cost lower than the microturbine options. The largest IC engine has the lowest present worth cost of around $4.5 million if supplemented with additional future biogas and all excess power could be sold.

1.6 Biogas Treatment Technology Alternatives

Prior to combustion in the cogeneration units, biogas must be treated to remove constituents that can cause serious problems with the WWTP's equipment. Such constituents include H2S, siloxanes, and water. Currently the Agency uses H2S scrubbers, biogas dryers, and siloxane removal via adsorption. Alternative biogas treatment technologies were considered in this TM.

Available treatment processes commonly used in the industry typically fall into two categories:

1. Primary treatment to remove water vapor and particulates.
2. Secondary treatment to remove specific components of the digester gas, such as volatile organic compounds (VOCs), halogenated organics, H_2S, and siloxane compounds.
3. Of the treatment processes commonly used, there are a number of technology alternatives in use that should be evaluated for H2S removal and for siloxane removal.

Table 1.4 Relative Present Worth Costs for Cogeneration System Alternatives Based on Current Agency Biogas Supply

	850 kW IC Engine	1,065 kW IC Engine	1,140 kW IC Engine	800 kW Microturbine	1,000 kW Microturbine
Estimated Construction Cost (2018 dollars)(1)	$2,926,000(2)	$3,135,000(2)	$3,211,000(2)	$2,910,000(3)	$3,638,000(3)
Revenue from electricity sold to MCE(4)	($220,000)	($220,000)	($220,000)	$0	$0
Connection and Demand Charge(5)	$2,584,000	$2,584,000	$2,584,000	$2,584,000	$2,584,000
Cost for electricity bought from the grid(6)	$0	$0	$0	$2,538,000	$2,538,000
O&M Costs for Cogeneration System(7)	$1,566,000	$1,566,000	$1,566,000	$1,723,000	$1,723,000
Total 20-Year Present Worth Cost(8)(9)	**$6,856,000**	**$7,065,000**	**$7,141,000**	**$9,755,000**	**$10,483,000**

Notes:
(1) Equipment construction costs shown do not include costs common to each alternative. Refer to Appendix 1A for a breakdown of the cost estimates.
(2) Based on equipment budget quotes from Jenbacher.
(3) Based on equipment budget quotes from Capstone.
(4) The price for electricity is assumed to be $0.105/kWh. This price was not inflated for the 20-year lifecycle considered.
(5) A connection and demand charge of $12,000 per month, inflated at 4 percent per year was assumed for all alternatives.
(6) With the new IC engines the Agency is exporting around 180 MW-hr per year. With the new microturbines the Agency has to purchase 975 MW-hr per year. If electricity is purchased from the grid, the cost of electricity is assumed to be $0.145/kWh, inflated at 4 percent per year.
(7) The O&M cost is assumed to be $0.015/kWh, inflated at 3 percent per year for IC engines and $0.020/kWh, inflated at 3 percent per year for microturbines.
(8) Total 20-year present worth costs is the sum of the present worth costs listed above. A gross discount rate of 5 percent per year is used for all of the costs shown.
(9) Parasitic load for the IC engines was assumed to be 10 percent of the electricity generated. Parasitic load for the microturbines was assumed to be 12.5 percent of the electricity generated.

Table 1.5 Relative Present Worth Costs for Cogeneration System Alternatives Supplementing with Future Additional Biogas[1]

	850 kW IC Engine	1,065 kW IC Engine	1,140 kW IC Engine	800 kW Microturbine	1,000 kW Microturbine
Estimated Construction Cost (2018 dollars)[2]	$2,926,000[3]	$3,135,000[3]	$3,211,000[3]	$2,910,000[4]	$3,638,000[4]
Revenue from electricity sold to MCE[5]	($908,000)	($2,933,000)	($3,583,000)	($226,000)	($2,034,000)
Connection and Demand Charge[6]	$2,584,000	$2,584,000	$2,584,000	$2,584,000	$2,584,000
Cost for electricity bought from the grid[7]	$0	$0	$0	$0	$0
O&M Costs for Cogeneration System[8]	$1,715,000	$2,152,000	$2,292,000	$2,150,000	$2,685,000
Total 20-Year Present Worth Cost[9][10]	**$6,317,000**	**$4,938,000**	**$4,504,000**	**$7,418,000**	**$6,873,000**

Notes:
(1) Assumes the Agency is able to increase its biogas production and that any potential restrictions to excess power sales are removed.
(2) Equipment construction costs shown do not include costs common to each alternative. Refer to Appendix 1A for a breakdown of the cost estimates.
(3) Based on equipment budget quotes from Jenbacher.
(4) Based on equipment budget quotes from Capstone.
(5) The price for electricity is assumed to be $0.105/kWh. This price was not inflated for the 20-year lifecycle considered.
(6) A connection and demand charge of $12,000 per month, inflated at 4 percent per year was assumed for all alternatives.
(7) With the 850 kW IC engine the Agency is exporting around 730 MW-hrs per year. With the 1,065 kW IC engine the Agency is exporting around 2,350 MW-hrs per year. With the 1,100 kW IC engine the Agency is exporting around 2,870 MW-hrs per year. With the 800 kW microturbine the Agency is exporting around 180 MW-hrs per year. With the 1000 kW microturbine the Agency is exporting around 1,630 MW-hrs per year. If electricity is purchased from the grid, the cost of electricity is assumed to be $0.145/kWh, inflated at 4 percent per year.
(8) The O&M cost is assumed to be $0.015/kWh, inflated at 3 percent per year for IC engines and $0.020/kWh, inflated at 3 percent per year for microturbines.
(9) Total 20-year present worth costs is the sum of the present worth costs listed above. A gross discount rate of 5 percent per year is used for all of the costs shown.
(10) Parasitic load for the IC engines was assumed to be 10 percent of the electricity generated. Parasitic load for the microturbines was assumed to be 12.5 percent of the electricity generated.

1.6.1 Hydrogen Sulfide Removal Technologies

H2S is a highly reduced compound that readily binds with most iron media and is abundant in digester gas. During combustion, H2S reacts with oxygen in the combustion process creating sulfur (S), sulfur dioxide (SO2), sulfite (SO32-), and sulfate (SO42-), which are known as SOx and are regulated as air pollutants. The oxidized sulfur compounds then react with water to form sulfuric acid. This acid is detrimental to boilers and cogeneration equipment, which can cause severe corrosion.

H2S can be removed from digester gas by the use of the following proven, commercially available systems:

- Iron sponge (iron-impregnated wood chips).
- SulfaTreat (iron-impregnated clay).

Iron Sponge

The oldest commercial process for removing H2S from digester gas is "iron sponge," which has been used for over a century. The concept is simple: hydrated iron oxide is impregnated onto redwood chips. The wood chips are placed in a vessel, and the gas flows over the wood chips. The H2S in the gas reacts with the iron oxide to form iron sulfide with removal efficiencies up to 99.9 percent. Iron sponge normally has the lowest initial cost of all commercial processes.

However, the typical use of anaerobic iron sponge has one potential drawback. During media change-out, a highly exothermic oxidation reaction could take place, causing the media to spontaneously ignite. Changing to an aerobic sponge with continuous air regeneration has reduced this risk, which increases the loading capacity and eliminates the potential fire issue.

SulfaTreat

An alternative form of a solid media H2S removal system, termed SulfaTreat, uses iron-based chemistry, but a different substrate media base, to address the media change-out issue. SulfaTreat is a dry, free-flowing iron oxide-based media that selectively removes H2S and some light mercaptans from gas and liquid streams. The media begins as a safe and stable compound environmentally non-hazardous in unreacted and reacted forms. The solid, clay-like media is an inorganic ceramic material coated with an iron oxide, which reacts with the H2S to form iron pyrite, another stable compound.

The media's unique molecular structure allows SulfaTreat to remove approximately 2 to 3 times more sulfur than an iron sponge. However, it costs more than an iron sponge, and its contact time is approximately 4 times longer than an iron sponge.

1.6.2 Siloxane Removal Technologies

Siloxanes are cyclic organic silicon monomers used in the manufacture of personal hygiene, health care, and industrial silicon products, and are typically found in digester gas at varying levels. Combustion of digester gas containing siloxanes results in deposits of silica residue on equipment surfaces, impairing performance, and significantly increasing system maintenance.

There are several generally accepted siloxane removal methods:

- Two-stage refrigeration.
- Adsorption.

The use of desiccants for siloxane removal is also being pursued; however, to date there are no known successful installed systems. Therefore, this technology is not a viable alternative and will not be considered further.

Two-Stage Refrigeration

Two-stage refrigeration is one of the two prevalent gas conditioning systems available today for siloxane removal. Refrigerant first-stage lowers the gas down to 35 degrees Fahrenheit and second-stage down to minus 20 degrees Fahrenheit, which is generally termed a "deep chilling" process. This process assumes siloxanes are water-soluble and condense out of the gas together with the moisture upon lowering its temperature. However, two-stage refrigeration has yet to demonstrate that it can reliably provide complete siloxane removal from landfill or digester gas in actual field installations. Also, many if not all of the installed biogas treatment systems have experienced significant performance issues relating to condensate freeze-up and subsequent equipment failure. For this reason, this technology is also not a viable alternative and will not be considered further.

Adsorption

Adsorption is the most prevalent biogas treatment technology used today for siloxane removal. Through adsorption, siloxanes are removed from the biogas and collected on the surface of an engineered activated carbon or a desiccant media such as silica gel. The majority of systems in use today utilize engineered activated carbon. Adsorption has repeatedly demonstrated effectiveness for siloxane removal down to below the minimum detection limit.

1.6.3 Biogas Treatment Technology Alternative Evaluation

The Agency currently has a 260 SCFM biogas treatment system consisting of H2S removal via SulfaTreat, moisture removal, and siloxane removal via adsorption. Since this system has operated successfully at the Agency's WWTP, it is recommended that the Agency continue with this biogas treatment technology.

This existing biogas system has sufficient capacity to process the 190 SCFM of biogas used for sizing the proposed cogeneration system. Thus expansion of the existing biogas treatment system is not needed at this time.

However, if and when the Agency wishes to increase the amount of FOG and FW accepted at the WWTP such that greater than 260 SCFM of biogas is produced, an expanded biogas treatment system would be required. Based on the alternatives analysis above, it is recommended that the existing SulfaTreat system and existing adsorption system be expanded when necessary in the future to accommodate the increased biogas volume. The location of the expanded facilities would likely be located adjacent to the current biogas treatment components. This will be further developed during the predesign phase of the project.

While an increase in biogas treatment capacity is not needed at this time, a number of operational concerns for the existing system were identified by plant staff that need to be addressed to improve O&M of the system. Examples of issues that will be evaluated further during the predesign phase of the project include the condensate drain system, H2S monitoring and sampling system, waste gas burner system, and gas storage management system.

Appendix 1A

COST ESTIMATES

carollo
Engineers...Working Wonders With Water®

CENTRAL MARIN SANITATION AGENCY
COGENERATION SYSTEM PREDESIGN EVALUATION

TASK :	2 - Cogeneration System Technology Alternatives Analysis	**LOCATION FACTOR :**	1.24
JOB # :	11256A.00	**SF ENR NOVEMBER 2018:**	12110
LOCATION :	San Rafael, CA	**ESTIMATE PREPARATION DATE :**	11/14/2018
DESCRIPTION:	New 850 kW IC Engine	**PREPARED BY :**	EAC/TGM
		REVIEWED BY :	RC

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	SUBTOTAL	TOTAL
1	**Cogeneration System**					
	852 kW Engine/Generator Cogeneration System with Heat Recovery Unit and SCR	1	LS	$1,667,000	$1,667,000	
	Process Pumps, Oil and Urea Storage Tanks, Radiator	1	LS	$125,000	$125,000	
	Total					$1,792,000
	SUBTOTAL					**$1,792,000**
	Estimating Contingency	25	%			$448,000
	SUBTOTAL					**$2,240,000**
	Sales Tax on 50% of Subtotal Above	9.00	%			$101,000
	SUBTOTAL					**$2,341,000**
	General Conditions, Contractor Overhead, & Profit	25	%			$585,000
	CONSTRUCTION COST SUBTOTAL					**$2,926,000**

carollo
Engineers...Working Wonders With Water®

CENTRAL MARIN SANITATION AGENCY
COGENERATION SYSTEM PREDESIGN EVALUATION

TASK :	2 - Cogeneration System Technology Alternatives Analysis	**LOCATION FACTOR :**	1.24
JOB # :	11256A.00	**SF ENR NOVEMBER 2018:**	12110
LOCATION :	San Rafael, CA	**ESTIMATE PREPARATION DATE :**	11/14/2018
DESCRIPTION:	New 1,065 kW IC Engine	**PREPARED BY :**	EAC/TGM
		REVIEWED BY :	RC

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	SUBTOTAL	TOTAL
1	**Cogeneration System**					
	1065 kW Engine/Generator Cogeneration System with Heat Recovery Unit and SCR	1	LS	$1,795,000	$1,795,000	
	Process Pumps, Oil and Urea Storage Tanks, Radiator	1	LS	$125,000	$125,000	
	Total					$1,920,000
	SUBTOTAL					**$1,920,000**
	Estimating Contingency	25	%			$480,000
	SUBTOTAL					**$2,400,000**
	Sales Tax on 50% of Subtotal Above	9.00	%			$108,000
	SUBTOTAL					**$2,508,000**
	General Conditions, Contractor Overhead, & Profit	25	%			$627,000
	CONSTRUCTION COST SUBTOTAL					**$3,135,000**

carollo
Engineers...Working Wonders With Water®

CENTRAL MARIN SANITATION AGENCY
COGENERATION SYSTEM PREDESIGN EVALUATION

TASK :	2 - Cogeneration System Technology Alternatives Analysis	**LOCATION FACTOR :**	1.24
JOB # :	11256A.00	**SF ENR NOVEMBER 2018:**	12110
LOCATION :	San Rafael, CA	**ESTIMATE PREPARATION DATE :**	11/14/2018
DESCRIPTION:	New 1,140 kW IC Engine	**PREPARED BY :**	EAC/TGM
		REVIEWED BY :	RC

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	SUBTOTAL	TOTAL
1	**Cogeneration System**					
	1142 kW Engine/Generator Cogeneration System with Heat Recovery Unit and SCR	1	LS	$1,841,000	$1,841,000	
	Process Pumps, Oil and Urea Storage Tanks, Radiator	1	LS	$125,000	$125,000	
	Total					$1,966,000
	SUBTOTAL					**$1,966,000**
	Estimating Contingency	25	%			$492,000
	SUBTOTAL					**$2,458,000**
	Sales Tax on 50% of Subtotal Above	9.00	%			$111,000
	SUBTOTAL					**$2,569,000**
	General Conditions, Contractor Overhead, & Profit	25	%			$642,000
	CONSTRUCTION COST SUBTOTAL					**$3,211,000**

carollo
Engineers...Working Wonders With Water®

CENTRAL MARIN SANITATION AGENCY
COGENERATION SYSTEM PREDESIGN EVALUATION

TASK : 2 - Cogeneration System Technology Alternatives Analysis
JOB # : 11256A.00
LOCATION : San Rafael, CA
DESCRIPTION: New 800 kW Microturbine

LOCATION FACTOR : 1.24
SF ENR NOVEMBER 2018: 12110
ESTIMATE PREPARATION DATE : 11/14/2018
PREPARED BY : EAC/TGM
REVIEWED BY : RC

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	SUBTOTAL	TOTAL
1	**Cogeneration System**					
	800 kW Microturbine Cogeneration System	1	LS	$1,404,000	$1,404,000	
	Heat Recovery System	1	LS	$378,000	$378,000	
	Total					$1,782,000
	SUBTOTAL					**$1,782,000**
	Estimating Contingency	25	%			$446,000
	SUBTOTAL					**$2,228,000**
	Sales Tax on 50% of Subtotal Above	9.00	%			$100,000
	SUBTOTAL					**$2,328,000**
	General Conditions, Contractor Overhead, & Profit	25	%			$582,000
	CONSTRUCTION COST SUBTOTAL					**$2,910,000**

carollo
Engineers...Working Wonders With Water®

CENTRAL MARIN SANITATION AGENCY
COGENERATION SYSTEM PREDESIGN EVALUATION

TASK : 2 - Cogeneration System Technology Alternatives Analysis
JOB # : 11256A.00
LOCATION : San Rafael, CA
DESCRIPTION: New 1,000 kW Microturbine

LOCATION FACTOR : 1.24
SF ENR NOVEMBER 2018: 12110
ESTIMATE PREPARATION DATE : 11/14/2018
PREPARED BY : EAC/TGM
REVIEWED BY : RC

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	SUBTOTAL	TOTAL
1	**Cogeneration System**					
	1000 kW Microturbine Cogeneration System	1	LS	$1,755,000	$1,755,000	
	Heat Recovery System	1	LS	$473,000	$473,000	
	Total					$2,228,000
	SUBTOTAL					**$2,228,000**
	Estimating Contingency	25	%			$557,000
	SUBTOTAL					**$2,785,000**
	Sales Tax on 50% of Subtotal Above	9.00	%			$125,000
	SUBTOTAL					**$2,910,000**
	General Conditions, Contractor Overhead, & Profit	25	%			$728,000
	CONSTRUCTION COST SUBTOTAL					**$3,638,000**

Central Marin Sanitation Agency

BOARD MEMORANDUM

January 4, 2019

To: CMSA Commissioners and Alternates

From: Jason Dow, General Manager

Subject: Proposed Revisions to the 2018 Joint Powers Agreement

Recommendation: Informational, provide comments or direction to staff, as appropriate.

Summary: The JPA member agency managers have prepared revisions to the 2018 JPA to address various suggested changes from Sanitary District #2's legal counsel and to reflect the City of Larkspur's notice of withdrawal from the JPA. Each manager intends to present the proposed revisions to their respective board in early 2019 for review and comment. After certain provisions in the 2006 Payment for Treatment Services Agreement are addressed, the JPA revisions can be accepted and approved by the JPA member agency boards.

Discussion: In May 2018, the JPA member agencies approved the 2018 JPA, its seventh amendment since 1979. After its adoption, legal counsel for SD2 performed another comprehensive review and proposed numerous additional changes that were subsequently discussed and considered by the JPA member agency managers. Some revisions were determined to be worthwhile and have been incorporated into a revised JPA document.

Larkspur's City Council, at is December 12, 2018 meeting, approved sending a letter to CMSA stating the City's desire to withdraw from the JPA in the near future. I reviewed the 2018 JPA document and discussed the Larkspur withdrawal with legal counsel Jack Govi, and we concluded that the withdrawal does not impact CMSA operations, assets, or liabilities. I also discussed the withdrawal with bond counsel Sean Tierney, who advised that the JPA not be amended to remove Larkspur as a member agency until specific conditions are met in the 2006 Payment for Treatment Services Agreement. Specifically, that Larkspur's withdrawal will not negatively impact the Agency's bond holders. Mr. Tierney and Sarah Hollenbeck, our financial advisor with PFM, believe that Larkspur's withdrawal will not impact the bond holders because RVSD collects a sewer service charge from the Larkspur properties on the property tax rolls and remits to CMSA its quarterly regional sewer service charge. They are both currently working on the matter, and Ms. Hollenbeck will be contacting the bond rating agencies to discuss the withdrawal.

Proposed JPA revisions are shown in the attached JPA in blue and red text, and are summarized on the following page.

1) Larkspur removed from opening JPA paragraph, and additional language added to clarify that the JPA has been amended since its adoption in 1979. (Page 1)

2) Asset ownership and maintenance Memoranda of Understanding dates added to the fifth Whereas statement. (Page 1)

3) Tenth Whereas statement edited and a new eleventh Whereas statement added to explain that the 2018 JPA is amendment number seven to the 1979 JPA. (Page 2)

4) Twelfth Whereas statement added to reflect Larkspur's withdrawal notice (Page 2)

5) Thirteenth Whereas statement added to indicate this 2019 JPA revisions are the eighth amendment to the 1979 JPA. (Page 2)

6) Definition of Larkspur removed (Page 3)

7) Commission membership reduced from six to five commissioners, and Larkspur's seat was removed. (Page 5)

8) Commission quorum reduced from four to three commissioners, and votes needed for passage of an item reduced from four to three. (Page 6)

9) Indemnification sections revised per SD2 attorney comments. (Page 10)

10) Larkspur's signature block removed. (Page 14)

Fiscal Impact: None.

Attachments:
a) Larkspur Withdrawal Letter, dated 12/12/18
b) Page 4 from the 2006 Payment for Treatment Services Agreement
c) 2018 Joint Powers Agreement with proposed revisions

City of Larkspur

400 Magnolia Avenue, Larkspur, California 94939
Telephone: (415) 927-5110 Fax: (415) 927-5022
Website: www.cityoflarkspur.org

December 12, 2018

Vice Chair Michael Boorstein
Central Marin Sanitation Agency
1301 Andersen Drive
San Rafael, CA 94901

SUBJECT: Withdrawal from CMSA

Vice Chair Boorstein:

This letter serves as formal notification of the desire of the City of Larkspur to withdrawal from membership in the Central Marin Sanitation Agency (CMSA) pursuant to Section 20 of the agency's joint powers agreement.

Larkspur has been a member of CMSA since its inception in 1979. Our Council remains fully supportive of the work of CMSA; our request to withdrawal does not reflect any dissatisfaction with the agency. As the board members know, Larkspur no longer provides wastewater collection services and has not done so since 1993. Larkspur's representation on the CMSA board since 1993 has reflected our commitment to the work of CMSA and our interest in furthering good governance. However, recent events, specifically the 2017 report of the Local Agency Formation Commission suggesting Larkspur should withdrawal from CMSA and the passage of AB 1912, which raises a remote, but nonetheless real, possibility that Larkspur might someday have to share in CMSA pension obligations, gives our Council pause and has led us to make this request.

The Council recognizes that there may be various administrative matters that must be resolved before Larkspur withdraws. City Manager Dan Schwarz will represent Larkspur in working with your board and staff to address these matters and facilitate Larkspur's withdraw at the earliest possible date.

Sincerely,

Ann Morrison
Mayor

Section 2.02. County Transfers. The County collects wastewater charges on behalf of each Participating Member as part of the County's real property tax levy and collection process (the "County Collections"). Upon request of CMSA, each Participating Member hereby agrees to cooperate and use its best efforts to cause the County to transfer a portion of the County Collections semi-annually each Fiscal Year to CMSA or the Bond Trustee. Such transfer would be from the County Collections on behalf of such Participating Member in an amount equal to the Payment then due for such Participating Member (CMSA and the Participating Member may agree to include in such transfer other amounts owed by the Participating Member to CMSA). In the event such transfer is arranged, CMSA agrees to notify the County the amount of the Payments to be transferred with a copy of such notification provided to the Participating Members. Each Participating Member hereby irrevocably appoints CMSA and the Bond Trustee as its agent for directing such transfer by the County and the County as its agent for the purpose of making the foregoing transfers. CMSA and the Participating Members agree that the County may collect an administrative charge to make such transfer, and that CMSA would be responsible for paying the charge if any.

ARTICLE III

COVENANTS

Section 3.01. Joint Powers Agreement. The Members hereby agree that the term of the JPA Agreement as currently stated in the first sentence of Section 4 of the JPA Agreement shall be extended to January 1, 2036 with the following sentence to replace the existing first sentence in Section 2.04: "This Agreement became effective on October 15, 1979 and shall continue in force until January 1, 2036. CMSA and each Member agrees that they will not (i) withdraw from or dissolve CMSA or (ii) amend the JPA Agreement so as to materially adversely affect the holders of the Bonds, which shall be determined by the rating agency then rating the Bonds indicating in writing that such amendment would or would not result in a downgrading to or withdrawal of the rating then in effect on the Bonds, or, if the Bonds are then insured, such amendment shall be considered not to materially adversely affect the holders of the Bonds if such amendment is consented to by such Bond Insurer. If the Bonds are not insured, and the rating agency then rating the Bonds declines for any reason to comment in writing on the effect of such proposed amendment on the Bonds, then such proposed amendment shall be determined not to be materially adverse to the holders of the Bonds if bond counsel delivers to the Bond Trustee an opinion to that effect (which may be based as to factual matters on certifications from CMSA or reports of consultants).

Section 3.02. Continuing Disclosure. The Participating Members hereby covenant and agree that they will comply with and carry out all of the provisions of the Continuing Disclosure Certificates. Notwithstanding any other provision of this Payment Agreement, failure of the Participating Members to comply with the Continuing Disclosure Certificates shall not be considered an event of default; however, the Bond Trustee, at the written request of any participating underwriter or the holders of at least 25% aggregate principal amount of outstanding Bonds, shall, but not only to the extent indemnified to its satisfaction from any liability or expense, including, without limitation fees and expenses of its attorneys, or any holder or beneficial owner of the Bonds may, take such actions as may be necessary and

ATTACHMENT C

CENTRAL MARIN SANITATION AGENCY

JOINT EXERCISE OF POWERS AGREEMENT

January 2019

THIS PAGE INTENTIONALLY LEFT BLANK

CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

CENTRAL MARIN SANITATION AGENCY

JOINT EXERCISE OF POWERS AGREEMENT

Effective _____, 2019, the Joint Exercise of Powers Agreement (JPA) by and between ROSS VALLEY SANITARY DISTRICT, SAN RAFAEL SANITATION DISTRICT, and SANITARY DISTRICT NO.2 of MARIN COUNTY – as originally entered into on October 15, 1979, and thereafter amended from time-to-time, is amended in full to read as follows:

RECITALS

Whereas, on October 15, 1979, the San Rafael Sanitation District (SRSD), Sanitary District #1 of Marin County (SD1), Sanitary District #2 of Marin County (SD2), and the City of Larkspur entered into a joint powers agreement (JPA) to jointly exercise their powers and form the Central Marin Sanitation Agency (CMSA) to plan, administer, and coordinate wastewater treatment and disposal services throughout their combined service area; and

Whereas, CMSA is a regional wastewater treatment agency that began operation in 1985 and provides wastewater and biosolids treatment, resource recovery, and other environmental services to the residents and businesses in Larkspur, Corte Madera, Ross, Fairfax, San Anselmo, a portion of San Rafael, and unincorporated areas in the Central Marin County, including San Quentin State Prison; and

Whereas, the JPA was amended six times between 1979 and 2006, and the original JPA and its six amendments are on file in CMSA's and each Member's administrative offices; and

Whereas, SD1 annexed the City of Larkspur's wastewater service area and assets in 1993, transferring ownership of and operations and maintenance responsibility for Larkspur's wastewater assets, including those referenced in the JPA, to SD1; and provisions in that annexation agreement (as amended in 1995) state that the City of Larkspur will retain a seat on the CMSA Board of Commissioners; and

Whereas, the JPA identifies sole and joint use wastewater conveyance facilities in the CMSA service area with their JPA member ownership and maintenance responsibilities, and these responsibilities were further clarified in two Memoranda of Understanding between CMSA and the Members, dated 9/11/12 and 3/15/16, both of which remain in effect and are incorporated into this JPA; and

Whereas, in February 2018, SD1's Board of Directors adopted a resolution changing the district's name to the Ross Valley Sanitary District (RVSD); and

Whereas, the Members have separately contracted with CMSA for other wastewater related services, such as source control and/or operation of collection system assets, and CMSA has contracted with the County of Marin, California Department of Corrections, and several local public agencies for provision of wastewater services; and

Whereas, CMSA and the Members have developed several programs to share information, services, and resources to increase operational efficiencies, and will continue to explore and consider such future activities; and

Whereas, the Members recognize the benefits to their respective service area customers of a standard Equivalent Dwelling Unit definition, and agree to work collaboratively to develop one; and

Whereas, in May 2018, the Members amended the JPA in full, effective June 6, 2018, to reflect the then-current state of wastewater service delivery in Central Marin County; and

Whereas, the Members intended the June 6, 2018 amendment to constitute the seventh amendment to the original JPA and to retain the CMSA with no interruption in its existence or service since its establishment in 1979; and

Whereas, the Larkspur City Council, at its December 12, 2018, meeting approved to withdraw from the JPA pursuant to Section 20 of the JPA; and

Whereas, the Members intend the current amendment to constitute the eighth amendment of the JPA; and

NOW, THEREFORE, THE PARTIES HEREBY AGREE AS FOLLOWS:

SECTION 1. DEFINITION OF TERMS

Wherever the following terms are used in this JPA they shall have the following meaning unless otherwise specifically indicated by the context in which they appear:

A. "CMSA" means the Central Marin Sanitation Agency.

B. "COMMISSION" means the Central Marin Sanitation Agency Commission, the governing board of CMSA.

C. "CAPACITY CHARGE" means a one-time charge to a property owner when connecting to the sanitary sewer system for the first time or for construction of additional improvements which will add to the quantity and/or strength of wastewater flow.

D. "EQUIVALENT DWELLING UNIT (EDU)" means one unit of wastewater utility service demand. An EDU represents the average wastewater flow and strength generated by a single-family residence or equivalent.

E. ~~"LARKSPUR" means CITY OF LARKSPUR, a municipal or public corporation, a party to this JPA.~~

F. "MEMBER" means any party to this JPA.

G. "OPERATION AND MAINTENANCE" means the regular performance of work required to assure continuous functioning of the wastewater system, and corrective measures taken to repair facilities to keep them in operating condition.

H. "REGIONAL CHARGE" means a charge by CMSA to the Members based on wastewater flow and strength.

I. "RVSD" means the Ross Valley Sanitary District, a special district, a party to this JPA. RVSD was formerly known as SD1, Sanitary District #1 of Marin County.

J. "SD2" means SANITARY DISTRICT NO. 2 of MARIN COUNTY, a special district, a party to this JPA.

K. "SRSD" means SAN RAFAEL SANITATION DISTRICT, a special district, a party to this JPA.

L. "SEWER SERVICE CHARGE" means a charge to a property owner or occupant of designated premises for the use of the sanitary sewer system.

SECTION 2. FORMATION OF CENTRAL MARIN SANITATION AGENCY

There is hereby created a public agency to be known as "the Central Marin Sanitation Agency" pursuant to Article 1, Chapter 5, Division 7, Title 1 of the Government Code of the State of California relating to the joint exercise of powers common to public agencies. CMSA is a public agency separate from the Members.

SECTION 3. PURPOSE

The purpose of CMSA is to plan, acquire, construct, maintain and operate facilities, for the collection, treatment, reclamation, and disposal of wastewater, and to capture and utilize the renewable resources derived from the wastewater treatment process, including but not limited to biogas, recycled water, and biosolids.

SECTION 4. TERM AND EFFECT

This JPA shall become effective when the Members have executed this JPA, and shall continue in force and effect until terminated by an Agreement pursuant to Section 20. However this JPA may be amended by the Members pursuant to Section 18.

SECTION 5. POWERS

A. CMSA shall have the power and authorization to plan, acquire, construct, maintain and operate facilities for the treatment, reclamation, and disposal of wastewaters for the benefit of the lands and inhabitants within its boundaries. CMSA will assume for the benefit of the Members responsibility for all functions pertaining to wastewater treatment, reclamation, and disposal.

B. The Commission may authorize CMSA to contract to provide other services.

C. CMSA is not authorized to provide wastewater collection or treatment services in a Member's service area unless and until such services have been approved by both the Commission and the governing Board of the Member responsible for the service area in which the wastewater collection or treatment services will be provided.

D. Currently, CMSA is authorized to provide wastewater services to SD2, the San Quentin Village Sewer Maintenance District, and the San Quentin State Prison; lead and participate in a cooperative multi-agency public education program; provide pollution prevention and source control services to several Marin County agencies; and monitor and enforce illegal stormwater discharges for the Cities of San Rafael and San Anselmo.

E. CMSA may receive organic materials for anaerobic digestion, beneficially reuse its biosolids, produce and distribute recycled water, utilize biogas to produce energy and/or transportation fuel for internal use and external sale, and capture other renewable resources for use or sale.

F. CMSA is hereby authorized, in its own name, to do all acts necessary for the exercise of said powers for said purposes, including but not limited to any or all of the following: to make and enter contracts; apply for and accept grants, advances and contributions; to employ agents and employees; to acquire, construct, manage, maintain and operate any CMSA buildings, facilities, or improvements; to acquire, hold or dispose of property; to sue and be sued in its own name, to incur debts, liabilities, or obligations; to issue bonds, notes, warrants, and other evidences of indebtedness to finance costs and expenses incidental to the projects of CMSA; and to exercise jointly the common powers of the parties hereto set forth above. No such debts, liability, or obligation of CMSA shall constitute a debt, liability or obligation of any Member. CMSA has no power to levy or cause to be levied ad valorem property taxes. CMSA has the power of eminent domain.

G. CMSA has the authority to accept grants and loans on behalf of the Members.

H. The powers are subject to the restrictions upon the manner of exercising the powers of the Sanitary District Act of 1923, Division 6, of the Health and Safety Code of the State of California, as amended. CMSA specifically excepts Health and Safety Code Section 6487 from its restrictions so that CMSA may make its own provisions regarding payment of invoices, bills, and debt service.

I. CMSA shall have the power to carry out a pretreatment, waste minimization, and other source control and pollution prevention programs in accordance with NPDES permit requirements, and other Federal and State regulatory requirements.

SECTION 6. GOVERNING BODY OF THE AGENCY

CMSA shall be governed by the Central Marin Sanitation Agency Commission. The Commission shall, on behalf of CMSA, adopt a budget for CMSA operations, maintenance, and capital improvements; approve contracts for CMSA; establish rates, charges, and fees; grant easements, licenses, or permits for the use of the property of CMSA; appoint a General Manager; contract for services as necessary; and take such other actions as are necessary or convenient to carry out the purpose and intent of this Agreement.

SECTION 7. COMMISSION MEMBERSHIP AND OFFICERS

A. The Commission shall consist of five commissioners, two appointed by the governing board of RVSD, two appointed by the governing board of SRSD, and one appointed by the governing board of SD2~~, and one appointed by the City Council of Larkspur~~.

B. Each commissioner may be an elected official of the governing body of the ~~City or~~ District he/she represents, or may be such other resident of the ~~City or~~ District as selected by the Member. A commissioner shall serve in such a manner and for such term as each Member may determine, and may be removed at the pleasure of the Member appointing such person. The Commission shall annually choose commissioners to serve as Chair, Vice-Chair, and Secretary. Each Member shall determine its method of selection of the person representing the ~~City or~~ District. An elected official or resident of the ~~City or~~ District may be designated by the Member to serve as an alternate to any commissioner.

C. The Commission may appoint and employ a General Manager who shall perform such duties as may be imposed by the Commission and who shall report to the Commission in accordance with such rules and procedures as the Commission may adopt.

D. The Chair shall sign contracts on behalf of CMSA and perform such other duties as may be imposed by the Commission. The Vice-Chair shall act in the absence of the Chair. The Commission may delegate to the General Manager the power to sign contracts on behalf of CMSA. If the Chair signs a contract, the Secretary or Vice-Chair shall

countersign it on behalf of CMSA. The Vice-Chair and Secretary shall perform such other duties as may be imposed by the Commission.

E. The Commission shall appoint a Treasurer/Controller. Said power of appointment may be vested with the General Manager by action of the Commission. The Treasurer shall

have the duties and obligations set forth in Section 6505.5 of the Government Code of the State of California.

SECTION 8. COMMISSION VOTING

Each commissioner shall be empowered to cast one vote on each measure. Three commissioners shall constitute a quorum. Three affirmative votes are required for passage of any measure.

SECTION 9. DUTIES OF THE COMMISSION

A. The duties of the Commission shall be:

to make all policy decisions and to authorize exercising all the powers of CMSA,

to submit full and regular reports to the Members,

to adopt and/or revise from time to time Board Policies for the conduct of its affairs as may be required.

B. CMSA shall have the power to compensate commissioners in accordance with the provisions of the Sanitary District Act of 1923, as amended.

SECTION 10. MEETINGS OF THE COMMISSION

A. Regular meetings of the Commission shall be held at such times and places as shall be established by the Commission by resolution.

B. All meetings of the Commission including regular, special, and emergency meetings shall be called, noticed, held and conducted in accordance with the provisions of the Ralph M. Brown Act, Section 54950 through 54960 of the Government Code of the State of California, and other applicable provisions of law.

SECTION 11. FINANCIAL RECORDS AND REPORTS

CMSA shall keep current and accurate financial records of all operating, capital, and contract service activities. These records with their supporting documents shall be readily available for inspection by the Members, Commission, and the public. Annually, after the close of the fiscal year, the CMSA's financial records will be audited by an independent certified public

accountant, who will report the audit findings to the Commission.

SECTION 12. BONDING PERSONS HAVING ACCESS TO PROPERTY

A. Commissioners and CMSA employees that are authorized to sign CMSA checks shall have a Public Official Bond. CMSA will procure a Government Crime Insurance Bond, or equivalent, to provide coverage for all CMSA employees and commissioners that handle and have access to any CMSA property. Premiums for both bonds shall be paid by CMSA.

B. The General Manager shall have the responsibility for any and all CMSA property, and shall review and recommend approval or denial of all claims and demands for the disbursement of CMSA funds prior to submittal of said claims and demands to the Commission for approval.

SECTION 13. BONDS AND OTHER BORROWING

A. CMSA shall have power and authority to issue and sell revenue bonds and other forms of indebtedness, borrow money and enter into contracts related to the foregoing in accordance with any one or more or portion of the following:

Articles 2 and 4, Chapter 5, Division 7, Title 1 of the Government Code, commencing with Section 6540;

Chapter 6, Division 2, Title 5 of the Government Code, commencing with Section 54300;

Chapter 5, Part 3, Division 5 of the Health and Safety Code, commencing with Section 4950;

Articles 10 and 11, Chapter 3, Part 1, Division 2, Title 2 of the Government Code, commencing with Section 53570;

Such other relevant provisions of law as may now or hereafter be applicable.

B. For purposes of referendum and vote on an CMSA-wide basis, the boundaries of CMSA shall be the consolidated boundaries of its Members. Under applicable law, CMSA may form improvement districts in which event the boundaries thereof shall be determinative with respect to referendum and voting. Bond elections shall be conducted pursuant to the Uniform District Election Law and applicable provisions of the Elections Code.

C. CMSA shall have and exercise all powers conferred on “local agencies” by the provisions of the law with respect to such revenue bonds, other forms of indebtedness, or borrowing money.

D. Revenues required to provide monies for payment of revenue bonds issued by CMSA, other forms of indebtedness, or borrowing money shall be derived from sewer Capacity Charges, CMSA's Regional Charge to the Members, and other legally available revenues of CMSA as may be specified in the documents related to such revenue bonds, other forms of indebtedness, or borrowing money. The amount of such charges shall be determined by CMSA.

E. In connection with CMSA issuing revenue bonds, other forms of indebtedness, or borrowing money for new capital projects or other significant expenditures, CMSA and all the Members will enter into a payment agreement or supplement an existing payment agreement that provides for an increase in CMSA's Regional Charge to the Members to comply with the requirements of such revenue bonds, indebtedness, or borrowing.

SECTION 14. OPERATING FUND

A. An operating fund shall be maintained to pay administrative and incidental expenses incurred by CMSA, costs of maintenance and operation arising from the operation of CMSA's facilities, and capital replacement and rehabilitation costs of CMSA's facilities, not funded by grants or borrowing pursuant to Section 13. Revenues for the operating fund shall be derived from Regional Charges periodically charged to each Member by CMSA, which Regional Charges the Members hereby agree to pay.

The periodic Regional Charge for each Member will be determined by CMSA, and shall be based upon a methodology that may include a Member's equivalent dwelling unit count, wastewater flow, and/or wastewater flow and strength. Flow will be determined based upon continuous measurement during a specified period by CMSA. Strength will be determined by periodic measurement of the wastewater influent's Total Suspended Solids (TSS) and Biological Oxygen Demand (BOD).

CMSA will utilize current best practices to ensure the flow data is accurate.

B. Each Member, in turn, shall be responsible for deriving the revenue necessary to pay its Regional Charges to CMSA.

C. Excess operating and capital funds of CMSA, if any, from whatever source, are the property of CMSA.

D. Capacity charges may be collected either by a Member or CMSA. If collected by a Member, the capacity charge will be collected when the Member collects its connection fee from a property owner and will be remitted to CMSA.

SECTION 15. OWNERSHIP OF PROPERTIES

With respect to the ownership of wastewater assets and facilities, the Members and CMSA agree that:

A CMSA Facilities

CMSA shall own entirely all facilities located at assessor's parcel numbers 018-180-46 and 018-180-47, including but not limited to property, buildings, wastewater and biosolids treatment facilities, resource recovery facilities, and support infrastructure and assets. CMSA also owns the land and marine outfall that are on its property, on easements through public and privately owned properties, and in the San Francisco Bay.

B. Member Collection System Facilities

Members shall own, operate, and maintain their respective collection system facilities. CMSA and any Member may, by agreement, provide for operation and maintenance of that Member's facilities, all or in part, by CMSA. Any such agreement must provide that all costs associated with the operation and maintenance of such facilities by CMSA shall be charged to and paid by the Member.

C. Wastewater Assets Other Than CMSA Facilities

Exhibit A lists the ownership, operation, and maintenance responsibilities of other wastewater related assets on CMSA property and in each Member's service area.

Upon the effective date of this JPA, the Members will grant to CMSA the use of all wastewater facilities, shown in Exhibit A, insofar as necessary for the operation of CMSA's facilities.

SECTION 16. FUNCTIONAL RESPONSIBILITIES

With respect to the administration, operation, and maintenance of wastewater facilities within the Member boundaries and the performance of functions related thereto, the Members and CMSA agree as follows:

A. The Member will be responsible for review of new connection permit applications, collection and accounting for permit fees, inspection of connections, and all associated record-keeping. CMSA may perform these functions directly by contract with a Member.

B. CMSA will have total responsibility for the operation and maintenance of all its wastewater treatment and disposal, biosolids processing and dewatering, and resource recovery facilities, and other wastewater facilities specified in this JPA.

C. The Member will have total responsibility for its wastewater collection and transport systems.

D. The Member will be responsible for all billing and collection of sewer connection and service charges and associated record-keeping, accounting, and delinquency follow-up.

E. The Members shall provide CMSA access to its odor control facilities that are located at Member pump stations.

F. CMSA and each Member will be responsible for its own obligations under the San Francisco Bay Regional Water Quality Control Board (RWQCB) NPDES Permit No. CA0038628 issued on January 10, 2018, and any subsequent future NPDES permits where CMSA and Members are listed as co-permittees.

SECTION 17. INDEMNIFICATION AND INSURANCE

A. CMSA Indemnification

CMSA shall indemnify, defend and hold Members harmless from any claims or liability arising out of or relating to CMSA's actions or omissions. Further, specific as to NPDES Permit No. CA0038628, and any subsequent future NPDES permits, CMSA shall indemnify, defend, and hold Members harmless from any penalties, claims, or liability arising out of any acts or omissions of CMSA related to the NPDES Permit and any resulting violations or penalties.

CMSA shall procure and maintain at all times insurance against claims for injuries to persons or damages to property that may arise out of or relate to the functioning business of CMSA pursuant to this JPA. The minimum scope of insurance and coverage are shown in Exhibit B and may be adjusted in the future by the Commission, as recommended by the CMSA's insurance provider.

B. Member Indemnification

Members individually shall indemnify, defend and hold CMSA and other Members harmless from any liability arising out of or relating to the individual Member's actions or omissions pursuant to this JPA. Further, specific as to NPDES Permit No. CA0038628, and any subsequent future NPDES permits, Members individually shall indemnify, defend, and hold CMSA and other Members harmless from any penalties, claims, or liability arising out of any acts or omissions of any individual Member related to that Member's obligations under an NPDES Permit and any resulting violations or penalties. In no event shall a Member or CMSA be liable or responsible for payment of fines or penalties for another Member's violation of an NPDES Permit.

Members shall procure and maintain at all times insurance against claims for injuries to persons or damages to property that may arise out of or relate to the individual Member's actions pursuant to this JPA. The minimum scope of insurance and coverage are shown in Exhibit B.

SECTION 18. AMENDMENTS

This JPA may be amended only by a written agreement approved and executed by all of the Members.

SECTION 19. SETTLEMENT OF DISPUTES

If a dispute arises as to the construction, interpretation, or implementation of any provision of the JPA, the issues in dispute or matter requiring action shall be subject to the following dispute resolution process:

A. Informal Dispute Resolution among Agency Managers

1. Managers from each disputing agency shall meet and attempt to resolve the dispute.
2. This process shall be informal and will be chaired by the CMSA General Manager. If the dispute is between CMSA and a Member(s), the managers shall select a chairperson to chair the meeting.
3. The chair shall set a meeting date with an Agenda.
4. Since this is an informal dispute resolution, attorneys for each disputing agency shall not participate in the meeting(s).
5. Should a resolution be reached, attorneys for each disputing agency may assist in the preparation of any necessary documents.

B. Informal Dispute Resolution – Board Members and Managers

1. Should the dispute resolution in Paragraph A (above) not resolve the dispute, the next step will be an informal dispute resolution with each disputing agency and its manager participating.
2. Each disputing agency shall appoint two board members who will join its agency manager to participate in a meeting to resolve the dispute.
3. Steps 2 – 5 in Section A. shall be applicable for the meeting process.

C. Mediation of Disputes

1. Should the informal dispute resolutions in Paragraphs A and B (above) not be successful in resolving the dispute, then the disputing agencies shall proceed to mediation before a neutral mediator.

   Each disputing agency shall assign a representative(s) to participate in mediation. Each agency may be represented by counsel at mediation.

2. Selection of Mediator
    a. For such purposes, an agreed upon mediator shall be selected by all Commissioners.
    b. Should the Commissioners fail to agree upon a mediator, the disputing agencies will apply to the Judicial Arbitration and Mediation Services (JAMS) or a comparable service for an assigned mediator.

3. Mediation
    a. Each disputing agency shall meaningfully participate in mediation to attempt to reach a resolution of the dispute.
    b. Each disputing agency shall equally share in the costs of the mediator regardless of whether a settlement of the dispute is reached.

D. Binding Arbitration

1. Should the informal dispute resolutions in Paragraphs A, B, and C (above) not be successful in resolving the dispute, then the disputing agencies shall proceed to Binding Arbitration before a neutral arbitrator.
2. For purposes of arbitration, each disputing agency may be represented by counsel.
3. Selection of Arbitrator:
    a. For such purposes, an agreed upon arbitrator shall be selected by all Commissioners.
    b. Should the Commissioners fail to agree upon an Arbitrator, the disputing agencies will apply to the Judicial Arbitration and Mediation Services (JAMS) or a comparable service for an assigned arbitrator.
4. Hearing:

    The chosen arbitrator or assigned arbitrator shall proceed to arbitrate the matter in accordance with the provisions of Title 9 of Part 3 of the Code of Civil Procedure (CCP Sections 1282 et seq.). At the Arbitration hearing, the rules of evidence shall apply.
5. The ruling of the arbitrator shall be binding on all agencies. There shall be no right of appeal to the Court system.

SECTION 20. WITHDRAWAL

If a Member's governing board decides to withdraw from the JPA, the Members will convene a meeting to discuss the withdrawal process and details.

The Member seeking Withdrawal from the JPA shall not receive or be entitled to any financial or other material compensation from CMSA and the remaining Members relating to the

Withdrawal. This provision does not pertain to any separate agreement or dispute not involving withdrawal between Members.

Pursuant to the 2006 Payment for Treatment Services Agreement (as-amended) between the Members and CMSA or subsequent similar agreements for the payment of indebtedness, a Member cannot withdraw from the JPA until it determines a mechanism and makes a formal commitment to fund its payment obligations to CMSA.

SECTION 21. MISCELLANEOUS

The section headings herein are for convenience only and are not to be construed as modifying or governing the language in the sections referred to.

This JPA is made in the State of California and under its Constitution and laws, and it is to be so construed.

To preserve a reasonable degree of flexibility, many parts of this JPA are stated in general terms. It is understood that the Commission may from time to time adopt and implement ordinances, policies, and procedures to further define the rights and obligations of CMSA to carry out the purposes of this JPA.

SECTION 22. PARTIAL INVALIDITY

If any one or more of the terms, provisions, promises, covenants, or conditions of this JPA shall to any extent be adjudged invalid, unenforceable, void, or voidable for any reason whatsoever by a court of competent jurisdiction, each and all of the remaining terms, provisions, promises, covenants, and conditions of this JPA shall be valid and enforceable to the fullest extent permitted by law.

SECTION 23. SUCCESSORS

This JPA shall be binding upon and shall inure to the benefit of the parties and the successors of the parties hereto.

SECTION 24. PERSONNEL

A. Authority to Hire and Dismiss Employees:

The Commission shall be the appointing authority for the General Manager, who shall serve at the pleasure of the Commission. The Commission shall annually review the performance of the General Manager.

The General Manager is hereby empowered to hire all personnel subject to the

requirements of the Commission adopted personnel policies and procedures. The General Manager shall have the power to reprimand, suspend, reduce in compensation or dismiss any personnel in accordance with the Commission adopted personnel policies and collective bargaining agreements.

B. Personnel Policies and Procedures

The Commission shall have the authority to adopt personnel policies and procedures and make amendments thereto by a majority vote of the Commission.

C. Administration of Employer-Employee Relations

The Commission shall have the authority to adopt a procedure for the administration of employer-employee relations and make amendments thereto by a majority vote of the Commission.

IN WITNESS WHEREOF, The MEMBERS hereto have caused this JPA to be executed, and attested by their proper officers thereunto duly authorized and their official seals to be hereto affixed, as the day and the year first above written.

ROSS VALLEY SANITARY DISTRICT

Doug Kelly, President

Attest: Thomas Gaffney, Secretary

SAN RAFAEL SANITATION DISTRICT

Gary O. Phillips, Chairman

Attest: Maribeth Bushey, Secretary/Director

SANITARY DISTRICT No. 2 of MARIN COUNTY

Bob Ravasio, President

Attest: James Andrews, District Vice President

JPA Exhibit A
Wastewater Conveyance Asset Ownership, Operation, and Maintenance

Exhibit A presents selected sole and jointly owned wastewater conveyance and related facilities in the CMSA service area with their ownership, operation, and maintenance responsibilities. Attachment 1 is a map showing the general location of the sole and joint use facilities.

A. Definitions

Ownership - the party that owns the identified asset and has the capital replacement responsibilities.

Operations and Maintenance - the party that monitors process parameters, such as wastewater flow and pressure; responds to Underground Service Alert notifications and emergencies (including SSO's); has regulatory and permitting responsibility; maintains and monitors corrosion control systems; and repairs and coordinates any work on the asset.

B. RVSD Ownership, Operation, and Maintenance Responsibilities

1) 54" RV Interceptor (FM IIA-1): RVSD jointly owns, with SD-2, the interceptor and its fittings, connections and other appurtenances, including valves connected to a fitting, from the treatment plant headworks to the downstream side of the flexible coupling connection outside the SQJB (see Attachment 2). RVSD does not have any operation or maintenance responsibility for FM IIA-1.

2) 54" RV Interceptor (FM IIA-2): RVSD jointly owns, with SD-2, the interceptor and its fittings, connections and other appurtenances, including valves connected to a fitting. RVSD solely operates and maintains the interceptor and its pipeline fittings and appurtenances from the upstream side of the flexible coupling connection outside the SQJB to the connection with the 30" Greenbrae Forcemain.

3) 12" Pump Station 10 Landing B Forcemain (FM IIB): RVSD owns, operates, and maintains the forcemain and all its fittings, valves, and other pipeline appurtenances for its entire length, from Pump Station B to the upstream side of the 12" valve flange on the 54" x 12" FM IIA-2 fitting.

4) San Quentin Junction Box: RVSD and SD2 jointly own the SQJB structure, and do not have maintenance responsibility for the structure or the electrical and mechanical equipment within it.

B. SD2 Ownership, Operation, and Maintenance Responsibilities

1) 54" RV Interceptor (FM IIA-1): SD2 jointly owns, with RVSD, the interceptor and its fittings, connections and other appurtenances, including valves connected to a fitting, from the treatment plant headworks to the downstream side of the flexible coupling connection outside the SQJB. SD2 does not have any operation or maintenance responsibility for FM IIA-1.

2) 54" RV Interceptor (FM IIA-2): SD2 jointly owns, with RVSD, the interceptor and its fittings, connections and other appurtenances. SD2 does not have any operation or maintenance responsibilities for FM IIA-2.

3) Corte Madera Forcemain (FM IIC): SD2 owns, operates, and maintains the forcemain and all its fittings, valves, and other pipeline appurtenances for its entire length, from the Paradise Pump Station to the upstream side of the 24" valve flange on the 54" x 24" FM IIA-2 fitting.

4) San Quentin Junction Box: SD2 and RVSD jointly own the SQJB structure and do not have maintenance responsibility for the structure or the electrical and mechanical equipment within it.

5) Abandoned 20" Corte Madera Forcemain: SD2 owns and maintains the disconnected forcemain.

C. SRSD Ownership and Maintenance Responsibilities

1) 45"San Rafael Interceptor (FM IA-1 and 2): SRSD owns the interceptor and all its fittings, valves, and other pipeline appurtenances for the entire length of the interceptor to the CMSA treatment plant headworks, including the fitting that accepts the chemical dosing station pipeline. SRSD shall maintain the interceptor pipeline and its appurtenances upstream of the SFJB (FM IA-2).

2) 10" South Francisco Forcemain (FM IG): SRSD owns the forcemain and all its fittings, valves, and other pipeline appurtenances for its entire length, from the connection to the 45" San Rafael Interceptor to the South Francisco pump station. SRSD shall maintain the forcemain and its appurtenances outside of the SFJB.

D. CMSA Ownership and Maintenance Responsibilities

1) 45"San Rafael Interceptor (FM IA- 2): CMSA shall maintain the interceptor, the 45"x10" connection fitting, 45" valve, and the other pipeline appurtenances in the SFJB and along the length of the pipeline from the downstream side of the SFJB to the treatment plant headworks.

2) 10" South Francisco Forcemain (FM IG): CMSA shall maintain the forcemain and its

fittings, the 10”valve, and other pipeline appurtenances within the SFJB.
3) South Francisco Junction Box: CMSA owns and shall maintain the SFJB structure and all existing and future electrical, mechanical, and instrumentation equipment and systems within the SFJB.

CMSA grants SRSD access to the SFJB to inspect the 45” San Rafael Interceptor and the 10” South Francisco forcemain. Access shall be coordinated with CMSA operations staff.

4) Andersen Drive Chemical Dosing Station: CMSA owns and shall maintain the dosing station and its piping and appurtenances upstream of the SR interceptor connection.

5) 54” RV Interceptor (Reach FM IIA-1): CMSA shall operate and maintain the interceptor, fittings, and appurtenances from the treatment plant headworks to the upstream side of the SQJB’s flexible coupling connection. CMSA will also maintain the interceptor, the 54”x16” connection fitting, the 54” valve, and the other interceptor appurtenances in the SQJB.

6) San Quentin Junction Box: CMSA shall maintain the SQJB structure, and operate and maintain all electrical, mechanical, and instrumentation equipment and systems within the SQJB. CMSA owns all electrical, instrumentation, and mechanical systems within the SQJB.

CMSA grants RVSD and SD2 access to the SQJB to inspect the 54” RV Interceptor and its fittings and appurtenances. Access shall be coordinated with CMSA operations staff.

7) Chemical Dosing Station: CMSA owns, operates, and maintains the hydrogen peroxide chemical dosing station and its piping and appurtenances upstream of the RV Interceptor (Reach IIA-1) connection in the SQJB.

8) Recycled Water Pipeline: CMSA owns, operates, and maintains the 6” recycled water pipeline from the treatment plant to FM 11A-1, and the pipelines and fittings to the chemical dosing station and to Remillard Pond.

D. Miscellaneous

CMSA, SD2, SRSD, and RVSD understand and agree that the California Department of Corrections owns and operates the 16” San Quentin forcemain (FM IIF) from the San Quentin Pump Station to the upstream side of the RV Interceptor’s 54” x 16” fitting in the SQJB.

CMSA JPA - Exhibit B
CMSA and Member Insurance Requirements

MINIMUM SCOPE OF CMSA INSURANCE

Coverage shall be at least as broad as:

1. **Commercial General Liability** (CGL) on an "occurrence" basis, including products and completed operations, property damage, bodily injury and personal & advertising injury with limits no less than **$2,000,000** per occurrence.
2. **Automobile Liability** covering any auto with limit no less than **$1,000,000** per accident for bodily injury and property damage.
3. **Workers' Compensation** as required by the State, with Statutory Limits, and Employer's Liability Insurance with limit of no less than **$1,000,000** per accident for bodily injury or disease.
4. **Property insurance** against all risks of loss to Agency property, at full replacement cost.

Additional Insured Status

The Members, their officers, officials, employees, and volunteers are to be covered as additional insureds on the CGL policy with respect to liability arising out of or relating to the functioning business of the Agency pursuant to this Agreement.

Verification of Coverage

CMSA shall furnish the Members with original certificates and amendatory endorsements or copies of the applicable policy language effecting coverage required by this clause.

MINIMUM SCOPE OF MEMBER INSURANCE

Coverage shall be at least as broad as:

1. **Commercial General Liability** (CGL) on an "occurrence" basis, including products and completed operations, property damage, bodily injury and personal & advertising injury with limits no less than **$2,000,000** per occurrence.
2. **Automobile Liability** covering any auto with limit no less than **$1,000,000** per accident for bodily injury and property damage.
3. **Workers' Compensation** as required by the State, with Statutory Limits, and Employer's Liability Insurance with limit of no less than **$1,000,000** per accident for bodily injury or disease.

Additional Insured Status

CMSA, its officers, officials, employees, and volunteers are to be covered as additional insureds on the CGL policy with respect to liability arising out of or relating to the individual Member's actions pursuant to this Agreement.

Verification of Coverage

Members shall furnish CMSA with original certificates and amendatory endorsements or copies of the applicable policy language effecting coverage required by this clause.

Central Marin Sanitation Agency

BOARD MEMORANDUM

January 4, 2018

To: CMSA Commissioners and Alternates

From: Kate Brouillet, Administrative Assistant

Approved: Jason Dow, General Manager

Subject: January Informational Items

1. Letter dated December 18, 2018 from James E. Dunbar, P.E., Lystek Organic Materials Recovery Center
   Re: Lystek OMRC Facility Update (2018)

2. Letter dated December 27, 2018 to Vince Christian, California Regional Water Quality Control Board
   Re: Monthly Self-Monitoring Report (SMR) – November 2018

12/20/18 **INFO ITEM #1**

Lystek Organic Materials Recovery Center
1014 Chadbourne Road
Fairfield, Ca 94534-9700
Phone: 707-419-0084

December 18, 2018

Jason Dow
General Manager
Central Marin Sanitation Agency
1301 Andersen Drive
San Rafael, CA 94901

Subject: **LYSTEK OMRC FACILITY UPDATE (2018)**

Dear Jason Dow:

Lystek International is proud to be a service provider to the Central Marin Sanitation Agency (CMSA) for the acceptance, treatment, and beneficial use of biosolids material.

I want to take this opportunity to update you on our current year (2018) activities and accomplishments at the Lystek OMRC facility in Fairfield.

- Since opening in August 2016 (and through the end of 2018), Lystek has received and processed more than 75,000 wet tons of biosolids. During this same period, Lystek has land applied its Class A LysteGro biofertilizer product (more than 20 million gallons) to more than 5,000 acres in Solano County

- In 2018, Lystek was successful in securing additional contracts from Bay Area wastewater treatment plant agencies for delivery of biosolids. The Cities of Benicia and Palo Alto have entered into multi-year contracts with Lystek: Benicia began delivery of biosolids in August 2018, and Palo Alto will begin in early Spring 2019. Interest amongst other regional agencies is also high in participating with Lystek for the safe and secure diversion of biosolids due to pending restrictions on landfill acceptance and other past practices

- In 2018, Lystek was recognized at the local and state level for its innovated and technology in the management of biosolids for beneficial and sustainable uses:

    - Cal-EPA awarded Lystek with the Governor's Environmental and Economic Leadership Award (GEELA), the highest state-wide award for environmental stewardship
    - CASA awarded Lystek and the Fairfield-Suisun Sewer District (FSSD) with the 2018 Excellence in Innovation and Sustainability award
    - The Fairfield-Suisun Chamber of Commerce awarded Lystek and FSSD with the Best Partnership of the Year award

- In early 2018, Lystek was awarded a grant from the California Energy Commission (CEC) for a demonstration level project of receiving and processing source-separated organics (SSO) and digesting the nearly contaminate-free product into a sustainable and renewable fuel (biogas) for energy generation.

As an added note for 2018, the Lystek thermal hydrolysis process (THP) was introduced at three additional wastewater treatment plants in North America (two in Canada and one in Minnesota, US). Now with 10 operating sites, Lystek is becoming recognized as a proven and successful alternative to traditional forms of biosolids management practices.

As we have said in the past, we are pleased that CMSA is one of our first customers at the Lystek Fairfield plant. Your participation with Lystek is very much appreciated and your continued support allows us to offer quality service to the wastewater community across the San Francisco Bay Area.

If you have any questions or need additional information, please contact me at jdunbar@lystek.com or 707-419-0084.

Sincerely,

James E. Dunbar, P.E.
General Manager
California Operations

CENTRAL MARIN SANITATION AGENCY

Jason R. Dow P.E.
General Manager

1301 Andersen Drive, San Rafael, CA 94901-5339 Phone (415) 459-1455 Fax (415) 459-3971 www.cmsa.us

December 27, 2018

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: Vince Christian

Subject: **Monthly Self-Monitoring Report (SMR) – November 2018**

The November 2018 monthly self-monitoring report for the Central Marin Sanitation Agency (CMSA) treatment plant has been submitted using the eSMR /California Integrated Water Quality System (CIWQS). This SMR conforms to CMSA's NPDES Permit, Order #R2-2018-003.

Violations
There are no reportable NPDES Permit violations for this reporting period.

Blending Events
The CMSA treatment facility did not exceed the maximum secondary capacity of 30 MGD. No blend events occurred during this monitoring period.

Data Validation
All regulatory daily, weekly, and monthly quality control calibrations/checks conducted during the month of November met established quality assurance acceptance criteria. During this monitoring period, semiannual and permit sampling was conducted for influent and effluent sampling locations. CMSA also conducted a review of an influent flow meter associated with one of its Joint Powers Agreement satellite collection agencies, Sanitary District #2. The review of this district's flow meter indicated unreliability issues, resulting in CMSA moving influent flow metering from the Sanitary District #2 Meter Vault location to the Paradise Pump Station location. The flow measurement at this new location is based on a calculated regression analysis as well as a constant factor adjustment. As such, effective November 1, 2018 all Sanitary District #2 influent flow monitoring and reporting will be based upon this flow meter location. Reports for all of these sampling events have been included for influent and effluent sampling locations.

If there are any questions please contact me at (415) 459-1455, extension 101. Quality assurance data are available for all test results cited in this report. Values reported are measured values and each are subject to analytical variability. CMSA reserves the right to question data in an enforcement proceeding.

I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations (40 CFR 122.22(d)).

Chris Finton
Plant Manager