



101 Lucas Valley Road, Suite 300  
San Rafael, CA 94903  
Tel.: 415-472-1734  
Fax: 415-499-7715  
www.LGVSD.org

**MANAGEMENT TEAM**  
Interim General Manager, Chris DeGabriele  
Plant Operations, Mel Liebmann  
Collections/Safety/Maintenance, Greg Pease  
Engineering, Michael P. Cortez  
Administrative Services, Dale McDonald

**DISTRICT BOARD**  
Megan Clark  
Ronald Ford  
Craig K. Murray  
Judy Schriebman  
Crystal J. Yezman

The Mission of the Las Gallinas Valley Sanitary District is to protect public health and the environment by providing effective wastewater collection, treatment, and recycling services.

## **BOARD MEETING AGENDA**

**March 17, 2022**

*On March 12, 2020, Governor Newsom issued Executive Order N-25-20, which enhances State and Local Governments' ability to respond to COVID-19 Pandemic based on Guidance for Gatherings issued by the California Department of Public Health. The Executive Order specifically allows local legislative bodies to hold meetings via teleconference and to make meetings accessible electronically, in order to protect public health, which was due to end on September 30, 2021 (Exec. Ord. N-08-21). However, the Legislature passed AB 361 which provides local agencies with the ability to meet remotely during proclaimed state emergencies under modified Brown Act requirements, similar in many ways to the rules and procedures established by the Governor's previous Executive Orders. - In light of this – the March 17, 2022 meeting of the LGVSD Board will be held via Zoom electronic meeting\*. There will be NO physical location of the meeting. Due to the current circumstances, there may be limited opportunity to provide verbal comments during the meeting. Persons who wish to address the Board for public comment or on an item on the agenda are encouraged, but not required, to submit comments in writing to the Board Secretary ([tlerch@lgsd.org](mailto:tlerch@lgsd.org)) by 5:00 pm on Wednesday, March 16, 2022. In addition, Persons wishing to address the Board verbally must contact the Board Secretary, by email ([tlerch@lgsd.org](mailto:tlerch@lgsd.org)) and provide their Name; Address; Tel. No.; and the Item they wish to address by the same date and time deadline for submission of written comments, as indicated above. Please keep in mind that any public comments must be limited to 3 minutes due to time constraints. Any written comments will be distributed to the LGVSD Board before the meeting.*

*\*Prior to the meeting, participants should download the Zoom app at:  
<https://zoom.us/download>.*

### **REMOTE CONFERENCING ONLY**

**Join Zoom Meeting online at: <https://us02web.zoom.us/j/89114499919>**

**OR**

**By teleconference at: +16699009128 Meeting ID: 891 1449 9919**

**MATERIALS RELATED TO ITEMS ON THIS AGENDA ARE AVAILABLE FOR  
PUBLIC INSPECTION ON THE DISTRICT WEBSITE WWW.LGVSD.ORG  
NOTE: Final board action may be taken on any matter appearing on agenda**

Estimated  
Time

**OPEN SESSION:**

4:00 PM

**1. PUBLIC COMMENT**

This portion of the meeting is reserved for persons desiring to address the Board on matters not on the agenda and within the jurisdiction of the Las Gallinas Valley Sanitary District. Presentations are generally limited to three minutes. All matters requiring a response will be referred to staff for reply in writing and/or placed on a future meeting agenda. Please contact the General Manager before the meeting.

4:05 PM

**2. CONSENT CALENDAR:**

These items are considered routine and will be enacted, approved or adopted by one motion unless a request for removal for discussion or explanation is received from the staff or the Board.

- A. Approve the Board Minutes for February 17, 2022
- B. Approve the Warrant List for March 17, 2022
- C. Approve Board Compensation for February 2022
- D. Approve Ford to attend the CSDA Special Leadership Conference in Napa on September 18-21, 2022
- E. Approve Schriebman and Yezman to attend the CASA Biosolids 101 Training Webinar on March 7, 2022
- F. Approve Resolution 2022-2244 – Remote Meetings
- G. Approve Resolution 2022-2245 Board Policies B-10 Board Minutes and F-10 General Finance

Possible expenditure of funds: Yes, Item B through E.

Staff recommendation: Adopt Consent Calendar – Items A through G.

4:15 PM

**3. PUBLIC HEARING FOR ORDINANCE NO. 189 AMENDING TITLE 4, CHAPTER 1 – REGULATING SOLID WASTE, RECYCLABLE AND ORGANIC MATERIALS, AND THE COLLECTION, REMOVAL AND DISPOSAL THEREOF AS REQUIRED BY SB 1383**

Board to hold a public hearing and consider the adoption of Ordinance No. 189 - An Ordinance amending Title 4, Chapter 1 of the District Ordinance Code as required by SB 1383. Representatives of Marin Sanitary Service and R3 Consulting Group will be in attendance to address any question from the Board or the public.

Staff recommendation: Board Adopt Ordinance No. 189, An Ordinance Amending Title 4, Chapter 1 of the District Ordinance Code.



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- 4:45 PM**      **4. INFORMATION ITEMS:**  
 STAFF/CONSULTANT REPORTS:
1. General Manager's Report – Verbal
  2. North Bay Water Reuse Authority Technical Advisory Committee - Written
  3. Board Policies B-20 Interaction with staff and F-20 Financial Reporting – Written
  4. Consider Draft COVID-19 Testing Policy – Written
  5. Marsh Pond Long Term Vegetation Plan – Written
- 5:45 PM**      **5. BIOGAS UTILIZATION ALTERNATIVES**  
 Board and staff to discuss Biogas Utilization alternatives.
- 6:00 PM**      **6. APPROVE ADMINISTRATIVE POLICY CONCERNING COVID-19 SUPPLEMENTAL PAID SICK LEAVE**  
 Board to review the Administrative Policy concerning COVID-19 Supplemental Paid Sick Leave (“SPSL”).
- 6:20 PM**      **7. PUBLIC COMMENT**  
 This portion of the meeting is reserved for persons desiring to address the Board on matters not on the agenda and within the jurisdiction of the Las Gallinas Valley Sanitary District. Presentations are generally limited to three minutes. All matters requiring a response will be referred to staff for reply in writing and/or placed on a future meeting agenda. Please contact the Board Secretary before the meeting.
- 6:25 PM**      **8. BOARD MEMBER REPORTS:**
1. CLARK
    - a. NBWA Board Committee, NBWA Conference Committee, 2022 Operations Control Center Ad Hoc Committee, Other Reports
  2. FORD
    - a. NBWRA, Gallinas Watershed Council, Marin Special Districts Association, 2022 Ad Hoc Engineering Committee re: STPURWE, 2022 Operations Control Center Ad Hoc Committee, 2022 Human Resources Committee, 2022 Ad Hoc CSA 18 Ad Hoc Review committee, Other Reports
  3. MURRAY
    - a. Marin LAFCO, CASA Energy Committee, 2022 GM Recruitment Ad Hoc Committee, Other Reports
  4. SCHRIEBMAN
    - a. JPA Local Task Force, Gallinas Watershed Council, 2022 Legal Services Ad Hoc committee, 2022 Biosolids Ad Hoc Committee, 2022 Human Resources Ad Hoc committee, Other Reports
  5. YEZMAN
    - a. Flood Zone 7, CSRMA, 2022 Ad Hoc Engineering Committee re: STPURWE Engineering Subcommittee, 2022 Legal Services Ad Hoc Committee, 2022 GM Recruitment Ad Hoc Committee, Marin Special Districts Association, 2022 Biosolids Ad Hoc committee, Other Reports
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6:35 PM

**9. BOARD REQUESTS:**

- A. Board Meeting Attendance Requests – Verbal
- B. Board Agenda Item Requests – Verbal
- C. Recent Board Agenda Item Requests –now included in Administration Department Report.

6:40 PM

**10. VARIOUS INDUSTRY RELATED ARTICLES**

6:45 PM

**11. ADJOURNMENT**

**FUTURE BOARD MEETING DATES: APRIL 7 AND APRIL 21, 2022**

AGENDA APPROVED:	Judy Schriebman, Board President	Patrick Richardson, Legal Counsel
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**CERTIFICATION:** I, Teresa Lerch, District Secretary of the Las Gallinas Valley Sanitary District, hereby declare under penalty of perjury that on or before March 14, 2022, 4:00 p.m., I posted the Agenda for the Board Meeting of said Board to be held March 17, 2022, at the District Office, located at 101 Lucas Valley Road, Suite 300, San Rafael, CA.

DATED: March 10, 2022



Teresa L. Lerch  
District Secretary

The Board of the Las Gallinas Valley Sanitary District meets regularly on the first and third Thursday of each month. The District may also schedule additional special meetings for the purpose of completing unfinished business and/or study session. Regular meetings are held at the District Office, 101 Lucas Valley Road, Suite 300, San Rafael, CA.

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the District at (415) 472-1734 at least 24 hours prior to the meeting. Notification prior to the meeting will enable the District to make reasonable accommodation to help ensure accessibility to this meeting.

AGENDA ITEM 1

**3/17/2022**

**PUBLIC COMMENT**

**This portion of the meeting is reserved for persons desiring to address the Board on matters not on the agenda and within the jurisdiction of the Las Gallinas Valley Sanitary District. Presentations are generally limited to three minutes. All matters requiring a response will be referred to staff for reply in writing and/or placed on a future meeting agenda. Please contact the General Manager before the meeting.**

**MEETING MINUTES OF FEBRUARY 17, 2022**

THE BOARD OF DIRECTORS OF THE LAS GALLINAS VALLEY SANITARY DISTRICT MET IN OPEN SESSION BY ZOOM CONFERENCE ON FEBRUARY 17, 2022 AT 4:03 PM AND STAFF BY ZOOM CONFERENCE AT THE DISTRICT OFFICE, 101 LUCAS VALLEY ROAD, SUITE 300 CONFERENCE ROOM, SAN RAFAEL, CA. 94903

**BOARD MEMBERS PRESENT:** M. Clark, R. Ford, C. Murray, J. Schriebman and C. Yezman

**BOARD MEMBERS ABSENT:** None.

**STAFF PRESENT:** Chris DeGabriele, Interim General Manager; Teresa Lerch, Board Secretary; Dale McDonald, District Treasurer;

**OTHERS PRESENT:** Patrick Richardson, District Counsel;

**ANNOUNCEMENT:** President Schriebman announced that the agenda had been posted as evidenced by the certification on file in accordance with the law

**1. PUBLIC COMMENT:** None.

**ACTION:**

THE BOARD OF DIRECTORS OF THE LAS GALLINAS VALLEY SANITARY DISTRICT ADJOURNED TO CLOSED SESSION ON FEBRUARY 17, 2022 , AT 4:05 PM, BY ZOOM CONFERENCE AND AT THE DISTRICT OFFICE, 101 LUCAS VALLEY ROAD, SUITE 300, CONFERENCE ROOM, SAN RAFAEL, CALIFORNIA.

Lerch left at 4:05 pm.  
McDonald left at 4:05 pm

**CLOSED SESSION:**

**CONFERENCE WITH LEGAL COUNSEL—ANTICIPATED LITIGATION** – Significant exposure to litigation pursuant to paragraph (2) of Government Code § 54956.9: One potential case.

**ADJOURNMENT:**

**ACTION:**

The Board of Directors of the Las Gallinas Valley Sanitary District reconvened the Regular Session on February 17, 2022 at 4:12 pm.

**BOARD MEMBERS PRESENT:** M. Clark , R. Ford, C. Murray, J. Schriebman, C. Yezman

**STAFF PRESENT:** Chris DeGabriele, Interim General Manager; Dale McDonald, District Treasurer; Teresa Lerch, District Secretary; Mike Cortez, District Engineer

**OTHERS PRESENT:** Patrick Richardson, District Counsel

**PUBLIC COMMENT:** None.

**REPORT ON CLOSED SESSION:** President Schriebman reported that there were no reportable actions in Closed Session.

**2. CONSENT CALENDAR:**

These items are considered routine and will be enacted, approved or adopted by one motion unless a request for removal for discussion or explanation is received from the staff or the Board.

- A. Approve the Board Minutes for January 20, 2022
- B. Approve the Warrant List for February 17, 2022
- C. Approve Board Compensation for January 2022
- D. Approve Murray CASA Washington DC Conference Feb 28 – March 1, 2022
- E. Approve Resolution 2022-2238 – Remote Meetings
- F. Approve Resolution 2022-2239 – Adopting a Revised Pay Schedule for All Employees of the District
- G. Approve Resolution 2022-2240 – Amending the Employment Agreement with Interim General Manager Chris DeGabriele
- H. Receive Annual Comprehensive Financial Report for period ending June 30, 2021

Items F and G were pulled by staff.

**ACTION:**

Board approved (M/S Ford/Clark 5-0-0-0) the Consent Calendar items A through D, E and H.

- AYES: Clark, Ford, Murray, Schriebman and Yezman
- NOES: None.
- ABSENT: None.
- ABSTAIN: None.

**3. INFORMATION ITEMS:**

**STAFF / CONSULTANT REPORTS:**

- 1. Interim General Manager's Report – DeGabriele reported.
- 2. District Correspondence - Discussion ensued
- 3. Department Reports – Administration/Collections/Engineering – McDonald and Cortez reported.

**4. APPROVE SECOND AMENDMENT TO MARIN SANITARY SERVICE FRANCHISE AGREEMENT AND SET HEARING FOR ORDINANCE 189 AMENDING TITLE 4 REGULATING SOLID WASTE AS REQUIRED BY SB 1383**

Board discussed the Second Amendment to the Revised and Restated Exclusive Franchise Agreement between Marin Sanitary Service and Las Gallinas Valley Sanitary District and set a hearing date for Ordinance No. 189 Amending Title 4 Regulating Solid Waste in accordance with SB 1383 requirements for March 17, 2022.

Schriebman left the meeting at 6:02 pm and returned at 6:07 pm.

**ACTION:**

Board approved (M/S Yezman/Ford 5-0-0-0) the Second Amendment to the Revised and Restated Exclusive Franchise Agreement between Marin Sanitary Service and Las Gallinas Valley Sanitary District, Resolution 2022-2241 with edit and set a hearing date for Ordinance No. 189 Amending Title 4 Regulating Solid Waste in accordance with SB 1383 requirements for March 17, 2022.

- AYES: Clark, Ford, Murray, Schriebman and Yezman.
- NOES: None.
- ABSENT: None.
- ABSTAIN: None.

**5. APPROVE CONTRACT AGREEMENT FOR HUMAN RESOURCES CONSULTING SERVICES**

Board discussed the contract agreements from CPS HR Consulting and Regional Government Services to provide Human Resources Consulting Services to the District for two years, billing based on actual hours, with the total estimated cost not to exceed \$138,000.

**ACTION:**

Board approved (M/S Clark/Ford 5-0-0-0) hiring CPS HR Consulting as the LGVSD Human Resources Consultant for two years, billing based on actual hours, with the total estimated cost not to exceed \$138,000.

- AYES: Clark, Ford, Murray, Schriebman and Yezman.
- NOES: None.
- ABSENT: None.
- ABSTAIN: None.

**6. SPRING NEWSLETTER TOPICS**

Board reviewed the suggested Newsletter Topics and made these recommendations for articles to be included in the Newsletter:

- Interim General Manager Chris DeGabriele Hired
    - Recruitment for Permanent General Manager Underway
  - Sewer Rate Increase Anticipated / Budget Review Underway
    - Low Income Assistance Program
  - Private Lateral Sewers are the Responsibility of the Property Owner
    - Backflow Prevention Device Protects Your Property (box insert)
  - LGVSD role in Recycled Water; we are making it, our part in helping the drought
  - Hiking, Biking, bayside trails in reclamation
- If space – Zero waste Marin, we do our part

**7. PUBLIC COMMENT:** None

**8. BOARD MEMBER REPORTS:**

1. CLARK

- a. NBWA Board Committee –verbal report
- b. NBWA Conference Committee – verbal report
- c. 2022 Operations Control Center Ad Hoc Committee – verbal report
- d. Other Reports–no report

2. FORD

- a. NBWRA – no report
- b. Gallinas Watershed Council– no report
- c. 2022 Engineering Ad Hoc Committee re: Secondary Treatment Plant Upgrade – no report
- d. 2022 Operations Control Center Ad Hoc Committee – no report
- e. 2022 Human Resources Ad Hoc Committee –no report
- f. 2022 CSA 18 Review Ad Hoc Committee – As LAFCo approved the new map for CSA 18 and there is no longer a need for this Ad Hoc Committee, President Schriebman dissolved this committee.
- g. Marin County Special Districts Association – no report
- h. Other Reports – verbal report – CSDA Workshop

3. MURRAY

- a. Marin LAFCO – verbal report
- b. CASA Energy Committee– verbal report
- c. 2022 GM Recruitment Ad Hoc Committee - no report
- d. Other Reports – no report



4. SCHRIEBMAN

- a. JPA Local Task Force-- no report
- b. 2022 Legal Services Ad Hoc Committee – no report
- c. 2022 Biosolids Ad Hoc Committee – no report
- d. 2022 Human Resources Ad Hoc Committee – no report
- e. Other Reports- no report

5. YEZMAN

- a. Flood Zone 7-- no report
- b. CSRMA – no report
- c. Marin Special District Association – no report
- d. 2022 STPURWE Engineering Ad Hoc Committee-- no report
- e. 2022 GM Recruitment Ad Hoc Committee – no report
- f. 2022 Legal Services Ad Hoc Committee – no report
- g. 2022 CSA 18 Review Ad Hoc Committee – See Ford item above
- h. Other Reports--no report

8. BOARD REQUESTS:

- A. Board Meeting Attendance Requests –Murray requesting attending CASA Biosolids training webinar on March 7.
- B. Board Agenda Item Requests – None.

9. MISCELLANEOUS DISTRICT CORRESPONDENCE:

Discussion ensued.

10. ADJOURNMENT:

**ACTION:**

Board approved (M/S Ford/Murray 5-0-0-0) the adjournment of the meeting at 6:52 p.m.

AYES: Clark, Ford, Murray, Schriebman and Yezman.

NOES: None.

ABSENT: None.

ABSTAIN: None.

The next Board Meeting is scheduled for March 3, 2022, 4 PM by Zoom Meeting at the District Office.

ATTEST:

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Teresa Lerch, District Secretary

APPROVED:

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Crystal J. Yezman, Board Vice-President  
SEAL

Agenda Item 23  
Date March 17, 2022

Las Gallinas Valley Sanitation District  
Warrant List 3/17/2022 DRAFT

	Date	Num	Vendor	Original Amount	Addition and Adjustment	Total Amount	Description for items
1	3/17/2022	EFT1	ADP Payroll	141,581.55		141,581.55	03/11/2021 Payroll & Processing Charges
2	3/17/2022	ACH	A&P Moving	84.70		84.70	Document Storage - March
3	3/17/2022	N/A	Aqua Engineering	21,486.25		21,486.25	STPURWE- Secondary Treatment Project- January
4	3/17/2022	N/A	Aramark	456.84		456.84	Uniform Laundry Service week of 2/21 & 2/28
5	3/17/2022	ACH	Buck's Saw Service	9.76		9.76	Fuel Filter & O-Ring
6	3/17/2022	ACH	Buckles-Smith	224.54		224.54	Restocking Fee for Returned Ethernet Switches
7	3/17/2022	N/A	Comet Building Maintenance	1,620.00		1,620.00	Janitorial Services- Feb
8	3/17/2022	ACH	Core Utilities	12,275.00		12,275.00	IT Services for February- Addl Services to move Internet Lines at the Hawthorne Pump Station
9	3/17/2022	N/A	CPM Construction	5,250.00		5,250.00	Scheduling & Estimating Services - Feb
10	3/17/2022	N/A	Danadjieva Hansen Architects	141,911.75		141,911.75	Consulting & Architectural Design of OCC Building- Remainder of Jan & Feb
11	3/17/2022	EFT	Direct Dental	1,880.84		1,880.84	EE's Dental Payment
12	3/17/2022	EFT	Discovery Benefits	492.46		492.46	EE FSA Payment
13	3/17/2022	ACH	Du-All Safety	4,728.00		4,728.00	Janitorial Services- Feb
14	3/17/2022	ACH	Ford, Ron	200.00		200.00	Medical Reimbursement- March
15	3/17/2022	ACH	Gardeners Guild	0.00		0.00	Landscape Maintenance - March
16	3/17/2022	ACH	Grainger	1,014.59		1,014.59	Electrical Mechanical Hour Meter
17	3/17/2022	ACH	Hanford ARC	5,040.00		5,040.00	Miller Creek (repair, maintain, modify)
18	3/17/2022	ACH	HDR Engineering	16,335.00		16,335.00	Compost Facility Feasibility Study- Dec-Feb, Biosolids Management- Dec-Feb
19	3/17/2022	ACH	Kennedy Jenks	77,564.52		77,564.52	Integrated Wastewater Master Plan, On-Call Inspection Services
20	3/17/2022	ACH	Kenwood Energy	967.50		967.50	Solar Panel Replacement Assistance - Feb
21	3/17/2022	N/A	Marin Ace	165.00		165.00	Misc. Supplies
22	3/17/2022	N/A	Marin Sanitary Service	782.00		782.00	Debris Boxes x 2
23	3/17/2022	N/A	Marin Water	3,325.87		3,325.87	Water Use at Plant and Pump Stations - 12/17 - 2/17
24	3/17/2022	N/A	McMaster Carr	551.81		551.81	Misc. Clamps, Pipe Fittings, Tubes, Hose Cutter & Valves
25	3/17/2022	N/A	McPhail Fuel Company	1,688.25		1,688.25	Propane
26	3/17/2022	ACH	Murray, Craig	125.00		125.00	Medical Reimbursement- March
27	3/17/2022	N/A	North Bay Petroleum	4,081.08		4,081.08	Unleaded & Diesel Fuel
28	3/17/2022	N/A	North Valley Labor Compliance Servcies	150.00		150.00	Labor Compliance Services for LMC Revegetation- Feb
29	3/17/2022	N/A	Operating Engineers	587.48		587.48	Union Dues 3/11/22 Paydate

Las Gallinas Valley Sanitation District Warrant List 3/17/2022 DRAFT							
	Date	Num	Vendor	Original Amount	Addition and Adjustment	Total Amount	Description for items
30	3/17/2022	N/A	Ovivo USA	2,809.29		2,809.29	Retrofit Skim Device
31	3/17/2022	N/A	Piazza Construction	134,884.86		134,884.86	Misc. On-Call Construction Projects
32	3/17/2022	N/A	Rafael Lumber	205.41		205.41	Cor Roof Clear, Misc. Supplies
33	3/17/2022	N/A	Rathlin Properties	9,071.00		9,071.00	April Rent at 101 Lucas Valley Rd.
34	3/17/2022	ACH	Retiree Augusto	145.65		145.65	Retiree Health - April
35	3/17/2022	ACH	Retiree Burgess	153.53		153.53	Retiree Health - April
36	3/17/2022	ACH	Retiree Cummins	153.53		153.53	Retiree Health - April
37	3/17/2022	ACH	Retiree Cutri	440.30		440.30	Retiree Health - April
38	3/17/2022	ACH	Retiree Emanuel	232.94		232.94	Retiree Health - April
39	3/17/2022	ACH	Retiree Gately	158.44		158.44	Retiree Health - April
40	3/17/2022	ACH	Retiree Guion	158.44		158.44	Retiree Health - April
41	3/17/2022	ACH	Retiree Johnson	702.40		702.40	Retiree Health - April
42	3/17/2022	ACH	Retiree Kermoian	153.53		153.53	Retiree Health - April
43	3/17/2022	ACH	Retiree Mandler	153.53		153.53	Retiree Health - April
44	3/17/2022	ACH	Retiree McGuire	625.00		625.00	Retiree Health - April
45	3/17/2022	ACH	Retiree Memmott	153.53		153.53	Retiree Health - April
46	3/17/2022	ACH	Retiree Petrie	145.65		145.65	Retiree Health - April
47	3/17/2022	ACH	Retiree Pettey	153.53		153.53	Retiree Health - April
48	3/17/2022	ACH	Retiree Reetz	456.06		456.06	Retiree Health - April
49	3/17/2022	ACH	Retiree Reilly	153.53		153.53	Retiree Health - April
50	3/17/2022	ACH	Retiree Vine	153.53		153.53	Retiree Health - April
51	3/17/2022	ACH	Retiree Wettstein	667.00		667.00	Retiree Health - April
52	3/17/2022	ACH	Retiree Williams	667.00		667.00	Retiree Health - April
53	3/17/2022	N/A	Roy's Sewer Service	2,137.50		2,137.50	Cleaned & Vacuumed Wet Well
54	3/17/2022	ACH	Satcom Global	160.57		160.57	March Charge for Satellite Phones
55	3/17/2022	ACH	Schriebman, Judy	200.00		200.00	Medical Reimbursement- March
56	3/17/2022	N/A	United Site Services	647.80		647.80	Porta Potties for Water Stopages
57	3/17/2022	ACH	Univar	10,221.33		10,221.33	Sodium Bisulfite & Sodium Hypochlorite
58	3/17/2022	EFT	WEX Health	50.00		50.00	FSA Administration- Feb

Las Gallinas Valley Sanitation District Warrant List 3/17/2022 DRAFT							
	Date	Num	Vendor	Original Amount	Addition and Adjustment	Total Amount	Description for items
59	3/17/2022	N/A	Woodland Center Auto Supply	410.57		410.57	Battery & Core Deposit, Diesel Exhaust Fluid
60	3/17/2022	ACH	Yezman, Crystal	200.00		200.00	Medical Reimbursement- March

Do not change any formulas below this line.

TOTAL \$ 611,205.24 \$ - \$ 611,205.24

EFT1	EFT1 = Payroll (Amount Required)	141,581.55	141,581.55	Approval:
EFT2	EFT2 = Bank of Marin loan payments	0.00	0.00	Finance
PC	Petty Cash Checking	0.00	0.00	
>1	Checks (Operating Account)	0.00	0.00	GM
N/A	Checks - Not issued	332,222.76	332,222.76	
EFT	EFT = Vendor initiated "pulls" from LGVSD	2,423.30	2,423.30	Board
ACH	ACH = LGVSD initiated "push" to Vendor	134,977.63	134,977.63	
	Total	<u>\$ 611,205.24</u>	<u>\$ 611,205.24</u>	

Difference: \$ -

STPURWE Costs 21,486.25

Agenda Item 2C  
Date March 17, 2022

Directors' Meeting Attendance Recap

<u>Name</u>	<u>Total Meetings</u>
Megan Clark	5
Ron Ford	5
Craig Murray	6
Judy Schriebman	6
Crystal Yezman	<u>3</u>
<b>Total</b>	<u><u>25</u></u>

Meeting Date: 3/17/2022  
Paydate: 3/25/2022



101 Lucas Valley Road, Suite 300, San Rafael, CA 94903

Office: 415.472.1734 Fax: 415.499.7715

**BOARD MEMBER ATTENDANCE FORM**

Director's Name: MEGAN CLARK Month: FEBRUARY, 2022

Board Members shall be compensated for up to the legal limit of six (6) meetings per month and one (1) per day. Board members are limited to four (4) conferences or seminars per year. For multi-day conferences, compensation shall be at a maximum of one (1) meeting per day.

REGULAR and SPECIAL MEETINGS		CHARGING DISTRICT	
Date	Description of meeting	Yes	No
3 <sup>rd</sup>	Reg	X	
10 <sup>th</sup>	SPECIAL - HARASSMENT	X	
17 <sup>th</sup>	Reg	X	
TOTAL		3	

OTHER MEETINGS		CHARGING DISTRICT	
Date	Description of meeting	Yes	No
4 <sup>th</sup>	NBWA - Reg	X	
8 <sup>th</sup>	NBWA - conference comm	X	
2 <sup>nd</sup>	meet w/c. DeGabriele		X
TOTAL		2	

<b>Total Meetings for which I am Requesting Payment:</b> <b>Max of six (6) per Health &amp; Safety Code §4733</b>	<b>5</b>
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I hereby certify that the meetings as set forth above are true and correct and are for the purpose of conducting official business for the Las Gallinas Valley Sanitary District.

Megan Clark Director Signature      2/28/22 Date  
Chris DeGabriele for Administrative Services Manager Approved      3/4/2022 Date  
[Signature] Board Secretary Received      2/28/22 Date



Director's Name: RON FORP Month: FEB. 2022

Board Members shall be compensated for up to the legal limit of six (6) meetings per month and one (1) per day. Board members are limited to four (4) conferences or seminars per year. For multi-day conferences, compensation shall be at a maximum of one (1) meeting per day.

REGULAR and SPECIAL MEETINGS		CHARGING DISTRICT	
Date	Description of meeting	Yes	No
2/02	GALLINAS WATERSHED COUNCIL	✓	
2/03	BEE BOARD	✓	
2/10	HARASSMENT TRAINING	✓	
2/17	REG. BOARD	✓	
TOTAL			

OTHER MEETINGS		CHARGING DISTRICT	
Date	Description of meeting	Yes	No
2/28	NBWRA	✓	
TOTAL		5	

**Total Meetings for which I am Requesting Payment:**  
**Max of six (6) per Health & Safety Code §4733**

I hereby certify that the meetings as set forth above are true and correct and are for the purpose of conducting official business for the Las Gallinas Valley Sanitary District.

Director Signature <i>Ronald Forp</i>	Date 02/28/2022
Administrative Services Manager Approved <i>Chris Dykstra for</i>	Date 3/4/2022
Board Secretary Received <i>Jeri L...</i>	Date 2/28/22



101 Lucas Valley Road, Suite 300, San Rafael, CA 94903

Office: 415.472.1734 Fax: 415.499.7715

**BOARD MEMBER ATTENDANCE FORM**

Director's Name: MURRAY, Craig K. Month: February 2022

Board Members shall be compensated for up to the legal limit of six (6) meeting per month and one (1) per day. Board members are limited to four (4) conferences or seminars per year. For multi-day conferences, compensation shall be at a maximum of one (1) meeting per day.

REGULAR and SPECIAL MEETINGS		CHARGING DISTRICT	
Date	Description of meeting	Yes	No
2/3/22	Board Meeting	X	
2/10/22	Special Board Meeting – LCW Harassment Prev. Training	X	
2/17/22	Board Meeting	X	
<b>TOTAL</b>		3/3	

OTHER MEETINGS		CHARGING DISTRICT	
Date	Description of meeting	Yes	No
2/6,20/22	Merrydale Road/Las Gallinas Creek Headwater Litter Removal c/o City of San Rafael: 2/6 0.5 hours; 2/20 2.0 hours		XX
2/1/22	San Rafael Bicycle Pedestrian Advisory Committee		X
2/4/22	Interim General Manager DeGabriele 1:1 meeting		X
2/11/22	California Air Resources Board (CARB) Advanced Clean Fleet (ACF) Regulations Workshop – Costs and Funding		X
2/17/22	International Right of Way Association : Small Cell Right of Way Acquisition		X
2/24/22	CASA Air Quality, Climate Change & Energy (ACE) Workgroup Meeting	X	
2/25/22	CASA DC Travel Day	X	
2/28/22	CASA DC – Day 1	X	
<b>TOTAL</b>		3/9	

<b>Total Meetings for which I am Requesting Payment: Max of six (6) per Health &amp; Safety Code §4733</b>	<b>6/12</b>
--	-------------

I hereby certify that the meetings as set forth above are true and correct and are for the purpose of conducting official business for the Las Gallinas Valley Sanitary District.



101 Lucas Valley Road, Suite 300, San Rafael, CA 94903  
Office: 415.472.1734 Fax: 415.499.7715

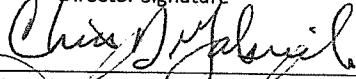
### BOARD MEMBER ATTENDANCE FORM

  
Craig K. Murray

February 18, 2022

Director Signature

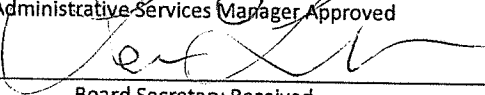
Date



3/4/2022

Administrative Services Manager Approved

Date



2/28/22

Board Secretary Received

Date



101 Lucas Valley Road, Suite 300, San Rafael, CA 94903

Office: 415.472.1734 Fax: 415.499.7715

**BOARD MEMBER ATTENDANCE FORM**

Director's Name: Judy Schriebman Month: Feb. 2022

Board Members shall be compensated for up to the legal limit of six (6) meetings per month and one (1) per day. Board members are limited to four (4) conferences or seminars per year. For multi-day conferences, compensation shall be at a maximum of one (1) meeting per day.

REGULAR and SPECIAL MEETINGS		CHARGING DISTRICT	
Date	Description of meeting	Yes	No
2/3	Regular meeting	x	
2/10	Harassment Training	x	
2/17	Regular Meeting	x	
<b>TOTAL</b>		<b>3:3</b>	

OTHER MEETINGS		CHARGING DISTRICT	
Date	Description of meeting	Yes	No
2/1	Ad hoc HR Committee	x	
2/2	Gallinas Watershed Council		x
2/24	DPR Webinar	x	
2/27	Ethics training	x	
<b>TOTAL</b>		<b>3:4</b>	

<b>Total Meetings for which I am Requesting Payment: Max of six (6) per Health &amp; Safety Code §4733</b>	<b>6</b>
--	----------

I hereby certify that the meetings as set forth above are true and correct and are for the purpose of conducting official business for the Las Gallinas Valley Sanitary District.

*Judy Schriebman*

3/3/2022

Director Signature

Date

*Chris D. ...*

3/4/2022

Administrative Services Manager Approved

Date

*[Signature]*

3/3/2022



101 Lucas Valley Road, Suite 300, San Rafael, CA 94903  
 Office: 415.472.1734 Fax: 415.499.7715

**BOARD MEMBER ATTENDANCE FORM**

Director's Name: YeZman Month: Feb 2022

Board Members shall be compensated for up to the legal limit of six (6) meetings per month and one (1) per day. Board members are limited to four (4) conferences or seminars per year. For multi-day conferences, compensation shall be at a maximum of one (1) meeting per day.

Date	REGULAR and SPECIAL MEETINGS Description of meeting	CHARGING DISTRICT	
		Yes	No
2/3	Regular Board Mtg	X	
2/17	Regular Board Mtg	X	
<b>TOTAL</b>			

Date	OTHER MEETINGS Description of meeting	CHARGING DISTRICT	
		Yes	No
2/10	Harassment Training	X	
<b>TOTAL</b>			

**Total Meetings for which I am Requesting Payment:** 3  
**Max of six (6) per Health & Safety Code §4733**

I hereby certify that the meetings as set forth above are true and correct and are for the purpose of conducting official business for the Las Gallinas Valley Sanitary District.

[Signature] Director Signature      3/4/2022 Date  
Chris N. [Signature] Administrative Services Manager Approved      3/4/2022 Date  
[Signature] Board Secretary Received      3/4/22 Date



### BOARD MEMBER CONFERENCE/ MEETING ATTENDANCE REQUEST

Date: 03/03/2022 Name: Ron Ford

I would like to attend the CSDA Special Leadership Academy <sup>NAPA</sup> Meeting  
of California Special Districts Association

To be held on the 18<sup>th</sup> day of SEPT. from 5 a.m. ~~(p.m.)~~ to  
21<sup>st</sup> day of SEPT. from 11:00 a.m. / p.m.

Location of meeting: NAPA, CA.

Actual meeting date(s): 9/18, 9/19, 9/20

Meeting Type: (In person/Webinar/Conference) In person

Purpose of Meeting: CONTINUING EDUCATION FOR NEW BOARD MEMBERS

Meeting relevance to District: CREATES BETTER COMMUNICATION SKILLS

	YES	NO
Request assistance from Board Secretary to register for Conference:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Request assistance from Board Secretary to register for Hotel:	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Board Directors to book their own transportation including Airfare, taxi and/or shuttles.

Frequency of Meeting: 3 DAY CONFERENCE.

Estimated Costs of Travel (if applicable): \_\_\_\_\_

Date submitted to Board Secretary: 03/03/2022

Board approval obtained on Date: \_\_\_\_\_

Please submit this form to the Board Secretary no later than 1 week prior to the Board Meeting.



AGENDA ITEM 2E  
DATE March 17, 2022



## BOARD MEMBER MEETING ATTENDANCE REQUEST

Date: 3/3/2022 Name: Judy Schriebman

I would like to attend the CASA Webinar Meeting of  
Biosolids

To be held on the 7 day of March from 10 a.m. to noon

Location of meeting: online

Actual meeting date(s): March 7

Meeting Type: (In person/Webinar/Conference) webinar

Purpose of Meeting: update by Greg Kester on biosolids state and fed regs,  
history, etc

---

Other meeting attendees: Craig Murray

Meeting relevance to District: biosolids may become a valued commodity

Frequency of Meeting: One time

Estimated Costs of Travel (if applicable): N/a

Date submitted to Board Secretary: 3/3/2022

Board approval obtained on Date: \_\_\_\_\_

Please submit to the Board Secretary no later than 1 week prior to the Board Meeting.



## BOARD MEMBER CONFERENCE/ MEETING ATTENDANCE REQUEST

Date: 3/4/22 Name: Crystal J. Yezman

I would like to attend the Biosolids 101 Training Meeting  
of CASA

To be held on the 7<sup>th</sup> day of March 22 from 10 a.m. / p.m. to  
12 day of \_\_\_\_\_ from \_\_\_\_\_ a.m. / p.m.

Location of meeting: Webinar

Actual meeting date(s): 3/7/22

Meeting Type: (In person/Webinar/Conference) \_\_\_\_\_

Purpose of Meeting: Training

Meeting relevance to District: Biosolids Matter

Request assistance from Board Secretary to register for Conference:  YES  NO  
Request assistance from Board Secretary to register for Hotel:  YES  NO

Board Directors to book their own transportation including Airfare, taxi and/or shuttles.

Frequency of Meeting: 1x

Estimated Costs of Travel (if applicable): N/A

Date submitted to Board Secretary: 3/4/22

Board approval obtained on Date: 3/3/22

Please submit this form to the Board Secretary no later than 1 week prior to the Board Meeting.



Item Number 2F  
GM Review CD

# Agenda Summary Report

**To:** Board of Directors  
**From:** Teri Lerch, District Secretary  
(415) 526-1510; tlerch@lgvsd.org  
**Mtg. Date:** March 17, 2022  
**Re:** Resolution 2022-2244 Continue Remote Meetings or resume In Person Meetings  
**Item Type:** Consent X Action \_\_\_\_\_ Information \_\_\_\_\_ Other \_\_\_\_\_  
**Standard Contract:** Yes \_\_\_\_\_ No \_\_\_\_\_ (See attached) Not Applicable \_\_\_\_\_

## STAFF RECOMMENDATION

Adopt Resolution No. 2022-2244 to allow continued use of remote teleconference for District public meetings per Gov. Code Sec. 54953 or direct staff to resume in person Board Meetings.

## BACKGROUND

On September 20, 2021, Governor Newsom signed AB 361. The legislation provides that local agencies subject to the Brown Act may continue to hold certain public meetings via video/teleconference as they have done during the COVID-19 emergency declared by Governor Gavin Newsom on March 4, 2020.

To continue with AB 361 remote video/teleconference meetings, the District must reconsider the circumstances of the emergency every 30 days and determine that either the state of emergency continues to directly impact the ability of the members to meet safely in person; or state or local officials continue to impose or recommend measures to promote social distancing. These findings must be made by majority vote. *Gov. Code § 54953(e)(3)*.

Alternatively, the Board of Directors may direct staff to resume in person Board of Director Meetings.

## PREVIOUS BOARD ACTION

None

## ENVIRONMENTAL REVIEW

N/A

## FISCAL IMPACT

None

**RESOLUTION NO. 2022-2244**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE LAS GALLINAS VALLEY SANITARY DISTRICT PROCLAIMING A LOCAL EMERGENCY PERSISTS, RE-RATIFYING THE PROCLAMATION OF A STATE OF EMERGENCY BY GOVERNOR'S ORDER, DATED MARCH 4, 2020, IN CONTINUING EXECUTIVE ORDERS, AND RE-AUTHORIZING REMOTE TELECONFERENCE MEETINGS OF THE BOARD OF DIRECTORS OF THE LAS GALLINAS VALLEY SANITARY DISTRICT FOR THE PERIOD OF MARCH 17, 2022 THROUGH APRIL 16, 2022 PURSUANT TO BROWN ACT PROVISIONS.**

**WHEREAS**, the LAS GALLINAS VALLEY SANITARY DISTRICT ("District") is committed to preserving and nurturing public access and participation in meetings of the Board of Directors; and

**WHEREAS**, all meetings of LAS GALLINAS VALLEY SANITARY DISTRICT's Board of Directors are open and public, as required by the Ralph M. Brown Act (Cal. Gov. Code 54950 – 54963), so that any member of the public may attend, participate, and watch the District's legislative bodies conduct their business; and

**WHEREAS**, the Brown Act, Government Code section 54953(e), makes provision for remote teleconferencing participation in meetings by members of a legislative body, without compliance with the requirements of Government Code section 54953(b)(3), subject to the existence of certain conditions; and

**WHEREAS**, a required condition is that a state of emergency is declared by the Governor pursuant to Government Code section 8625, proclaiming the existence of conditions of disaster or of extreme peril to the safety of persons and property within the state caused by conditions as described in Government Code section 8558; and

**WHEREAS**, a proclamation is made when there is an actual incident, threat of disaster, or extreme peril to the safety of persons and property within the jurisdictions that are within the District's boundaries, caused by natural, technological or human-caused disasters; and

**WHEREAS**, it is further required that state or local officials have imposed or recommended measures to promote social distancing, or, the legislative body meeting in person would present imminent risks to the health and safety of attendees; and

**WHEREAS**, the Board of Directors previously adopted a Resolution, Number 2022-2238 on February 17, 2022, finding that the requisite conditions exist for the Board of Directors of the LAS GALLINAS VALLEY SANITARY DISTRICT to conduct remote teleconference meetings without compliance with paragraph (3) of subdivision (b) of section 54953; and

**WHEREAS**, as a condition of extending the use of the provisions found in section 54953(e), the Board of Directors must reconsider the circumstances of the state of emergency that exists in the District, and the Board of Directors has done so; and

**WHEREAS**, emergency conditions persist in the District, specifically, a State of Emergency has been proclaimed by Governor Gavin Newsom, dated March 4, 2020 and continuing; and

**WHEREAS**, effective, August 3, 2021, the Public Health Officer of The County of Marin (“Health Officer”), in keeping with Health Orders from the California Department of Public Health, required all individuals to wear face coverings when indoors in workplaces and public settings, with limited exemptions, and recommends that businesses make face coverings available to individuals entering the business on the basis. Since April 2021, the SARS-CoV-2 B.1.617.2 (Delta) variant has been circulating in Marin County. This variant is highly transmissible in indoor settings and requires multi-component prevention strategies to reduce spread. Despite high vaccination rates, Marin County is experiencing substantial levels of community transmission due to the Delta variant. While most COVID-19 cases are among unvaccinated residents, the proportion of breakthrough cases is increasing. Hospitalizations have also increased, primarily among unvaccinated persons. Marin County is also seeing a concerning uptick in cases among staff and residents in long-term care facilities; and

**WHEREAS**, on December 1, 2021 the State of California and the San Francisco Department of Public Health have confirmed a case of the Omicron variant in California which poses a new significant risk to the health and safety of attendees of an in-person meeting of the Board of Directors of the District; and

**WHEREAS**, evolving COVID-19 variants continues to pose a significant risk to the health and safety of attendees at an in-person meeting of the Board of Directors of the District; and

**WHEREAS**, the Board of Directors does hereby find that, as noted by the Governor, the California Department of Public Health and the Marin County Public Health Officer, that a State of Emergency continues to exist in regard to the Covid-19 outbreak and its Delta and Omicron variant, has caused, and will continue to cause, conditions of peril to the safety of persons within the District that are likely to be beyond the control of services, personnel, equipment, and facilities of the District, and desires to proclaim a local emergency and ratify the proclamation of state of emergency by the Governor of the State of California, the California Department of Public Health and the Public Health Officer of The County of Marin; and  
and

**WHEREAS**, as a consequence of the local emergency persisting, the Board of Directors does hereby find that the Board of Directors of LAS GALLINAS VALLEY SANITARY DISTRICT shall continue to conduct their meetings without compliance with paragraph (3) of subdivision (b) of Government Code section 54953, as authorized by subdivision (e) of section 54953, and that such legislative bodies shall continue to comply with the requirements to provide the public with access to the meetings as prescribed in paragraph (2) of subdivision (e) of section 54953; and



**WHEREAS**, the District will continue to:

1. Clearly advertise the means by which members of the public can observe a public meeting or offer comment during a meeting remotely, via either a call-in or internet-based option;

2. Provide the relevant remote access information to members of the public looking to attend a meeting of a local agency legislative body. This information includes, but is not limited to: phone numbers, passwords, URLs, email addresses, etc., such that members of the public are able to attend the meeting remotely;

3. Ensure that the public remains able to connect to a meeting and offer public comment by the means previously advertised in the meeting notice or agenda; and

4. In the event that meetings are interrupted by technological or similar technical disruptions must first resolve those issues before taking any other action(s) on items on the meeting agenda.

**NOW, THEREFORE, THE BOARD OF DIRECTORS OF LAS GALLINAS VALLEY SANITARY DISTRICT DOES HEREBY RESOLVE AS FOLLOWS:**

Section 1. Recitals. The Recitals set forth above are true and correct and are incorporated into this Resolution by this reference.

Section 2. Affirmation that Local Emergency Persists. The Board of Directors hereby considers the conditions of the state of emergency in the District and proclaims that a local emergency persists throughout the District, and due to the continuing Covid-19 pandemic and its Delta variant, which would present an imminent risk to the health and safety of the Board of Directors and members of the public at an in-person meeting due to the confined space in which the Board of Directors meeting are normally held.

Section 3. Re-ratification of Governor's Proclamation of a State of Emergency. The Board hereby ratifies the Governor of the State of California's Proclamation of State of Emergency, effective as of its issuance date of March 4, 2020 and continuing through follow-up Executive Orders, the most recent being Executive Order N-08-21, issued June 11, 2021.

Section 4. Remote Teleconference Meetings. The General Manager and Staff of the LAS GALLINAS VALLEY SANITARY DISTRICT are hereby authorized and directed to take all actions necessary to carry out the intent and purpose of this Resolution including, conducting open and public meetings in accordance with Government Code section 54953(e) and other applicable provisions of the Brown Act.



Section 5. Effective Date of Resolution. This Resolution shall take effect immediately upon its adoption and shall be effective until the earlier of (i) April 16, 2022, or such time the Board of Directors adopts a subsequent resolution in accordance with Government Code section 54953(e)(3) to extend the time during which the Board of Directors of LAS GALLINAS VALLEY SANITARY DISTRICT may continue to teleconference without compliance with paragraph (3) of subdivision (b) of section 54953.

\* \* \* \* \*

I hereby certify that the forgoing is a full, true and correct copy of a resolution duly and regularly passed and adopted by the Sanitary Board of the Las Gallinas Valley Sanitary District, Marin County, California, at a regular meeting thereof held on March 17, 2022, by the following vote of the members thereof:

AYES, and in the favor thereof, Members:

NOES, Members:

ABSENT, Members:

ABSTAIN, Members:

\_\_\_\_\_  
Teresa Lerch, District Secretary

APPROVED:

\_\_\_\_\_  
Judy Schriebman, President



Item Number 2G  
GM Review LD

# Agenda Summary Report

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**To:** Board of Directors  
**From:** Teri Lerch, District Secretary <sup>RL</sup>  
(415) 526-1510; tlerch@lgvsd.org  
**Mtg. Date:** March 17, 2022  
**Re:** Resolution 2022-2245 Board Policies: B-10 Minutes of Board Meetings and F-10 Finance General  
**Item Type:** Consent X Action \_\_\_\_\_ Information \_\_\_\_\_ Other \_\_\_\_\_  
**Standard Contract:** Yes \_\_\_\_\_ No \_\_\_\_\_ (See attached) Not Applicable \_\_\_\_\_

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### STAFF RECOMMENDATION

Board approve Resolution 2022-2245 amending Board Policies B-10 Minutes of Board Meetings and F-10 Finance General as per Board review and discussion March 3, 2022.

### BACKGROUND

The Board has requested to review and update Board Policy.

### PREVIOUS BOARD ACTION

Board policy B-10 - Minutes of Board Meetings was adopted by the Board on July 9, 2009 by Resolution 2009-1872.

Board Policy F-10 – Finance -General was adopted by the Board on February 23, 2017 by Resolution 2017-2084.

### ENVIRONMENTAL REVIEW

N/A

### FISCAL IMPACT

N/A

**RESOLUTION NO. 2022-2245**

**A RESOLUTION APPROVING BOARD POLICIES**

**THE LAS GALLINAS VALLEY SANITARY DISTRICT**

**WHEREAS**, the Board of Directors has determined that a comprehensive list of Policies and Procedures for the Board of Directors is in the best interest of the District.

**WHEREAS**, the Board of Directors has compiled a comprehensive list of Policies and Procedures to serve as the rules and regulations of the Board of Directors.

**WHEREAS**, the Board of Directors did adopt such comprehensive list of Policies and Procedures on July 9, 2009,

**WHEREAS**, such policies may need to be updated,

**NOW THEREFORE**, the Board of Directors of the Las Gallinas Valley Sanitary District approves the following revised policy section: BOARD OF DIRECTORS B-10 Minutes of Board Meetings and FINANCE F-10 General.

The previously approved Board Policies B-10 and F-10 are hereby revoked and declared null and void.

If any policy or portion of a policy contained within the Policies and Procedures is in conflict with rules, regulations, or legislation having authority over the Las Gallinas Valley Sanitary District, said rules, regulations or legislation shall prevail.

The Policies and Procedures shall remain in effect until amended by at least a majority vote of the Board of Directors.

\* \* \* \* \*

I hereby certify that the forgoing is a full, true, and correct copy of a resolution duly and regularly passed and adopted by the Sanitary Board of the Las Gallinas Valley Sanitary District, Marin County, California, at a meeting thereof held on the 17 of March 2022, by the following vote of the members thereof:

AYES, and in favor thereof Members:  
NOES, Members:  
ABSENT, Members:  
ABSTAIN, Members:

\_\_\_\_\_  
Teresa Lerch, District Secretary

APPROVED:

\_\_\_\_\_  
Judy Schriebman, President of Board of Directors  
Resolution No. 2022-2245

## BOARD OF DIRECTORS

### B-10 MINUTES OF BOARD MEETINGS

#### Purpose

This policy establishes the rules for preparation of minutes, what items may be included and procedures to approve or amend the minutes.

**B-10-10 Preparation of Minutes.** With the assistance of the General Manager, the Secretary of the Board of Directors shall provide "action" written minutes of all meetings of the Board from meeting notes and the meeting audio recording, if needed. The audio recording if needed, will be kept for a period of one year from the date of the recorded meeting, after which they will be destroyed. The written minutes shall be considered the formal minutes of the District.

**B-10-20 Contents.** The written minutes shall contain all actions taken by the Board and all reports considered, the names of who voted and how, the names, if available, of members of the public who spoke, and any recommendations from staff, legal counsel, or consultants.

**B-10-30 Required Details.** The written minutes shall also include date, time, place, and type of meeting; roll call; notation of late-arriving or early-departing Board Members and any absences when votes are taken; notices of special meetings; and time of adjournment.

**B-10-40 Individual Items.** The types of agenda items that shall be included in the written minutes are written minutes of prior meetings; resolutions; ordinances; contracts; bid proceedings; warrants; budgets; reports by staff, legal counsel, Board Members and consultants; important correspondence; appearances by delegations and special guests; and policy and procedure issues. Other items may be included in the written minutes at the discretion of the General Manager.

**B-10-50 Approval Procedure.** Written minutes shall be considered by the Board in a timely manner. Minutes will be presented for approval on the consent calendar. A majority vote of the Board is required to approve any corrections. If corrections are approved by a majority of the Board, the written minutes will be automatically approved as part of the consent calendar as corrected by the Board – without a further vote of the Board.

<b>Resolution No. 2022-2245</b>	Date Approved: March 17, 2022
President of the Board	Last Reviewed: March 3, 2022

**FINANCE**

**F-10 GENERAL**

**Purpose**

This policy establishes the overall purpose for the District adopted financial policies.

**F-10-10 Review Annually.** Las Gallinas Valley Sanitary District's financial policies shall be reviewed annually by the Board and shall be published in the adopted budget.

**F-10-20 Comply with Applicable Laws.** The District shall comply with all applicable state and federal laws and regulations concerning financial management and reporting, budgeting, investing and debt administration.

**F-10-30 Administrative Procedures.** The District shall comply with all applicable state and federal laws and regulations concerning financial management and reporting, budgeting, investing and debt administration.

<b>Resolution No. 2022-2245</b>	Date Approved: March 17, 2022
President of the Board	Last Reviewed: March 3, 2022



## BOARD OF DIRECTORS

### B-10 MINUTES OF BOARD MEETINGS

#### Purpose

This policy establishes the rules for preparation of minutes, what items may be included and procedures to approve or amend the minutes.

**B-10-10 Preparation of Minutes.** With the assistance of the General Manager, the Secretary of the Board of Directors shall provide “action” written minutes of all meetings of the Board from meeting notes and the meeting ~~audio-tape recording~~, if needed. ~~The audio-tape recording~~, if needed, will be kept for a period of one year from the date of the recorded meeting, after which they will be destroyed. The written minutes shall be considered the formal minutes of the District.

**B-10-20 Contents.** The written minutes shall contain all actions taken by the Board and all reports considered, the names of who voted and how, the names, if available, of members of the public who spoke, and any recommendations from staff, legal counsel, or consultants.

**B-10-30 Required Details.** The written minutes shall also include date, time, place, and type of meeting; roll call; notation of late-arriving or early-departing Board Members and any absences when votes are taken; notices of special meetings; and time of adjournment.

**B-10-40 Individual Items.** The types of agenda items that shall be included in the written minutes are written minutes of prior meetings; resolutions; ordinances; contracts; bid proceedings; warrants; budgets; reports by staff, legal counsel, ~~Board Members~~ and consultants; important correspondence; appearances by delegations and special guests; and policy and procedure issues. Other items may be included in the written minutes at the discretion of the General Manager.

**B-10-50 Approval Procedure.** Written minutes shall be considered by the Board in a timely manner. Minutes will be presented for approval on the consent calendar. A majority vote of the Board is required to approve any corrections. If corrections are approved by a majority of the Board, the written minutes will be automatically approved as part of the consent calendar as corrected by the Board – without a further vote of the Board.

<b>Resolution No. 2009-4872 2022-2245</b>	Date Approved: <del>July 9, 2009</del> March 17, 2022
President of the Board	<del>Supersedes:</del> Last Reviewed: March 3, 2022

**FINANCE**

**F-10 GENERAL**

**Purpose**

This policy establishes the overall purpose for the District adopted financial policies.

**F-10-10 Review Annually.** Las Gallinas Valley Sanitary District’s financial policies shall be reviewed annually by the Board and shall be published in the adopted budget.

**F-10-20 Comply with Applicable Laws.** The District shall comply with all applicable state and federal laws and regulations concerning financial management and reporting, budgeting, investing and debt administration.

**F-10-30 Administrative Procedures.** The District shall comply with all applicable state and federal laws and regulations concerning financial management and reporting, budgeting, investing and debt administration.

<p><b>Resolution No. <del>2017-2084</del> 2022-2245</b></p>	<p>Date Approved: <del>February 23, 2017</del> March 17, 2022</p>
<p>President of the Board</p>	<p>Supersedes: <del>July 9, 2009</del> Last Reviewed: March 3, 2022</p>



Item Number \_\_\_\_\_ 3 \_\_\_\_\_

GM Review \_\_\_\_\_ CD \_\_\_\_\_

# Agenda Summary Report

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**To:** Board of Directors  
**From:** Dale McDonald, Administrative Services Manager  
(415) 526-1519 [dmcdonald@lgvsd.org](mailto:dmcdonald@lgvsd.org)  
**Meeting Date:** March 17, 2022  
**Re:** Hearing for Ordinance No. 189 Amending Title 4 Regulating Solid Waste and Recycling as Required by SB 1383

**Item Type:** Consent \_\_\_\_\_ Action X Information \_\_\_\_\_ Other \_\_\_\_\_  
**Standard Contract:** Yes \_\_\_\_\_ No \_\_\_\_\_ (See attached) Not Applicable X .

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## STAFF RECOMMENDATION

Hold public hearing, waive reading of ordinance, and adopt Ordinance No. 189 amending Chapter 1 of Title 4 of the Las Gallinas Valley Sanitary District Code regulating solid waste, recyclable and organic materials, and the collection, removal, and disposal thereof in accordance with Senate Bill (SB) 1383.

Not adopting the ordinance before the State deadline of April 1, 2022 would put the Las Gallinas Valley Sanitary District out of compliance with SB 1383 and subject to enforcement penalties.

## BACKGROUND

In 2014, recognizing the negative impacts of organic materials decomposing in landfills on climate change, the State of California enacted Assembly Bill (AB) 1826 mandating that businesses with certain thresholds of refuse disposal compost their organic materials. Beginning in 2022 SB 1383, enacted in 2017, requires all residents and businesses to divert their organic waste and recover edible food. SB 1383 places new requirements on local governments to implement, monitor and enforce participation in organic waste recycling programs, and the California Department of Resources Recycling and Recovery (CalRecycle) will be authorized to levy fines upon local governments that do not comply. The Marin Sanitary Service franchisors’ group have been working with R3 Consulting Group, Inc. to facilitate compliance with SB 1383 and assess opportunities to create economies of scale working together to implement the law.

Marin Sanitary Service (“MSS”) is the authorized collector for businesses, residences, and government agencies within the franchisors’ group area including the Las Gallinas Valley Sanitary District (“District”). MSS also services the City of San Rafael and where jurisdictions overlap with the District, or co-exist, the city has the authority and responsibilities for implementation of SB 1383.

SB 1383 requires all jurisdictions throughout the State to update their Franchise Agreements (*which the District has done*) and revise their District Code by adopting a mandatory organics recycling ordinance by January 1, 2022. The District was advised that if our ordinance is adopted prior to April 1, 2022, the deadline for filing the initial compliance report containing ordinances or other enforceable mechanisms listed in the annual reporting section (14 CCR 18994.1), CalRecycle would consider the District compliant. The proposed ordinance supports the establishment of enforceable SB 1383 related requirements for organic waste generators, haulers, and others and contains language similar to other jurisdictions in Marin County.





## ORDINANCE NO. 189 AMENDING CHAPTER 1 OF TITLE 4 OF THE DISTRICT CODE

The ordinance presented will establish mandates for organics recycling by waste generators, and will also provide for penalties and documentation, which is required by the law. The proposed ordinance imposes new waste disposal requirements on residents and businesses within the District. The ordinance designates the District as the enforcement agency but allows flexibility for the District to delegate enforcement responsibility for certain portions of the ordinance to other entities. Staff is continuing to work with R3, Marin Sanitary Service (MSS) and other jurisdictions to determine whether certain SB 1383 responsibilities can be shared through written agreements, however the District itself remains responsible for SB 1383 compliance.

Some of the major provisions of the proposed ordinance are highlighted below:

- Requirements to subscribe to organics services from our authorized waste hauler (MSS) and properly sort materials consistent with the waste hauler's three-container program.
- A waiver process for businesses that meet minimal ("de minimus") thresholds of organic waste generation.
- Businesses (*excluding multi-family*) must provide additional labeled or color-coded containers for organic waste and recyclable materials generated by that business in all areas where the business provides disposal containers ("user disposal containers") for employees, tenants, customers, and other users of the premises.
- Requirements that the waste hauler and self-haulers must take materials to facilities allowed by CalRecycle that recover those materials and keep specified records.
- Large, commercial edible-food generators must divert edible food through a written agreement with food recovery organizations and keep specified records.
- The District's right to inspect and enforce as well as issue penalties for enforcement, either individually or through shared enforcement agreements with other franchisors, consistent with penalties for similar ordinance violations.
- Actual enforcement of provisions in our ordinance is not required until January 2024, allowing waste generators time to transition to full compliance over two years' time. Assessment of penalties would only be applicable to commercial generators.

Staff and District Counsel have been in communication with CalRecycle regarding enforcement provisions pertaining to special districts and appreciate the collaborative approach of all parties. Clarification from CalRecycle and subsequent modifications to Title 4, if needed, can be completed before the enforcement deadline of January 2024.

Section 239.(f) in the ordinance was changed based on Board direction to "Residential generators shall not be subject to fine or penalty." No other material changes were made to the ordinance after its introduction on February 17, 2022.

The District's ordinance is very similar to those adopted by the other MSS franchisors. This will allow for consistency in implementation across the MSS service area and for the District to collaborate with the other agencies in regards to enforcement and reporting. The District is working with R3 and the other franchisors to determine the needs and opportunities for shared enforcement, including an analysis of costs and cost-share. Zero Waste Marin is working with a third-party vendor to align reporting duties and institute a tool all the jurisdictions and MSS can use to streamline and simplify the reporting.



## **PREVIOUS BOARD ACTION**

Ordinance No. 188 amending Appendix A of Title 4, Chapter 1 to increase the refuse collection rates effective January 1, 2022 by 0.64% was adopted by the District Board on December 16, 2021.

Resolution No. 2022-2241 approving a Second Amendment to the Revised and Restated Exclusive Franchise Agreement between MSS and the District was adopted on February 17, 2022 to align with the requirements of SB 1383.

The draft Ordinance amending Chapter 1 of Title 4 of the District Code to comply with SB 1383 regulations was introduced on February 17, 2022, and public hearing set for March 17, 2022.

## **ENVIRONMENTAL REVIEW**

N/A

## **FISCAL IMPACT**

There is no direct fiscal impact as a result of adopting this ordinance. However, the financial impact of implementing SB 1383 may range from small to significant for the District and its solid waste ratepayers as a result of implementation and enforcement costs and future franchise agreements with waste haulers.

## Attachments:

- A. Ordinance No. 189 Amending Chapter 1 Title 4 of the District Code

**BOARD OF DIRECTORS OF THE  
LAS GALLINAS VALLEY SANITARY DISTRICT**

**ORDINANCE NO. 189**

**AN ORDINANCE AMENDING CHAPTER 1 OF TITLE 4 OF THE LAS GALLINAS  
VALLEY SANITARY DISTRICT CODE  
REGULATING SOLID WASTE, RECYCLABLE AND  
ORGANIC MATERIALS, AND THE COLLECTION, REMOVAL  
AND DISPOSAL THEREOF**

The Board of Directors of the Las Gallinas Valley Sanitary District, Marin County, California, does ordain as follows:

Section 1. TITLE 4, CHAPTER 1, OF THE ORDINANCE CODE OF THE LAS GALLINAS VALLEY SANITARY DISTRICT is hereby amended in its entirety as follows:

**ARTICLE I. DEFINITIONS**

Section 101. ACT means the California Integrated Waste Management Act of 1989 (commencing with Section 40000 of the Public Resources Code), as amended, including but not limited to, the Jobs and Recycling Act of 2011 (AB 341), SB 1016 (Chapter 343, Statutes of 2008 [Wiggins, SB 1016], the Mandatory Commercial Organics Recycling Act of 2014 (AB 1826), and the Short-Lived Climate Pollutants Bill of 2016 (SB 1383), and as implemented by the regulations of CalRecycle.

Section 102. AUTHORIZED COLLECTOR means such persons, firms or corporations collecting and delivering for disposal, recycling or processing solid waste (other than solid waste generated by a permitted building project) originating in the District and doing so under a contract or franchise agreement with the District,

Section 103. BOARD is the Sanitary Board of said District.

Section 104. CCR means the California Code of Regulations. CCR references in this Chapter are preceded with a number that refers to the relevant Title of the CCR (e.g., “14 CCR” refers to Title 14 of CCR).

Section 105. DISTRICT is Las Gallinas Valley Sanitary District, Marin County, California.

Section 106. COLLECTION means to take physical possession of solid waste at, and remove from, the place of generation for transport to a solid waste facility or other recovery activity.

Section 107. COMMERCIAL BUSINESS or COMMERCIAL means a firm, partnership, proprietorship, joint-stock company, corporation, or association, whether for-profit or nonprofit, strip mall, industrial facility, or a multi-family dwelling, or as otherwise defined in 14 (CCR) Section 18982(a)(6). A multi-family dwelling that consists of (5) or more dwelling units is “Commercial”, for the purposes of this Chapter.

Section 108. COMMERCIAL EDIBLE FOOD GENERATOR means a Tier One or a Tier Two Commercial Edible Food Generator as defined in 14 CCR Section 18982(a)(73) and (a)(74). Food recovery organizations and food recovery services are not commercial edible food generators.

Section 109. CONSTRUCTION AND DEMOLITION DEBRIS or C&D means used or discarded materials resulting from construction, renovation, remodeling, repair, demolition, excavation or construction clean-up operations on any pavement or structure.

Section 110. CONTAINER or COLLECTION CONTAINER means, for the purpose of this Chapter, any bin, box or cart used for the purpose of holding solid waste for collection.

Section 111. COUNTY is the County of Marin.

Section 112. DEBRIS shall mean and include any and all material resulting from construction, demolition or temporary clean-up operations collected and transported on an occasional basis.

Section 113. DISPOSAL means the final disposition of Solid Waste at a Solid Waste Facility permitted for disposal.

Section 114. EDIBLE FOOD means food intended for human consumption, or as otherwise defined in 14 CCR Section 18982(a)(18). For the purposes of this ordinance or as otherwise defined in 14 CCR Section 18982(a)(18), “Edible Food” is not Solid Waste if it is recovered and not discarded. Nothing in this chapter or in 14 CCR, Division 7, Chapter 12 requires or authorizes the Recovery of Edible Food that does not meet the food safety requirements of the California Retail Food Code.

Section 115. ENFORCEMENT ACTION means an action of the District to address non-compliance with this ordinance including, but not limited to, issuing administrative notices, citations, fines, penalties, or using other remedies.

Section 116. ENFORCEMENT AGENCY means an entity with the authority to enforce part or all of this chapter as specified herein. Employees and agents of an Enforcement Agency may carry out inspections and enforcement activities pursuant to this chapter. Nothing in this chapter authorizing an entity to enforce its terms shall require that entity to undertake such enforcement except as agreed to by that entity and the District. The Las Gallinas Sanitary District is an Enforcement Agency for all Sections of this chapter. The District may choose to additionally delegate enforcement responsibility for certain sections, to other public entities or joint powers authority, including but not limited to Zero Waste Marin, and the County of Marin.

Section 117. ENFORCEMENT OFFICER means a person or entity the District Manager designates to enforce part or all of this chapter, or a Designated Entity by another Enforcement Agency authorized by the District Manager to enforce part or all of this chapter. The issuance of civil penalties or other penalties or fines will remain the authority of public enforcement entities and will not be delegated to a private entity.

Section 118 EXEMPT WASTE means biohazardous or biomedical waste, Hazardous Waste, medical waste, regulated radioactive waste, waste that is volatile, corrosive, or infectious, waste treatment or processing sludge, contaminated soil and dirt, contaminated concrete, contaminated asphalt, automobiles, automobile parts, boats, boat parts, boat trailers, internal combustion engines, lead-acid batteries, any matter or materials which are not acceptable for disposal at a solid waste landfill as defined in AB 939 and subsequent legislation, and those wastes under the control of the Nuclear Regulatory Commission.

Section 119. FOOD RECOVERY ORGANIZATION means an entity that engages in the collection or receipt of Edible Food from Commercial Edible Food Generators and distributes that Edible Food to the public for Food Recovery either directly or through other entities or as otherwise defined in 14 CCR Section 18982(a)(25), including, but not limited to:

- (a) A food bank as defined in Section 113783 of the Health and Safety Code;
- (b) A nonprofit charitable organization as defined in Section 113841 of the Health and Safety code; and,

(c) A nonprofit charitable temporary food facility as defined in Section 113842 of the Health and Safety Code.

Section 120. FOOD RECOVERY SERVICE means a person or entity that collects and transports Edible Food from a Commercial Edible Food Generator to a Food Recovery Organization or other entities for Food Recovery, or as otherwise defined in 14 CCR Section 18982(a)(26). A Food Recovery Service is not a Commercial Edible Food Generator for the purposes of this chapter and implementation of 14 CCR, Division 7, Chapter 12 pursuant to 14 CCR Section 18982(a)(7).

Section 121. FOOD WASTE means food scraps and trimmings and other putrescible waste that result from food production, preparation, cooking, storage, consumption or handling. Food Waste includes but is not limited to meat, fish and dairy waste, fruit and vegetable waste and grain waste. Food Waste does not include Exempt Waste.

Section 122 GARBAGE means all non-recyclable packaging and other waste attributed to normal activities of a service unit. Garbage must be generated by and at the service unit wherein the garbage is collected. Garbage does not include recyclable materials, organic materials, debris from construction and demolition, large items, e-waste, universal waste, hazardous waste, household hazardous waste or exempt waste.

Section 123. GENERATORS for the purpose of this Chapter, means a person or entity, including commercial generators and residential generators, that is responsible for the initial creation of organic materials, or as otherwise defined as “organic waste generator” in 14 CCR Section 18982(a)(48).

Section 124. HAULER means a person who collects material from a generator and delivers it to a reporting entity, end user, or a destination outside of the state. Hauler includes public contract haulers, authorized collectors, food waste self-haulers, and self-haulers. A person who transports material from reporting entity to another person is a transporter, not a hauler.

Section 125. HAZARDOUS WASTE shall mean all substances defined as Hazardous Waste, acutely Hazardous Waste, or extremely Hazardous Waste by the State of California in Health and Safety Code Sections 25117, 25110.02, and 25115, or in the future amendments to or recodifications of such statutes, or identified and listed as Hazardous Waste by the U.S. Environmental Protection Agency, pursuant to the Federal Resource Conservation and Recovery

Act (42 USC Section 6901, et seq.), all future amendments thereto and all rules and regulations promulgated thereunder.

Section 126. "HEALTH OFFICER" means the health officer of the county, acting as health officer for the District.

Section 127. "INSPECTION" means a site visit where the District or its Designated Entity, reviews records, containers, and an entity's collection, handling, recycling, or disposal of solid waste or edible food handling to determine if the entity is complying with requirements set forth in this ordinance, or as otherwise defined in 14 CCR Section 18982(a)(35).

Section 128. MANAGER means the General Manager of the Las Gallinas Valley Sanitary District, or their Designated Entity, which may include District employees.

Section 129. ORGANIC MATERIAL OR ORGANIC WASTE means solid wastes containing material originated from living organisms and their metabolic waste products, including but not limited to food waste, green material, landscape and pruning waste, organic textiles and carpets, lumber, wood, paper products, printing and writing paper, manure, biosolids, digestate, and sludges or as otherwise defined in 14 CCR Section 18982(a)(46).

Section 130. ORGANIC MATERIAL PROCESSING FACILITY means any facility selected by the Authorized Collector that is approved by the District, or specifically designated by the District, operated and legally permitted for the purpose of receiving and processing organic materials.

Section 131. PERSON means any person or persons, firm, association, corporation or other entity acting as principal, agent or officer, servant or employee, for themselves or for any other person, firm or corporation.

Section 132. PREMISES includes a tract or parcel of land with or without habitable buildings or appurtenant structures. (CCR, Section 17225.50) For purposes of this chapter the word premises includes residential and commercial uses of the land, whether owned, leased, rented or subrented, including every dwelling house, dwelling unit, apartment house or multiple-dwelling building, trailer or mobile home park, store, restaurant, rooming house, hotel, motel, office building, department store, manufacturing, processing or assembling shop or plant, warehouse and every other place or premises where any person resides, or any business is carried on or conducted within the District.

Section 133. PROHIBITED CONTAINER CONTAMINANTS means (1) discarded materials placed in the designated Recyclables container that are not identified as acceptable source separated recyclables for the District’s designated recyclables collection container; (2) discarded materials placed in the designated organic materials collection container that are not identified as acceptable source separated organic materials for the District’s designated organic materials collection container; and (3) discarded materials placed in the garbage container that are acceptable source separated recyclables and/or source separated organic materials to be placed in District’s designated organic materials collection container and/or designated recyclables collection container, and (4) Exempt Waste placed in any container.

Section 134. RESIDENTIAL means, for the purposes of this chapter, any premise consisting of between one (1) and four (4) dwelling units, and onsite domestic uses accessory to these dwelling units. A multi-family dwelling that consists of fewer than (5) dwelling units is “Residential”, for the purposes of this Chapter.

Section 135. SELF-HAUL means a person who hauls solid waste, organic waste or recovered material they have generated to another person. Self-hauler also includes a person who back-hauls waste, or as otherwise defined in 14 CCR Section 18982(a)(66). “Back-haul” means generating and transporting organic materials to a destination owned and operated by the generator using the generator’s own employees and equipment.

Section 136. SOLID WASTE means all putrescible and nonputrescible solid and semisolid wastes, including garbage, recyclable materials, organic materials, demolition and construction wastes, bulky waste, discarded home and industrial appliances, manure, vegetable or animal solid or semisolid wastes, and other discarded solid and semisolid wastes. (PRC, Section 49503) Solid waste does not include any of the following wastes: (1) Hazardous waste, as defined in the Public Resources Code Section 40141, (2) Radioactive waste regulated pursuant to the State Radiation Control Law (Chapter 8 (commencing with Section 114960) of Part 9 of Division 104 of the Health and Safety Code) and (3) Medical waste regulated pursuant to the State Medical Waste Management Act (Part 14 (commencing with Section 117600) of Division 104 of the Health and Safety Code). Untreated medical waste shall not be disposed of in a Solid Waste landfill, as defined in Public Resources Code Section 40195.1. Medical waste that has been treated and deemed to be solid waste shall be regulated pursuant to Division 30 of the Public Resources Code. Recyclable materials and organic materials are a part of solid waste.



Section 137. SOLID WASTE COLLECTION SERVICE means collection of solid waste originating in the District, by a persons, firms or corporations, and doing so under a contract or franchise agreement with the District.

Section 138. SOLID WASTE FACILITY OR FACILITY means a solid waste transfer or processing station including Material Recovery Facilities, a recycling facility, a composting facility, a gasification facility, a transformation facility, an Engineered Municipal Solid Waste conversion facility, and a disposal facility. Solid waste facility additionally includes a solid waste operation that may be carried out pursuant to an enforcement agency notification as provided in regulations adopted by CalRecycle or otherwise set forth in the Act.

Section 139. SOURCE SEPARATE means the process of removing recyclable materials and organic materials from Solid Waste at the place of generation, prior to Collection, and placing such materials into separate containers designated for recyclable materials and organic materials, or as otherwise defined in 14 CCR Section 17402.5(b)(4).

Section 140. SOURCE REDUCTION means any action which causes a net reduction in the generation of solid waste. Source reduction includes, but is not limited to, reducing the use of nonrecyclable materials, replacing disposable materials and products with reusable materials and products, reducing packaging, reducing the amount of yard wastes generated, establishing garbage rate structures with incentives to reduce the amount of wastes that generator produce, and increasing the efficiency of the use of paper, cardboard, glass, metal, plastic, and other materials. Source reduction does not include steps taken after the material becomes solid waste or actions which would impact air or water resources in lieu of land, including, but not limited to, transformation.

Section 141. TIER ONE COMMERCIAL EDIBLE FOOD GENERATOR means a Commercial Edible Food Generator that is one of the following as defined in 14 CCR Section 18982(a):

- (a) Supermarkets with gross annual sales of \$2,000,000 or more
- (b) Grocery store with a total facility size equal to or greater than 10,000 square feet.
- (c) Food service provider, which means an entity primarily engaged in providing food services to institutional, governmental, commercial, or industrial locations of others based on contractual arrangements with these types of organizations.

(d) Wholesale food vendor, which means a business or establishment engaged in the merchant wholesale distribution of food, where food (including fruits and vegetables) is received, shipped, stored, prepared for distribution to a retailer, warehouse, distributor, or other destination.

(e) Food Distributor, which means a company that distributes food to entities including, but not limited to, supermarkets and grocery stores.

Section 142. TIER TWO COMMERCIAL EDIBLE FOOD GENERATOR means a Commercial Edible Food Generator that is one of the following as defined in 14 CCR Section 18982(a):

(a) Restaurant with 250 or more seats, or a total facility size equal to or greater than 5,000 square feet.

(b) Hotel with an on-site food facility and 200 or more rooms.

(c) Health facility with an on-site food facility and 100 or more beds.

(d) Large Venue, which means a permanent venue facility that annually seats or serves an average of more than 2,000 individuals within the grounds of the facility per day of operation of the venue facility. For purposes of this ordinance and implementation of 14 CCR, Division 7, Chapter 12, a venue facility includes, but is not limited to, a public, nonprofit, or privately owned or operated stadium, amphitheater, arena, hall, amusement park, conference or civic center, zoo, aquarium, airport, racetrack, horse track, performing arts center, fairground, museum, theater, or other public attraction facility. For purposes of this ordinance and implementation of 14 CCR, Division 7, Chapter 12, a site under common ownership or control that includes more than one Large Venue that is contiguous with other Large Venues in the site, is a single Large Venue.

(e) Large Event, which means an event, including, but not limited to, a sporting event or a flea market, that charges an admission price, or is operated by a local agency, and serves an average of more than 2,000 individuals per day of operation of the event, at a location that includes, but is not limited to, a public, nonprofit, or privately owned park, parking lot, golf course, street system, or other open space when being used for an event..

(f) A state agency with a cafeteria with 250 or more seats or total cafeteria facility size equal to or greater than 5,000 square feet.

(g) A local education agency facility with an on-site food facility. “Local Education Agency” means a school district, charter school, or county office of education that is not subject to the control of city or county regulations related to Solid Waste, or as otherwise defined in 14 CCR Section 18982(a)(40).

## ARTICLE II. OPERATION

Section 201. Dumping or Burying. No Person shall dump, place or bury in any lot, land or street or alley within the District any Garbage or any other deleterious or offensive substance under any circumstances whatsoever, nor shall any Person dump, place or bury within the District any Waste Matter without first having obtained a permit from the District so to do.

Section 202. Accumulation. No Person owning or occupying any building, lot or premises within the District shall allow any Garbage or other deleterious or offensive substance to accumulate or remain in or upon said building, lot or premises, except as otherwise provided in Section 210 hereof.

Section 203. Burning. No Garbage or other deleterious or offensive substance shall be burned.

Section 204. General. It is the intent of the District that every person residing or conducting business in this District shall subscribe to and participate in solid waste collection service approved by the District and provided by an Authorized Collector. Nothing in this chapter shall prevent generators from self-hauling to an authorized solid waste facility in addition to their solid waste collection service, consistent with self hauling requirements in this Chapter or from utilizing a temporary debris box service.

### Section 205. Obligation of solid waste collection service.

(a) Except as otherwise provided by this Chapter, all occupied premises shall subscribe for solid waste collection service with the Authorized Collector as herein specified, and for such service a charge shall be collected as per a schedule of rates as shall be set by resolution of the District.

(b) A mandatory obligation is imposed on each person occupying any premise to separate and recycle all recyclable material and organic materials from the garbage generated on the premises.

(c) Every property owner, commercial generator, residential generator, or other organic material generator within the District shall have the obligation for disposal of solid waste as provided in this chapter through the designated Authorized Collector and shall pay the

Authorized Collector for the solid waste collection service at the rates provided therefor. Failure of receipt of a bill does not obviate responsibility for payment. In each instance, the property owner shall be primarily responsible for the payment of the charges provided for herein.

(d) Generators shall arrange for a size, quantity and collection frequency of collection containers to adequately store all solid waste generated in connection with the premise between the times designated for collection service. The District shall have the right to review the number and size of such collection containers to evaluate the adequacy of capacity provided for each type of collection service and to review the separation and containment of materials. Generators shall adjust service levels for their collection services as requested by the District in order to meet the standards set forth in this chapter.

(e) Generators shall place source separated organic materials, including food waste, in the organic materials collection container; place source separated recyclable materials in the recyclable material collection container; and place garbage in the approved garbage collection container. Generators shall not place prohibited container contaminants into the garbage collection container, organic materials collection container or recyclable material collection container.

(f) If any person should fail to subscribe for the collection and disposal of solid waste or violate any other provision of this Chapter, said violation shall be presumed to be a nuisance upon the premises and shall be subject to enforcement actions.

(g) The Authorized Collector shall give written notice to the District Manager of the address of any occupied premise within the District which is not subscribing to the collection and disposal service provided by the Authorized Collector.

(h) The owner of each occupied premise shall subscribe for solid waste disposal services within 7 days of the occupancy of the premises. If the owner fails to subscribe for service, the authorized collector shall give the owner written notification that such service is required.

(i) Generators shall provide or arrange for access during all inspections and investigations (with the exception of a private residential dwelling unit) and cooperate with the District Manager or Authorized Collector during such inspections and investigations.

(j) Nothing in this section prohibits generators from preventing or source reducing waste generation, or otherwise diverting recyclable material and organic material as described in Section 222.

Section 206 . Residential generator requirements. Each residential generator shall subscribe to a level of solid waste collection service with the Authorized Collector that is sufficient to handle the volume garbage, recyclable material, and organic materials generated or accumulated on the premises and comply with requirements of those collection services.

Section 207. Commercial generator requirements.

(a) Commercial generators shall comply with the following requirements.

(1) Each commercial generator, including all multi-family dwellings that consist of five dwelling units or more, large events and large venues shall be responsible for compliance with the requirements of this Section.

(2) Each commercial generator shall subscribe to a level of service with an Authorized Collector that is sufficient to handle the volume of garbage, recyclable materials and organic materials generated or accumulated on the premises. Additionally, each commercial generator shall ensure the proper separation of solid waste, as established by the Authorized Collector, by placing each type of material in designated collection containers, and ensure that employees, contractors, volunteers, customers, visitors, and other persons on-site conduct proper source separation of solid waste.

(3) Supply and allow access to adequate number, size, and location of collection containers with sufficient labels or colors, conforming with requirements of this section, for employees, contractors, tenants, and customers, consistent with the solid waste collection service.

(4) Annually provide information to employees, contractors, tenants, and customers about organic materials recovery requirements and about proper sorting of solid waste.

(5) Provide educational information before, or within, fourteen (14) days of occupation of the premises to new tenants that describes requirements to keep source separated organic materials and source separated recyclable materials separate from garbage (when applicable) and the location of collection containers and the rules governing their use at each property.

(6) Accommodate and cooperate with the Authorized Collector's monitoring program for inspection of the contents of containers for prohibited container contaminants, to evaluate generator's compliance.

(7) If a commercial generator self-hauls, the commercial generator shall meet the self-haul requirements of this Chapter.

(b) Commercial generators, excluding multi-family dwellings consisting of five or more dwelling units, shall comply with the following requirements.

(1) Provide containers for the collection of source separated organic materials and source separated recyclable materials in all indoor and outdoor areas where garbage disposal containers are provided for customers, for materials generated onsite. Such containers do not need to be provided in restrooms. If a commercial generator does not generate any of the materials that would be collected in one type of collection container, then it is not required to provide that type of collection container in all areas where disposal collection containers are provided for customers. Pursuant to 14 CCR Section 18984.9(b), the collection containers shall have either:

(2) A body or lid that is gray or black for collection of garbage, blue for collection of recycling, and green for collection of organic materials. A commercial generator is not required to replace functional containers, including containers purchased prior to January 1, 2022, that do not comply with the requirements of the subsection prior to the end of the useful life of those containers, or prior to January 1, 2036, whichever comes first.

(3) Container labels that include language or graphic images, or both, indicating the primary material accepted and the primary materials prohibited in that container, or containers with imprinted text or graphic images that indicate the primary materials accepted and primary materials prohibited in the container. Pursuant 14 CCR Section 18984.8, the container labeling requirements are required on new containers commencing January 1, 2022.

(4) To the extent practical through education, training, inspection, and/or other measures, prohibit employees from placing materials in a collection container not designated for those materials per the solid waste collection service.

(5) Periodically inspect organic materials, recycling, and garbage collection containers for contamination and inform employees if containers are contaminated and of the requirements to keep contaminants out of those containers pursuant to 14 CCR Section 18984.9(b)(3).

(6) Commercial generators that are commercial edible food generators, as defined, shall comply with commercial edible food generator requirements.

Section 208. Storage. Generators shall store solid waste on their property or premises or shall require it to be stored or handled in such manner so as not to promote the propagation, harborage or attraction of animals or the creation of nuisance. (CCR, Section 17312). Each person who has a collection container shall keep the area where the collection container is located in a clean, safe and sanitary condition.

Section 209. Solid waste collection areas. Each commercial business shall:

(a) Designate space on the property to be used for storage of collection containers for all solid waste generated on the property.

(b) Commercial businesses which receive communal solid waste collection services shall provide and maintain space within or adjacent to each waste enclosure, or adjacent to each approved garbage collection container(s) for placement of sufficient approved organic materials collection container(s) and recyclable material collection container(s).

(c) Post a sign clearly identifying all garbage, recyclable material, and organic materials collection areas and the materials accepted therein shall be posted adjacent to all points of access to the collection area(s).

Section 210. Collection containers. It shall be the duty of every property owner, occupant and tenant of any premises within the District to store all solid waste in collection containers supplied by the Authorized Collector. These collection containers shall be constructed of metal or an approved plastic material and type which shall be watertight, nonabsorbent, animal resistant, durable, easily cleanable, equipped with handles, and having tight fitting covers such that the containers hold the solid waste without spillage and leakage, escape of odors or access of flies to the contents thereof (adapted from CCR, Section 17315).

Section 211. Collection container maintenance. Each collection container and its cover shall be kept clean, and the cover shall not be removed except to place solid waste therein or to empty the same. The Authorized Collector will maintain or replace collection containers as needed.

Section 212. Collection container placement.

(a) No collection container, other than those owned or rented by the District or Authorized Collector, shall be placed or kept in or on any public street, sidewalk, footpath, or any public place whatsoever, or remain in public view from any public right-of-way except as herein provided, but shall be maintained on the premises, except as may be provided for removing and emptying by the Authorized Collector on the day(s) and in the location designated for collection. No person shall place a collection container so that either the sidewalk or street gutter is obstructed.

(b) Collection containers are permitted to be placed in public view and on a public street, sidewalk or footpath only during the forty-eight-hour period commencing at 12:01 a.m. on the day preceding the day of scheduled pick-up and terminating at 12:01 a.m. on the day following such pick-up.

(c) For curbside collection service, the approved location for collection shall be the street curb line adjacent to such premises and collection containers shall be placed in the location by the occupant of such premises for collection by the Authorized Collector.

Section 213. Ownership of solid waste. Solid waste subject to collection by the Authorized Collector shall become the property of the Authorized Collector subject to this chapter after such time as the Authorized Collector takes possession of the wastes (CCR, Section 17334).

Section 214. Unauthorized removal and ownership of recyclable materials and organic materials.

(a) All recyclable materials and organic materials, upon being placed by the generator into a collection container and placed at an approved location for collection, shall become the property of the Authorized Collector owning the collection container, unless otherwise provided in a contract, license, or franchise agreement.

(b) No person, other than the Authorized Collector or District shall remove recyclable material or organic materials from a collection container placed at the location for collection.

Section 215. Tampering. No person shall tamper with, modify, remove from or deposit solid waste in any collection container which has not been provided for their use at a collection site, without the permission of the collection container owner. Nor shall any person



tamper with any collection container or any recyclable materials on any premises, or collect, remove or dispose of the same, other than in the manner specified by this chapter.

Section 216. Collection Intervals. All solid waste accumulated at any residential generator or commercial generator's property or premise shall be collected at regular intervals of at least once each week, except that from any place which has solid waste from which foul odors arise, or which is a menace to public health, such solid waste shall be collected at such intervals as necessary for proper sanitation. Nothing in this chapter shall be deemed to prohibit the removal and hauling by any person of materials ordered by the health officer, fire chief or code enforcement officer to be removed upon the ground that the same constitute a health menace, fire hazard or public nuisance.

Section 217. Collection Schedule. Solid waste shall be collected as provided by this chapter at regular intervals on a schedule established by the Authorized Collector and approved by the District. The schedule may be changed as deemed necessary by the Authorized Collector and/or the District.

Section 218. Waivers.

(a) Pursuant to 14 CCR Section 18984.11, the District may grant waivers to commercial businesses for physical space limitations and/or de minimis volumes. Commercial businesses seeking a waiver shall submit their request in a form specified by the District Manager. After reviewing the waiver request, and after an on-site review, if applicable, the District Manager may either approve or deny the following waiver requests.

(1) De Minimis Waivers: The District may waive a commercial business' obligation to comply with some or all the organic waste collection service if the commercial business meets the following requirements:

A. Submit an application specifying the type of waiver requested and provide documentation as described below.

B. Provide documentation that either:

- i. The commercial business receives two cubic yards or more per week of solid waste collection service (including garbage, recyclable material and organic materials) and disposed organic materials comprises less than 20 gallons per week of the business' total weekly solid waste; or,

- ii. The commercial business receives less than two cubic yards of weekly solid waste collection service (including garbage, recyclable material and organic materials) and disposed organic materials comprises less than 10 gallons per week of the business' total weekly solid waste volume.
- iii. For the purposes of subsections (i) and (ii) above, weekly solid waste collection shall be the sum of weekly garbage collection container volume, recyclable material collection container volume and organic materials collection container volume, measured in cubic yards.

C. Notify the District if circumstances change such that volume of commercial business' s organic materials placed in collection containers exceeds threshold required for waiver, in which case waiver will be rescinded.

D. Provide written verification of eligibility for de minimis waiver every five years if the District has approved de minimis waiver.

(2) Physical Space Waivers: The District may waive a commercial business' obligations (including multi-family dwellings) to comply with some or all of the recyclable materials and/or organic materials collection service requirements if the District has evidence from its own staff, a hauler, licensed architect, or licensed engineer demonstrating that the premises lacks adequate space for the collection containers required for compliance with the organic materials collection requirements. A commercial business or property owner may request a physical space waiver through the following process:

- A. Submit an application form specifying the type(s) of collection services for which they are requesting a waiver from mandatory collection service.
- B. Provide documentation that the premises lacks adequate space for the approved recycling collection containers and approved organic materials collection containers including documentation from its Authorized Collector, licensed architect, or licensed engineer.
- C. Provide written verification to the District that it is still eligible for physical space waiver every five years if the District has approved application for a physical space waiver.

Section 219. Commercial Edible Food Generator Requirements.

(a) Tier One Commercial Edible Food Generators must comply with the requirements of this section January 1, 2022, and Tier Two Commercial Edible Food Generators must comply commencing January 1, 2024, pursuant to 14 CCR Section 18991.3.

(b) Large Venue or Large Event operators not providing food services, but allowing for food to be provided by others, shall require Food Facilities operating at the Large Venue or Large Event to comply with the requirements of this section, commencing January 1, 2024.

(c) Commercial Edible Food Generators shall comply with the following requirements:

(1) Arrange to recover the maximum amount of Edible Food that would otherwise be disposed.

(2) Contract with or enter into a written agreement with Food Recovery Organizations or Food Recovery Services for:

(A) the collection of Edible Food for Food Recovery; or

(B) acceptance of the Edible Food that the Commercial Edible Food Generator self-hauls to the Food Recovery Organization for Food Recovery.

(3) Shall not intentionally spoil Edible Food that is capable of being recovered by a Food Recovery Organization or a Food Recovery Service.

(4) Allow the District's designated enforcement entity or designated third party enforcement entity to access the premises and review records pursuant to 14 CCR Section 18991.4.

(5) Keep records that include the following information, or as otherwise specified in 14 CCR Section 18991.4:

A. A list of each Food Recovery Service or organization that collects or receives its Edible Food pursuant to a contract or written agreement established under 14 CCR Section 18991.3(b).

B. A copy of all contracts or written agreements established under 14 CCR Section 18991.3(b).

C. A record of the following information for each of those Food Recovery Services or Food Recovery Organizations:

- (i) The name, address and contact information of the Food Recovery Service or Food Recovery Organization.
- (ii) The types of food that will be collected by or self-hauled to the Food Recovery Service or Food Recovery Organization.
- (iii) The established frequency that food will be collected or self-hauled.
- (iv) The quantity of food, measured in pounds recovered per month, collected or self-hauled to a Food Recovery Service or Food Recovery Organization for Food Recovery.

(d) Nothing in this Chapter shall be construed to limit or conflict with the protections provided by the California Good Samaritan Food Donation Act of 2017, the Federal Good Samaritan Act, or share table and school food donation guidance pursuant to Senate Bill 557 of 2017 (approved by the Governor of the State of California on September 25, 2017, which added Article 13 [commencing with Section 49580] to Chapter 9 of Part 27 of Division 4 of Title 2 of the Education Code, and to amend Section 114079 of the Health and Safety Code, relating to food safety, as amended, supplemented, superseded and replaced from time to time).

Section 220. Food Recovery Organization and Food Recovery Services requirements.

(a) Food Recovery Services collecting or receiving Edible Food directly from Commercial Edible Food Generators, via a contract or written agreement established under 14 CCR Section 18991.3(b), shall maintain the following records, or as otherwise specified by 14 CCR Section 18991.5(a)(1):

- (1) The name, address, and contact information for each Commercial Edible Food Generator from which the service collects Edible Food.
- (2) The quantity in pounds of Edible Food collected from each Commercial Edible Food Generator per month.
- (3) The quantity in pounds of Edible Food transported to each Food Recovery Organization per month.
- (4) The name, address, and contact information for each Food Recovery Organization that the Food Recovery Service transports Edible Food to for Food Recovery.

(b) Food Recovery Organizations collecting or receiving Edible Food directly from Commercial Edible Food Generators, via a contract or written agreement established under 14

CCR Section 18991.3(b), shall maintain the following records, or as otherwise specified by 14 CCR Section 18991.5(a)(2):

(1) The name, address, and contact information for each Commercial Edible Food Generator from which the organization receives Edible Food.

(2) The quantity in pounds of Edible Food received from each Commercial Edible Food Generator per month.

(3) The name, address, and contact information for each Food Recovery Service that the organization receives Edible Food from for Food Recovery.

(c) Food Recovery Organizations and Food Recovery Services that have their primary address physically located in the Jurisdiction and contract with or have written agreements with one or more Commercial Edible Food Generators pursuant to 14 CCR Section 18991.3(b) shall annually report to the District it is located in the total pounds of Edible Food recovered in the previous calendar year from the Tier One and Tier Two Commercial Edible Food Generators they have established a contract or written agreement with pursuant to 14 CCR Section 18991.3(b) no later than April 1.

(d) In order to support Edible Food Recovery capacity planning assessments or other studies conducted by the County, City, special district that provides solid waste collection services, or its designated entity, Food Recovery Services and Food Recovery Organizations operating in the District shall provide information and consultation to the District, upon request, regarding existing, or proposed new or expanded, Food Recovery capacity that could be accessed by the District and its Commercial Edible Food Generators. A Food Recovery Service or Food Recovery Organization contacted by the District shall respond to such request for information within 60 days unless a shorter timeframe is otherwise specified by the District.

Section 221. Self hauler Requirements.

(a) Self-Haulers shall haul their source separated recyclable materials to a facility that recovers those materials; and haul their source separated organic materials to a solid waste facility, operation, activity, or property that processes or recovers source separated organic materials.

(b) Self-haulers that are commercial businesses shall keep a record of the amount of organic materials delivered to each solid waste facility, operation, activity, or property that

processes or recovers organic materials; this record shall be subject to inspection by the District. The records shall include the following information:

(1) Delivery receipts and weight tickets from the entity accepting the waste. If the material is transported to an entity that does not have scales on-site or employs scales incapable of weighing the self-hauler's vehicle in a manner that allows it to determine the weight of materials received, the self-hauler is not required to record the weight of material but shall keep a record of the entities that received the organic materials.

(2) The amount of material in cubic yards or tons transported by the generator to each entity.

(3) Complete and retain on-site a self-hauling form certifying that all self-hauling activities will be completed in accordance with this chapter or any other applicable law or regulation. The Manager may restrict or prohibit self-hauling by a Generator if the Manager determines, after providing notice and an opportunity for a hearing, that the Generator's self-hauling activities violate the provisions of this section or any other applicable law or regulation.

Section 222. Right to divert recyclable material and organic materials.

(a) Nothing in this chapter limits the right of any person to donate, sell, or otherwise remove their recyclable materials so long as the removal otherwise complies with this Chapter.

(b) Organic materials may be fed to animals on the premises where such organic materials is produced, provided that the premises are always kept in a sanitary condition to the satisfaction of the District Manager; and provided further that the keeping and feeding of such animals shall at all times conform to the applicable regulations of those entities governing the same now in force or which thereafter may be enacted or promulgated.

(c) Organic materials may be used in on-site composting or community composting, pursuant to 14 CCR Section 18984.9(c), provided that such operation conforms to the applicable regulations of those entities governing the same now in force or which thereafter may be enacted or promulgated.

Section 223. Collector Requirements

(a) A Collector providing Single-Family, Commercial, or industrial Organic Waste collection service to Generators within the District shall meet the following requirements and standards in connection with collection of Organic Waste:

(1) Through written notice to the District annually identify the facilities to which they will transport Organic Waste including facilities for Source Separated Recyclable Materials and Source Separated Organic Waste.

(2) Transport Source Separated Recyclable Materials to a facility that recycles those materials and transport Source Separated Organic Waste to a facility, operation, activity, or property that recovers Organic Waste as defined in 14 CCR, Division 7, Chapter 12, Article 2.

(3) Obtain approval from the District to haul Organic Waste, unless it is transporting Source Separated Organic Waste to a Community Composting site or lawfully transporting C&D in a manner that complies with 14 CCR Section 18989.1.

(b) Any person providing any service, function or activity governed by this chapter who has obtained a business license from, or entered into a contract or franchise agreement with the District shall fully comply with the terms of such franchise agreement, contract, business license as well as with the provisions of this Chapter, and the administrative rules promulgated herein. Nothing contained in, or absent from, the provisions of this chapter shall relieve any such person of any obligation contained in such franchise agreement, contract, or business license, nor shall the fact of such franchise agreement, contract, or business license in any way relieve such person from the obligation to comply with the District's Municipal Code and other applicable law.

Section 224. Receptacles Provided by Collector. Collector must provide color coded, labeled solid waste containers to Single Family, Multi-family and Commercial Generators per the requirements in 14 CCR Section 18984.1, 18984.7 and 18984.8.

(a) Residential Service (Four or Fewer Units in a Single Structure):

(1) Garbage: Collector shall provide semi-automated tipper carts (Garbage Container) in 20, 32, 64, and 96-gallon capacities to be placed at the curb or Collector-designated location for one time per week collection at the rates and fees listed in Section 236. Twenty-gallon carts shall be available for smaller households and intensive recyclers. Carts should be placed at the designated collection by 6:00 a.m. the day of service. On-site collection for cans not at the curb is available for an extra charge. Items placed outside the cart or overflowing carts will incur an additional charge. Carts are the property of Collector. Collector will determine the appropriate collection location. Customers may set out additional containers or bags not to exceed 32 gallons in size for a fee listed in Section 219. Low-income rates referenced in Section 236 are available for qualifying customers.

(2) Recyclable Materials: Collector shall provide all residential customers with one 64-gallon dual sort recycling cart, (Recycling Container) one side for paper and fiber products, one side for glass, metal and plastic (#1 - #7) bottles and containers excluding polystyrene and compostable plastics. Cardboard may be broken down and tied into 24" by 24" bundles and left beside the recycling container. Carts or containers must be placed at the curb or, upon approval of Collector, the designated collection location next to their Garbage container for one time per week collection by 6:00 a.m. the day of service. Dual Sort Carts are the property of Collector. All residential customers must be offered recycling collection. Recyclable Material placed in Collector containers or at the curb for collection is the property of Collector, and the theft thereof is a crime.

(3) Organics: Collector shall provide all residential customers with one 32 or 64 gallon cart for Organics (Compost Container) to be placed at the curb or Collector-approved designated collection location next to their Garbage container for one time per week collection by 6:00 a.m. the day of service. Customers may, for a fee listed in Section 236, have up to two additional 64-gallon carts to be set out on the regularly scheduled day. Individual carts should not weigh more than 65 pounds. Carts are the property of the Collector. All residential customers must be offered Organics collection.

(4) Additional Services: Special pickups of large, hard to handle, or bulky items may be requested for an additional fee listed in Section 236. Estimates shall be provided by Collector. These bulky items will be collected in non-compaction vehicles and taken into Marin Recovery Center (MRRC) for sorting resulting in greater re-use and recycling. Extra material can be collected for a fee listed in Section 236 in cans or bags not greater than 32 gallons when placed next to the regular container on collection day. Holiday trees will be collected curbside on the regularly scheduled pickup day during the month of January. If trees are greater than six (6) feet in length, they must be cut in half. All metal stands, plastic tree bags, and ornaments must be removed. Flocked trees will not be accepted.

(b) Commercial Service:

(1) Garbage: Collector shall provide semi-automated or automated tipper carts in 32, 64, and 96-gallon capacities to be placed for collection at the curb, or upon approval of Collector, the designated collection location. On-site collection for cans not at the curb is available for an extra charge. Collector will also provide bins from 2-, 3-, 4-, 5-, 6-, 10-, or 18-yard capacities for large volumes of material. Service levels shall range from one time per week



to six times per week. Customers may set out additional containers or bags not to exceed 32 gallons in size for a fee as listed in Section 236. Collector retains approval of all service locations for bins. Collector also services customer-owned compactor units for the fees listed in Section 236. For safety and equipment purposes, Collector retains right of approval as to the type of compactor to be serviced and service location.

(2) Recycling: Collector shall provide unlimited commercial recycling collection of glass bottles and jars; aluminum and metal cans and containers; all plastic bottles and containers marked #1 - #7 (except polystyrene and compostable plastics); newsprint; office paper; and, fiber or cardboard. These materials will be collected in source-separated color coded carts, currently: blue for paper and paper-fiber products and brown for accepted commingled glass, metal and plastics, but will need to meet required color coding for new containers by 2036. Collector shall provide carts in 32 and 64-gallon capacity for collection from one time per week to six times per week. Collector may provide 3 yard bins for cardboard collection with the Collector approval of the size and location. Collector will evaluate the appropriate container sizes on an individual customer basis. Pickups can be scheduled from one time per week to six times per week. Collector is to perform a simple visual waste audit at least one time per year for each commercial account to provide an estimate of the of recyclables still in the Garbage to help guide the customer in service changes to increase recycling. For an additional fee per Section\_236,, the Collector may perform a detailed waste audit to determine composition and characterization of waste and will provide and will provide a detailed report with photos showing waste streams. This report will provide a detailed plan with recommendations regarding recycling service changes as well as an outreach and education plan. Recycling services must be offered to all commercial customers. Collector will provide services to comply with the State's mandatory commercial recycling law.

(3) Organics: Collector shall provide semi-automated tipper carts (Organics Container) in 32 and 64 gallon capacities or bins to be placed at the curb or Collector-designated location for one time per week collection at the rates and fees listed in Section 236. Carts or bins should be placed at the designated collection by 6:00 a.m. the day of service. On-site collection for cans not at the curb is available for an extra charge. Items placed outside the cart or overflowing carts will incur an additional charge. Carts and bins are the property of Collector. Collector will determine the appropriate collection location.

(4) Additional Services: Special pickups of large, hard to handle, or bulky items may be requested for an additional fee listed in Section 236. Estimates can be provided. These bulky items will be collected in noncompaction vehicles and taken into MRRC for sorting resulting in greater re-use and recycling. Extra material can be collected for a fee listed in Section 236 in cans or bags not greater than 32 gallons when placed next to the regular container on collection day.

(c) Multi-Family (Five or more Unit Structures):

(1) Garbage: Collector provides semi-automated or automated tipper carts in 32, 64, and 96-gallon capacities at the curb or designated collection location. Minimum service for all multi-family units is 32 gallons per unit, or the equivalent bin service. On-site collection for cans not at the curb is available for an extra charge. Collector will also provide bins from 2-, 3-, 4-, 5-, 6-yard capacities for large volumes of material. Service levels range from one time per week to six time per weeks. Collector retains approval of service locations for bins. Collector also services customer-owned compactor units for the fees listed in Section 236. For safety and equipment purposes, Collector retains right of approval as to compactor type and service location. Apartments or multi-family complexes which have cart service for Garbage (no bin service) and fewer than 10 units, may be eligible to waive the 32 gallon per unit minimum in exchange for 20-gallon minimum service at the discretion of Collector based on the history of material collected at that location. Each complex would be required to have a 20-gallon cart for each unit. Complexes must have in place and make use of all available recycling services to be considered eligible for the waiver.

(2) Recycling: Collector provides unlimited multi-family recycling collection of glass bottles and jars; aluminum and metal cans and containers; all plastic bottles and containers marked #1 – 7 (except polystyrene and compostable plastics); newsprint, office paper, and fiber or cardboard. These materials will be collected in source-separated color-coded carts, currently: blue for paper and paper-fiber products and brown for accepted commingled glass, metal and plastics, but will need to meet required color coding for new containers by 2036. Cardboard or fiber not able to fit in containers may be broken down and tied into 24” x 24” bundles and placed alongside the recycling containers for collection. The list of acceptable Recyclable Materials is defined in this Chapter. Collector is to perform a simple visual waste audit at least one time per year for each commercial account to provide an estimate of the amount of recyclables still in the Garbage to help guide the customer in service changes to increase recycling. For an additional fee per Section 236, the Collector can perform a detailed waste audit to determine composition

and characterization of waste and will provide a detailed report with photos showing the waste streams. This report will provide a detailed plan with recommendations regarding recycling service changes as well as an outreach and education program. Collector provides semi-automated tipper carts in 32 and 64-gallon capacity for collection from one time per week to six times per week. Recycling services must be offered to all multi-family customers. Recyclable Materials placed in Collector containers or at the curb for collection is the property of Collector, and the theft thereof is a crime. Collector will provide services to comply with the State's mandatory commercial recycling law.

(3) Organics: Collector shall provide semi-automated tipper carts (Organics Container) in 32 and 64 gallon capacities or bins to be placed at the curb or Collector-designated location for one time per week collection at the rates and fees listed in Section 236. Carts or bins should be placed at the designated collection by 6:00 a.m. the day of service. On-site collection for cans not at the curb is available for an extra charge. Items placed outside the cart or overflowing carts will incur an additional charge. Carts and bins are the property of Collector. Collector will determine the appropriate collection location.

(4) Additional Services: Special pickups of large, hard to handle or bulky items may be requested for an additional fee as listed in Section 236. Estimates can be provided. These bulky items will be collected in noncompaction vehicles and taken into MRRC for sorting resulting in greater re-use and recycling. Extra material can be collected for a fee listed in Section 236 in cans or bags not greater than 32 gallons when placed next to the regular container on collection day.

Section 225. Contract. Should the governing body of District enter into an exclusive contract with any Person for the right and privilege of collecting Garbage within the District, said contract may provide that such exclusive right shall not include debris-Box services for construction, demolition, and/or temporary clean-up purposes. Any such exclusive contract entered into as herein provided may be entered into upon such terms and conditions, consistent with this Ordinance, as the governing board may deem for the best interests of the District, for such period as District may determine and at rates to be hereinafter determined, which said contract shall incorporate this Ordinance therein and make it a part of such contract.

Section 226. ID - Disposal and Fee. Any such contract shall provide that the Collector shall collect and dispose of all Garbage at the rates herein fixed and determined; that the Collector will dispose of said Garbage at such place or places and by such means or methods as

the governing board shall determine and pursuant to this Ordinance and all laws and ordinances of County applicable thereto; that the Collector shall pay to the District such fee annually as may be determined by the Board.

Section 227. Periodic Service. The Collector shall collect all Garbage, Recyclable Materials and Organic Waste as often as may be required by either District or any owner, resident or tenant; provided, however, that Collector shall provide not less than weekly service to each owner, resident or tenant within the District utilizing a Debris Box or Cart can as herein provided.

Collector may terminate service to any owner, resident or tenant for non-payment of the rates hereinafter established for a period of two (2) months from and after the date such payment is due. Prior to termination of such service, Collector shall notify District, in writing, of the date of termination and the reason thereof. Such notice shall be given by Collector to District not less than ten (10) days prior to the date of termination of service.

Section 228. Regulations. It shall be unlawful for any Person to collect or carry Garbage through the streets of the District without first having entered into a contract or obtaining a permit from the District so to do. The Collector shall not permit any Garbage to fall or remain on any public street or private premises in the District; shall close all gates used by it in collection service; shall operate quietly; and shall not damage the Container of any Person and shall place it in the position where found after emptying it. It shall also abide by any and all laws of the state, ordinances of the County, regulations and orders of the County Health Department or officer, and ordinances and general regulations of the District, now or hereafter adopted.

Section 229. Solid Waste Facility. The location of the disposal site intended to be used by the Collector in performing the contract must be approved by the County Health Officer of Marin County. No such solid waste facility may be located within two (2) miles of any city without its consent expressed by resolution of its City Council. No such solid waste facility may be located within two(2) miles of the District without its consent expressed by resolution of the Board.

Section 230. Assignment. Neither the contract, nor any part thereof, shall be assigned either voluntarily or by operation of law except upon the consent of the District expressed by resolution of its Board.

Section 231. Termination. Said contract shall provide that if the Collector fails, refuses or neglects to comply with the terms of the contract or of any laws, ordinances or regulations above referred to, for a period of thirty (30) days after being notified in writing so to do on the order of the Board of the District, then after hearing upon ten (10) days written notice to the Collector, the District is entitled to terminate the contract.

Section 232. Notice. Any notices provided in the contract shall be given personally or by mail to the business address of the addressee. If given by mail, time shall be computed from the date of deposit in a United States Post Office or box in the District.

Section 233. Private Removal. The franchise collector has been designated the exclusive Authorized Collector for Single Family and Commercial Garbage, Recyclable Materials and Organic Waste collection services. No Single Family or Commercial Generator may contract with another commercial enterprise or person for the collection of such materials. No person may collect, transport, or convey discarded Single Family or Commercial Garbage, Recyclable Materials or Organic Waste where any fee or other remuneration whatsoever is charged or accepted for the collection, transportation, conveyance, processing or disposal of such material without holding a franchise from the District.

Section 234. Payment of Rates. It shall be unlawful for any Person to refuse to pay the rates herein fixed for the collection of Refuse.

Section 235. Disputed Rates. In any case where a dispute shall arise as to the rate to be paid Collector, the District shall have the power of final determination of such dispute, and both the Collector and owner, resident or tenant shall be bound thereby. In no event shall District be obligated in any way to Collector or any owner, resident or tenant for the collection of disputed accounts.

Section 236. Rates to Be Charged, Unincorporated Portion of District. The maximum monthly charges that shall be collected for all occupied premises within the unincorporated portion of the District for the collection, removal, and disposal of Garbage, shall be specified in Appendix A as follows:

(a) Single and Multiple Dwelling Premises: rates shall be as specified in Appendix A. One can of compacted Garbage will be charged at the two-can rate. Should the Collector elect to furnish Debris Boxes or Containers for multi-residential premises in lieu of the containers specified, the commercial box rate schedule shall apply. If any gallon can is placed five (5) feet

to fifty (50) feet from the nearest street, an additional distance charge as specified in Appendix A will be collected for each can so placed. If any can is placed over fifty (50) feet from the nearest street, the additional distance charge specified in Appendix A will apply for each additional fifty (50) feet for each container so placed. A single removal of Garbage, if removed with a regular collection and on an occasional basis, shall be charged at the rate specified in Appendix A.

(b) Commercial and/or Industrial Premises: The maximum monthly charges that shall be collected by Collector for Debris Boxes, including the cost of rental thereof, provided for the regular and continuing use of owners, occupants, or tenants of premises classified as commercial and/or industrial, shall be specified in Appendix A. Boxes containing non-recyclable material weighing more than three hundred (300) pounds/cu.yd., shall be subject to a surcharge as specified in Appendix A.

(c) Commercial and/or Industrial Container Service: In the event Containers are used by the owners, occupants, or tenants of premises classified as commercial and/or industrial, the maximum monthly charge as specified in Appendix A shall apply.

(d) On-Call Collection Service: In the event that a customer requests and the Collector elects to furnish Debris Boxes to be retained at the premises of the customer for less than a regular and continuing term, the maximum rates per pickup in addition to the monthly rental charges are as specified in Appendix A. NOTE: This service is a discontinued service that is not available to new customers but only to grandfathered accounts as designated by the current Collector. It is not to be confused with the unregulated Debris Box service which does not include a regular monthly fee and is covered under section "Special Services" below. In addition, these containers must not contain any putrescible waste.

(e) Locked Boxes: For locked boxes, there will be an additional charge as specified in Appendix A.

(f) Loose Garbage: For loose Garbage removed by Collector upon special request of the owner, occupant or tenant of any premises, the maximum rate shall be as specified in Appendix A.

(g) Compacted Garbage: All of the above rates for collection of Garbage, which has been compacted by mechanical, electrical, or hydraulic means, shall be multiplied by two and one-half (2-1/2) times if such Garbage does not include recyclables, and two (2) times if such Garbage does include recyclables.

(h) Special Services: Should the owner, occupant, or tenant of any premises request Collector to provide a Debris Box for a single removal of Debris, on an occasional basis, Collector may provide such special service, and the charge to be paid to Collector therefor shall be agreed upon in advance between the Collector and the owners, occupant, or tenant of such premises and such charge shall be at the reasonable nondiscriminatory rate. In any case where the monthly charge for the collection, removal and disposal of Garbage is not hereinabove established, such charge may be agreed upon between the Collector and the owner, occupant or tenant, in advance, and with the approval of the General Manager of such official thereof as may be delegated the responsibility of approving such rates.

For Commercial Services as specified in Section 224(b)(2) and Multi-Family (Five or More Unit Structures) as specified in Section 224(c)(2), the Collector can perform a detailed waste audit to determine the composition and characterization of waste and will provide a detailed report with photos showing the waste stream for an additional fee. This fee will vary depending on the size of and complexity of the customer's service however the fee charged shall be agreed upon in advance between the Collector and the owner, occupant, or tenant of such premises and such charge shall be at the reasonable nondiscriminatory rate.

(i) Overloading: No container for receiving and holding Garbage, Organic Materials or Recyclable Materials or debris which is to be collected by Collector shall be overloaded. Such container shall be considered to be overloaded when the contents thereof will not fit within the confines of the container.

Section 237. Rates to Be Charged, City of San Rafael Portion of District. Rates established by the City of San Rafael.

Section 238. Inspections.

(a) The District Manager, Authorized Collector, or designee is authorized to conduct any inspections, remote monitoring, or other investigations as reasonably necessary to further the goals of this chapter, subject to applicable laws. This may include inspections and investigations, at random or otherwise, of any collection container, collection vehicle load, or transfer, processing, or disposal facility to confirm compliance with this chapter, subject to applicable laws. This section does not allow entry in a private residential dwelling unit for inspection. For the purposes of inspecting collection containers for compliance, the District Manager or Authorized Collector may conduct container inspections for prohibited container contaminants using remote monitoring, and generators shall accommodate and cooperate with the remote monitoring.

(b) A Person subject to the requirements of this chapter shall provide or arrange for access during all inspections (with the exception of a private residential dwelling unit) and shall cooperate with the District Manager or Authorized Collector during such inspections and investigations. Such inspections and investigations may include confirmation of proper placement of materials in collection containers, inspection of edible food recovery activities, review of required records, or other verification or inspection to confirm compliance with any other requirement of this chapter. Failure to provide or arrange for: (i) access to the premises; (ii) installation and operation of remote monitoring equipment, if a remote monitoring program is adopted; or (iii) access to records for any inspection or investigation is a violation of this chapter and may result in penalties.

(c) Any records obtained by the District Manager, Authorized Collector, or designee, during inspections, investigations, remote monitoring and other reviews shall be subject to the requirements and applicable disclosure exemptions of the California Public Records Act as set forth in Government Code Section 6250 et seq.

(d) The District, Authorized Collector or designee shall accept written complaints from persons regarding an entity that may be potentially non-compliant with this chapter.

Section 239. Violation—Penalty.

(a) Violation of any provision of this chapter shall constitute an infraction and may be grounds for issuance of a Notice of Violation and assessment of an administrative citation and penalty by the District's Enforcement Officer or its Designated Enforcement Agency.

(b) Enforcement Actions under this chapter shall only be initiated beginning January 1, 2024 and may include the issuance of an administrative citation and/or assessment of a fine. The District's procedures on imposition of administrative citations and fines shall govern the imposition, enforcement, collection, and review of administrative citations and fines issued to enforce this chapter and any rule or regulation adopted pursuant to this chapter. Any section of this chapter may be enforced by the District or, if agreed to, by its designated Enforcement Agency.

(c) A violation may be punishable by:

- (1) A fine not exceeding one hundred dollars for a first violation;
- (2) A fine not exceeding two hundred dollars for a second violation of the same provision of this code within any twelve consecutive month period;



(3) A fine not exceeding five hundred dollars for each additional violation of the same provision of this code within any twelve consecutive-month period. Any citation issued after the issuance of a third citation or violation of the same provision of this code within any twelve consecutive-month period may be charged as a misdemeanor pursuant to the provisions of Chapter 1 of this code.

(d) The District Manager or designated Enforcement Agency may issue a Notice of Violation requiring compliance within 60 days or sooner of issuance of the notice.

(e) Absent compliance by the respondent within the deadline set forth in the Notice of Violation, the District Manager or designated Enforcement Agency shall commence an action to impose penalties, via an administrative citation and fine, pursuant to the District's standard procedures or the standard procedures of its designated Enforcement Agency.

(f) Residential generators shall not be subject to fine or penalty.

(g) Other remedies allowed by law may be used, including civil action or prosecution as a misdemeanor or infraction. The District may pursue civil actions in the California courts to seek recovery of unpaid administrative citations, and fines. The District may choose to delay court action until such time as a sufficiently large number of violations, or cumulative size of violations exist such that court action is a reasonable use of District staff and resources.

Section 240. Constitutionality. If any section, sub-section, sentence, clause or phase of this Ordinance be, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this Ordinance. The Board hereby declares that it would have passed this Ordinance and each section, sub-section, sentence, clause or phrase thereof, irrespective of the fact that any one or more sections, sub-sections, sentences, clauses or phrases be declared unconstitutional.

Section 241. Posting. [Reserved.]

Section 242 Repeal of Ordinances. Ordinance No. 28, adopted by the Sanitary Board of said District on December 14, 1961, and Ordinance No. 188, adopted by the Sanitary Board of said District on December 16, 2021 are hereby repealed. All other ordinances and parts of ordinances inconsistent herewith are hereby repealed.

**APPENDIX A**  
**LAS GALLINAS VALLEY SANITARY DISTRICT**  
**SCHEDULE OF RATES**

RESIDENTIAL REFUSE COLLECTION RATES			
Rate increase:		0.64%	
Effective date:		01/01/2022	
<i>Residential Service (Bundled service includes 1 landfill (garbage) cart, 1 organics cart, &amp; 1 recycling split cart )</i>			
REOCCURRING CHARGES	Weekly Service Rates (Billed Quarterly)	2022 Flat rate	
		Monthly Rate	Quarterly Rate
	20 gallon cart	\$35.18	\$105.54
	32 gallon cart	\$41.38	\$124.14
	64 gallon cart	\$82.76	\$248.28
	96 gallon cart	\$124.14	\$372.42
	Low income - 20 gal* cart	\$28.14	\$84.42
	Low income - 32 gal* cart	\$33.10	\$99.30
	Low income - 64 gal* cart	\$66.21	\$198.63
	Low income - 96 gal* cart	\$99.31	\$297.93
	Additional Organics Cart Rental (32 or 64 gallon cart)	\$2.44	\$7.32
	Additional Split Cart Rental (64 or 96 gallon cart)	\$2.44	\$7.32
	<b>Additional Monthly Charges</b>	<b>Monthly Fee</b> (per cart, each way)	<b>Quarterly Fee</b>
Distance 5' - 50'	\$5.68	\$17.04	
Distance Over 50'	\$7.31	\$21.93	

\*Must meet PG&E CARE program eligibility requirements.

NOTE: We may not be able to accommodate any collection requests NOT at the curb due to a variety of factors including safety, accessibility, and efficiency. Requests to be assessed and approved by Route Manager.

ONE TIME SERVICE FEES	Additional Service Fees per Occurrence	Fee
	Return Fees - Off day	\$25.00
	Return Fees - Same day	\$10.00
	Resume Service/Late Fee	\$35.00
	Contamination (cart) any size cart	\$30.00
	Overload/Overweight (cart)	\$25.00
	Extra bag garbage	\$15.00
	Extra bag yard waste	\$10.00
	Steam Clean (cart)	\$15.00
	Special Collection	\$35.00
	Special Handling (Bulky items)	\$30.00
	Bulky item fees per item	Fees Vary
	Cart Strap Set-up Admin Fee	\$25.00
	20 Gal Cart Replacement Fee	\$55.00
	32 Gal Cart Replacement Fee	\$60.00
	64 Gal Cart Replacement Fee	\$65.00
	96 Gal Cart Replacement Fee	\$75.00
	64 Gal Split Cart Replacement Fee	\$90.00
	96 Gal Split Cart Replacement Fee	\$100.00

**LAS GALLINAS VALLEY SANITARY DISTRICT  
SCHEDULE OF RATES COMMERCIAL REFUSE**

**COLLECTION RATES**

Rate increase: 0.64%  
Effective date: 01/01/2022

RECURRING CHARGES	COMMERCIAL CARTS, BINS, ROLL-OFFS							Additional One Time Empty
	Collections per Week							
Garbage	1	2	3	4	5	6		
20 gallon cart*	\$35.98	\$71.96	\$107.94	\$143.92	\$179.90	\$215.88	\$8.30	
32 gallon cart	\$42.32	\$84.64	\$126.96	\$169.28	\$211.60	\$253.92	\$9.77	
64 gallon cart	\$84.64	\$169.28	\$253.92	\$338.56	\$423.20	\$507.84	\$19.53	
96 gallon cart	\$126.96	\$253.92	\$380.88	\$507.84	\$634.80	\$761.76	\$29.30	
1 yard bin	\$296.25	\$593.23	\$889.49	\$1,185.74	\$1,482.64	\$1,778.83	\$68.37	
2 yard bin	\$447.85	\$864.73	\$1,281.29	\$1,697.80	\$2,114.68	\$2,531.20	\$103.35	
3 yard bin	\$599.44	\$1,136.22	\$1,673.07	\$2,209.86	\$2,746.70	\$3,283.55	\$138.33	
4 yard bin	\$791.47	\$1,551.55	\$2,311.80	\$3,071.81	\$3,831.92	\$4,592.27	\$182.65	
5 yard bin	\$983.51	\$1,966.90	\$2,950.54	\$3,933.78	\$4,917.16	\$5,901.03	\$226.96	
6 yard bin	\$1,138.94	\$2,158.83	\$3,178.84	\$4,198.73	\$5,218.74	\$6,238.75	\$262.83	
10 yard roll-off	\$1,809.50	\$3,431.24	\$5,052.60	\$6,674.13	\$8,295.99	\$9,917.45	\$417.58	
18 yard roll-off	\$2,969.61	\$5,564.59	\$8,159.49	\$10,754.53	\$13,349.71	\$15,944.62	\$685.29	
20 yard roll-off	\$3,619.00	\$6,862.47	\$10,105.20	\$13,348.26	\$16,591.97	\$19,834.90	\$835.15	
25 yard roll-off	\$4,523.76	\$8,578.10	\$12,631.50	\$16,685.33	\$20,739.96	\$24,793.63	\$1,043.94	
Organics (F2E or Compost)	1	2	3	4	5	6	Additional One Time Empty	
32 gallon	\$19.99	\$39.98	\$59.97	\$79.96	\$99.95	\$119.94	\$4.61	
64 gallon	\$39.98	\$79.96	\$119.94	\$159.92	\$199.90	\$239.88	\$9.23	
1 yard	\$139.87	\$279.74	\$419.61	\$559.48	\$699.35	\$839.22	\$32.28	
2 yard	\$279.74	\$559.48	\$839.22	\$1,118.96	\$1,398.70	\$1,678.44	\$64.56	
3 yard	\$419.61	\$839.22	\$1,258.83	\$1,678.44	\$2,098.05	\$2,517.66	\$96.83	
10 yard roll-off	\$1,266.65	\$2,533.30	\$3,799.95	\$5,066.60	\$6,333.25	\$7,599.90	\$292.30	
18 yard roll-off	\$2,279.97	\$4,559.94	\$6,839.91	\$9,119.88	\$11,399.85	\$13,679.82	\$526.15	
20 yard roll-off	\$2,533.30	\$5,066.60	\$7,599.90	\$10,133.20	\$12,666.50	\$15,199.80	\$584.61	
25 yard roll-off	\$3,166.63	\$6,333.26	\$9,499.89	\$12,666.52	\$15,833.15	\$18,999.78	\$730.76	
Garbage Compactors (Per empty)								
Roll-off Compactor Tipping fee per ton		\$143.61		Roll-off Compactor Hauling charge			\$291.69	
Stationary FL (Per Compacted Yard)		\$121.64		Roll-off Compactor Special handling			Rates Vary	
Other Charges	Service	Fee		Details				
	Lock		\$25.00	Monthly fee				
	Box rental		Fees Vary	Minimum Bimonthly fee				
	Distance < 50ft		\$5.68	Monthly fee per cart, each way				
	Distance > 50ft		\$7.29	Monthly fee per cart, each way				

\* Customers must have a sufficient level of service for the volume of material generated. Requests for 20gal carts require assessment and approval of a Route Manager.  
NOTE: All container types and sizes may not be available at all locations depending on a variety of factors including safety, accessibility, and efficiency. Requests to be assessed and approved by Route Manager.

ONE TIME SERVICE FEES	Commercial Service Fees	Fee
	Return Fee - BIN	
Return Fee - CART -same day		\$10.00
Return Fee - CART -off day		\$25.00
Late Fee/Resume Service Fee		\$35.00
Contamination (BIN)		\$50.00
Contamination (CART)		\$30.00
Overload/Compaction (BIN)		\$60.00
Overload/Compaction (CART)		\$25.00
Extra Bag Garbage		\$15.00
Additional Empty BIN		Fees vary
Extra Bag Yard Waste		\$15.00
Steam Clean (1-6 yard BIN)		\$95.00
Steam Clean (CART)		\$15.00
Steam Clean (COMPACTOR/ROLL-OFF)		\$225.00
Lock Set-up Admin Fee		\$25.00
Lock Single Use Fee		\$5.00
Lock Purchase Fee		\$20.00
Lock Bar Bin Set-up Fee		\$75.00
Overweight Charge Per Ton*		\$205.00
20 Gal Cart Replacement Fee		\$55.00
32 Gal Cart Replacement Fee		\$60.00
64 Gal Cart Replacement Fee		\$65.00
96 Gal Cart Replacement Fee		\$75.00
64 Gal Split Cart Replacement Fee		\$90.00
96 Gal Split Cart Replacement Fee		\$100.00
Bin Repair/Replacement Fee**		Fees vary

\*Boxes exceeding 300lbs/yard  
\*\*Fees vary by size up to \$1,200, not to exceed current replacement value.

**LAS GALLINAS VALLEY SANITARY DISTRICT  
SCHEDULE OF RATES**

**MULTI-FAMILY DWELLING REFUSE COLLECTION RATES**

Rate increase: 0.64%  
Effective date: 01/01/2022

RECURRING CHARGES	MFD CARTS, BINS, ROLL-OFFS		Collections per Week						Additional One Time Empty
	Garbage	1	2	3	4	5	6		
20 gallon cart*	\$35.17	\$70.34	\$105.51	\$140.68	\$175.85	\$211.02	\$8.12		
32 gallon cart	\$41.38	\$82.76	\$124.14	\$165.52	\$206.90	\$248.28	\$9.55		
64 gallon cart	\$82.76	\$165.52	\$248.28	\$331.04	\$413.80	\$496.56	\$19.10		
96 gallon cart	\$124.14	\$248.28	\$372.42	\$496.56	\$620.70	\$744.84	\$28.65		
1 yard bin	\$273.62	\$474.04	\$674.40	\$874.81	\$1,075.23	\$1,275.67	\$63.14		
2 yard bin	\$447.85	\$864.73	\$1,281.29	\$1,697.80	\$2,114.68	\$2,531.20	\$103.35		
3 yard bin	\$599.44	\$1,136.22	\$1,673.07	\$2,209.86	\$2,746.63	\$3,283.40	\$138.33		
4 yard bin	\$791.47	\$1,551.55	\$2,311.80	\$3,071.81	\$3,831.92	\$4,592.27	\$182.65		
5 yard bin	\$983.51	\$1,966.90	\$2,950.54	\$3,933.78	\$4,917.16	\$5,901.03	\$226.96		
6 yard bin	\$1,138.94	\$2,158.83	\$3,178.84	\$4,198.73	\$5,218.74	\$6,238.75	\$262.83		
10 yard roll-off	\$1,809.50	\$3,431.24	\$5,052.60	\$6,674.13	\$8,295.99	\$9,917.45	\$417.58		
18 yard roll-off	\$2,969.61	\$5,564.59	\$8,159.49	\$10,754.53	\$13,349.71	\$15,944.62	\$685.29		
20 yard roll-off	\$3,619.00	\$6,862.47	\$10,105.20	\$13,348.26	\$16,591.97	\$19,834.90	\$835.15		
25 yard roll-off	\$4,523.76	\$8,578.10	\$12,631.50	\$16,685.33	\$20,739.96	\$24,793.63	\$1,043.94		
<b>Organics</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>Additional One Time Empty</b>		
Additional Organics Cart Rental (32 gallon cart) after 4 TOTAL carts per cart per month	\$2.44	\$4.88	\$7.32	\$9.76	\$12.20	\$14.64	NA		
Additional Organics Cart Rental (64 gallon cart) after 4 TOTAL carts per cart per month.	\$2.44	\$4.88	\$7.32	\$9.76	\$12.20	\$14.64	NA		
1 yard	\$139.87	\$279.74	\$419.61	\$559.48	\$699.35	\$839.22	\$32.28		
2 yard	\$279.74	\$559.48	\$839.22	\$1,118.96	\$1,398.70	\$1,678.44	\$64.56		
3 yard	\$419.61	\$839.22	\$1,258.83	\$1,678.44	\$2,098.05	\$2,517.66	\$96.83		
<b>Garbage Compactors (Per empty)</b>									
Roll-off Compactor Tipping fee per ton		\$143.61		Roll-off Compactor Hauling charge		\$291.69			
Stationary FL (Per Compacted Yard)		\$121.64		Roll-off Compactor Special handling		Rates Vary			
<b>Other Charges</b>	<b>Service</b>	<b>Fee</b>		<b>Details</b>					
	Lock	\$25.00		Monthly fee					
	Box rental	Fees Vary		Minimum Bimonthly fee					
	Distance < 50ft	\$5.68		Monthly fee per cart, each way					
	Distance > 50ft	\$7.29		Monthly fee per cart, each way					

NOTE: Minimum service level is 32 gallons per unit or equivalent volume. Decrease to 20 gallon per unit is subject to company review and approval. NOTE: Up to four (4) Organics carts provided at no additional charge. Additional carts may be rented for a nominal monthly fee. NOTE: All container types and sizes may not be available depending on a variety of factors including safety, accessibility, and efficiency. Requests to be assessed and approved by Route Manager.

ONE TIME SERVICE FEES	MFD One Time Service Fees	Fee
	Return Fee - BIN	
Return Fee - CART -same day		\$10.00
Return Fee - CART -off day		\$25.00
Late Fee/Resume Service Fee		\$35.00
Contamination (BIN) Per Yard		\$50.00
Contamination (CART)		\$30.00
Overload/Compaction (BIN)		\$60.00
Overload/Compaction (CART)		\$25.00
Additional Empty Bag		\$15.00
Extra Bag Yard Waste		\$10.00
Additional Empty Garbage		Fees vary
Steam Clean (BIN)		\$95.00
Steam Clean (CART)		\$15.00
Steam Clean (COMPACTOR/ROLL-OFF)		\$225.00
Lock Set-up Admin Fee		\$25.00
Lock Single Use Fee		\$5.00
Lock Purchase Fee		\$20.00
Lock Bar Bin Set-up Fee		\$75.00
Overweight Charge Per Ton*		\$205.00
20 Gal Cart Replacement Fee		\$55.00
32 Gal Cart Replacement Fee		\$60.00
64 Gal Cart Replacement Fee		\$65.00
96 Gal Cart Replacement Fee		\$75.00
64 Gal Split Cart Replacement Fee		\$90.00
96 Gal Split Cart Replacement Fee		\$100.00
Bin Repair/Replacement Fee**		Fees vary by size up to

\*Boxes exceeding 300lbs/yard

\*\*Fees vary by size not to exceed current replacement value.

\*\*\*\*\*

I hereby certify that the foregoing is full, true, and correct copy of the Ordinance duly and regularly passed and adopted by the Sanitary Board of the Las Gallinas Valley Sanitary District of Marin County, California, at a meeting hereof held on March 17, 2022, by the following vote of members thereof:

AYES:

NOES:

ABSTAIN:

ABSENT:

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Teresa Lerch, District Secretary  
Las Gallinas Valley Sanitary District

APPROVED:

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Judy Schriebman, President  
Las Gallinas Valley Sanitary District

(seal)

**3/17/2022**

**Interim General Manager Report**

- Separate Item to be distributed at Board Meeting
- Separate Item to be distributed prior to Board Meeting
- Verbal Report
- Presentation

Agenda Item 4.2  
Date March 17, 2022

**NORTH BAY WATER REUSE AUTHORITY  
TECHNICAL ADVISORY COMMITTEE**

Thursday, March 3, 2022

Agenda

2:00 PM

Zoom Meeting: <https://us02web.zoom.us/j/87698404530>

	1.		Call to Order and Self Introductions
	2.	Action	Approval of Agenda
	3.		Public Comments
	4.	Action	TAC Meeting Minutes of February 2, 2022
	5.	Information	Meeting Between NBWRA and NBWA to Avoid Duplicative Efforts - Status Report
	6.	Discussion	Status of Phase 2 Funding Application
	7.	Action	FY2021/22 Budget Modification to Provide Funding for Consultants through June 30, 2022
	8.	Discussion	Continue Planning for Projects in the Resilience Arenas for FY2022/23 and Potential Budget
	9.	Information	Next Meeting, April 7, 2022
	10.		Adjournment

**North Bay Water Reuse Authority  
Technical Advisory Committee  
Zoom Meeting Minutes  
February 2, 2022  
Draft**  
Approved \_\_\_\_\_

**1. Call to Order and Self Introductions**

Chair Healy called the Technical Advisory Committee (TAC) meeting to order at 1:03 p.m. on Wednesday, February 2, 2022. The meeting was a Zoom meeting only and attendees participated via the following link: <https://us02web.zoom.us/j/83918415597>.

**Committee Members Present**

Tim Healy, Chair	Napa Sanitation District
Pam Jeane, Vice Chair	Sonoma Valley County Sanitation District
Erik Brown	Novato Sanitary District
Grant Davis	Sonoma Water
Jason Farnsworth	City of Petaluma
Steve Lederer	Napa County
Drew McIntyre	North Marin Water District
Paul Sellier	Marin Municipal Water District

**Others Present**

**Member Agencies**

Kevin Booker	Sonoma Water
Akin Fayehun	City of Petaluma
Richard Thomasser	Napa County
Brad Sherwood	Sonoma Water
Jake Spaulding	Sonoma Water
Tony Williams	North Marin Water District

**Consultant Team**

Chuck Weir, Program Manager	Weir Technical Services
Rene Guillen	Brown & Caldwell
Mark Millan	Data Instincts
Jim O'Toole	ESA
Mike Savage	Brown and Caldwell
Dawn Taffler	Kennedy Jenks

**2. Approval of the Agenda**

The Agenda was approved with no changes.

**3. Public Comments**

There were no public comments.



#### 4. TAC Meeting Minutes of January 11, 2022

On a motion by Drew McIntyre, seconded by Paul Sellier, the January 11, 2022 minutes were unanimously approved.

#### 5. Meeting Between NBWRA and NBWA to Avoid Duplicative Efforts

The Program Manager displayed a summary of his meeting with Andy Rogers, Executive Director NBWA. The meeting was very productive and a plan was developed to prepare graphics that highlight the opportunities for the two organizations to cooperate with each other. A meeting with the Chairs of each organization along with the NBWRA TAC Chair and Vice Chair is being planned for late February 2022. The Program Manager also displayed a 1-page summary of NBWRA that highlights NBWRA's History, Purpose, Objectives, Membership, Governance, Projects, Potential New Resilience Arenas, and Strengths. Much of the information comes from the Memorandum of Understanding. Chair Healy suggested adding information about state and federal funding that has been received as well as the fact that other projects have been able to piggyback on NBWRA's efforts making the Phase 1 projects greater than the \$100 million that was partially funded by Title XVI. The Program Manager stated that he would make those changes and share both documents with the TAC and that they should feel free to share with their Boards. This was an information item requiring no action by the TAC.

#### 6. TAC Recommendations on Resilience Arenas

Having discussed Recycled Water and Potable Reuse at the January 11, 2022 meeting, the TAC discussed the Coordinated Drought Response and Sea Level Rise Adaptation resilience arenas.

##### Coordinate Drought Response

Rene Guillen discussed the pages in the packet relative to this topic. He noted that a typical Drought Contingency Plan (DCP) study would cost \$400,000, with 50% funding from USBR. If eight agencies participated the cost would be \$12,500 per year for two years that it would take to complete the study. Drew McIntyre noted that NBWRA was awarded funding a few years ago for a Sonoma and Marin study but since there was another study underway, the funds were transferred to Napa County with City of Napa as the lead agency. Following discussion, Rene Guillen indicated that he would work with Napa County participants to include a report for the Board at the February 28, 2022 meeting. Paul Sellier felt that it may be a little early for this. TAC members generally agreed that applying for funding would be a good idea, but it would be best to wait for the results of the Sonoma/Marin study to be completed to determine where additional study is needed. Rene Guillen indicated that agencies should be preparing to submit an application as soon as they could. Drew McIntyre suggested and the TAC agreed to include this topic as a regular agenda item in future TAC and Board agendas.

##### Sea Level Rise Adaptation

Jim O'Toole shared his screen to discuss this topic. FEMA has a Building Infrastructure and Communities (BRIC) grant program that will provide some funding for studies and significant funding for actual projects. Two potential studies exist: 1) regional plan for the North Bay and 2) local plan for Marin county agencies. Each study application would cost approximately \$50,000 with agency shares depending on the number of participating agencies. Tim Healy stated that Napa San is doing their own climate change adaptation study that would likely lead to project recommendations. He hoped that NBWRA and BRIs would be able to obtain future funding.

This was an information item requiring no action by the TAC.

#### **7. TAC Reports to the Board on Item No. 6, Resilience Arenas**

Following discussion the TAC agreed that TAC agenda packets and minutes should be included as a report to the Board at the next meeting. The consultant team will prepare a narrative report on the TAC meetings, discussion, and recommendations for the Chair and Vice Chair to review for the Board meeting packet. The TAC was also encouraged to share this information with their individual Boards on a formal or informal basis depending on timing of their individual meetings.

#### **8. Other Possible Resilience Arenas and Finding Opportunities**

Recently the WaterReuse Association discussed funding opportunities, including:

- Water Recycling Funding Program (WRFP)
- Clean Water State Revolving Fund (CWSRF)
- Drinking Water State Revolving Fund (DWSRF)

The PowerPoint presentation used by WaterReuse was included in the packet. Mark Millan highlighted the key elements of potential funding opportunities. It was noted that member agencies will likely receive ongoing information on this from such organizations as CASA, ACWA, League of Cities, WaterReuse, and CSAC. The possibility of engaging the services of a funding expert is something NBWRA may want to consider in the future. Mark Millan also noted that the national WaterReuse organization is holding a conference in San Antonio, TX in March 2022. A main topic for the conference will be the various funding opportunities that are available for recycled water, particularly potable reuse. This was an information item requiring no action by the TAC.

#### **9. Phase 2 Updates to Project Descriptions and Application for Title XVI Funding Opportunity**

Following the January 11, 2022 meeting Rene Guillen sent an email to TAC members requesting updates to their project descriptions for a possible funding opportunity. Comments were received from Novato San, Petaluma, and Sonoma Water. A few days later USBR released information on Title XVI funding and Rene Guillen notified TAC members of this and requested commitment for an application. Petaluma and American Canyon responded affirmatively. The application is due March 15, 2022 and all information will need to be submitted by March 11. Submitting an application must be approved by the NBWRA Board.

A motion by Jason Farnsworth, seconded by Grant Davis to recommend to the Board that they authorize submitting an application to USBR on behalf of Phase 2 participating agencies was unanimously approved by a roll call vote.

#### **10. Next Meeting**

Following discussion the TAC agreed to schedule a monthly meeting on the 1<sup>st</sup> Thursday of the month from 2:00 – 3:00 p.m. through 2022. If there is no business for the TAC in any given month, the meeting can be cancelled.

**11. Adjournment**

Mark Millan noted that Chris DeGabriele has been appointed acting General Manager for Las Gallinas Valley Sanitary District while the district conducts a search for a new General Manager.

There being no further business Chair Healy adjourned the meeting at 2:19 p.m.

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Page 1

Agenda Explanation  
North Bay Water Reuse Authority  
Technical Advisory Committee  
March 3, 2022

**ITEM NO. 5 Meeting Between NBWRA and NBWA to Avoid Duplicative Efforts - Status Report**

**Action Requested**

None at this time.

**Summary**

Both 1-page summary documents for NBWRA and NBWA have now been prepared, copies attached. The next step will be to prepare some graphics showing opportunities for collaboration between the two organizations. Suggestions from TAC members are welcome.

**Recommendation**

None at this time.

**North Bay Water Reuse Authority**  
**History, Purpose, Objectives, Membership, Governance, Projects, Potential New Resilience**  
**Arenas, Strengths**

History. NBWRA operates under a Memorandum of Understanding (MOU) first established in 2008 and amended four times. Current MOU was approved in November 2017.

Purpose. The purpose of NBWRA is to provide recycled water for agricultural, urban, and environmental uses thereby reducing reliance on local and imported surface water and groundwater supplies and reducing the amount of treated effluent released to San Pablo Bay and its tributaries.

Objectives. NBWRA projects will promote the expanded beneficial use of recycled water in the North Bay Region to:

- (a) Offset urban and agricultural demands on surface water and groundwater supplies;
- (b) Enhance local and regional ecosystems;
- (c) Improve local and regional water supply reliability;
- (d) Maintain and protect public health and safety;
- (e) Promote sustainable practices;
- (f) Give top priority to local needs for recycled water, and
- (g) Implement recycled water facilities in an economically viable manner.

Membership. Current membership includes agencies in Napa, Sonoma, and Marin counties interested in water issues: Napa and Marin Counties, Sonoma Water, Las Gallinas Valley SD, Novato SD, Marin Municipal WD, North Marin WD, Cities of Petaluma and American Canyon, Sonoma Valley CSD, and Napa SD.

Governance. One elected official from each of the member agencies serves on the Board of Directors, which is responsible for approving budgets and contracts. NBWRA complies with the Brown Act. Sonoma Water serves as the administrative agency. A Technical Advisory Committee (TAC) provides technical input and recommendations to the individual agencies and the NBWRA Board for projects, budgets, cost sharing, and MOU modifications.

Projects. Phase 1 has been completed and included \$100 million (\$25 M in federal funds, \$7 million from ARRA and \$18 M from Title XVI) in recycled water projects. Other projects were leveraged through the completed EIR/EIS making the total value greater than \$100 million. Funding for a drought contingency plan was transferred to City of Napa for a study in that county. Phase 2 is underway and includes approximately \$80 million (Prop 1 Funding a portion) in recycled water and water related projects. Costs are shared on the basis of benefit to the members. There are different agencies participating in Phase 1 and Phase 2.

Potential New Resilience Arenas include: Continuing Recycled Water, Potable Reuse, Coordinated Drought Response Planning, and Sea Level Rise Adaptation. Considering a potable reuse pilot project. Adding new arenas will result in modifications to the MOU for purpose, objectives, membership, and cost sharing.

Strengths. Feasibility Studies, EIR/EIS studies, financial capability analyses, public outreach, administration and management of programs and projects, obtaining state and federal funding through Prop 1 and Title XVI, leveraging studies to obtain funding and complete projects not originally included in NBWRA programs. Currently looking at additional funding opportunities.



## NORTH BAY WATERSHED ASSOCIATION 2022 FACT SHEET

Bel Marin Keys Community Services District  
 Central Marin Sanitation Agency  
 County of Marin  
 County of Napa  
 County of Sonoma  
 Las Gallinas Valley Sanitary District  
 Marin County Stormwater Pollution Prevention Program  
 Marin Municipal Water District  
 Napa Sanitation District  
 Napa County Flood Control District  
 North Marin Water District  
 City of Novato  
 Novato Sanitary District  
 City of Petaluma  
 Ross Valley Sanitary District  
 City of San Rafael  
 City of Sonoma  
 Solano County Water Agency  
 Sonoma Valley County Sanitation Agency  
 Sonoma County Water Agency

### Associate Members:

The Bay Institute  
 Group Members:  
 City of Mill Valley  
 Sewerage Agency of Southern Marin

The **mission** of the North Bay Watershed Association (NBWA) is to facilitate partnerships across political boundaries that promote stewardship of the North San Pablo Bay watershed resources.

The **NBWA represents** more than 25 diverse entities concerned with managing water, watersheds, and shorelines surrounding the northern part of San Francisco Bay.

The North Bay's watersheds encompass eastern Marin County, southern Sonoma County, Napa County, and portions of Solano County. The North Bay is a relatively rural part of the San Francisco Bay Area, with expansive open spaces.

### North Bay Watersheds

- More than 1.3 million people live in the four North Bay counties
  - Approximately half live in NBWA watersheds ~660,000
- More than 2,000 miles of streams flow through NB watersheds
  - Small, urbanized creeks in Marin and Solano Counties
  - Petaluma River, Sonoma Creek, Napa River and Suisun Bay drainage
- North Bay relies on local water supply
  - more than any other sub-region of the Bay Area
  - municipal providers supply water for >90% of the NBWA residents
  - >75% of potable water supplied is imported from outside watersheds
  - Other sources include surface water, groundwater, and recycled water

### Structure

- **Governance:**
  - Board of Directors
  - Member agency elected officials or delegates
- **Committees:**
  - Member Agency Staff
  - Joint Technical Working Group
  - Conference Committee
- **Fiscal Agent:** Marin Municipal Water District
- **Budget:** 100% from member agencies
- **Admin / Management:**
  - Memorandum of Understanding
  - Executive Director & Support Staff
- **Work Plan:** Annual Scope of Work

## Goals



**CONNECTING:** Bring together local agencies to work cooperatively and effectively on issues of common interest.



**REGULATIONS:** Be proactive on addressing watershed-based regulations, which increasingly affects areas beyond traditional political boundaries.



**FUNDING:** Work cooperatively to increase eligibility for watershed-based funding.



**SHARING RESOURCES:** Maximize effective use of resources and leverage expertise in region.



**EDUCATE:** Educate communities about watershed health and stewardship and ways to participate.



**INFLUENCE:** Enhance the NBWA's influence on local, state, and federal policies and programs.

## Benefits to the North Bay

NBWA members and local stakeholders have helped local, state and federal partners protect nearly 50,000 acres of wetlands on the North Bay shore and restore or enhance 30,000 more.

- ✓ Better water quality
- ✓ More reliable water supply
- ✓ Better educated citizens
- ✓ Improved habitat in streams and watersheds
- ✓ Connected and aligned water resource agencies

## Addressing Challenges – Other Pressures

- ✓ Climactic changes
- ✓ Societal changes
- ✓ Costs of living
- ✓ Increased costs of operating, maintaining, and adapting infrastructure
- ✓ Unfunded regulatory requirements
- ✓ Natural resource limitations
- ✓ Technologic changes

## Opportunities

- ✓ We live and work in watersheds *topping* an incredible estuary
- ✓ We have agencies with remarkable responsibilities, expertise, and experience
- ✓ We have frameworks for regional collaborations, such as NBWA
- ✓ We need each other to be successful
- ✓ We *have* to be successful

Page 1

Agenda Explanation  
North Bay Water Reuse Authority  
Technical Advisory Committee  
March 3, 2022

**ITEM NO. 6 STATUS OF PHASE 2 FUNDING APPLICATION.**

**Action Requested**

None at this time.

**Summary**

The application is due March 15, 2022. City of American Canyon and City of Petaluma are included in the application. NBWRA Chair Rabbitt has prepared letter of support to be included in the packet. Rene Guillen will provide a verbal update at the meeting.

**Recommendation**

None at this time.



**ITEM NO. 7 FY2021/22 BUDGET MODIFICATION TO PROVIDE FUNDING FOR CONSULTANTS THROUGH JUNE 30, 2022**

**Action Requested**

It is recommended that the TAC review the provided information and recommend a FY2021/22 Budget Modification to fund the consultants through June 30, 2022.

**Summary**

Weir Technical Services. Total budget of \$10,000 to provide program management services through an agreement that terminates June 30, 2023. The current agreement became effective on August 8, 2018 for a total of \$57,426. The agreement was amended on July 15, 2021 for an additional \$10,000, for a total of \$67,426. As of February 28, 2022 there is less than \$2,100 remaining. At the current burn rate, a minimum of \$10,000 will be required to carry through to June 30, 2022.

Brown & Caldwell. Total Budget: \$39,700 for continued support through the end of June 2022. This would include effort related to prepping, attending, and participating in TAC and NBWRA Board Meetings as well as some Project Management time.

Total need is \$49,700 for the consultant team through June 30, 2022. All of these charges would be allocated to Joint Use as the services apply to all Phase 1 and Phase 2 agencies. Currently there are surplus balances in the following programs:

Discretionary	\$66,639.50
Accumulated Interest	\$26,694.99 (after deducting the \$35,000 for Sonoma Water)
<u>Available Total</u>	<u>\$93,334.49</u>
Proposed Budget Amendment	\$49,700.00
Amount Remaining	\$43,634.49

Sonoma Water can determine how much of the total \$49,700 to transfer from Discretionary and Interest. By using available funds, there would be no separate charge for the member agencies.

**Recommendation**

It is recommended that the FY2021/22 Budget be amended by a total of \$49,700, which includes \$10,000 for Weir Technical Services, and \$39,700 for Brown & Caldwell. Funds can be taken from a combination of Discretionary and Accumulated interest.

**ITEM NO. 8 CONTINUE PLANNING FOR PROJECTS IN THE RESILIENCE ARENAS FOR FY2022/23 AND POTENTIAL BUDGET**

**Action Requested**

Continue the discussion of potential resilience arena projects and budgets for FY2022/23.

**Summary**

The TAC has agreed to continue discussion opportunities in the four resilience arenas: recycled water, potable reuse, coordinated drought response planning, and sea level rise adaptation.

Resiliency Arena 1 – Recycled Water

The funding application for Phase 2 agencies is related to recycled water. However, there are still tasks that need to be completed that are independent of the funding application. These tasks and costs include the following:

- \$85K to update the EIR/EIS to align with the updated FS (Task 3)
- \$10K to update the FCD Report to align with the updated FS (Task 4)
- \$70K to support the development of two additional grant applications (Task 5)
- \$40K for continued PM support and support as it pertains to any additional changes needed to the FS (Task 7)

**Total: \$205K**

Costs by Agency (note that this assumes the same cost allocation model we have been using for Phase 2):

Total Budget	LGVSD	Napa SD	Novato SD	SVCSD	SCWA	NMWD	Napa County	Petaluma	MMWD	American Canyon
\$205,000	\$4,000	\$20,417	\$21,788	\$18,545	\$23,464	\$4,000	\$4,000	\$55,808	\$23,837	\$29,140

Resilience Arena 2 – Potable Reuse

The TAC has continued to review opportunities for potable reuse but does not appear ready to commit to a comprehensive North Bay study at this time. An alternative might be to start with a white paper approach, to list all studies in the north bay region that have addressed or will be addressing potable reuse. It could be called “NBWRA White Paper on Potable Reuse Potential” summarizing:

- Existing potable reuse (none)
- Planned Potable Reuse Projects (feasibility level studies and beyond)
- Potable Reuse Projects being implemented (none at this time)
- Identified Potable Reuse Opportunities (based on prior) studies)
- Potable Reuse Opportunities Under Study (current studies)
- Total Potable Reuse Potential (based on existing, planned and projects under study)

For budget purposes, the likely cost of this study would be **\$100,000 - \$150,000**. The individual agency cost would depend on the number of agencies that participated. If ten agencies

participated, the cost per agency would be \$10,000 - \$15,000. Costs would be proportionately greater if fewer agencies participated. The TAC should review this as a possible starting point for FY2022/23 projects and related budgets. If this appeals to the TAC the consultant team could be directed to prepare a more detailed scope and cost for review at the April 7, 2022 meeting. It would be helpful to know which agencies are interested in the white paper approach for cost sharing purposes.

Resiliency Arena 3 – Drought Contingency Planning

Brown & Caldwell (B&C) has reviewed portions of Sonoma Water’s Resiliency Study and has had a conversation with Reclamation. B&C has concluded that the agencies do not need another DCP. A smaller study to help them assess what other items they should consider adding to the study so that it addresses all of the items Reclamation looks for in DCPs. By going through this exercise the agencies will be able to use their current study as their DCP to pursue drought resiliency grants. A starting point for budgeting purposes is **\$50,000**. That would work out to \$5,000 per agency if ten agencies participated, and proportionately higher with fewer agencies.

Resiliency Arena 4 – Sea Level Rise Adaptation

The TAC can consider submitting a Building Resilient Infrastructure and Communities (BRIC) Planning Application for either North Bay Adaptation Plan or project specific LGVSD/Marin County Adaptation Plan. Application Grant costs are estimated at \$50,000. Additional funding opportunities (Flood Mitigation Assistance, Pre-Disaster Mitigation, Proposition 1 Climate Read Grants) would be reviewed and identified through the process. Similar to other projects, that would work out to \$5,000 per agency if ten agencies participated, and proportionately higher with fewer agencies.

As a point of comparison, the total cost for all these projects is less than \$500,000, which is less than previous budgets that began Phases 1 and 2.

**Recommendation**

The TAC should consider directing the consultant team to develop more detailed scopes and costs for the projects described above. They include the following:

Recycled water – completing EIR/EIS and related tasks	\$205,000
Potable Reuse White Paper Development	\$100,000 - \$150,000
DCP follow up study	\$50,000
<u>Sea Level Rise Adaptation</u>	<u>\$50,000</u>
Total Cost for all proposed projects	\$405,000 - \$455,000

For the April 7, 2022 TAC, meeting agencies should be prepared to indicate if they will be participating in each of the proposed projects. This will facilitate budget planning and cost sharing.



Item Number 4.3  
GM Review CO

# Agenda Summary Report

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**To:** Board of Directors  
**From:** Teri Lerch, District Secretary *TL*  
(415) 526-1510; tlerch@lgvsd.org  
**Mtg. Date:** March 17, 2022  
**Re:** Board Policy Review: B-20 Board Member Interaction with Staff and F-20 Financial Reporting  
**Item Type:** Consent  Action  Information  Other   
**Standard Contract:** Yes  No  (See attached) Not Applicable

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### STAFF RECOMMENDATION

Attached for information and Board review are current policies B-20 – Board Member Interaction with Staff and F-20 – Financial Reporting. Suggested changes are shown in highlight (strikeout format) and staff will receive comments on the subject policies at the meeting and through March 23<sup>rd</sup>. Comments received will be incorporated or addressed prior to bringing back these policies to the Board for approval at the April 7<sup>th</sup> meeting.

### BACKGROUND

The Board has requested to review and update Board Policy.

### PREVIOUS BOARD ACTION

Board policy B-20 - Minutes of Board Meetings was adopted by the Board on July 9, 2009 by Resolution 2009-1872.

Board Policy F-20 – Finance -General was adopted by the Board on February 23, 2017 by Resolution 2017-2084.

### ENVIRONMENTAL REVIEW

N/A

### FISCAL IMPACT

N/A

**B-20 BOARD MEMBER INTERACTION WITH STAFF**

**Purpose**

This policy establishes procedures for Board Member communication with the General Manager and District Staff.

**B-20-10 Communication Path.** The general path of communication shall be Board to General Manager then General Manager to staff. The General Manager may delegate the communication directly to a Board member or staff member for particular issues only.

**B-20-20 Non-Interference With Staff.** Individual Board Members shall not interfere with or direct District staff nor use District facilities in such a way that the action is unreasonable or interferes with the operation of the District. Board members may contact District Counsel on legal questions.

**B-20-30 Simple Information Requests.** Individual Board members may make simple information requests of staff, through the General Manager. A Simple Information Request is one that would take the General Manager, District Staff or Counsel less than two hours to complete in the view of the General Manager.

**B-20-40 Substantial Information Requests.** Individual Board members may place an item on any future agenda to request a Substantial Information Request or to add an item on a future agenda (B-30-30). The request shall be made as a motion under the Board Request section of the agenda. A majority affirmative vote is necessary to approve the action. A Substantial Information Request is one that would take the General Manager, District Staff or Counsel more than two hours to complete in the view of the General Manager.

<b>Resolution No. 2009-1872</b>	Date Approved: July 9, 2009
President of the Board	Supersedes: Last Reviewed:

**F-20 FINANCIAL REPORTING**

**Purpose**

This policy establishes procedures for preparing interim financial statements for Board review.

**F-20-10 Quarterly Financial Reporting to Board of Directors.** District staff shall prepare and provide to the Board of Directors a quarterly summary report that compares actual revenues and expenditures to budgeted amounts, including relevant information on debt proceeds and debt service payments. The report shall explain significant variances and provide analysis and interpretation of financial information. **The report shall be presented with the quarterly investment report.**

**F-20-20 Monthly Financial Reporting to Management.** District staff shall prepare a monthly report for review and use by District management that compares actual revenues and expenditures to budgeted amounts, as well as additional reports as requested to assist in managing the day-to-day operations of the District.

<b>Resolution No. 2017-2084</b>	Date Approved: February 23, 2017
President of the Board	Supersedes: Not applicable. <b>Last Reviewed:</b>





Item Number 4.4  
GM Review CD

# Agenda Summary Report

To: Board of Directors  
From: Dale McDonald, Administrative Services Manager *DM*  
(415) 526-1519 [dmcDonald@lgvsd.org](mailto:dmcDonald@lgvsd.org)  
Meeting Date: March 17, 2022  
Re: Draft COVID-19 Testing Policy

Item Type: Consent \_\_\_\_\_ Action \_\_\_\_\_ Information X Other \_\_\_\_\_  
Standard Contract: Yes \_\_\_\_\_ No \_\_\_\_\_ (See attached) Not Applicable X .

## STAFF RECOMMENDATION

Board of Directors review and provide comment on the attached Draft COVID-19 Testing Policy.

Staff will continue to provide COVID-19 Over-the-Counter (“OTC”) testing kits to all employees and encourage vaccination and boosters while the Board considers the testing policy.

## BACKGROUND

In response to the ongoing pandemic, Marin County continues to promote vaccination and testing as a vital tool in the fight against COVID-19. Of the eligible population in Marin County, 98.0% has received their 1<sup>st</sup> dose of a COVID-19 vaccine and 91.7% have completed their series (excluding booster/3<sup>rd</sup> shot). 72% of District employees are fully vaccinated (excluding booster/3<sup>rd</sup> shot).

The Board asked staff to develop a draft policy and provide estimated costs to implement a proactive testing program as a tool to help create a safe work environment for all employees. The policy was developed based on the following assumptions:

- Mandatory no-cost COVID-19 weekly testing for all personnel and contractors.
- Applies to all personnel who work or interact with District employees at District facilities including employees, Directors, volunteers, and contractors.
- On-site testing at treatment plant 300 Smith Ranch Road, once a week within a predetermined 2-hour block of time, for all personnel.
- In addition to offered on-site testing, testing may be performed by a third-party off-site but it would be on employees own time
- Encourage vaccination and boosters.

District personnel continue to perform COVID-19 Daily Safety Assessments before they begin their workday. The District provides COVID-19 OTC Rapid Antigen tests to its employees to use if the employee is exhibiting symptoms of COVID-19.

The California Department of Public Health has (“CDPH”) has reported COVID-19 case rates dropping since the Omicron surge in December and January. The testing positivity rate is 2.9% (average rate over 7 days) as of March 1, 2022. Rates of cases, hospitalizations and deaths are highest among unvaccinated individuals and lowest among boosted individuals.



An informal survey of nearby sanitary districts in Marin confirmed that they have not implemented mandatory vaccination or mandatory testing policies. Administration of their COVID-19 prevention programs are managed by their respective administrative staff.

There are a few agencies in Solano County and Contra Costa County that have implemented a Vaccination Or Mandatory Testing Policy encouraging vaccination but only requiring unvaccinated personnel to obtain regular testing. Vaccinated employees at agencies that provide testing are allowed to get testing at their worksite at no cost.

The Board can consider:

- Adopting a *Mandatory COVID-19 Testing Policy* as presented, including the requirement that all District personnel submit to weekly COVID-19 testing and show a negative test. It would apply to employees, Directors, volunteers, and contractors who work at District worksites or interact with District employees.
- Form opinion and recommend changes to the attached policy. Staff would incorporate changes and bring the policy back to the Board for future consideration.
- Take no action. Management would continue to implement its COVID-19 Prevention Program following local Marin County Health and CDPH guidelines.

If adopted, the policy would remain in full force and effect until the General Manager determines that the local public health circumstances have sufficiently improved to permit the suspension of the policy.

#### **PREVIOUS BOARD ACTION**

None

#### **ENVIRONMENTAL REVIEW**

N/A

#### **FISCAL IMPACT**

The costs to implement the policy is dependent on the number weekly tests that the District would have performed. At \$80 per test, the estimated cost to the District is \$3,200 per week for testing with a total 3-month program cost estimated at \$40,000.

In addition, unvaccinated personnel would need to schedule time for testing which would affect productivity.



## Draft COVID-19 Mandatory Testing Policy

### 1. General

To protect Las Gallinas Valley Sanitary District (“District”) personnel, the community members with whom District personnel interact, and all residents of the District, the District will require all District personnel, including employees and volunteers, to submit to weekly COVID-19 testing. Contractors who work at District worksites and facilities or interact with other District employees or members of the public in the performance of their duties on behalf of the District must either be fully vaccinated or produce proof of a negative COVID-19 test result from a test no more than 5 days prior to their work at a District worksite and facility or their work with other District employees.

The District adopted this testing policy as an emergency public health response to mitigate the negative public health consequences associated with increased incidence and test positivity rates and the prevalence of COVID-19 virus and variants. This policy is intended to effectuate positive public health outcomes in Marin County (“County”) by identifying positive asymptomatic COVID-19 cases early to limit spread of the virus, reducing the likelihood of hospitalizations at health care facilities in the County, ICU admissions in Marin County and deaths. Marin County continues to promote that testing remains a vital tool in the fight against COVID-19. Marin County announced on February 25, 2022 a surge in virus deaths, 15 new COVID-19 deaths, resulting in a total of 24 residents that have died from COVID-19 complications between January and February 12, 2022. While the Omicron variant caused less severe disease than earlier variants, its higher rate of infectivity drove up hospitalization and death rates in Marin.

District employees, contractors, and volunteers are encouraged to obtain the COVID-19 vaccine and booster, if eligible, at a vaccination site of their choosing. Information on the COVID-19 vaccines and how to obtain vaccination is available at <https://coronavirus.marinhhs.org/vaccine> and at <https://covid19.ca.gov/vaccines/>.

District employees who elect to be vaccinated in accordance with this policy may do so during their normal working hours. Such employees will receive their normal compensation for their time spent being vaccinated.

District employees, contractors, and volunteers shall be provided no-cost COVID-19 testing during their normal working hours at the following location:

Las Gallinas Valley Sanitary District Treatment Plant – *On-Site*  
300 Smith Ranch Road  
San Rafael, CA 94525

District employees will receive their normal compensation for their time waiting to be tested and during the testing process when tested is completed at the Las Gallinas Valley Sanitary District Wastewater Treatment Plant.

## **I. Definitions**

1. “District personnel”, for purposes of this Policy and related requirements, includes: (1) Las Gallinas Valley Sanitary District employees and Directors; (2) Non-employees, including volunteers, who provide services to the District; and (2) Contractors who are engaged by the District and who work at District worksites and facilities or interact with other District employees or members of the public in the performance of their duties on behalf of the District. District contractors who qualify as District personnel include, for example, contracted staff who work at District worksites or facilities or with District outside of such worksites or facilities, but would not include, for example, a third-party attorney who provides legal services exclusively from a remote location. The inclusion of non-employees in the definition of “District personnel” confers no employment status between such individuals and the District.
2. “Worksite” means any work location, working area, or common area at work including all District buildings, stores, facilities, and fields.
3. “COVID-19 test” means a viral test for SARS-CoV-2 that is:
  - a. Approved by the FDA under either the EUA or BLA approval process. to diagnose current infection with the virus that causes COVID-19; and
  - b. Administered in accordance with the FDA approval.

## **II. Scope**

The policy applies to all District personnel, non-employees, including volunteers, who provide services to the District; and contractors who are engaged by the District and who work at District worksites and facilities or interact with other District employees.

## **III. Effective Period**

The policy shall be effective immediately and shall remain in full force and effect until the General Manager determines that the local public health circumstances have sufficiently improved to permit the suspension of the policy.

## **IV. COVID-19 Testing Requirement**

The District requires that District personnel adhere to the following requirements:

1. By **April 1, 2022** (15 days from issuance of policy) all District employees and volunteers must submit to weekly testing. This requirement applies to all fully vaccinated, partially vaccinated, and unvaccinated District personnel. All newly hired District employees must submit to weekly testing within 2 weeks of hire.



2. By **April 16, 2022** ( 30 days from issuance of policy) all contractors whose work requires that they work at District worksites and facilities or interact with other District employees or members of the public in the performance of their duties on behalf of the District must produce proof of a negative COVID-19 test result from a test no more than 5 days prior to their work at a District worksite and facility or their work with other District employees.

District personnel who fail to comply with this policy shall not be permitted to perform work at District worksites or facilities. If the District determines that such employees cannot perform their essential job duties from a remote location or that doing so would impose an undue hardship on the District or its operations, the employee will be required to take unpaid leave or use their own paid leave in order to provide for their continued compensation throughout the period during which they fail to comply with the policy.

District personnel who test negative shall be permitted to perform work at District worksites or facilities.

District personnel who test positive shall be required to return to their home or place of residence and not report back to work until such time as they have satisfied the return-to-work requirements.

#### **V. Administration of Testing Requirement**

The District will administer testing of District personnel according to the following:

1. Testing will be held on-site at 300 Smith Ranch Road in the Conference Room and performed by third-party testing personnel.
2. Testing will be weekly, held on Wednesday mornings, subject to change based on operational requirements.
  - a. District employees to be tested from 7:00 AM to 7:45 AM.
  - b. Contractors engaged in work and others to be tested from 7:45 AM to 8:30 AM.
3. Medial staff will administer nasal swab test. After group sampling is done testing will begin with results to be completed by approximately 9:00 AM.
4. All personnel must have negative test to continue working on District facilities. A copy of the test results will be provided to the District's Human Resources ("HR") department and be made available for the employee or contract upon request.
5. District personnel required to be tested weekly who are unable to take advantage of the District administered testing on Wednesdays may obtain a COVID-19 test from another third-party service provider on their own time. The District HR department will authorize reimbursement for the cost of the test upon receipt of test results.
6. Contractors may coordinate COVID-19 testing requirement through the District

Construction Manager (CM) for respective project. The CM is allowed to recover costs related to this administrative requirement.

## **VI. Return to Work Requirements**

In order to return to work, District personnel who test positive for COVID-19 must isolate and follow the applicable return-to-work criteria as presented in the District's COVID-19 Prevention Program ("CPP").

Workers exposed to someone with COVID-19 must quarantine and follow the applicable return-to-work criteria as presented in the District's CPP.

## **VII. Confidentiality of Vaccination Records and Testing Results**

The District will treat all vaccination records and testing results as confidential medical information and maintain such records as required by the Confidentiality of Medical Information Act ("CMIA").

The District will not use or disclose such information, unless authorized to do so or as permitted or required under the law.



Item Number \_\_\_\_\_ 4.5 \_\_\_\_\_  
GM Review \_\_\_\_\_ CD \_\_\_\_\_

# Agenda Summary Report

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**To:** Board of Directors  
**From:** Michael P. Cortez, PE, District Engineer  
(415) 526-1518; [mcortez@lqvsd.org](mailto:mcortez@lqvsd.org)  
**Meeting Date:** March 17, 2022  
**Re:** Marsh Pond Long Term Vegetation Management Plan

**Item Type:** Consent \_\_\_\_\_ Action \_\_\_\_\_ Information X Other \_\_\_\_\_ .  
**Standard Contract:** Yes \_\_\_\_\_ No \_\_\_\_\_ (See attached) Not Applicable X .

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**STAFF RECOMMENDATION:**

For information only.

**BACKGROUND:**

WRA has completed the Marsh Pond Long Term Vegetation Management Plan for the control of aquatic vegetation in the Marsh Pond and ready for implementation by District staff. The Plan provides for appropriate vegetation control while maintaining operational and public safety objectives including provision of wildlife habitat.

The District has provided the initial draft to Marin Audubon Society (Audubon) and the Marin Sonoma Mosquito and Vector Control District (MSMVCD) for review. Pertinent comments specific to mosquito abatement and wildlife habitats related to pond operations and maintenance have been incorporated into the plan. In addition to District staff review, Ray Goebel has also provided comments and reviewed the Plan for consistency with current plant operations and permitting requirements.

Attached is a copy of the final plan. Also attached is a copy of Audubon’s second round of comments and corresponding District response.

**PREVIOUS BOARD ACTION:**

On April 15, 2021, District staff presented comments received from Ed Nute, Audubon, and MSMVCD on the draft Marsh Wildlife Pond Long Term Vegetation Management Plan. The Board requested staff to bring a final copy of the vegetation management plan when available.

**ENVIRONMENTAL REVIEW:**

N/A

**FISCAL IMPACT:**

N/A

## TECHNICAL MEMORANDUM

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**To:** Michael P. Cortez, PE  
District Engineer  
Las Gallinas Valley Sanitary District  
mcortez@lgvsd.org

**From:** Philip Greer  
greer@wra-ca.com

Jason Yakich  
yakich@wra-ca.com

**cc:**

**Date:** June 2020; most recently revised  
February 2022

**Subject:** Aquatic Vegetation Management Plan  
LGVSD Wildlife Pond

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## **INTRODUCTION**

This vegetation management plan (Plan) provides objectives and methods for control of aquatic vegetation within the Las Gallinas Valley Sanitary District (District) wildlife pond. It provides the basis for an update to Section 12.44 Vegetation Management in LGVSD Effluent Disposal, EPA Project No. C-06-2469-120 Final Operation and Maintenance Manual (O&M Manual)” originally prepared by James Engineering, September 1884, and updated by Nute Engineering, May 1996, and by EOA, Inc in December 2019. The development of this Plan was cited in the December 2019 update.

This Plan describes vegetation control that allows the District to manage the wildlife pond ( also known as the Marsh Pond) to meet operational and public safety objectives while maintaining the provision of wildlife habitat as the pond’s primary purpose. Vegetation control is necessary to maintain storage volume, circulation, oxygenation and other operational objectives described in the O&M Plan. Maintaining the extent and density of aquatic vegetation helps to improve water circulation and oxygen concentration, and enable access for mosquito abatement activities by the Marin/Sonoma Mosquito and Vector Control District (MSMVCD).

## **POND OPERATION AND MAINTENCE**

The wildlife pond is a component of the LGVSD’s on-site reclamation system that manages discharge and reuse of treatment plant effluent in compliance with Water Board Order No. 92-064. The wildlife pond is one of three 20-acre storage ponds that provide treated effluent to the adjacent 200 acres of irrigated hayfields. The wildlife pond was designed specifically to provide wildlife habitat while also contributing to effluent storage as warranted based on system needs, whereas the other two ponds were designed for storage only. In addition to use for hayfield irrigation, water from the storage ponds may be returned to the LGVSD’s recycled water facility (RWF), which provides additional treatment to produce disinfected tertiary recycled water in accordance with California Title 22 regulations. This recycled water is supplied to two local water districts for landscape irrigation and other “purple pipe” uses.

Operation of the wildlife pond as a component of the reclamation pond system requires seasonal management of water levels to comply with a prohibition on dry season effluent discharge to Miller Creek. To meet the discharge prohibition, the water level in all three ponds is drawn down in the spring to provide storage capacity, although the wildlife pond is normally not drawn down to the extent of the two storage ponds. This water is processed through the treatment plant prior to discharge to Miller Creek. Depending on weather conditions and recycled water demand, pond water levels may remain stable through the early-to mid dry season, as effluent input is balanced by irrigation and reclaimed water usage. However, in late summer and early fall, pond water levels will increase as input exceeds usage. This managed hydrology is in contrast to a natural marsh, which would typically have high water in the spring and gradually decreasing water level through the dry season. As a result, the pond is isolated from sediment, nutrient and other hydrologic input from the adjacent watershed. More importantly water levels as currently managed likely promote expansion of emergent vegetation.

The three storage ponds were designed with connecting structures to allow water transfer and variable management of water levels. However, leakage of gate structures between ponds currently limits somewhat the ability to manage wildlife pond water levels in isolation from the storage ponds; the District aims to repair these gates at the nearest feasible opportunity. In 2019-2020, construction of the expanded RWT temporarily reduced Marin Municipal Water District’s (MMWD) demand for recycled water, resulting in increasing water elevation in the three storage ponds through the dry season. This status ended in 2021, with MMWD again accepting recycled water.

The growth and extent of aquatic and emergent vegetation in the wildlife pond was relatively moderate over the first 25 years of operation, but increased substantially over the past decade, with a corresponding decrease in water circulation and ability to conduct mosquito control. The District conducted vegetation maintenance in the fall of 2019 to remove dense stands of emergent vegetation. This Plan provides guidance for future operations to continue to provide wildlife habitat while meeting operational objectives.

Detail of the design and normal operation of the Ponds can be found in sections 12.41 Normal Operation of the O&M Manual.

## **POND BIOLOGY**

While the pond functions as a component of the reclamation area system it was designed to provide open water, shallow terrace and island habitat for wildlife as a primary function. Floating and emergent aquatic vegetation provides habitat for a variety of wildlife most prominently nesting and migratory birds. The pond is isolated hydrologically from surrounding aquatic habitats so does not provide habitat for native fishes and other aquatic species.

### **Habitats**

The wildlife pond was designed to provide freshwater marsh habitat for terrestrial wildlife while functioning as part of the series of reclamation storage ponds. In contrast to the flat bottom of the other two storage ponds, the wildlife pond has varied topography that provides a variety of aquatic and upland habitats. The design and operation provide several habitats including:

#### *Open water*

Open water habitats support floating vegetation and various groups of wildlife species. These habitats include deep areas that are continuously inundated and lack emergent vegetation. Open water may be exposed as unvegetated mudflat if water levels are drawn down.

#### *Shallow terraces*

Shallow terraces include areas inundated by approximately four feet of water or less. This habitat supports floating and emergent vegetation and wildlife species adapted to forage and nest there. Dabbling waterfowl presumably regularly forage in these areas. Vegetated terraces support nesting by a variety of birds, including special-status species (see below). Emergent and shoreline vegetative cover also provides habitat and cover for many common, non-avian wildlife species.

#### *Islands and banks.*

The island and pond banks are constructed of engineered fill and occur at elevations that are never inundated. Island habitat supports woody plants and wildlife nesting and foraging, with many habitat values similar to that found along vegetated shorelines. Banks support primarily non-native herbaceous plants and wildlife species characteristic of surrounding upland areas.

Each of these habitats support associated groupings of plant and wildlife species that often have similar management considerations.



## Vegetation

Pond vegetation reflects the varied habitats formed by the topographic design and managed water levels. In general vegetation is composed of individual plant species with reproductive and growth characteristics adapted to the habitat in which they occur. In the wildlife pond, the managed and hydrologically isolated conditions promote vegetation dominated by aggressive native and non-native plant species. These species are grouped into functional vegetation types that have similar effects on operation and can be maintained by similar methods. Additional information on these species can be found in the references section.

### *Floating Vegetation*

Floating vegetation includes various vascular floating plant species. Floating species can be further grouped into free-floating and rooted or submerged aquatic species. This last distinction is important for management and control as rooted species will regrow if cut. Open water as defined here does not support emergent vegetation but may support various floating species that are rooted to the bottom or free-floating.

Dominant species observed or reported as occurring include:

#### Free-floating Species

Duckweed, *Lemna minor*

Duckweed is an annual to perennial free-floating herbaceous plant species occupying the open water habitat of the wildlife pond. The tiny (< 1 cm) plant consists of 2 to 8 undifferentiated body segments that appear to be flat elliptical leaves. Seed production is rare with reproduction typically by division of body segments that are dispersed by wind and currents. Duckweed proliferates in summer with high temperature and nutrients. At temperatures below 43°F duckweed can overwinter on bottom as a dense, rootless, starch-filled daughter plant (winter bud). The sticky roots facilitate growth on emergent plants and dispersal by birds. This species has a worldwide distribution and although native to our region, it can become invasive under some environmental conditions.

#### Submerged Aquatic Vegetation

Widgeon grass, *Ruppia maritima*

Widgeon grass is a perennial native species that can dominate areas of relatively calm open water during warmer periods. Although rooted to the bottom it typically occurs in ponded areas where circulation is relatively low. As a submerged plant it does not grow well in turbid water. This plant provides forage by many species of waterfowl and is considered an indicator of good quality habitat.

#### Emergent Vegetation

Cattail, *Typha* sp.

Cattail is the dominant herbaceous plant of the emergent marsh vegetation occupying the perimeter terrace of the wildlife pond. Four species of *Typha* are known to occur in Marin County; the wildlife pond supports *Typha angustifolia*, narrowleaf cattail however the similar and interbreeding *Typha latifolia*, broadleaf cattail or a hybrid is likely present.

Although considered native locally, cattail is an aggressive competitor that can, under favorable conditions, exclude other native species to form monotypic stands such as that found at the wildlife pond. Cattail has hollow stems which transfer oxygen to submerged roots and allow it to thrive in shallow water up to 4 or 5 feet deep. Maximum growth occurs at a depth of 20 inches. Above ground herbaceous growth is seasonal beginning in spring and continuing while inundation persists or until winter dormancy. Reproduction is by seed with stands increasing by spreading rhizomes. Flower spikes maturing in summer produce abundant wind dispersed seed that colonizes submerged substrate and mudflats.

Being the dominant emergent plant species at the wildlife pond, cattail stands along the pond's periphery provide important habitat components for wildlife; this is discussed in more detail below. Cattails also provide some bank stabilization functions, particularly on the leeward side of the pond.

#### Water primrose, *Ludwigia hexapetala*

Creeping water primrose is a perennial herbaceous plant that grows rooted to the bottom in water up to approximately 3 feet. It has floating submerged to emergent flowering stems. Creeping water primrose is a non-native species native to South America with an invasive rating of High by the California Invasive Plant Council. It forms dense mats in open water and occurs as an understory within cattail stands. Growth is seasonal beginning in spring with warmer weather and continues until winter die back of above ground stems. Reproduction is by floating seed and rooting of dispersed fragments.

Due to its fast growth and tendency to dominate favorable open water features in our region, water primrose is recognized as a nuisance species that reduces habitat diversity and quality, and have negative impacts on biodiversity when it is uncontrolled. It is also frequently associated with hampering mosquito control activities.

#### **Wildlife**

The pond provides habitat to support a variety of wildlife year-round, including both common and special-status species (as well as wildlife observation opportunities for the public).<sup>1</sup> The following describes general wildlife use organized by pond habitats and special-status species.

#### *Open water*

Open water provides habitat for a variety of resident and migratory waterfowl (ducks, geese), including both dabblers (foraging around the shallower margins and aquatic vegetation) and diving species (foraging on or near the bottom in deeper-water areas). Submerged aquatic plants such as widgeon grass presumably provide forage for these species, and the pond itself (varying depths) provides roosting/shelter habitat. Species that have been documented within the pond in high numbers include dabblers such as mallard (*Anas platyrhynchos*), cinnamon teal (*Anas cyanoptera*), northern shoveler (*Spatula clypeata*), and American wigeon (*Mareca americana*); divers such as bufflehead (*Bucephala albeola*) and ruddy duck (*Oxyura jamaicensis*); and geese, namely Canada goose (*Branta canadensis*).

Dependent on conditions, mudflats and shallow-water areas provide foraging habitat for resident and migratory shorebirds (sandpipers, plovers and related). Generally, smaller shorebird species use open mudflats and marginally-inundated zones, while larger species typically forage in somewhat deeper

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<sup>1</sup> Documentation of biodiversity at and around the Pond includes respective monitoring reports from 2015 to 2021 variably by Demgen Aquatic Biology, or Daniel Edelstein (Consulting Biologist).

standing water. Additionally, fish-eating birds (both proper divers and surface plunge-divers) forage within the pond at various depths, presumably primarily on non-native mosquitofish (*Gambusia affinis*).

Proposed repair to pond infrastructure could allow for seasonal mudflat habitat by lowering of the wildlife pond water level independent of the two reclamation storage ponds (with the objective of maintaining a minimum water level. This potential freshwater mudflat habitat would provide important high tide refugia for resident and migratory shorebird species.

The pond is isolated hydrologically from surrounding aquatic habitats, and as such does not provide habitat for native fish. Several common wildlife species may be present in open water, and rely on aquatic habitat for foraging, egg laying or other life stages. Species that may be present in the wildlife pond include pacific chorus frog (*Pseudacris regilla*) as well as dragonfly, damselfly, and other aquatic invertebrates. Bat species may utilize airspace over open water for foraging.

#### *Shallow terraces*

Floating and emergent vegetation in the shallow terraces of the wildlife pond provides nesting, and shelter/cover, and foraging habitat for many bird species, including special-status species. As described in Table 1, tricolored blackbird, San Francisco yellowthroat, and least bittern are known to use emergent vegetation in the wildlife pond (though there is no indication that tricolored blackbirds nest on-site). Least bittern is very rare in the San Francisco Bay Area, with breeding there termed “extralimital” by Shuford and Gardali (2008). However, in recent years up to two apparent pairs of adult least bitterns have been consistently observed within the wildlife pond during the breeding season, with on-site nesting confirmed in 2015-2018, and adults again observed in 2019 and 2020. The pond is the only location in the vicinity of San Francisco Bay where this species is known to breed. Other species that have been observed in the wildlife pond that utilize shallow terrace habitat include red-winged blackbird (*Agelaius phoeniceus*), marsh wren (*Cistothorus palustris*), snowy egret (*Egretta thula*), great egret (*Ardea alba*), and great blue heron (*Ardea herodias*).

#### *Islands and banks*

Island habitat and banks support upland vegetation including woody and non-native herbaceous plants. Many bird species may nest or forage in upland habitat in the wildlife pond including Bewick’s wren (*Thryomanes bewickii*), song sparrow (*Melospiza melodia*), and California towhee (*Melospiza crissalis*). Common mammal species such as California ground squirrel (*Otospermophilus beecheyi*), muskrat (*Ondatra zibethicus*), Botta’s pocket gopher (*Thomomys bottae*), and western harvest mouse (*Reithrodontomys megalotis*) may inhabit upland banks of the pond. Common and widespread, urban-adapted mammals such as raccoon (*Procyon lotor*) and striped skunk (*Mephitis mephitis*) are also presumably present. Reptile species such as western fence lizard (*Sceloporus occidentalis*), southern alligator lizard (*Elgaria multicarinata*), garter snakes (*Thamnophis* spp.), and gopher snake (*Pituophis catenifer*) may utilize upland habitat at or near the pond.

#### *Special status wildlife species*

As summarized in Table 1, the wildlife pond habitats and associated vegetation support several special-status wildlife species that should be considered when managing vegetation. This list of species was compiled from previous monitoring reports as well as available local occurrence information for special-status species (e.g., the California Department of Wildlife [CDFW] Natural Diversity Database [CNDDDB], eBird.com).

Table 1. Special-status Species Known to Occur at the Wildlife Pond

Species	Status	Suitable Habitat in Wildlife Pond	Season of Presence
tricolored blackbird* ( <i>Agelaius tricolor</i> )	State Threatened, CDFW Species of Special Concern	Shallow vegetated terraces	winter; year-round in small numbers (no indication of nesting)
San Francisco (saltmarsh) common yellowthroat* ( <i>Geothlypis trichas sinuosa</i> )	CDFW Species of Special Concern	Shallow terraces, islands and banks	year-round
least bittern* ( <i>Ixobrychus exilis</i> )	CDFW Species of Special Concern	Shallow, vegetated terraces	breeding season (locally rare)
Samuels song sparrow ( <i>Melospiza melodia samuelis</i> )	CDFW Species of Special Concern	Islands and banks	year-round

\*Documented within or adjacent to the wildlife pond.

### VEGETATION MANAGEMENT OBJECTIVES

The pond design and current operation promotes floating aquatic and emergent vegetation which requires periodic maintenance to meet the following water quality, mosquito control and wildlife habitat objectives.

#### Water Quality

Water quality is a focus of the Water Board’s permit requirements for the reclamation system; issues of concern for the Pond include managing respective levels of dissolved oxygen (DO), dissolved sulfides, and pH in accordance with specified thresholds. Pond vegetation can affect water quality characteristics such as DO, temperature and nutrients. The type, seasonal growth and maintenance of vegetation all affect water quality which in turn affect wildlife habitat and use. In contrast to a natural marsh which can maintain water quality by connectivity to adjacent waters, the isolated hydrology of the wildlife pond limits these functions.

Vegetation control can affect water quality by improving the structural characteristics of the pond. Reducing floating and emergent vegetation can improve water circulation by facilitating mixing by wind. The original design for the Pond envisioned continuous circulation, which was intended to address potential water quality problems, e.g., low DO. Circulation in the Pond has been relatively poor in recent years, and excessive emergent vegetation (e.g., cattails) is one contributing factor, as it interferes with circulation and contributes to stagnation of the water column. Mixing can reduce temperature stratification and improve dissolved oxygen. Low water level can increase nutrient concentration.

Vegetation control can also affect nutrient levels. Plant organic matter contributed by seasonal dieback or growing season control of aquatic vegetation can contribute to high nutrient levels. Nutrients can further plant growth however excess nutrients can result in microbial digestion that reduces dissolved

oxygen. While photosynthesis produces oxygen, nighttime respiration by submerged vegetation can reduce dissolved oxygen.

Vegetation management objectives to maintain water quality include:

- Utilize methods that remove dead plant material from pond to avoid excessive nutrient inputs
  - Remove mowed plant material
  - Conduct control during cooler temperature if feasible.
  - Avoid herbicide use that results in excessive organic matter input
- Maintain vegetation to improve wind and water circulation
  - Low vegetation height on pond berms
  - Remove emergent vegetation to create wind corridors from upland to open water
  - Reduce excessive submerged vegetation that limits circulation
- Manage for sufficient high water level during warm season to reduce nutrient concentration

### **Mosquito Control**

Dense and/or abundant populations of emergent vegetation in ponds provides excellent habitat for mosquitoes, and can result in the need for repeated applications of mosquito larvicides and adulticides. Large, dense populations of emergent vegetation can also reduce the efficacy of mosquito larvicides and hinders access necessary for the Marin/Sonoma Mosquito and Vector Control District (MSMVCD) to conduct mosquito surveillance and control activities. Maintaining the extent and density of aquatic vegetation is a mosquito source reduction measure, enables access for mosquito abatement activities, improves efficacy of treatment, and minimizes the potential for public health issues. The pond has a history of producing significant mosquito populations including species known to vector West Nile virus in California.

Vegetation management objectives to facilitate mosquito control include:

- Remove emergent vegetation to create patches no more than five feet in width from any perimeter edge around the majority of the Pond's perimeter..
- If necessary, reduce upland vegetation on berms to facilitate efficient access to waterline. Any such removal would be limited and only for purposes of facilitating access in key areas.

### **Wildlife Habitat**

Vegetation management activities may have both beneficial and adverse effects on wildlife habitat. The objective is to conduct vegetation management to avoid direct impacts to nesting and in such a manner that if overall area of habitat is reduced there may be improvement to quality of remaining habitat.

Bird species that utilize emergent vegetation for nesting may be most susceptible to effects of vegetation control. Species that are dependent on emergent vegetation for breeding may be negatively impacted if vegetation removal occurs during the breeding season, and cattail removal will necessarily reduce the total area of nesting habitat. As such, cattails should be managed outside the general avian breeding season, i.e., from September 1 to January 31, to avoid harming active bird nests or disrupting nesting activities. Additionally, some cattail patches should remain following control activities to continue to support year-round bird utilization including breeding.

Cattail removal can be used to improve habitat quality by creating vegetation patches isolated from the shoreline. Removal will reduce the overall area of nesting habitat but may improve quality by maintaining an open water channel between the islands and shoreline, limiting potential access opportunities for predators to the island at the center of the pond where high-quality bird nesting habitats are found. Some species may benefit from an increase in open water and relatively open shorelines, such as birds that utilize open water (e.g., diving ducks) or the edge between emergent vegetation and open water (various species).

Least bittern has been documented breeding within the wildlife pond in recent years. This species typically nests over water within dense emergence vegetation, within 9-13 feet of open water<sup>2</sup>. This species has been documented breeding in a variety of freshwater marsh habitat, including a wetland as small as 0.4 hectares. In fall of 2019, a long reach excavator positioned at the top of the levee was used to remove approximately eighty-five percent of the emergent vegetation at the pond. The balance of the fifteen percent of the vegetation that remained was located along the east and north shorelines. Least bittern was observed at the pond again in summer of 2020 (eBird), suggesting that suitable habitat remained after vegetation removal activities. While least bitterns (and other marsh birds) may be tolerant of some degree of water level fluctuations during the nesting season, such fluctuations have potential to impact nesting activities by reducing foraging habitat adjacent to cover (water level decrease), or by flooding out active nests (increase). Vegetation removal should occur outside of the nesting bird season and should leave sections of emergent vegetation at least 10 feet wide with access from both sides to allow mosquito control activities.

Cattail overgrowth can reduce biodiversity by impeding water flow and decreasing open water habitat. Emergent vegetation management will aim to maintain balance in the pond (between emergent vegetation and relatively exposed shoreline) while continuing to provide patches of suitable habitat for resident and migratory wildlife.

Maintenance of water infrastructure connecting the wildlife pond to the other two reclamation storage ponds provide opportunity for vegetation management and habitat improvements. Water level management can be used to manage emergent vegetation growth and provide mudflat habitat.

To provide and maintain wildlife habitat, recommendations and objectives related to vegetation management include:

- The current management objective is to maintain a minimum water depth of 7 feet as measured at the Pond's staff gauge.
- Seasonal reduction in water level and aquatic and upland vegetation control activities should be conducted from September 1 to January 31 to avoid the bird nesting season. Increase in water level should not occur prior to September 1, to avoid flooding active bird nests.
- To retain emergent vegetation habitat, at a minimum, cattail stands should be left in place around the Pond's easternmost island, and stands at least 10 feet in width (lateral extent) will remain along the adjacent portion of the eastern shoreline.
- Cattail removal may occur within discrete portions of the stands around the east island specifically to facilitate access to deeper portions of the stands by mosquito control. In such instances, the

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<sup>2</sup> Poole, A. F., P. E. Lowther, J. P. Gibbs, F. A. Reid, and S. M. Melvin (2020). Least Bittern (*Ixobrychus exilis*), version 1.0. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA

vast majority the dense stand would remain, with relatively narrow “lanes” cut into the deeper portions.

- Cattail stands with a minimum width of 5 feet may be left along other portions of the shoreline, dependent on the control methods used and status of mosquito control objectives.
- Water primrose (*Ludwigia*) should be controlled, with the ultimate goal of eliminating it from the Pond. If left on-site, vegetative debris and spoils removed should be left at minimum distances along the upland banks of the Pond so that any potential for the materials to re-sprout or take root is precluded.

### **VEGETATION CONTROL METHODS**

This section presents vegetation control methods that could be used to meet wildlife pond operational and mosquito control objectives while maintaining the Pond’s focal purpose of providing habitat for wildlife.

#### **Water Level Management**

Water level management can be used to control the extent and density of emergent vegetation dominated by cattail. Cattail establishes from seed in shallow (>1 inch) water at least one inch deep. The maximum water depth at seed germination is not known but is likely limited by ability to quickly grow a stem above the waterline to allow for respiration. Cattail is reported to occupy sites with a maximum water depth of approximately four feet however it may survive in deeper water for short period under managed conditions. Maximum growth rate is in water 20 inches in depth. Growth is slowed by absence of ponded water and dormancy induced drying soil.

The managed water level with spring low water and high summer water necessary to comply with the effluent discharge prohibition appears to result in a broad and dense stand of cattail along the perimeter of the wildlife pond. Prior to any proposed changes in the Pond’s hydrologic regime, an analysis of potential effects to both vegetation and wildlife habitat should be undertaken with the ultimate goal of minimizing any potential adverse effects.

The following measures may be used to manage water levels to control extent and density of cattail:

- Reduce summer water levels to avoid inundated or saturated conditions on the shallow perimeter terraces.
  - Water level should not be reduced until after the end of the nesting season (August 31)
  - A minimum depth of 7 feet (as measured at the staff gauge) will be maintained year-round
- Avoid a low water level that allows cattail establishment followed by deeper growing season water level.
- Excavate terrace to depth of greater than 4 feet to reduce extent of available cattail habitat.

#### **Mechanical Control**

Mechanical control Involves cutting or removing weeds by hand or by machine. Manual and machine removal methods can be performed regardless of wind or most other weather conditions. Cut plant material should be removed to avoid elevated nutrient conditions. Rapid control is achieved and, unlike in herbicide-treated waters, leftover dead and dying vegetation is minimized.

## *Excavator*

The use of excavators is a very effective method for controlling emergent vegetation. Removal of stems, roots and a small amount of associated sediment results in effect kill of plant with little to no regrowth. Removal of the entire plant minimizes nutrient loading.

An excavator may be mounting on floating barges, equipped with floating tracks, or a long-reach arm for dredging from shore (*Aquatic Pest Control*. University of California, 2001).

*Figure 1. Floating Excavator*



*Figure 2. Long Reach Excavator*



## *Aquatic Weed Harvester*

Weed harvesting includes cutting, collection, and removing cut vegetation from the body of water to prevent leaving behind plant material requiring decomposition. Harvesting reduces the spread of cut fragments of species such as water primrose that can disperse and establish additional plants. Mechanical



harvesters are usually unsuitable for removing vegetation in water less than 3 feet deep. (*Aquatic Pest Control*. University of California, 2001).

Figure 3. Eco-Cutter Aquatic Weed Harvester (<https://weedersdigest.com>)



Figure 4. Eco-Cutter Aquatic Weed Harvester Unloading Collected Biomass (<https://weedersdigest.com>)





Figure 5. Neptune Rake (<https://weedersdigest.com>)



Figure 6. Neptune Rake with Collected Debris (<https://weedersdigest.com>)



### *Aquatic and Shoreline Mowing*

Cutting and mowing aquatic weeds involves using underwater or shoreline mowers. Like mowing a lawn, this method must be repeated at regular intervals. Special weed cutters are used primarily in large lakes or rivers to slash underwater rooted vegetation, usually 4 to 6 feet below the water's surface. Some weed cutting boats are equipped with sharp blades that can shred small trees and cattails, easily clearing boat paths. Another machine, the hydraulically operated *rotovator*, works like an underwater rototiller and is used in some situations to tear up roots, rhizomes, and tubers from bottom sediments. Cut vegetation may be collected and removed using floating rakes, nets, or draglines (*Aquatic Pest Control*. University of California, 2001).

Figure 7. Rotovator Machine (<https://www.saj.usace.army.mil>)



Figure 10. Aquatic Mower (<https://weedersdigest.com>)



Figure 81. Aquatic Mower (<https://weedersdigest.com>)





Figure 9. Aquatic Vegetation Groomer, Gas Powered Underwater Cattail Cutter (<https://weedersdigest.com>)



Figure 10. Aquatic Vegetation Groomer Float Attachment (<https://weedersdigest.com>)



### Manual Control

Manual methods of control include hand pulling or using hoes, rakes, shovels, scythes, and other hand-held tools. Sometimes special weed cutters are used to cut and remove aquatic weeds – a person throws the cutter, attached to a rope, into the weedy area and pulls in the vegetation. Rakes can also be used to remove floating weeds, algae and debris by skimming the surface using a float kit and a tow rope. (*Aquatic Pest Control*. University of California, 2001).



Figure 14. Rake Zilla (<https://weedersdigest.com>)



### **Cultural Control**

Cultural control involves altering the environment to inhibit the growth of aquatic plants. This may be an effective control method for small ponds or portions of larger bodies of water

Taking advantage of design elements that discourage weeds can prevent excessive aquatic growth. Because most emergent plants grow best in areas that are less than 3 feet deep, creating ponds and lakes with steep slopes and sharp drop-offs eliminates the shallow areas where weeds flourish.



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**SUBJECT: MARIN AUDUBON SOCIETY COMMENTS #2  
AQUATIC VEGETATION MANAGEMENT PLAN  
LGVSD WILDLIFE POND**

Dear Barbara:

The Las Gallinas Valley Sanitary District appreciates Marin Audubon Society's (Audubon) long-term interest in the status and management of the LGVSD Wildlife Pond. This letter provides responses to comments and recommendations provided by Audubon in response to its review of the revised AQUATIC VEGETATION MANAGEMENT PLAN (Plan) prepared by WRA Environmental Consultants dated March 2021.

The following is the District response to comments in your letter dated August 27, 2021:

1. Audubon Comment #1: *We are still concerned that the priority for management is storage....1)...We understand the public safety objectives are the need for mosquito control, but the operational objectives are not presented in the Plan...2)...What are the "other" operational objectives?*

*We could not find reference to "operational objectives" in the O&M Plan, but did find operational goals...There are no odor problems mentioned in the Memo. The remaining two goals [preventing nuisance growth of insects, especially mosquitoes; maximizing wildlife benefits and public enjoyment] are relevant and should be the focus of the Plan.*

**LGVSD Response:** Storage is not a primary management objective for the Wildlife Pond (Pond). However, the District may need to utilize the Pond for storage from time to time. In addition to the two primary goals mentioned in the comment above, another objective is meeting regulatory requirements of the Regional Water Quality Control Board's NPDES Reclamation Permit (Order 92-064), which governs operation of the Pond and the other components of the system. This objective has been stressed and clarified in the Plan. Additional responses regarding operational objectives are below.

2. Audubon Comment #2: *Pond History: This discussion reports that the design of the pond lasted for 25 years without management of the vegetation and that the vegetation has*



*gradually increased over the last 10 years... That 25 years went by without the need for managing vegetation should generate consideration of restoring the original topography.*

LGVSD Response: It took approximately 18 years for cattail stands to naturally develop and reach the extent at which management of cattails became a concern, hence the lack of management for 25 years. Abundant cattails may also gradually contribute to de-contouring the pond. As stated in the previous response letter (May 2021), while the District generally agrees regarding the specified long-term benefits of re-contouring the substrate of the Pond, such is not feasible or practicable for the District at this time. Dredging may be considered as part of future operations and maintenance.

3. Audubon Comment #3: *The Plan's discussion of vegetation management focuses on water quality. It is not clear why there is so much focus on this area, given that there is no evidence either in this Plan or the O&M Plan water quality is a problem... Unless there is a demonstrated problem [related to water quality], these connections should not and need not be used to support a change in management.*

LGVSD Response: Water quality is a focus of the reclamation project's (pond system's) permit requirements; issues of concern for the Pond include managing respective levels of dissolved oxygen (DO), dissolved sulfides, and pH in accordance with specified thresholds. At times DO has dropped below permit-specific thresholds, one practical outcome of which is undesirable odors. Cattails were managed in part to preclude these water quality issues from manifesting. These requirements have been stressed in the Plan.

4. Audubon Comment #4: *The Plan (page 5) notes the possibility of lowering the pond level to provide high tide refugia. While high tide refugia is important, additional analysis of this potential habitat change is needed to answer questions: What would impacts of the loss of open water habitat be on wildlife species that currently use the pond? Could refugia habitat be provided on the shallower areas such as were originally a part of the pond design?*

LGVSD Response: Lowering of the Pond's water level is suggested in the Plan (contingent on specific repairs) as a potential means of providing mudflat habitat (presumably seasonally), which was one of the habitat goals included in the Pond's original design. Given the abundance of open water in the Pond, this hypothetical water-lowering would presumably affect shallower, fringe areas and is not anticipated to reduce open water habitat (e.g., for waterfowl) in any meaningful way. The current objective is to maintain a minimum water level of 7 feet as measured at the Pond's staff gauge. While the District needs to maintain the flexibility to raise or lower the Pond's water level if needed, a more detailed analysis of potential effects to both vegetation and wildlife habitat would be undertaken prior to any proposed changes in the hydrologic regime.

5. Audubon Comment #5: *Our recommendations are: Maintain water levels from spring through summer to avoid adversely impacting nests and avoid algae blooms, maintain a water channel to protect the island habitats from predators and maintain a minimum four-*

*foot water depth during growing season to limit the expansion of cattails. Water levels should be lowered in fall after nesting to allow for diverse habitat for fall migrants.*

LGVSD Response: These recommendations are in general accordance with those provided in the “Wildlife Habitat” section of the Plan (p. 8). The recommendation to maintain a water channel between islands and the Pond’s shoreline has been added to the Plan. (It is worth noting that prior to the removal of some cattail stands at the Pond, near-continuous vegetative cover was present from the shoreline to the Pond’s easternmost and largest island.)

6. Audubon Comment #6: *Maintaining some submerged vegetation is valuable because it provides food for waterfowl. However, invasive Ludwigia should be removed because it will take over the pond.*

LGVSD Response: The value of submerged vegetation generally is acknowledged in the Plan (p. 3), and the control of *Ludwigia* is specifically recommended (p. 8).

7. Audubon Comment #7: *A recommendation of the Plan is to "Maintain vegetation to improve circulation." It is not clear what this statement means.*

LGVSD Response: The original design for the Pond envisioned continuous circulation, which was intended to address potential water quality problems, e.g., low DO. Circulation in the Pond is currently relatively poor. Excessive emergent vegetation (e.g., cattails) is one contributing factor, as it interferes with circulation and contributes to stagnation of the water column (as noted by Francesca Demgen in a May 2016 memorandum). The importance of circulation has been stressed in the Plan.

8. Audubon Comment #8: *Marin-Sonoma Mosquito and Vector Control District (MSMD) have put forward the following management measures because of the high mosquito production in the pond. We have agreed to these measures to control the mosquito production:*

*1) Leave a minimum of five-foot depth of cattails around the pond and a wider area of at least 10-foot cattail width on the shoreline on the north and northeast portions of the pond to ensure suitable nesting habitat is present for the Least Bittern.*

*2) Provide access for mosquito vehicles to enter the pond, The MSMD has stated that only one opening is needed, two at the most and the location of the current access is preferred.*

LGVSD Response: As outlined in the revised Plan, at a minimum, cattail stands will be left in place around the Pond’s easternmost island, and stands at least 10 feet in width (lateral extent) will remain along the adjacent portion of the eastern shoreline (save for the n control access points, see comments below). The goal of maintaining additional cattail cover will be taken under consideration during future management efforts; stands with a minimum width of 5 feet may be left along other portions of the shoreline, dependent on the control methods employed (which may vary depending on existing conditions and other factors) and status of mosquito control objectives.

9. Audubon Comment #9: *The following options for managing cattails should be evaluated. The method chosen should cause the least impact to wildlife:*
- *Restoring original elevations of the pond that, judging by history could significantly reduce the frequency of the need to remove cattails and costs.*
  - *Removing cattails periodically. Every five years has been estimated as the timing to maintain cattails at generally a five-foot width.*
  - *Managing by controlling water levels.*

LGVSD Response: As stated previously, restoring the original elevations of the Pond (via dredging) is not feasible or practicable for the District at this time. It is anticipated that cattail management will be achieved via periodic removal (approximately every five years), with water level management employed as a secondary technique only if deemed necessary and appropriate.

10. Audubon Comment #10: *During cattail removal, attention should be paid to removing dead cattails that accumulate at the bottom of the pond as they will contribute to raising the elevation of the pond and consequently encourage plant growth.*

LGVSD Response: The Plan recommends removal of all cut plant material from the Pond.

11. Audubon Comment #11: ***Islands and Banks*** – *Upland vegetation is an important part of the pond habitat and should be managed and maintained...*

LGVSD Response: As stated in the previous response letter, the District agrees that upland habitat quality could be improved, and may be interested in future enhancement and restoration of upland vegetation around the Pond pending availability of funds. However, district resources are constrained by numerous and increasingly stringent regulatory mandates which compete for funding, and which necessarily take priority over discretionary projects. The District would welcome efforts by other organizations to secure funding for enhancement /restoration and maintenance of upland vegetation. Additionally, the Plan is focused on management of aquatic vegetation (not wildlife habitat management in and of itself), and thus upland restoration/management is not addressed therein.

12. Audubon Comment #12: *Access areas fragment habitat and are avenues for predators to enter the pond... The width and specific location of the one, or at most two, access areas needed by Mosquito Abatement should be stated and shown on a figure.*

LGVSD Response: The District anticipates that the traditional/historic access point along the Pond's shoreline will continue to be used going forward. However, the District needs to maintain flexibility in this regard and may use another access point if warranted based on existing conditions and the needs of vector control. The width of the access area(s) will presumably be unchanged or very similar to that used previously. A figure showing specific locations is not included in the Plan at this time.

13. Audubon Comment #13: *The Plan's statement that reducing upland vegetation is needed along berms to facilitate access should be clarified.*

LGVSD Response: This statement has been modified in the Plan (p. 7) to clarify that such removal would be limited to the smallest area feasible, and only for purposes of shoreline access in key areas (e.g., for mosquito control).

14. Audubon Comment #14: *We suggest including the bird surveys the District has been funding in the report.*

LGVSD Response: The diversity of bird species that utilize the Pond is stated clearly in the Plan, and well-known generally. The District does not see a need to include recent avian survey results as a component of the Plan.

15. Audubon Comment #15:

*- The Plan states habitat quality would be improved by removing cattails. This contention is questionable. Habitat might improve for some species, but not for others;*

*- Thinning vegetation "may" reduce impacts of terrestrial predators - Due to the uncertainty and lack of evidence presented that there is a problem with terrestrial predators; we would not recommend thinning vegetation.*

*- Expanding open water in the "center of the pond where high quality nesting habitat exists" should be deleted. Expanding open water habitat is not going to improve nesting habitat because birds do not nest in open water. Open water is important for foraging.*

LGVSD Response: The District agrees with these comments overall and the paragraph in question (p. 7) has been revised to reflect the benefits and potential drawbacks from extensive cattails. The statement about maintaining an open water channel between the islands the shoreline (see above), which is referenced in project permits, will remain in the revision.

16. Audubon Comment #16: *- Emergent vegetation removal "maintains balance. "What is meant by balance? What aspects would be balanced?"*

LGVSD Response: The balance in question (p. 8) refers to open water/exposed shoreline versus emergent vegetation along the Pond's shoreline.

Please contact me at [mcortez@lgvsd.org](mailto:mcortez@lgvsd.org) or call me at 415-472-1734 if you have any questions.

Respectfully,

Michael P. Cortez, PE  
District Engineer



# Marin Audubon Society

P.O. Box 599 | MILL VALLEY, CA 94942-0599 | MARINAUDUBON.ORG

August 27, 2021

Mike Cortez, District Engineer  
Las Gallinas Sanitary District  
300 Smith Ranch Road  
San Rafael, CA 94903

RE: Comments on TECHNICAL MEMORANDUM - *Aquatic Vegetation Management Plan for LGVSD Wildlife Pond*

Dear Mr. Cortez:

Thank you for the opportunity to review and comment on the March 2021 *Aquatic Vegetation Management Plan for LGVSD Wildlife Pond* (Plan). We apologize for the delay getting our comments to you. Marin Audubon recognizes the importance of the Las Gallinas Wildlife Pond and appreciates the District's maintaining this important habitat and making it accessible to the public through the years. We found the Plan improved from the first version. While we agree with many of its actions, we have some comments and recommendations that we request you consider and include in the Plan. We would appreciate the opportunity to continue to work with the District to clarify management priorities and actions per our recommendations and comments below.

We are still concerned that the priority for management is storage. The reason the Pond was established, permitted and managed historically was a Wildlife Pond. Plan references to management include:

- 1) That vegetation control is necessary for the District "to meet operational and public safety objectives while maintaining the provision of the wildlife habitat as the pond's primary purpose." We understand the public safety objectives are the need for mosquito control, but the operational objectives are not presented in the Plan.
- 2) That "vegetation control is necessary to maintain storage volume, oxygenation, circulation and other operational objectives as described in O&M Plan" (Plan Introduction). What are the "other" operational objectives?

We could not find reference to "operational objectives" in the O&M Plan, but we did find operational goals (five on page 12-5). In addition to prohibiting discharge to Miller Creek during summer, relevant operational goals are:

- Preventing nuisance growth of insects, especially mosquitoes
- Preventing nuisance odors
- Maximizing wildlife benefits and public enjoyment.

There are no odor problems mentioned in the Memo. The remaining two goals are relevant and should be the focus of the Plan. .

Pond History: This discussion reports that the design of the pond lasted for 25 years without management of the vegetation and that the vegetation has gradually increased over the last 10 years. That indicates that the original design was surprisingly stable but over the last 10 years conditions have become suitable for the expansion of cattails, likely due to increases in the elevation of the pond bottom. This history should be considered in determining future management. That 25 years went by without the need for managing vegetation should generate consideration of restoring the original topography. Benefits of this approach include minimizing wildlife impacts with one habitat disturbance/vegetation removal instead of more frequent removals every five years as estimated by the District. Maintenance costs may also be less with fewer removals.

## **VEGETATION MANAGEMENT**

The Plan's discussion of vegetation management focuses on water quality. It is not clear why there is so much focus on this area, given that there is no evidence either in this Plan or the O&M Plan that water quality is a problem.

The discussion provides general statements about vegetation impacts on water quality: "Pond vegetation can affect water quality such as dissolved oxygen, temperature and nutrients.... Vegetation control can also affect nutrient levels...and lead to excess nutrients and reduced dissolved oxygen." There is no information that any of these issues are negatively affecting water quality. Unless there is a demonstrated problem in these areas, these connections should not and need not be used to support a change in management.

Mosquito production is the only adverse impact that is identified and it is proposed to be addressed by controlling cattails, reducing the width of the cattail stands so they are less dense, creating access areas through the vegetation, and reducing upland vegetation on berms to facilitate access. We have discussed these measures with the District and agree with them in principal with exceptions discussed below. However, more analysis of these activities and methods to accomplish them is needed, as discussed below.

## **HABITATS**

The success of the Wildlife Pond as habitat and a public amenity is imminently clear. The abundance and diversity of birds that forage and nest at the pond is impressive; it has won awards and attracts many members of the public to enjoy the birds and environment. The Plan should analyze the pond management with greater focus on wildlife habitat as discussed below.

### **Open Water – Fresh Water**

As noted, the open water of the pond supports a wide variety of diving and dabbling duck species. The Plan (page 5) notes the possibility of lowering the pond level to provide high tide refugia. While high tide refugia is important, additional analysis of this potential habitat change is needed to answer questions: What would impacts of the loss



of open water habitat be on wildlife species that currently use the pond? Could refugia habitat be provided on the shallower areas such as were originally a part of the pond design?

The primary reasons for managing water levels should be to maintain desired wildlife habitat and environmental conditions for wildlife. Our recommendations are: Maintain water levels from spring through summer to avoid adversely impacting nests and avoid algae blooms, maintain a water channel to protect the island habitats from predators and maintain a minimum four-foot water depth during growing season to limit the expansion of cattails. Water levels should be lowered in fall after nesting to allow for diverse habitat for fall migrants. This would also provide storage.

Maintaining some submerged vegetation is valuable because it provides food for waterfowl. However, invasive *Ludwigia* should be removed because it will take over the pond. We also note that eggs of fish can be brought in on feathers of birds, so fish could thrive in the pond open water.

A recommendation of the Plan is to “Maintain vegetation to improve circulation.” It is not clear what this statement means. No evidence is presented that water circulation is problematic or how vegetation is limiting circulation.

### **Shallow Terrace Habitat /Emergent Wetland**

The shallow terrace habitat around the pond supports cattails. While it is not clear that the terraces remain (the designer of the Pond, Ed Nute, reports that the pond topography has significantly changed) the shallower habitat along the pond edges provides foraging for birds along with habitat for mosquito fish. Emergent vegetated habitat supports important species, such as the Marsh Wren, and the only known nesting site in the Bay Area for Least Bittern (a heron family member), a rare species that has nest amid the pond since 2014. Least Bittern nesting is rare to absent in the region. There is only one other known nest in the San Francisco Bay area.

Marin-Sonoma Mosquito and Vector Control District (MSMD) have put forward the following management measures because of the high mosquito production in the pond. We have agreed to these measures to control the mosquito production:

- 1) Leave a minimum of five-foot depth of cattails around the pond and a wider area of at least 10-foot cattail width on the shoreline on the north and northeast portions of the pond to ensure suitable nesting habitat is present for the Least Bittern.
- 2) Provide access for mosquito vehicles to enter the pond, The MSMD has stated that only one opening is needed, two at the most and the location of the current access is preferred.

The following options for managing cattails should be evaluated. The method chosen should cause the least impact to wildlife:

- Restoring original elevations of the pond that, judging by history could significantly reduce the frequency of the need to remove cattails and costs.

- Removing cattails periodically. Every five years has been estimated as the timing to maintain cattails at generally a five-foot width.
- Managing by controlling water levels.

During cattail removal, attention should be paid to removing dead cattails that accumulate at the bottom of the pond as they will contribute to raising the elevation of the pond and consequently encourage plant growth.

Concerning timing, we agree that no work should be done during nesting season. This would also be required by regulatory agencies.

### **Islands and Banks**

Upland vegetation is an important part of the pond habitat and should be managed and maintained. Some species nest and rest in adjacent uplands and forage over water. We recommend that the vegetation on the berm be enhanced by gradual replacement of non-native plants with natives.

Similarly, as pointed out in the Plan, the island provides nesting, resting and foraging habitat for many species. Much of the vegetation is non-native and should be gradually replaced with native's species to benefit the habitat and wildlife

Access areas fragment habitat and are avenues for predators to enter the pond. The number, location and size of the access areas should be limited to the minimum necessary for MSMD to survey for and treat mosquitoes. The width and specific location of the one, or at most two, access areas needed by Mosquito Abatement should be stated and shown on a figure.

The Plan's statement that reducing upland vegetation is needed along berms to facilitate access should be clarified. We have no problem if this is referring to the access area for mosquito treatment, but do not see why vegetation would need to be reduced in other areas.

We suggest including the bird surveys the District has been funding in the report.


Finally, some points made to support certain management actions should be revisited:

- The Plan states habitat quality would be improved by removing cattails. This contention is questionable. Habitat might improve for some species, but not for others;
- Thinning vegetation "may" reduce impacts of terrestrial predators – Due to the uncertainty and lack of evidence presented that there is a problem with terrestrial predators; we would not recommend thinning vegetation.
- Expanding open water in the "center of the pond where high quality nesting habitat exists" should be deleted. Expanding open water habitat is not going to improve nesting habitat because birds do not nest in open water. Open water is important for foraging.
- Emergent vegetation removal "maintains balance." What is meant by balance? What aspects would be balanced?



In conclusion, there needs to be additional analyses and clarifications in the Management Plan. We appreciate the opportunity to work with the District to improve and maintain the habitat of the Wildlife Pond. Again, we look forward to the opportunity to work with you to ensure the pond habitats continue to be productive and beneficial for the diverse species that depend on it.

Sincerely,



Barbara Salzman, Co-chair  
Conservation Committee

Cc: RWQCB



Item Number 5

GM Review CD

# Agenda Summary Report

---

To: Board of Directors  
From: Michael P. Cortez, PE, District Engineer  
(415) 526-1518; [mcortez@lqvsd.org](mailto:mcortez@lqvsd.org)

Mel Liebmann, Plant Manager  
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Greg Pease, Collections System/Maintenance/Safety Manager  
(415) 526-1513; [gpease@lqvsd.org](mailto:gpease@lqvsd.org)

Meeting Date: March 17, 2022  
Re: Biogas Utilization Alternatives

Item Type: Consent        Action   X   Information        Other       .  
Standard Contract: Yes        No        (See attached) Not Applicable   X  .

---

### STAFF RECOMMENDATION:

Board to approve the following Brown and Caldwell (B&C) recommendations outlined in the Biogas Utilization Alternatives Technical Memo dated September 8, 2021 to:

1. Send all digester gas (DG) to microturbines;
2. Abandon and demolish the existing Compressed Natural Gas (CNG) fueling facilities at the plant and Smith Ranch Pump Station; and
3. Replace existing CNG flusher truck with a new diesel truck.

### BACKGROUND:

#### Brown and Caldwell Report

In January 2021, the District hired B&C to prepare a technical memorandum on *Biogas Utilization Alternatives* to evaluate cost-effectiveness of continued operation of the CNG facilities and flusher truck. B&C has completed the evaluation recommending that it would be more cost-effective and operationally beneficial to send all available digester gas to the microturbines instead of converting a portion of digester gas into Renewable Natural Gas (RNG) for the CNG flusher truck. This would require either converting the existing CNG flusher truck to run on diesel or purchasing a new flusher truck to allow decommissioning of the two fueling stations. In summary, B&C considered two alternatives:

**Alternative 1, Status Quo:** Continue to run microturbines on conditioned digester gas (CDG) and convert excess CDG to RNG for fleet vehicles has the following benefits:

- a. The microturbines are currently saving the District \$62,000 per year from PG&E electricity bills.
- b. This alternative requires immediate replacement of two existing gas compressors at the fueling stations currently estimated at \$159,000.
- c. The 20-year net present value (NPV) of savings is \$1.1M assuming 77% microturbine uptime.



- Alternative 2, All DG to Microturbines:** Sending all digester gas to the microturbines and converting the CNG flusher truck to run on diesel has the following benefits:
- a. The microturbines could save the District approximately \$106,000 per year at 93% uptime, or \$87,000 at 77% uptime from PG&E electricity bills.
  - b. This alternative would require an initial investment of one of the following for the flusher truck:
    - i. \$137,000 – Engine replacement but keep chassis and equipment.
    - ii. \$124,000 – Chassis replacement and reinstall existing equipment.
    - iii. \$536,000 – Purchase new diesel truck with new equipment.
  - c. Options (ii) and (iii) include salvage value of \$10,000 for the unused truck chassis.
  - d. The 20-year NPV of savings is \$1.6M assuming 77% microturbine uptime and option (ii) for the flusher truck. The savings increase to \$2M with 93% microturbine uptime.
  - e. Option (iii) is staff preference. B&C chose not to evaluate option (iii) due to the higher investment cost. Staff estimates with option (iii) that the savings would be \$1.2M assuming 77% microturbine uptime and increase to \$1.6M with 93% microturbine uptime.

Per B&C recommendation, staff discussed grant issues with District legal counsel and California Energy Commission (CEC) grant representatives. Legal counsel indicated that there appears to be no restriction on the District's ability to decommission the CNG fueling facilities nor financial penalty associated with the termination of the operation.

Staff has also sent multiple inquiries to the CEC regarding potential penalties or reimbursement related to decommissioning of the grant-funded fueling facilities. On September 17, 2021, staff received a response from the CEC Agreement Officer for the LGVSD project indicating that this is out of his purview, and that someone with the CEC Grant Program will be in touch in the future. Staff will report back to the Board upon receiving a formal response from the CEC.

#### Operational Advantages

1. The existing CNG fueling systems have been problematic and challenging. Replacing the CNG truck with a diesel truck would ensure reliability during emergency response situation.
  - a. Staff has not been able to fuel the CNG truck with the two District CNG fueling stations for more than 18 months.
  - b. The CNG truck must be inspected regularly and needs to be driven to a CNG certified shop in Sacramento for repairs and routine maintenance.
  - c. It causes loss of productivity and unnecessary truck mileage.
2. Purchasing a second combination vacuum/flusher truck (Vac-Con) will provide redundancy for spill response and regular flushing responsibilities while one truck is out of service.
3. Reinstalling the camera equipment from the existing CNG truck into a new Ford Transit van would allow staff to access and televise every street within the District, which is currently not feasible with the existing CNG truck.

#### Project History

In 2014, CH2M Hill completed the *Biogas Utilization Technologies Evaluation* recommending microturbines as the most cost-effective alternative for the District's long-term combined heat and power needs based on present worth analysis of cost factors such as initial capital investment, operations, and maintenance. The analysis also included non-cost factors such as greenhouse gas emission offset and District's overall strategic goals. Other major alternatives included in the 2014 evaluation were removal of existing internal combustion (IC) engine, new IC engine, installation of CNG vehicle fill station, pipeline injection, and fuel cells.

Due to the potential ability of digesters to produce more gas than the microturbine system needs, the District amended CH2M Hill's contract to perform a cost benefit analysis to further evaluate incorporating a CNG fill station for District fleet vehicles. Converting excess digester gas into RNG for CNG vehicles



would minimize, if not eliminate the need of flaring excess gas. In addition, an RNG add-on would take advantage of a single gas cleaning system already required for microturbines. CH2M Hill’s analysis showed that the capital cost for the combined system is \$1.7M more than installing the microturbines alone.

Per Board direction, staff developed a Request for Proposals requiring applications for grant funding to offset construction cost of microturbine and fueling station installation. Staff applied and succeeded in obtaining the following grants from the CEC and sales tax exemption authorized by California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA):

- Advancing Clean Energy from Biogas, Biomethane, and Natural Gas \$999,070
  - Natural Gas Fueling Infrastructure \$250,000
  - CAEATFA Tax Exemption (Advanced Transportation Technologies/Alternative Source Products) + \$72,960
- Total: \$1,322,030*

The District completed the Biogas Energy Recovery System (BERS) project consisting of two microturbines and two CNG fueling stations in 2017.

- Fast-Fill Fueling Station at Smith Ranch Pump Station \$487,694
  - Slow-Fill Fueling Station at Treatment Plant + \$324,000
- Total: \$811,694*

**PREVIOUS BOARD ACTION:**

- 1) On January 29, 2015, the Board adopted Resolution No. 2015-2026 accepting the BERS project funds provided by the CEC.
- 2) Board approved the Award of Contract to Western Water Constructors, Inc. for the BERS project on September 10, 2015.

**ENVIRONMENTAL REVIEW:**

N/A

**FISCAL IMPACT:**

B&C Recommendation – Between \$124,000 to \$536,000 for converting the existing CNG flusher truck to run on diesel or purchasing a new flusher truck.

Eliminating the CNG fueling facilities and flusher truck and purchasing a new diesel flusher truck would entail the following:

- 1) Sunk Cost
  - a. 2017 CNG Fueling Facilities Construction \$811,694
  - b. 2017 CNG Flusher Truck \$450,000

*Sunk Cost, Total: \$1,261,694*
  
- 2) New Capital Investment
  - a. New Diesel Truck \$536,000 <sup>(a)(b)</sup>
  - b. 2 CNG Fueling Facilities Demolition \$50,000 <sup>(c)</sup>

***B&C Recommendation plus Demolition Estimate, Total: \$586,000***

<sup>(a)</sup> - B&C preliminary estimate.

<sup>(b)</sup> - Vendor cost estimates are \$305,844 for a Vac-Con combo truck and \$35,000 for a Ford Transit van. Total replacement cost anticipated to be under \$400,000 if reusing camera equipment from the existing CNG truck.

<sup>(c)</sup> - Staff preliminary estimate.



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# Technical Memorandum

## FINAL

Prepared for: Las Gallinas Valley Sanitary District  
Project Title: LGVSD Biogas Utilization Alternatives  
Project No.: 156349

### Technical Memorandum

Subject: Biogas Utilization Evaluation Study  
Date: September 8, 2021  
To: Mike Cortez, Project Manager, Las Gallinas Valley Sanitary District  
From: Alison Nojima, Project Manager, Brown and Caldwell  
Copy to: Irene Huang, P.E. Associate Engineer  
Mike Prinz, P.E., General Manager

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Reviewed by: Kenneth D. Klittich  
Kenny Klittich, P.E., Project Engineer  
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#### Limitations:

*This document was prepared solely for Las Gallinas Valley Sanitation District accordance with professional standards at the time the services were performed and in accordance with the contract between Las Gallinas Valley Sanitation District and Brown and Caldwell dated April 6, 2021. This document is governed by the specific scope of work authorized by Las Gallinas Valley Sanitation District; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by Las Gallinas Valley Sanitation District and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.*

## Table of Contents

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Section 1: Introduction.....	1
Section 2: Cost/Benefit Analysis .....	1
2.1 Assumptions .....	1
2.2 Alternative 1: Status Quo .....	2
2.2.1 Microturbine Calculations .....	2
2.2.2 Gas Compressor Replacement .....	3
2.2.3 Alternative 1 Cost Summary .....	3
2.2.4 Sub-Alternative 1A: Additional CNG Vehicles .....	4
2.3 Alternative 2: All DG to Microturbines .....	4
2.3.1 Microturbine Calculations .....	4
2.3.2 Diesel Truck Options.....	4
2.3.3 Alternative 2 Cost Summary .....	5
2.4 Analysis Limitations.....	6
Section 3: CEC Grant Funding .....	6
Section 4: Recommendations .....	6
4.1 Operational Considerations .....	6
4.2 Environmental Considerations .....	7
4.3 Final Recommendation .....	7
4.4 Future Studies .....	8
Attachment A: Quote Log .....	A
Attachment B: Calculations.....	B
Attachment C: Cost/Benefit Analyses .....	C

## List of Tables

---

Table 2-1. Assumption Values .....	2
Table 2-2. Gas Compressor Cost.....	3
Table 2-3. Alternative 1 Savings and Costs .....	3
Table 2-4. Diesel Truck Alternative Costs .....	5
Table 2-5. Alternative 2 Savings and Costs .....	6
Table 4-1. Alternative 1 vs. Alternative 2 Costs & NPVs .....	7

## Section 1: Introduction

The Las Gallinas Valley Sanitary District (District) completed a biogas energy recovery system (BERS) project in 2017 to upgrade digester gas (DG) produced from the digestion of wastewater sludge at the District's wastewater treatment plant (WWTP) to renewable natural gas (RNG). The RNG is either used in microturbines that produce heat and power for the plant or compressed and stored in high-pressure tanks for use as a compressed natural gas (CNG) fuel substitute in a single camera/flusher combo truck (Truck), which serves as an emergency response vehicle. If RNG is not available at the plant to fuel the Truck, a backup CNG fueling station is available offsite at the District's Smith Ranch Pump Station.

The District is interested in re-evaluating the benefits of using RNG to fuel the Truck due to reliability issues with the DG upgrading system and the RNG compressors at the WWTP and the CNG fueling system at Smith Ranch. Both the compressors at the WWTP and at Smith Ranch are failing and need replacement. Coupled with the intermittent operability of the DG upgrading system, these issues create a fuel supply risk that could compromise an emergency response condition. This has led the District to consider options that would allow the Truck to run on diesel fuel, which is more readily available.

The objective of this technical memorandum (TM) is to evaluate the benefits, disadvantages, and costs of the following options that would provide a more reliable fuel source for the Truck:

- **Alternative 1:** Upgraded Status Quo. Replace the existing gas compressors and continue to fuel the Truck with RNG or CNG.
- **Alternative 2:** Send all DG to microturbines and run the Truck on diesel.

This study also includes a review of the California Energy Commission (CEC) grant funding requirements for the existing BERS and CNG fueling infrastructure. Conversion of vehicles to operate on hydrogen or electricity is not included in this analysis.

## Section 2: Cost/Benefit Analysis

A cost/benefit analysis for each of the alternatives outlined in the introduction has been developed and is presented in this section. The analysis determined the costs and savings associated with different parts of each alternative.

### 2.1 Assumptions

Brown and Caldwell's (BC) calculations of the financial impacts of the two alternatives are based on a set of assumptions presented in Table 2-1. Attachment B includes the engineering calculations used to develop the financial analysis.



Table 2-1. Assumption Values			
Assumption Item	Value	Units	Source
Microturbine uptime, Scenario A	93	%	Conservative industry assumption
Microturbine uptime, Scenario B	77	%	Based on historical data 8/23/2020 - 8/23/2021.
Microturbine electrical efficiency	25	%	Based on partial load performance C65
Lower heating value (LHV)	574.77	Btu/cf	Provided by District
Higher heating value (HHV)	638	Btu/cf	Provided by District
Electricity value	0.1730	\$/kWh	Average rate from 8/20-8/21 Pacific Gas and Electric (PG&E) bills
RNG HHV	988	Btu/cf	Assuming HHV of 1040 Btu/cf, 95% methane Unison product
RNG LHV	890	Btu/cf	Assuming HHV of 1040 Btu/cf, 95% methane Unison product
Diesel gallon equivalent (DGE)	128,488	Btu/DGE	US Department of Energy
Gasoline gallon equivalent (GGE):DGE	0.88		US Department of Energy
Diesel price	4.05	\$/DGE	Gasbuddy.com
Diesel demand	3,120	DGE/year	Provided by District
Microturbine operations and maintenance (O&M)	43,512	\$/5 years	Factory Protection Plan Purchase Order
CNG O&M and R&R	6,000	\$/year	40 maintenance hours at \$75/hr and \$3K for parts. R&R annualized assuming \$8K rebuild every 5 years, per vendor.

Btu/cf = British thermal unit(s) per cubic foot/feet

kWh = kilowatt-hour(s)

scf = standard cubic foot/feet

Common costs for both alternatives are not carried in this analysis. These include the following:

- Microturbine O&M costs that are covered by a five-year factory protection plan offered by Cal Microturbine
- BERS O&M since both alternatives require the same level of gas treatment as shown on the plant’s existing process flow diagram

Truck O&M is assumed to be approximately the same. Regardless of which alternative is selected, the camera and flushing equipment is standard. The maintenance intervals for changing the oil or air filters will be longer for a CNG truck compared to a diesel truck, but the local availability to service a diesel truck provides an advantage in comparison to servicing the existing CNG vehicle in Sacramento.

## 2.2 Alternative 1: Status Quo

Alternative 1 maintains the status quo operation, which means the District would continue to send DG to the microturbines for power generation and heat as well as produce RNG fuel for the Truck. Smith Ranch would continue to be a required backup site for CNG fueling. This alternative would require capital investment to replace the District’s failing gas compressors. The financial impacts of this alternative are outlined below.

### 2.2.1 Microturbine Calculations

BC used microturbine energy generation and RNG production data from the District as the baseline for the status quo operation. Based on this data from May 1, 2020, to April 30, 2021, the District currently produces an average of 977 kWh/day between the two microturbines. Assuming an average cost of power at \$0.173/kWh based on the District’s PG&E bills from August 2020 to April 2021, the District saves



\$62K/year from avoided electricity purchases through PG&E. Microturbine efficiency and uptime are already factored into this calculation since it is based on actual operating data.

### 2.2.2 Gas Compressor Replacement

The existing gas compressors are at the end of their useful life and are replaced with equivalent compressors under this alternative due to issues with reliability. BC solicited a quote for one replacement gas compressor from Broadwell Energy. The quoted cost includes removing an existing compressor and installing a new compressor. Table 2-2 summarizes the replacement cost for two new gas compressors, since the District would have to replace a total of two gas compressors.

Table 2-2. Gas Compressor Cost			
Item	Quoted Unit Cost	Total Cost	Vendor
Gas compressor equipment	\$80K <sup>a</sup>	\$159K <sup>a</sup>	Broadwell Energy

a. Includes estimated sales tax.

BC also assumed that continuing to use gas compressors and RNG fueling infrastructure to produce RNG fuel would cost the District \$6K a year to operate and maintain, including rehab and replacement. This includes \$3K/year for parts and \$3K/year for labor, assuming 40 maintenance hours at \$75/hour.

BC prepared two scenarios under this alternative with different compressor useful life values to bracket the 20-year NPV. Scenario A is based upon the industry useful life (UL) standard of 20 years, which assumes that the compressor is well maintained, does not frequently start and stop, and that the RNG is pipeline quality. Scenario A includes complete rebuilds based on compressor runtime, estimated at \$8K every 5.5 years per the quote provided by Broadwell Energy. Scenario B assumes replacement of the gas compressors every 5 years, which aligns with the UL of the District’s current gas compressors. It also includes \$2K/year for parts and maintenance labor.

### 2.2.3 Alternative 1 Cost Summary

The cost/benefit analysis includes the initial capital cost to remove the existing compressors, install the new gas compressors, and the continued O&M cost. It also considered the benefit of electricity cost savings from microturbine power production. Over a 20-year period, this equates to a total net present value of \$1.1 million (M). However, this amount does not include potential savings from the use of microturbine heat. Table 2-3 summarizes the financial impacts of each part of Alternative 1 for both scenarios. Attachment C contains detailed calculations for these impacts.

Table 2-3. Alternative 1 Savings and Costs		
Item	Unit Savings (+) and Costs (-)	
	Scenario A: 20-Year UL	Scenario B: 5-Year UL
Electricity savings (annual)	+\$62K	+\$62K
Gas compressor equipment	-\$159K <sup>a</sup>	-\$159K <sup>b</sup>
Gas compressor O&M (annual)	-\$6K	-\$2K
20-year NPV	+\$1.1M	+\$0.67M

- a. Capital cost only incurred once over a 20-year period
- b. Capital cost only incurred four times over a 20-year period
- c. All costs in 2021 dollars



## 2.2.4 Sub-Alternative 1A: Additional CNG Vehicles

Another sub-alternative that maintains the status quo operation of keeping the BERS and CNG fueling system in operation is to convert existing plant vehicles from gasoline or diesel to CNG or purchase additional CNG vehicles. These other CNG vehicles could consume the RNG produced. Meanwhile, the District would purchase or convert the CNG Truck to diesel to avoid the fuel source reliability issues discussed in section 4.1, while still reducing vehicle emissions by using CNG for non-emergency service vehicles. However, this would add to the cost of alternative 1, which would vary depending on the number of CNG vehicles the District purchases.

## 2.3 Alternative 2: All DG to Microturbines

Alternative 2 sends all available DG to the BERS for cleanup to subsequently fuel the microturbines and requires fueling the Truck with diesel instead of RNG. Under Alternative 2, all DG is available for use to power the microturbines, meaning BC assumed all DG is available for use in the microturbines. Sending additional DG to the microturbines instead of using it for RNG production allows the District to produce more power onsite, which reduces electricity costs. The District would no longer need to replace the existing gas compressors, but would need to convert the existing RNG truck to a diesel truck. The financial impacts of these changes are outlined below.

### 2.3.1 Microturbine Calculations

BC used the total DG flow meter (FT 101) data from the District to estimate the amount of power the District could produce if it sent all DG to the microturbines. Based on this data and assumptions presented in Table 2.1, the microturbines would produce an average of 1,680 kWh/day for Scenario A (93% uptime) and 1,390 kWh/day for Scenario B (77% uptime) under this alternative. Assuming an average cost of \$0.173/kWh, the District could save approximately \$106K/year under Scenario A and \$87K under Scenario B on electricity from avoided PG&E purchase costs.

### 2.3.2 Diesel Truck Options

BC evaluated three diesel truck alternatives to determine the most cost-effective option that would allow the District to use diesel fuel instead of continuing to use RNG fuel. The options are listed below, and costs using the best information at the time of this analysis are summarized in Table 2-4. A full summary of the vendor responses based on all solicitations is included in Attachment A:

- **Truck Option 1:** Engine Replacement
  - Replace the CNG engine in the Truck with a diesel engine
- **Truck Option 2:** Chassis Replacement
  - Purchase a new truck chassis with a diesel engine and move the existing camera/flusher equipment onto the new chassis
- **Truck Option 3:** Truck Replacement
  - Purchase a new camera/flusher combo truck with a diesel engine

Table 2-4. Diesel Truck Alternative Costs		
Item	Cost	Vendor
<b>Truck Option 1: Engine Replacement</b>		
Engine replacement work	\$137K <sup>a</sup>	Golden Gate Truck Center
<b>Truck Option 2: Chassis Replacement</b>		
New truck chassis	\$100K <sup>b</sup>	Rush Truck Center - Los Angeles
Install existing equipment on new chassis	\$34K <sup>c</sup>	California Tank and Pneumatics
Salvage existing truck chassis	-\$10K <sup>d</sup>	District estimate
Total cost	\$124K	
<b>Truck Option 3: Truck Replacement</b>		
New truck	\$546K <sup>e</sup>	Vac-Con
Salvage existing truck chassis	-\$10K <sup>d</sup>	District estimate
Total cost	\$536K	

- a. Preliminary estimate: the vendor requires a payment of \$250/hr for an official quote. Includes estimated sales tax.
- b. For a used 2020 Business Class Freightliner M2 112 truck. Includes estimated sales tax and truck freight costs from Los Angeles, CA.
- c. Preliminary estimate: more detailed information, including truck dimensions, is needed for a final quote. Includes estimated sales tax and truck freight costs to location in Lodi, CA.
- d. Assumed salvage value based on discussions with the District and existing condition.
- e. Preliminary estimate: the vendor was unable to provide a final quote since some of the equipment needed for a new truck will not be available until later this year. Includes estimated sales tax.
- f. All costs in 2021 dollars

**Option 1** may be challenging as there are few truck service centers certified to work on NG engines, and these vendors typically retrofit vehicles from diesel to CNG, not from CNG to diesel. The District currently services the Truck at the nearest center in Sacramento since there are no local shops that can work on NG engines. This is a big disadvantage for continuing to run an emergency response vehicle on CNG. BC attempted to solicit quotes for the NG engine replacement option from seven vendors, and only one vendor was able to do the work and willing to provide a quote. A complete list of vendors that BC contacted is in Attachment A.

**Option 2** is the most straightforward option and will be used as the basis of analysis because replacement diesel chassis are readily available, and it would not require the reproduction of existing equipment for the Truck. Lastly, the cost of Option 2 could be reduced if the District is willing to purchase an older chassis truck replacement and is able to profit from the sale or salvage of the existing CNG truck chassis. An assumed salvage value of \$10K, which was provided by the District, was used to calculate the cost of Option 2.

**Option 3** is the most expensive option because the equipment on the Truck is specialized and would be costly to replicate, according to the original manufacturer. Option 3 is not used as the basis of analysis since it incurs a higher cost.

### 2.3.3 Alternative 2 Cost Summary

BC’s cost/benefit analysis factored in the initial capital cost of retrofitting the RNG truck with a diesel chassis, as well as the continued cost of purchasing diesel. It also considered the benefit of electricity savings from microturbine power production. Over a 20-year period, this equates to a net present value of \$2.0M. However, this amount does not include potential savings from the use of microturbine heat.

Table 2-5 below summarizes the financial impacts of each piece of Alternative 2. Attachment C contains detailed calculations for these impacts.

Table 2-5. Alternative 2 Savings and Costs		
Item	Unit Savings (+) and Costs (-)	
	Scenario A (93% Uptime)	Scenario B (77% Uptime)
Electricity savings (annual)	+\$106K	+\$87K
Truck retrofit & salvage <sup>a,b</sup>	-\$124K	-\$124K
Diesel purchase (annual)	-\$13K	-\$13K
20-year NPV	+\$2.0M	+\$1.6M

- a. Assumes Option 2: Chassis replacement
- b. Capital cost only incurred once over a 20-year period
- c. All costs in 2021 dollars

## 2.4 Analysis Limitations

The costs included in the analysis are subject to many influences, including, but not limited to, price of labor and materials, unforeseen conditions, and time or quality of performance by third parties. Some of these influences may not be precisely forecasted and are beyond the control of BC; therefore, actual costs incurred may vary from the estimates included in the analysis.

## Section 3: CEC Grant Funding

The District is interested in whether discontinuing RNG production under Alternative 2 would have any negative financial or legal impacts, given they received CEC grant funding to purchase the BERS and RNG fueling infrastructure equipment. BC reviewed the grant agreements and suggests that relevant sections may include:

- Exhibit A Scope of Work, Section C: Goals and Objectives of the Agreement
- Exhibit A Scope of Work, Subtask 4.3: Operations
- Exhibit C Terms and Conditions, Subtask 13: Equipment

BC recommends that the District review the relevant sections and the grant with their legal counsel to draw a final conclusion on any impacts of decommissioning equipment purchased using CEC grant funds.

## Section 4: Recommendations

### 4.1 Operational Considerations

The District has had issues reliably operating the DG system and compressors and, as a result, has not been able to steadily provide RNG for the camera/flusher combo truck. Unless the system’s reliability can be improved, the District should not fuel any critical vehicles with RNG. The District has also indicated that significant O&M staff time has been spent troubleshooting gas system issues.

Additionally, one benefit of sending all the DG to the microturbines is the reduced number of systems to operate and maintain. Decommissioning the RNG gas compressors would lower overhead costs by streamlining the equipment to one gas utilization process.

Lastly, the Truck is an emergency service vehicle and should be available for use at any time. BC was able to find just one truck service center certified to work on NG engines when attempting to solicit quotes to replace the existing NG engine with a diesel engine. This suggests that it could be difficult to find a service center for any future maintenance on the CNG engine. District staff confirmed that the Truck must be sent to Sacramento for anything other than chassis maintenance. To further add to the concern, it was previously envisioned that CNG fleets would increase the market demand for vehicles, fueling stations, and service centers; however, the California Air Resources Board’s proposed Advanced Clean Truck Regulation would require fleets to purchase zero emission vehicles (ZEV) starting in 2024. Electric and hydrogen fueled vehicles are considered ZEV, but NG engines are currently not included on the approved list. The proposed regulation may create a pause for continuing to build infrastructure for NG vehicles to avoid risks with underutilization as fleets shift to eligible ZEVs. While diesel engines are also not on the approved list, infrastructure and access to servicing and parts are already in place to accommodate the current market.

The Truck also requires a reliable fuel source; in this case, diesel is more dependable than RNG. If the digesters, BERS, or compressors were down, the District would not be able to produce RNG and be unable to fill the Truck or have to drive a long distance to obtain NG fuel. Historically, when the RNG system was down, backup fueling triggered out of the way trips to downtown San Rafael and Richmond that consumed additional fuel and staff time. Diesel, however, is reliably available and independent from DG production.

## 4.2 Environmental Considerations

Continuing to run the Truck on CNG would prevent increased plant vehicle emissions. However, since CNG has historically been an unreliable fuel source, the District may decide that it is not suitable for emergency service vehicles such as the Truck. If the Truck is unavailable, the District may be unable to reliably respond to emergency events such as a sewer overflow, which would have negative environmental impacts. Instead, the District could opt to purchase additional non-emergency CNG vehicles or convert existing plant vehicles from diesel to CNG in order to continue to use CNG and reduce vehicle emissions, as discussed in section 2.2.4.

## 4.3 Final Recommendation

BC recommends Alternative 2: All DG to Microturbines based on its financial and operational advantages. Not only is it likely to lower the District’s capital investment and annual costs, it also streamlines the District’s gas conditioning system by reducing the number of systems the District has to operate and maintain. It also provides the District with a more reliable fuel source for the Truck, which is critical since it is an emergency vehicle. The costs and savings provided under each alternative are summarized in Table 4-1. Note that a higher and more positive 20-year NPV results in greater estimated economic benefit.

Item	Average Annual Savings	Capital Cost	20-Year NPV
Alternative 1, Scenario A: 20-Year UL	+\$65K	\$159K	\$1.1M
Alternative 1, Scenario B: 5-Year UL	+\$40K	\$159K	\$0.67M
Alternative 2, Scenario A: 93% Uptime	+\$108K	\$124K	\$2.0M
Alternative 2, Scenario B: 77% Uptime	+\$87K	\$124K	\$1.6M

## 4.4 Future Studies

In performing this evaluation, District staff noted issues with the existing digester gas management system. The plant is currently unable to utilize all of the digester gas generated due to minimal capacity in the low pressure system. The plant noted that although the gas system is designed to turn on the second microturbine when a higher pressure setpoint is triggered, in practice, the additional gas supply will eventually shut down both microturbines after a peak production event. The microturbine shutdown causes the flare to turn on. A future study could be performed to assess the feasibility of adding gas storage to better modulate the variability in digester gas production. Additionally, a closer look at controlling tail gas from the BERS to the flare, or potentially blending with NG to run the microturbines may provide higher utilization of the existing equipment and energy recovery if the District continues to produce RNG.

If the District selects Alternative 2 to send all gas to the microturbines, the existing RNG storage tank could be converted to a medium pressure storage tank for conditioned, pressurized digester gas. This would provide greater controllability of the gas management system for the lowest cost. The District would need to investigate the option to bypass the BERS membranes that separate methane and carbon dioxide to provide the microturbine gas fuel within the allowable Btu range. With medium pressure storage, the gas system could likely operate with both microturbines online for a substantial part of the day, reducing the need to flare gas and increasing energy recovery.

## Attachment A: Quote Log

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**Table A-1. Quote Log**

<b>Replace CNG Engine with Diesel Engine</b>								
Company	Quoted Price	Date Received	Contact Name	Email	Phone	Website	Address	Notes
Valley Power	~\$125K	6/30/2021	Ralph Mendez	N/A	(626) 333-1243	<a href="#">Valley Power Locations   Providing Service Across California</a> <a href="#">Valley Power Systems</a>	425 S. Hacienda Boulevard City of Industry, CA 91745	Not able to do this work, price listed is a rough estimate from someone at the company
Cummins Pacific	N/A	N/A	N/A	N/A	(510) 351-6101	<a href="https://www.cummins.com/">https://www.cummins.com/</a>	14775 Wicks Boulevard San Leandro, CA 94577	Not certified to do CNG work
Delta Truck Center	N/A	N/A	N/A	N/A	(209)983-2400	<a href="https://www.californiatruckcenters.com/map-directions-hours-french-camp-truck-dealership--hours-french-camp">https://www.californiatruckcenters.com/map-directions-hours-french-camp-truck-dealership--hours-french-camp</a>	10182 S. Harlan Road French Camp, CA 95231	No response, didn't answer phone
Golden Gate Truck Center	N/A	N/A	Jim Fisher	jfisher@goldengatetruck.com	(510)632-3535	<a href="https://www.californiatruckcenters.com/map-directions-hours-oakland-truck-dealership--hours-golden-gate">https://www.californiatruckcenters.com/map-directions-hours-oakland-truck-dealership--hours-golden-gate</a>	8200 Baldwin Street Oakland, CA 94621	Unable to provide quote but willing to contact Daimler to produce quote at a cost of \$250/hr
Sacramento Truck Center	N/A	N/A	N/A	N/A	(916)286-2000	<a href="https://www.californiatruckcenters.com/map-directions-hours-sacramento-truck-dealership--hours-sacramento">https://www.californiatruckcenters.com/map-directions-hours-sacramento-truck-dealership--hours-sacramento</a>	100 Opportunity Street Sacramento CA 95838	Not certified to do CNG work
<b>Move Existing Equipment onto New Chassis</b>								
California Tank & Pneumatics	~\$20K	6/30/2021	Randy	randall_mcc@sbcglobal.net	(209) 366-2404	<a href="https://www.californiatankpneumatics.com/">https://www.californiatankpneumatics.com/</a>	177 S Kelly Street Lodi, CA 95240	Quote is approximate. Can't get official quote without more info (dimensions, etc.)
<b>Entirely New Truck</b>								
Vac-Con	~\$500K	6/10/2021	James Wheeler	jwheeler@vac-con.com	(904) 493-4969	<a href="https://vac-con.com/">https://vac-con.com/</a>	969 Hall Park Road Green Cove Springs, FL 32043	Quote is approximate. Can't get official quote due to product availability.
<b>New Truck Chassis</b>								
Rush Truck Center - Los Angeles	\$90K	5/26/2021	Dale Snowden (new trucks) Jack Semingson (used trucks)	SnowdenD@RushEnterprises.com SemingsonJ@RushEnterprises.com	562-566-1800	<a href="https://www.rushtruckcenters.com/locations/location-search/1204-los-angeles">https://www.rushtruckcenters.com/locations/location-search/1204-los-angeles</a>	8830 Slauson Avenue Pico Rivera, CA 90660	Price doesn't include federal excise tax

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## Attachment B: Calculations

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	scfm	2.46	18.22	908	69	1.11	29.64	0.15	30	1.0	300	70	\$289.17	\$239.42	12.3	\$40.04	\$169.07
Avg		3,541	26,243			1,602	42,682	222									
Max		26,442	41,082	1,537	1,383	7,202	74,932	4,804	52	1.8	526	122	\$507.66	\$420.32	55.4	\$179.98	\$265.88
Min		0	39	0	0	0	18,196	0	13	0.4	128	30	\$123.28	\$102.07	0.0	\$0.00	\$0.00
BERS Daily 5/1/2020 - 4/30/2021	LGVSD Waste Gas Burner Flow (FT106) SCF	LGVSD Microturbine Flow (FT103) SCF	LGVSD BERS MicroTurb 1 Power Kilowatt Hour KWH	Raw Data LGVSD BERS MicroTurb 2 Power Kilowatt Hour KWH	LGVSD RNG Gas Flow (FT102) SCF	LGVSD Total Digester Gas Flow (FT 101) SCF	LGVSD RNG Boiler Gas Flow ( FT104) SCF	Total DG SCFM	MMBtu/hr (LHV)	Fuel kW Value	MT Average Power Production on Full DG, 93% Uptime, kW	MT Electricity Value [93% Uptime], \$/d	MT Electricity Value [77% Uptime], \$/d	Alternative 1 (Status Quo): RNG and MT			
														RNG Production, DGE/d	RNG Value, \$/d	MT Electricity Value, \$/d	
5/1/2020	231	34,740	0	1,286	0	41,580	0	28.9	1.00	291.8	67.9	\$281.70	\$233.24	0.00	\$0.00	\$222.46	
5/2/2020	236	35,023	0	1,306	0	41,920	0	29.1	1.00	294.2	68.4	\$284.01	\$235.15	0.00	\$0.00	\$225.92	
5/3/2020	442	35,142	0	1,304	0	41,934	0	29.1	1.00	294.3	68.4	\$284.10	\$235.22	0.00	\$0.00	\$225.58	
5/4/2020	4,141	36,759	0	1,383	0	44,273	0	30.7	1.06	310.7	72.2	\$299.95	\$248.34	0.00	\$0.00	\$239.24	
5/5/2020	7,742	26,706	0	967	723	43,193	0	30.0	1.03	303.2	70.5	\$292.63	\$242.29	5.56	\$18.07	\$167.28	
5/6/2020	532	23,346	858	0	1,992	43,268	0	30.0	1.04	303.7	70.6	\$293.14	\$242.71	15.32	\$49.78	\$148.42	
5/7/2020	1,754	33,944	1,346	0	0	44,742	0	31.1	1.07	314.0	73.0	\$303.13	\$250.98	0.00	\$0.00	\$232.84	
5/8/2020	3,239	32,821	1,245	0	1,860	47,410	0	32.9	1.14	332.8	77.4	\$321.20	\$265.94	14.30	\$46.48	\$215.37	
5/9/2020	2,231	34,753	1,374	0	0	50,152	0	34.8	1.20	352.0	81.8	\$339.78	\$281.32	0.00	\$0.00	\$237.69	
5/10/2020	4,049	35,854	1,451	0	0	47,662	0	33.1	1.14	334.5	77.8	\$322.91	\$267.35	0.00	\$0.00	\$251.01	
5/11/2020	3,913	36,180	1,459	0	0	50,448	0	35.0	1.21	354.1	82.3	\$341.78	\$282.98	0.00	\$0.00	\$252.39	
5/12/2020	5,681	36,880	1,499	0	0	50,164	0	34.8	1.20	352.1	81.9	\$339.86	\$281.39	0.00	\$0.00	\$259.31	
5/13/2020	5,028	36,431	1,481	0	0	53,474	0	37.1	1.28	375.3	87.3	\$362.29	\$299.96	0.00	\$0.00	\$256.20	
5/14/2020	3,126	36,425	1,467	0	1,317	53,322	0	37.0	1.28	374.3	87.0	\$361.26	\$299.10	10.13	\$32.91	\$253.77	
5/15/2020	5,352	32,542	1,287	0	0	53,306	0	37.0	1.28	374.1	87.0	\$361.15	\$299.01	0.00	\$0.00	\$222.64	
5/16/2020	3,774	35,839	1,448	0	0	52,761	0	36.6	1.26	370.3	86.1	\$357.45	\$295.96	0.00	\$0.00	\$250.49	
5/17/2020	2,883	35,793	1,394	0	1,851	52,479	0	36.4	1.26	368.3	85.6	\$355.54	\$294.38	14.23	\$46.26	\$241.15	
5/18/2020	7,501	35,780	1,405	0	1,329	50,653	0	35.2	1.21	355.5	82.7	\$343.17	\$284.13	10.22	\$33.21	\$243.05	
5/19/2020	8,930	26,407	407	605	0	47,609	0	33.1	1.14	334.2	77.7	\$322.55	\$267.06	0.00	\$0.00	\$175.06	
5/20/2020	3,623	26,875	0	1,012	0	46,887	0	32.6	1.12	329.1	76.5	\$317.66	\$263.01	0.00	\$0.00	\$175.06	
5/21/2020	193	31,212	1,044	200	0	44,575	0	31.0	1.07	312.9	72.7	\$301.99	\$250.04	0.00	\$0.00	\$215.20	
5/22/2020	230	34,227	1,366	0	0	41,843	0	29.1	1.00	293.7	68.3	\$283.49	\$234.71	0.00	\$0.00	\$236.30	
5/23/2020	182	34,257	1,356	0	0	41,588	0	28.9	1.00	291.9	67.9	\$281.76	\$233.28	0.00	\$0.00	\$234.57	
5/24/2020	121	33,465	1,330	0	0	41,226	0	28.6	0.99	289.4	67.3	\$279.31	\$231.25	0.00	\$0.00	\$230.07	
5/25/2020	563	32,816	1,283	0	0	41,337	0	28.7	0.99	290.1	67.5	\$280.06	\$231.88	0.00	\$0.00	\$221.94	
5/26/2020	3,187	32,060	1,237	0	0	42,486	0	29.5	1.02	298.2	69.3	\$287.84	\$238.32	0.00	\$0.00	\$213.99	
5/27/2020	6,697	33,496	1,271	0	0	50,042	0	34.8	1.20	351.2	81.7	\$339.03	\$280.71	0.00	\$0.00	\$219.87	
5/28/2020	5,908	34,240	1,310	0	0	56,070	0	38.9	1.34	393.5	91.5	\$379.87	\$314.52	0.00	\$0.00	\$226.61	
5/29/2020	3,713	35,267	1,385	0	0	54,294	0	37.7	1.30	381.1	88.6	\$367.84	\$304.56	0.00	\$0.00	\$239.59	
5/30/2020	594	35,005	1,395	0	0	50,292	0	34.9	1.20	353.0	82.1	\$340.73	\$282.11	0.00	\$0.00	\$241.32	
5/31/2020	0	34,705	1,382	0	0	43,863	0	30.5	1.05	307.9	71.6	\$297.17	\$246.04	0.00	\$0.00	\$239.07	
6/1/2020	656	32,727	1,298	0	0	40,031	0	27.8	0.96	281.0	65.3	\$271.21	\$224.55	0.00	\$0.00	\$224.54	
6/2/2020	582	33,854	1,341	0	0	43,465	0	30.2	1.04	305.1	70.9	\$294.47	\$243.81	0.00	\$0.00	\$231.98	
6/3/2020	521	33,374	1,285	0	0	43,616	0	30.3	1.04	306.1	71.2	\$295.50	\$244.66	0.00	\$0.00	\$222.29	

	scfm	2.46	18.22	908	69	1.11	29.64	0.15	30	1.0	300	70	\$289.17	\$239.42	12.3	\$40.04	\$169.07
Avg		3,541	26,243			1,602	42,682	222									
Max		26,442	41,082	1,537	1,383	7,202	74,932	4,804	52	1.8	526	122	\$507.66	\$420.32	55.4	\$179.98	\$265.88
Min		0	39	0	0	0	18,196	0	13	0.4	128	30	\$123.28	\$102.07	0.0	\$0.00	\$0.00
BERS Daily 5/1/2020 - 4/30/2021	LGVSD Waste Gas Burner Flow (FT106) SCF	LGVSD Microturbine Flow (FT103) SCF	LGVSD BERS MicroTurb 1 Power Kilowatt Hour KWH	Raw Data LGVSD BERS MicroTurb 2 Power Kilowatt Hour KWH	LGVSD RNG Gas Flow (FT102) SCF	LGVSD Total Digester Gas Flow (FT 101) SCF	LGVSD RNG Boiler Gas Flow ( FT104) SCF	Total DG SCFM	MMBtu/hr (LHV)	Fuel kW Value	MT Average Power Production on Full DG, 93% Uptime, kW	MT Electricity Value [93% Uptime], \$/d	MT Electricity Value [77% Uptime], \$/d	Alternative 1 (Status Quo): RNG and MT			
														RNG Production, DGE/d	RNG Value, \$/d	MT Electricity Value, \$/d	
6/4/2020	414	32,476	1,243	0	0	43,190	0	30.0	1.03	303.1	70.5	\$292.61	\$242.27	0.00	\$0.00	\$215.02	
6/5/2020	67	32,638	1,270	0	0	42,211	0	29.3	1.01	296.3	68.9	\$285.98	\$236.78	0.00	\$0.00	\$219.69	
6/6/2020	291	28,796	1,011	0	3,809	40,352	0	28.0	0.97	283.2	65.8	\$273.38	\$226.35	29.29	\$95.19	\$174.89	
6/7/2020	138	30,221	1,158	0	1,232	38,551	0	26.8	0.92	270.6	62.9	\$261.18	\$216.25	9.47	\$30.79	\$200.32	
6/8/2020	103	30,660	1,221	0	0	36,808	0	25.6	0.88	258.3	60.1	\$249.37	\$206.47	0.00	\$0.00	\$211.22	
6/9/2020	2,133	32,651	1,305	0	0	40,198	0	27.9	0.96	282.1	65.6	\$272.34	\$225.49	0.00	\$0.00	\$225.75	
6/10/2020	4,128	33,039	1,252	0	1,606	47,864	0	33.2	1.15	335.9	78.1	\$324.28	\$268.49	12.35	\$40.14	\$216.58	
6/11/2020	7,510	34,435	1,347	0	0	51,130	0	35.5	1.22	358.9	83.4	\$346.40	\$286.81	0.00	\$0.00	\$233.01	
6/12/2020	11,700	30,235	380	747	0	52,521	2	36.5	1.26	368.6	85.7	\$355.83	\$294.61	0.00	\$0.00	\$194.96	
6/13/2020	3,841	26,003	1,020	29	0	49,436	0	34.3	1.18	347.0	80.7	\$334.93	\$277.31	0.00	\$0.00	\$181.46	
6/14/2020	2,187	35,553	1,439	0	0	48,827	0	33.9	1.17	342.7	79.7	\$330.80	\$273.89	0.00	\$0.00	\$248.93	
6/15/2020	807	34,852	1,394	0	0	47,469	0	33.0	1.14	333.2	77.5	\$321.60	\$266.27	0.00	\$0.00	\$241.15	
6/16/2020	933	35,264	1,417	0	0	45,739	0	31.8	1.10	321.0	74.6	\$309.88	\$256.57	0.00	\$0.00	\$245.12	
6/17/2020	904	35,640	1,433	0	0	45,808	0	31.8	1.10	321.5	74.8	\$310.35	\$256.95	0.00	\$0.00	\$247.89	
6/18/2020	2,017	32,002	1,203	0	1,669	45,077	0	31.3	1.08	316.4	73.6	\$305.40	\$252.85	12.83	\$41.71	\$208.10	
6/19/2020	938	32,951	1,216	0	2,043	49,272	0	34.2	1.18	345.8	80.4	\$333.82	\$276.39	15.71	\$51.06	\$210.35	
6/20/2020	141	34,460	1,367	0	0	45,743	0	31.8	1.10	321.1	74.6	\$309.91	\$256.59	0.00	\$0.00	\$236.47	
6/21/2020	403	34,197	1,359	0	0	42,402	0	29.4	1.02	297.6	69.2	\$287.27	\$237.85	0.00	\$0.00	\$235.09	
6/22/2020	137	31,622	401	773	0	39,945	0	27.7	0.96	280.4	65.2	\$270.63	\$224.07	0.00	\$0.00	\$203.09	
6/23/2020	6,800	31,453	0	1,122	0	40,194	0	27.9	0.96	282.1	65.6	\$272.31	\$225.46	0.00	\$0.00	\$194.09	
6/24/2020	7,627	19,956	0	698	990	40,542	0	28.2	0.97	284.6	66.2	\$274.67	\$227.42	7.61	\$24.74	\$120.75	
6/25/2020	11,098	21,924	816	0	1,991	42,634	0	29.6	1.02	299.2	69.6	\$288.84	\$239.15	15.31	\$49.76	\$141.16	
6/26/2020	8,063	13,052	371	124	2	38,395	0	26.7	0.92	269.5	62.7	\$260.13	\$215.37	0.02	\$0.05	\$85.63	
6/27/2020	74	20,004	767	0	0	39,548	0	27.5	0.95	277.6	64.5	\$267.94	\$221.84	0.00	\$0.00	\$132.68	
6/28/2020	4,486	33,241	1,265	0	2,241	44,904	0	31.2	1.08	315.2	73.3	\$304.22	\$251.88	17.23	\$56.00	\$218.83	
6/29/2020	244	25,831	629	311	2,086	42,826	0	29.7	1.03	300.6	69.9	\$290.15	\$240.23	16.04	\$52.13	\$162.61	
6/30/2020	2,010	34,239	0	1,267	0	43,704	0	30.4	1.05	306.7	71.3	\$296.09	\$245.15	0.00	\$0.00	\$219.18	
7/1/2020	292	30,968	851	352	0	43,266	0	30.0	1.04	303.7	70.6	\$293.13	\$242.70	0.00	\$0.00	\$208.10	
7/2/2020	1,095	33,675	1,351	0	0	42,696	0	29.7	1.02	299.7	69.7	\$289.26	\$239.50	0.00	\$0.00	\$233.71	
7/3/2020	423	34,792	1,412	0	0	45,222	0	31.4	1.08	317.4	73.8	\$306.38	\$253.67	0.00	\$0.00	\$244.26	
7/4/2020	764	33,179	1,327	0	0	42,283	0	29.4	1.01	296.8	69.0	\$286.47	\$237.18	0.00	\$0.00	\$229.55	
7/5/2020	395	31,901	1,205	0	1,605	44,710	0	31.0	1.07	313.8	73.0	\$302.91	\$250.80	12.34	\$40.11	\$208.45	
7/6/2020	197	32,031	1,219	0	1,616	43,935	0	30.5	1.05	308.4	71.7	\$297.66	\$246.45	12.43	\$40.38	\$210.87	
7/7/2020	619	34,273	1,380	0	0	41,995	0	29.2	1.01	294.8	68.5	\$284.52	\$235.57	0.00	\$0.00	\$238.72	

	scfm	2.46	18.22	908	69	1.11	29.64	0.15	30	1.0	300	70	\$289.17	\$239.42	12.3	\$40.04	\$169.07
Avg		3,541	26,243			1,602	42,682	222									
Max		26,442	41,082	1,537	1,383	7,202	74,932	4,804	52	1.8	526	122	\$507.66	\$420.32	55.4	\$179.98	\$265.88
Min		0	39	0	0	0	18,196	0	13	0.4	128	30	\$123.28	\$102.07	0.0	\$0.00	\$0.00
BERS Daily 5/1/2020 - 4/30/2021	LGVSD Waste Gas Burner Flow (FT106) SCF	LGVSD Microturbine Flow (FT103) SCF	LGVSD BERS MicroTurb 1 Power Kilowatt Hour KWH	Raw Data LGVSD BERS MicroTurb 2 Power Kilowatt Hour KWH	LGVSD RNG Gas Flow (FT102) SCF	LGVSD Total Digester Gas Flow (FT 101) SCF	LGVSD RNG Boiler Gas Flow ( FT104) SCF	Total DG SCFM	MMBtu/hr (LHV)	Fuel kW Value	MT Average Power Production on Full DG, 93% Uptime, kW	MT Electricity Value [93% Uptime], \$/d	MT Electricity Value [77% Uptime], \$/d	Alternative 1 (Status Quo): RNG and MT			
														RNG Production, DGE/d	RNG Value, \$/d	MT Electricity Value, \$/d	
7/8/2020	224	31,913	1,238	0	1,010	42,791	0	29.7	1.02	300.3	69.8	\$289.91	\$240.03	7.77	\$25.24	\$214.16	
7/9/2020	1,090	33,281	1,322	0	0	42,463	0	29.5	1.02	298.0	69.3	\$287.69	\$238.19	0.00	\$0.00	\$228.69	
7/10/2020	6,024	32,720	1,291	0	0	43,679	0	30.3	1.05	306.6	71.3	\$295.92	\$245.01	0.00	\$0.00	\$223.33	
7/11/2020	1,056	25,394	960	0	1,624	45,965	0	31.9	1.10	322.6	75.0	\$311.41	\$257.84	12.49	\$40.58	\$166.07	
7/12/2020	436	33,444	1,314	0	0	45,247	0	31.4	1.08	317.6	73.8	\$306.55	\$253.81	0.00	\$0.00	\$227.31	
7/13/2020	2,196	33,115	1,304	0	0	43,573	0	30.3	1.04	305.8	71.1	\$295.21	\$244.42	0.00	\$0.00	\$225.58	
7/14/2020	14,399	30,375	1,211	0	0	42,374	0	29.4	1.01	297.4	69.1	\$287.08	\$237.69	0.00	\$0.00	\$209.49	
7/15/2020	15,659	11,543	385	73	0	42,343	0	29.4	1.01	297.2	69.1	\$286.87	\$237.52	0.00	\$0.00	\$79.23	
7/16/2020	7,684	10,791	274	61	972	44,030	0	30.6	1.05	309.0	71.9	\$298.30	\$246.98	7.47	\$24.29	\$57.95	
7/17/2020	2,088	18,663	594	0	4,027	43,329	0	30.1	1.04	304.1	70.7	\$293.55	\$243.05	30.97	\$100.64	\$102.75	
7/18/2020	1,736	31,097	1,159	0	1,836	46,292	0	32.1	1.11	324.9	75.5	\$313.63	\$259.67	14.12	\$45.88	\$200.49	
7/19/2020	402	33,487	1,341	0	0	46,710	0	32.4	1.12	327.8	76.2	\$316.46	\$262.01	0.00	\$0.00	\$231.98	
7/20/2020	126	33,880	1,366	0	0	44,076	0	30.6	1.06	309.4	71.9	\$298.61	\$247.24	0.00	\$0.00	\$236.30	
7/21/2020	1,360	32,748	1,318	0	0	41,246	0	28.6	0.99	289.5	67.3	\$279.44	\$231.36	0.00	\$0.00	\$228.00	
7/22/2020	466	33,041	1,315	0	0	44,105	0	30.6	1.06	309.6	72.0	\$298.81	\$247.40	0.00	\$0.00	\$227.48	
7/23/2020	670	33,920	1,367	0	0	44,559	0	30.9	1.07	312.7	72.7	\$301.89	\$249.95	0.00	\$0.00	\$236.47	
7/24/2020	139	30,276	1,128	0	1,793	42,658	0	29.6	1.02	299.4	69.6	\$289.01	\$239.29	13.79	\$44.81	\$195.13	
7/25/2020	118	30,491	604	514	1,183	40,724	0	28.3	0.98	285.8	66.5	\$275.90	\$228.44	9.10	\$29.56	\$193.40	
7/26/2020	90	30,967	0	1,120	1	39,758	0	27.6	0.95	279.1	64.9	\$269.36	\$223.02	0.01	\$0.02	\$193.75	
7/27/2020	113	29,495	0	1,046	0	37,787	0	26.2	0.90	265.2	61.7	\$256.01	\$211.96	0.00	\$0.00	\$180.95	
7/28/2020	438	29,085	0	1,031	0	37,265	0	25.9	0.89	261.6	60.8	\$252.47	\$209.03	0.00	\$0.00	\$178.35	
7/29/2020	293	29,254	0	1,047	0	38,069	0	26.4	0.91	267.2	62.1	\$257.92	\$213.54	0.00	\$0.00	\$181.12	
7/30/2020	376	29,634	0	1,039	853	39,607	0	27.5	0.95	278.0	64.6	\$268.34	\$222.17	6.56	\$21.32	\$179.73	
7/31/2020	130	28,965	0	1,012	1,037	38,747	0	26.9	0.93	272.0	63.2	\$262.51	\$217.35	7.97	\$25.92	\$175.06	
8/1/2020	785	28,773	0	994	1,036	37,864	0	26.3	0.91	265.8	61.8	\$256.53	\$212.39	7.97	\$25.89	\$171.95	
8/2/2020	124	30,631	0	1,079	1,259	42,713	0	29.7	1.02	299.8	69.7	\$289.38	\$239.59	9.68	\$31.46	\$186.65	
8/3/2020	108	33,344	0	1,251	0	42,255	0	29.3	1.01	296.6	69.0	\$286.28	\$237.02	0.00	\$0.00	\$216.41	
8/4/2020	616	32,148	0	1,191	0	40,897	0	28.4	0.98	287.0	66.7	\$277.08	\$229.41	0.00	\$0.00	\$206.03	
8/5/2020	307	30,819	858	335	0	39,716	0	27.6	0.95	278.8	64.8	\$269.07	\$222.78	0.00	\$0.00	\$206.37	
8/6/2020	128	31,211	1,251	0	0	38,703	0	26.9	0.93	271.6	63.2	\$262.21	\$217.10	0.00	\$0.00	\$216.41	
8/7/2020	287	32,297	1,283	0	0	40,679	0	28.2	0.97	285.5	66.4	\$275.60	\$228.18	0.00	\$0.00	\$221.94	
8/8/2020	3,990	32,695	1,294	0	0	42,213	0	29.3	1.01	296.3	68.9	\$285.99	\$236.79	0.00	\$0.00	\$223.85	
8/9/2020	2,638	32,961	1,310	0	0	49,595	0	34.4	1.19	348.1	80.9	\$336.00	\$278.20	0.00	\$0.00	\$226.61	
8/10/2020	533	32,622	1,306	0	0	46,633	0	32.4	1.12	327.3	76.1	\$315.94	\$261.58	0.00	\$0.00	\$225.92	



	scfm	2.46	18.22	908	69	1.11	29.64	0.15	30	1.0	300	70	\$289.17	\$239.42	12.3	\$40.04	\$169.07
Avg		3,541	26,243			1,602	42,682	222									
Max		26,442	41,082	1,537	1,383	7,202	74,932	4,804	52	1.8	526	122	\$507.66	\$420.32	55.4	\$179.98	\$265.88
Min		0	39	0	0	0	18,196	0	13	0.4	128	30	\$123.28	\$102.07	0.0	\$0.00	\$0.00
BERS Daily 5/1/2020 - 4/30/2021	LGVSD Waste Gas Burner Flow (FT106) SCF	LGVSD Microturbine Flow (FT103) SCF	LGVSD BERS MicroTurb 1 Power Kilowatt Hour KWH	Raw Data LGVSD BERS MicroTurb 2 Power Kilowatt Hour KWH	LGVSD RNG Gas Flow (FT102) SCF	LGVSD Total Digester Gas Flow (FT 101) SCF	LGVSD RNG Boiler Gas Flow ( FT104) SCF	Total DG SCFM	MMBtu/hr (LHV)	Fuel kW Value	MT Average Power Production on Full DG, 93% Uptime, kW	MT Electricity Value [93% Uptime], \$/d	MT Electricity Value [77% Uptime], \$/d	Alternative 1 (Status Quo): RNG and MT			
														RNG Production, DGE/d	RNG Value, \$/d	MT Electricity Value, \$/d	
8/11/2020	137	32,500	1,308	0	0	43,191	0	30.0	1.03	303.1	70.5	\$292.62	\$242.28	0.00	\$0.00	\$226.27	
8/12/2020	109	32,811	1,317	0	0	41,723	0	29.0	1.00	292.8	68.1	\$282.67	\$234.04	0.00	\$0.00	\$227.83	
8/13/2020	1,794	31,982	1,275	0	0	41,025	0	28.5	0.98	287.9	66.9	\$277.94	\$230.13	0.00	\$0.00	\$220.56	
8/14/2020	4,804	28,109	1,067	0	752	41,365	1	28.7	0.99	290.3	67.5	\$280.25	\$232.03	5.78	\$18.79	\$184.58	
8/15/2020	6,690	20,637	715	0	2,201	42,307	1	29.4	1.01	296.9	69.0	\$286.63	\$237.32	16.92	\$55.00	\$123.69	
8/16/2020	5,793	21,125	753	0	2,167	41,929	0	29.1	1.00	294.3	68.4	\$284.07	\$235.20	16.66	\$54.15	\$130.26	
8/17/2020	1,684	21,085	799	0	0	39,210	1	27.2	0.94	275.2	64.0	\$265.65	\$219.94	0.00	\$0.00	\$138.22	
8/18/2020	144	28,041	1,075	0	0	40,887	0	28.4	0.98	287.0	66.7	\$277.01	\$229.35	0.00	\$0.00	\$185.96	
8/19/2020	11,755	30,070	1,153	0	0	40,542	0	28.2	0.97	284.6	66.2	\$274.67	\$227.42	0.00	\$0.00	\$199.46	
8/20/2020	6,200	13,789	529	0	893	42,042	0	29.2	1.01	295.1	68.6	\$284.83	\$235.83	6.87	\$22.32	\$91.51	
8/21/2020	2,765	21,188	745	0	5,075	41,094	0	28.5	0.98	288.4	67.1	\$278.41	\$230.51	39.02	\$126.83	\$128.88	
8/22/2020	11,358	23,340	808	0	5,501	41,929	0	29.1	1.00	294.3	68.4	\$284.07	\$235.20	42.30	\$137.47	\$139.77	
8/23/2020	420	21,197	821	0	0	46,803	0	32.5	1.12	328.5	76.4	\$317.09	\$262.54	0.00	\$0.00	\$142.02	
8/24/2020	155	32,597	1,292	0	0	42,735	0	29.7	1.02	299.9	69.7	\$289.53	\$239.72	0.00	\$0.00	\$223.50	
8/25/2020	202	31,386	1,232	0	0	40,965	0	28.4	0.98	287.5	66.8	\$277.54	\$229.79	0.00	\$0.00	\$213.12	
8/26/2020	910	30,865	1,204	0	0	39,693	0	27.6	0.95	278.6	64.8	\$268.92	\$222.65	0.00	\$0.00	\$208.28	
8/27/2020	9,818	30,575	1,171	0	920	40,968	0	28.5	0.98	287.5	66.9	\$277.56	\$229.81	7.07	\$22.99	\$202.57	
8/28/2020	8,963	15,715	581	0	1,407	41,362	0	28.7	0.99	290.3	67.5	\$280.23	\$232.02	10.82	\$35.16	\$100.51	
8/29/2020	94	20,425	806	0	0	40,733	2	28.3	0.98	285.9	66.5	\$275.97	\$228.49	0.00	\$0.00	\$139.43	
8/30/2020	60	31,161	1,224	0	0	39,309	0	27.3	0.94	275.9	64.1	\$266.32	\$220.50	0.00	\$0.00	\$211.74	
8/31/2020	2,585	31,022	1,203	0	0	38,951	0	27.0	0.93	273.4	63.6	\$263.89	\$218.49	0.00	\$0.00	\$208.10	
9/1/2020	72	26,012	991	0	693	38,884	0	27.0	0.93	272.9	63.5	\$263.44	\$218.12	5.33	\$17.32	\$171.43	
9/2/2020	9,578	31,451	1,206	0	0	39,073	0	27.1	0.94	274.2	63.8	\$264.72	\$219.18	0.00	\$0.00	\$208.62	
9/3/2020	7,076	16,781	607	0	996	41,399	0	28.7	0.99	290.6	67.6	\$280.48	\$232.22	7.66	\$24.89	\$105.00	
9/4/2020	8,057	20,744	695	0	3,654	42,817	0	29.7	1.03	300.5	69.9	\$290.08	\$240.18	28.10	\$91.32	\$120.23	
9/5/2020	14,071	15,301	512	0	1,883	38,364	0	26.6	0.92	269.3	62.6	\$259.92	\$215.20	14.48	\$47.06	\$88.57	
9/6/2020	18,362	63	0	0	0	36,377	0	25.3	0.87	255.3	59.4	\$246.45	\$204.05	0.00	\$0.00	\$0.00	
9/7/2020	17,259	39	0	0	0	34,580	0	24.0	0.83	242.7	56.4	\$234.28	\$193.97	0.00	\$0.00	\$0.00	
9/8/2020	16,945	44	0	0	0	32,716	0	22.7	0.78	229.6	53.4	\$221.65	\$183.52	0.00	\$0.00	\$0.00	
9/9/2020	4,592	77	0	0	0	31,485	0	21.9	0.75	221.0	51.4	\$213.31	\$176.61	0.00	\$0.00	\$0.00	
9/10/2020	2,204	20,598	774	0	0	32,648	0	22.7	0.78	229.1	53.3	\$221.19	\$183.14	0.00	\$0.00	\$133.89	
9/11/2020	10,730	19,450	710	0	0	29,810	0	20.7	0.71	209.2	48.6	\$201.96	\$167.22	0.00	\$0.00	\$122.82	
9/12/2020	420	14,421	553	0	0	36,730	0	25.5	0.88	257.8	59.9	\$248.84	\$206.03	0.00	\$0.00	\$95.66	
9/13/2020	15,147	28,566	1,020	0	3,056	41,491	0	28.8	0.99	291.2	67.7	\$281.10	\$232.74	23.50	\$76.37	\$176.45	

	scfm	2.46	18.22	908	69	1.11	29.64	0.15	30	1.0	300	70	\$289.17	\$239.42	12.3	\$40.04	\$169.07
Avg		3,541	26,243			1,602	42,682	222									
Max		26,442	41,082	1,537	1,383	7,202	74,932	4,804	52	1.8	526	122	\$507.66	\$420.32	55.4	\$179.98	\$265.88
Min		0	39	0	0	0	18,196	0	13	0.4	128	30	\$123.28	\$102.07	0.0	\$0.00	\$0.00
BERS Daily 5/1/2020 - 4/30/2021	LGVSD Waste Gas Burner Flow (FT106) SCF	LGVSD Microturbine Flow (FT103) SCF	LGVSD BERS MicroTurb 1 Power Kilowatt Hour KWH	Raw Data LGVSD BERS MicroTurb 2 Power Kilowatt Hour KWH	LGVSD RNG Gas Flow (FT102) SCF	LGVSD Total Digester Gas Flow (FT 101) SCF	LGVSD RNG Boiler Gas Flow ( FT104) SCF	Total DG SCFM	MMBtu/hr (LHV)	Fuel kW Value	MT Average Power Production on Full DG, 93% Uptime, kW	MT Electricity Value [93% Uptime], \$/d	MT Electricity Value [77% Uptime], \$/d	Alternative 1 (Status Quo): RNG and MT			
														RNG Production, DGE/d	RNG Value, \$/d	MT Electricity Value, \$/d	
9/14/2020	15,719	3,794	124	0	1,308	40,506	0	28.1	0.97	284.3	66.1	\$274.43	\$227.21	10.06	\$32.69	\$21.45	
9/15/2020	6,953	84	0	0	0	40,393	0	28.1	0.97	283.5	65.9	\$273.66	\$226.58	0.00	\$0.00	\$0.00	
9/16/2020	687	23,847	920	0	0	41,187	0	28.6	0.99	289.1	67.2	\$279.04	\$231.03	0.00	\$0.00	\$159.15	
9/17/2020	829	30,127	1,137	0	2,014	41,062	0	28.5	0.98	288.2	67.0	\$278.19	\$230.33	15.49	\$50.33	\$196.69	
9/18/2020	5,225	26,837	958	0	1,506	37,367	0	25.9	0.89	262.3	61.0	\$253.16	\$209.61	11.58	\$37.64	\$165.72	
9/19/2020	47	22,604	831	0	75	37,315	1	25.9	0.89	261.9	60.9	\$252.81	\$209.31	0.58	\$1.87	\$143.75	
9/20/2020	250	29,518	1,115	0	0	37,634	0	26.1	0.90	264.1	61.4	\$254.97	\$211.10	0.00	\$0.00	\$192.88	
9/21/2020	9,352	26,803	965	0	1,939	36,453	0	25.3	0.87	255.9	59.5	\$246.97	\$204.48	14.91	\$48.46	\$166.93	
9/22/2020	14,703	10,444	353	0	1,620	33,018	0	22.9	0.79	231.7	53.9	\$223.70	\$185.21	12.46	\$40.48	\$61.06	
9/23/2020	5,360	84	0	0	0	32,709	2	22.7	0.78	229.6	53.4	\$221.60	\$183.48	0.00	\$0.00	\$0.00	
9/24/2020	852	15,074	527	0	305	32,148	0	22.3	0.77	225.6	52.5	\$217.80	\$180.33	2.35	\$7.62	\$91.16	
9/25/2020	434	24,773	837	0	2,469	37,025	0	25.7	0.89	259.9	60.4	\$250.84	\$207.69	18.99	\$61.70	\$144.79	
9/26/2020	182	25,807	837	0	4,670	40,861	0	28.4	0.98	286.8	66.7	\$276.83	\$229.21	35.91	\$116.71	\$144.79	
9/27/2020	112	30,171	1,143	0	1,054	41,429	0	28.8	0.99	290.8	67.6	\$280.68	\$232.39	8.10	\$26.34	\$197.73	
9/28/2020	518	30,175	1,169	0	0	40,277	0	28.0	0.96	282.7	65.7	\$272.88	\$225.93	0.00	\$0.00	\$202.22	
9/29/2020	197	28,095	1,061	0	0	38,956	0	27.1	0.93	273.4	63.6	\$263.93	\$218.52	0.00	\$0.00	\$183.54	
9/30/2020	377	29,229	1,139	0	0	38,325	0	26.6	0.92	269.0	62.5	\$259.65	\$214.98	0.00	\$0.00	\$197.03	
10/1/2020	9,441	26,749	945	0	2,907	40,148	0	27.9	0.96	281.8	65.5	\$272.00	\$225.21	22.35	\$72.65	\$163.47	
10/2/2020	10,929	15,269	488	0	2,936	43,230	0	30.0	1.04	303.4	70.5	\$292.88	\$242.49	22.58	\$73.37	\$84.42	
10/3/2020	1,251	20,555	814	0	0	45,322	0	31.5	1.09	318.1	74.0	\$307.06	\$254.23	0.00	\$0.00	\$140.81	
10/4/2020	386	32,095	1,287	0	0	44,463	0	30.9	1.06	312.1	72.6	\$301.24	\$249.41	0.00	\$0.00	\$222.64	
10/5/2020	433	32,514	1,310	0	0	43,269	0	30.0	1.04	303.7	70.6	\$293.15	\$242.71	0.00	\$0.00	\$226.61	
10/6/2020	824	32,068	1,285	0	0	42,110	0	29.2	1.01	295.6	68.7	\$285.29	\$236.21	0.00	\$0.00	\$222.29	
10/7/2020	262	33,257	1,336	0	0	43,912	0	30.5	1.05	308.2	71.7	\$297.50	\$246.32	0.00	\$0.00	\$231.11	
10/8/2020	1,132	30,718	1,140	0	2,904	43,206	0	30.0	1.03	303.3	70.5	\$292.72	\$242.36	22.33	\$72.57	\$197.21	
10/9/2020	1,065	32,616	1,297	0	280	43,159	0	30.0	1.03	302.9	70.4	\$292.40	\$242.10	2.15	\$7.00	\$224.37	
10/10/2020	503	34,377	1,375	0	0	45,266	0	31.4	1.08	317.7	73.9	\$306.68	\$253.91	0.00	\$0.00	\$237.86	
10/11/2020	2,172	34,625	1,385	0	0	43,965	0	30.5	1.05	308.6	71.7	\$297.86	\$246.62	0.00	\$0.00	\$239.59	
10/12/2020	1,918	33,804	1,346	0	0	46,220	0	32.1	1.11	324.4	75.4	\$313.14	\$259.27	0.00	\$0.00	\$232.84	
10/13/2020	2,201	33,944	1,357	0	0	46,546	0	32.3	1.11	326.7	76.0	\$315.35	\$261.09	0.00	\$0.00	\$234.74	
10/14/2020	3,316	33,775	1,330	0	0	47,066	0	32.7	1.13	330.3	76.8	\$318.87	\$264.01	0.00	\$0.00	\$230.07	
10/15/2020	1,491	33,841	1,308	0	0	48,843	0	33.9	1.17	342.8	79.7	\$330.91	\$273.98	0.00	\$0.00	\$226.27	
10/16/2020	1,391	33,568	1,295	0	0	45,844	0	31.8	1.10	321.8	74.8	\$310.59	\$257.16	0.00	\$0.00	\$224.02	
10/17/2020	1,060	33,059	1,271	0	0	44,995	0	31.2	1.08	315.8	73.4	\$304.84	\$252.39	0.00	\$0.00	\$219.87	

	scfm	2.46	18.22	908	69	1.11	29.64	0.15	30	1.0	300	70	\$289.17	\$239.42	12.3	\$40.04	\$169.07
Avg		3,541	26,243	1,537	1,383	1,602	42,682	222	52	1.8	526	122	\$507.66	\$420.32	55.4	\$179.98	\$265.88
Max		26,442	41,082	1,537	1,383	7,202	74,932	4,804	13	0.4	128	30	\$123.28	\$102.07	0.0	\$0.00	\$0.00
Min		0	39	0	0	0	18,196	0									
BERS Daily 5/1/2020 - 4/30/2021	LGVSD Waste Gas Burner Flow (FT106) SCF	LGVSD Microturbine Flow (FT103) SCF	LGVSD BERS MicroTurb 1 Power Kilowatt Hour KWH	Raw Data LGVSD BERS MicroTurb 2 Power Kilowatt Hour KWH	LGVSD RNG Gas Flow (FT102) SCF	LGVSD Total Digester Gas Flow (FT 101) SCF	LGVSD RNG Boiler Gas Flow ( FT104) SCF	Total DG SCFM	Alternative 2: All DG to MT MMBtu/hr (LHV)	Fuel kW Value	MT Average Power Production on Full DG, 93% Uptime, kW	MT Electricity Value [93% Uptime], \$/d	MT Electricity Value [77% Uptime], \$/d	Alternative 1 (Status Quo): RNG and MT			
														RNG Production, DGE/d	RNG Value, \$/d	MT Electricity Value, \$/d	
10/18/2020	12,254	29,871	1,082	0	1,798	43,307	0	30.1	1.04	304.0	70.7	\$293.40	\$242.93	13.83	\$44.93	\$187.17	
10/19/2020	8,539	11,664	451	0	0	38,718	0	26.9	0.93	271.8	63.2	\$262.31	\$217.18	0.00	\$0.00	\$78.02	
10/20/2020	685	21,617	828	0	0	41,248	0	28.6	0.99	289.5	67.3	\$279.45	\$231.38	0.00	\$0.00	\$143.23	
10/21/2020	556	33,528	1,329	0	0	43,093	0	29.9	1.03	302.5	70.3	\$291.95	\$241.73	0.00	\$0.00	\$229.90	
10/22/2020	396	33,915	1,341	0	0	43,407	0	30.1	1.04	304.7	70.8	\$294.08	\$243.49	0.00	\$0.00	\$231.98	
10/23/2020	452	28,032	964	0	4,024	41,596	0	28.9	1.00	292.0	67.9	\$281.81	\$233.33	30.94	\$100.56	\$166.76	
10/24/2020	0	31,855	1,227	0	1,202	40,303	0	28.0	0.97	282.9	65.8	\$273.05	\$226.08	9.24	\$30.04	\$121.26	
10/25/2020	76	34,749	1,400	0	0	40,406	0	28.1	0.97	283.6	65.9	\$273.75	\$226.65	0.00	\$0.00	\$242.18	
10/26/2020	0	32,520	1,283	0	0	38,944	0	27.0	0.93	273.3	63.6	\$263.84	\$218.45	0.00	\$0.00	\$221.94	
10/27/2020	119	31,343	1,231	0	0	37,715	0	26.2	0.90	264.7	61.5	\$255.52	\$211.56	0.00	\$0.00	\$212.95	
10/28/2020	0	32,180	1,264	0	0	38,542	0	26.8	0.92	270.5	62.9	\$261.12	\$216.20	0.00	\$0.00	\$218.66	
10/29/2020	0	30,359	1,186	0	0	35,929	0	25.0	0.86	252.2	58.6	\$243.42	\$201.54	0.00	\$0.00	\$205.16	
10/30/2020	2	29,339	1,129	0	0	34,822	0	24.2	0.83	244.4	56.8	\$235.92	\$195.33	0.00	\$0.00	\$195.30	
10/31/2020	0	32,393	1,292	0	0	37,885	0	26.3	0.91	265.9	61.8	\$256.67	\$212.51	0.00	\$0.00	\$223.50	
11/1/2020	0	29,037	1,120	0	0	34,532	0	24.0	0.83	242.4	56.4	\$233.95	\$193.70	0.00	\$0.00	\$193.75	
11/2/2020	0	29,558	1,142	0	0	35,397	0	24.6	0.85	248.4	57.8	\$239.81	\$198.56	0.00	\$0.00	\$197.55	
11/3/2020	0	30,946	1,222	0	0	36,240	0	25.2	0.87	254.4	59.1	\$245.53	\$203.28	0.00	\$0.00	\$211.39	
11/4/2020	0	31,392	1,234	0	0	37,180	0	25.8	0.89	261.0	60.7	\$251.89	\$208.56	0.00	\$0.00	\$213.47	
11/5/2020	0	29,907	1,096	0	2,084	38,796	0	26.9	0.93	272.3	63.3	\$262.84	\$217.62	16.02	\$52.08	\$189.59	
11/6/2020	119	30,190	1,107	0	2,065	38,007	0	26.4	0.91	266.8	62.0	\$257.50	\$213.20	15.88	\$51.61	\$191.50	
11/7/2020	15	32,619	1,302	0	0	37,422	0	26.0	0.90	262.7	61.1	\$253.53	\$209.91	0.00	\$0.00	\$225.23	
11/8/2020	0	32,489	1,301	0	0	36,876	0	25.6	0.88	258.8	60.2	\$249.83	\$206.85	0.00	\$0.00	\$225.06	
11/9/2020	15	30,942	1,233	0	0	35,229	0	24.5	0.84	247.3	57.5	\$238.68	\$197.61	0.00	\$0.00	\$213.29	
11/10/2020	0	30,443	1,196	0	0	34,940	0	24.3	0.84	245.2	57.0	\$236.72	\$195.99	0.00	\$0.00	\$206.89	
11/11/2020	563	35,267	1,438	0	0	41,467	0	28.8	0.99	291.0	67.7	\$280.94	\$232.60	0.00	\$0.00	\$248.76	
11/12/2020	1,125	30,717	1,218	0	5	38,889	0	27.0	0.93	273.0	63.5	\$263.47	\$218.14	0.04	\$0.12	\$210.70	
11/13/2020	1,261	28,153	1,090	0	0	34,511	0	24.0	0.83	242.2	56.3	\$233.81	\$193.59	0.00	\$0.00	\$188.56	
11/14/2020	0	25,176	889	0	1,373	31,656	0	22.0	0.76	222.2	51.7	\$214.47	\$177.57	10.56	\$34.31	\$153.79	
11/15/2020	0	24,023	831	0	1,319	30,467	0	21.2	0.73	213.8	49.7	\$206.41	\$170.90	10.14	\$32.96	\$143.75	
11/16/2020	0	24,640	828	0	2,457	32,795	0	22.8	0.79	230.2	53.5	\$222.19	\$183.96	18.89	\$61.40	\$143.23	
11/17/2020	5	28,018	955	0	3,471	37,611	0	26.1	0.90	264.0	61.4	\$254.81	\$210.97	26.69	\$86.74	\$165.20	
11/18/2020	0	32,449	1,221	0	2,242	41,278	0	28.7	0.99	289.7	67.4	\$279.66	\$231.54	17.24	\$56.03	\$211.22	
11/19/2020	3	30,024	1,026	0	5,373	42,496	0	29.5	1.02	298.3	69.3	\$287.91	\$238.38	41.32	\$134.27	\$177.49	
11/20/2020	175	32,727	1,219	0	3,020	41,778	0	29.0	1.00	293.2	68.2	\$283.04	\$234.35	23.22	\$75.47	\$210.87	

	scfm	2.46	18.22	908	69	1.11	29.64	0.15	30	1.0	300	70	\$289.17	\$239.42	12.3	\$40.04	\$169.07
Avg		3,541	26,243	1,537	1,383	1,602	42,682	222	52	1.8	526	122	\$507.66	\$420.32	55.4	\$179.98	\$265.88
Max		26,442	41,082	1,537	1,383	7,202	74,932	4,804	13	0.4	128	30	\$123.28	\$102.07	0.0	\$0.00	\$0.00
Min		0	39	0	0	0	18,196	0									
BERS Daily 5/1/2020 - 4/30/2021	LGVSD Waste Gas Burner Flow (FT106) SCF	LGVSD Microturbine Flow (FT103) SCF	LGVSD BERS MicroTurb 1 Power Kilowatt Hour KWH	Raw Data LGVSD BERS MicroTurb 2 Power Kilowatt Hour KWH	LGVSD RNG Gas Flow (FT102) SCF	LGVSD Total Digester Gas Flow (FT 101) SCF	LGVSD RNG Boiler Gas Flow ( FT104) SCF	Total DG SCFM	MMBtu/hr (LHV)	Fuel kW Value	MT Average Power Production on Full DG, 93% Uptime, kW	MT Electricity Value [93% Uptime], \$/d	MT Electricity Value [77% Uptime], \$/d	Alternative 1 (Status Quo): RNG and MT			
														RNG Production, DGE/d	RNG Value, \$/d	MT Electricity Value, \$/d	
11/21/2020	5,722	14,341	597	0	228	39,022	7	27.1	0.93	273.9	63.7	\$264.37	\$218.89	1.75	\$5.70	\$103.27	
11/22/2020	4,096	26,322	1,074	0	0	42,435	0	29.5	1.02	297.8	69.2	\$287.50	\$238.03	0.00	\$0.00	\$185.79	
11/23/2020	625	29,743	1,145	0	1,517	39,300	0	27.3	0.94	275.8	64.1	\$266.26	\$220.45	11.66	\$37.91	\$198.07	
11/24/2020	963	25,733	837	0	7,171	37,910	0	26.3	0.91	266.1	61.9	\$256.84	\$212.65	55.14	\$179.21	\$144.79	
11/25/2020	1,916	25,821	837	0	7,048	39,359	0	27.3	0.94	276.2	64.2	\$266.66	\$220.78	54.20	\$176.13	\$144.79	
11/26/2020	1,854	25,835	837	0	7,200	40,630	0	28.2	0.97	285.2	66.3	\$275.27	\$227.91	55.36	\$179.93	\$144.79	
11/27/2020	2,117	25,780	837	0	7,201	39,217	0	27.2	0.94	275.3	64.0	\$265.69	\$219.98	55.37	\$179.96	\$144.79	
11/28/2020	1,181	25,828	837	0	7,200	37,555	0	26.1	0.90	263.6	61.3	\$254.43	\$210.66	55.36	\$179.93	\$144.79	
11/29/2020	0	25,764	837	0	7,132	35,229	0	24.5	0.84	247.3	57.5	\$238.68	\$197.61	54.84	\$178.23	\$144.79	
11/30/2020	1,932	25,817	837	0	7,008	39,295	0	27.3	0.94	275.8	64.1	\$266.22	\$220.42	53.89	\$175.13	\$144.79	
12/1/2020	3,772	25,633	837	0	7,202	41,369	0	28.7	0.99	290.4	67.5	\$280.27	\$232.05	55.38	\$179.98	\$144.79	
12/2/2020	1,835	25,733	837	0	7,198	38,990	0	27.1	0.93	273.7	63.6	\$264.16	\$218.71	55.35	\$179.88	\$144.79	
12/3/2020	658	25,857	837	0	7,174	38,203	0	26.5	0.91	268.1	62.3	\$258.82	\$214.30	55.16	\$179.28	\$144.79	
12/4/2020	2,374	26,060	837	0	7,201	41,022	0	28.5	0.98	287.9	66.9	\$277.92	\$230.11	55.37	\$179.96	\$144.79	
12/5/2020	2,870	26,157	837	0	7,199	40,245	0	27.9	0.96	282.5	65.7	\$272.66	\$225.75	55.36	\$179.91	\$144.79	
12/6/2020	6,659	26,285	837	0	7,200	47,739	0	33.2	1.14	335.1	77.9	\$323.43	\$267.79	55.36	\$179.93	\$144.79	
12/7/2020	5,251	25,772	837	0	7,201	45,628	0	31.7	1.09	320.3	74.5	\$309.13	\$255.95	55.37	\$179.96	\$144.79	
12/8/2020	3,312	27,421	933	0	7,199	43,483	0	30.2	1.04	305.2	71.0	\$294.60	\$243.91	55.36	\$179.91	\$161.40	
12/9/2020	241	30,222	1,077	0	7,128	40,165	0	27.9	0.96	281.9	65.5	\$272.12	\$225.30	54.81	\$178.13	\$186.31	
12/10/2020	0	33,513	1,298	0	3,115	40,290	0	28.0	0.96	282.8	65.7	\$272.96	\$226.00	23.95	\$77.85	\$224.54	
12/11/2020	826	28,538	974	0	4,775	40,378	0	28.0	0.97	283.4	65.9	\$273.56	\$226.50	36.72	\$119.33	\$168.49	
12/12/2020	145	33,888	1,288	0	2,083	41,195	0	28.6	0.99	289.1	67.2	\$279.10	\$231.08	16.02	\$52.06	\$222.81	
12/13/2020	0	35,169	1,393	0	713	40,766	0	28.3	0.98	286.1	66.5	\$276.19	\$228.67	5.48	\$17.82	\$240.97	
12/14/2020	0	34,442	1,340	0	1,912	42,066	0	29.2	1.01	295.2	68.6	\$285.00	\$235.96	14.70	\$47.78	\$231.80	
12/15/2020	1,519	27,646	942	0	4,571	40,737	0	28.3	0.98	285.9	66.5	\$275.99	\$228.51	35.15	\$114.23	\$162.95	
12/16/2020	0	27,789	837	0	6,816	40,681	0	28.3	0.97	285.5	66.4	\$275.61	\$228.20	52.41	\$170.34	\$144.79	
12/17/2020	0	27,323	837	0	6,010	39,556	0	27.5	0.95	277.6	64.5	\$267.99	\$221.89	46.21	\$150.19	\$144.79	
12/18/2020	241	32,146	1,181	0	2,833	40,468	0	28.1	0.97	284.0	66.0	\$274.17	\$227.00	21.78	\$70.80	\$204.30	
12/19/2020	90	30,978	1,080	0	4,707	41,503	0	28.8	0.99	291.3	67.7	\$281.18	\$232.81	36.19	\$117.63	\$186.83	
12/20/2020	871	28,233	837	0	7,199	44,468	0	30.9	1.06	312.1	72.6	\$301.27	\$249.44	55.36	\$179.91	\$144.79	
12/21/2020	2,397	33,177	1,218	0	2,951	45,064	1	31.3	1.08	316.3	73.5	\$305.31	\$252.78	22.69	\$73.75	\$210.70	
12/22/2020	1,573	37,697	1,537	0	0	46,266	0	32.1	1.11	324.7	75.5	\$313.45	\$259.52	0.00	\$0.00	\$265.88	
12/23/2020	3,503	30,174	1,029	0	5,268	46,055	0	32.0	1.10	323.2	75.2	\$312.02	\$258.34	40.51	\$131.65	\$178.00	
12/24/2020	3,395	28,138	837	0	7,199	47,595	0	33.1	1.14	334.1	77.7	\$322.46	\$266.98	55.36	\$179.91	\$144.79	

	scfm	2.46	18.22	908	69	1.11	29.64	0.15	30	1.0	300	70	\$289.17	\$239.42	12.3	\$40.04	\$169.07
Avg		3,541	26,243	1,537	1,383	1,602	42,682	222	52	1.8	526	122	\$507.66	\$420.32	55.4	\$179.98	\$265.88
Max		26,442	41,082	0	0	7,202	74,932	4,804	13	0.4	128	30	\$123.28	\$102.07	0.0	\$0.00	\$0.00
Min		0	39	0	0	0	18,196	0									
BERS Daily 5/1/2020 - 4/30/2021	LGVSD Waste Gas Burner Flow (FT106) SCF	LGVSD Microturbine Flow (FT103) SCF	LGVSD BERS MicroTurb 1 Power Kilowatt Hour KWH	Raw Data LGVSD BERS MicroTurb 2 Power Kilowatt Hour KWH	LGVSD RNG Gas Flow (FT102) SCF	LGVSD Total Digester Gas Flow (FT 101) SCF	LGVSD RNG Boiler Gas Flow ( FT104) SCF	Total DG SCFM	MMBtu/hr (LHV)	Fuel kW Value	MT Average Power Production on Full DG, 93% Uptime, kW	MT Electricity Value [93% Uptime], \$/d	MT Electricity Value [77% Uptime], \$/d	Alternative 1 (Status Quo): RNG and MT			
														RNG Production, DGE/d	RNG Value, \$/d	MT Electricity Value, \$/d	
12/25/2020	4,053	28,645	837	0	7,200	48,805	0	33.9	1.17	342.5	79.6	\$330.65	\$273.77	55.36	\$179.93	\$144.79	
12/26/2020	1,267	37,055	1,306	0	5,820	52,457	0	36.4	1.26	368.2	85.6	\$355.39	\$294.25	44.75	\$145.45	\$225.92	
12/27/2020	8,606	23,674	883	0	2,977	46,735	0	32.5	1.12	328.0	76.3	\$316.63	\$262.15	22.89	\$74.40	\$152.75	
12/28/2020	13,055	19,687	624	0	4,153	51,729	51	35.9	1.24	363.1	84.4	\$350.46	\$290.17	31.93	\$103.79	\$107.94	
12/29/2020	7,829	9,187	279	0	2,114	49,493	397	34.4	1.19	347.4	80.8	\$335.31	\$277.63	16.26	\$52.83	\$48.26	
12/30/2020	11,084	112	0	0	0	47,777	0	33.2	1.14	335.3	78.0	\$323.69	\$268.00	0.00	\$0.00	\$0.00	
12/31/2020	7,803	14,741	466	0	3,140	46,991	0	32.6	1.13	329.8	76.7	\$318.36	\$263.59	24.14	\$78.47	\$80.61	
1/1/2021	3,873	13,237	437	0	2,032	42,890	0	29.8	1.03	301.0	70.0	\$290.58	\$240.59	15.62	\$50.78	\$75.60	
1/2/2021	10,428	94	0	0	0	34,505	0	24.0	0.83	242.2	56.3	\$233.77	\$193.55	0.00	\$0.00	\$0.00	
1/3/2021	5,065	9,172	325	0	0	31,824	0	22.1	0.76	223.4	51.9	\$215.61	\$178.51	0.00	\$0.00	\$56.22	
1/4/2021	4,339	5,804	199	0	0	25,262	0	17.5	0.60	177.3	41.2	\$171.15	\$141.70	0.00	\$0.00	\$34.42	
1/5/2021	7,317	100	0	0	0	23,031	0	16.0	0.55	161.6	37.6	\$156.03	\$129.19	0.00	\$0.00	\$0.00	
1/6/2021	2,980	106	0	0	0	22,694	0	15.8	0.54	159.3	37.0	\$153.75	\$127.30	0.00	\$0.00	\$0.00	
1/7/2021	6,703	102	0	0	0	22,519	0	15.6	0.54	158.1	36.7	\$152.57	\$126.32	0.00	\$0.00	\$0.00	
1/8/2021	8,272	97	0	0	0	25,962	0	18.0	0.62	182.2	42.4	\$175.89	\$145.63	0.00	\$0.00	\$0.00	
1/9/2021	5,414	119	0	0	0	26,854	0	18.6	0.64	188.5	43.8	\$181.94	\$150.63	0.00	\$0.00	\$0.00	
1/10/2021	4,521	5,700	193	0	0	25,427	0	17.7	0.61	178.5	41.5	\$172.27	\$142.63	0.00	\$0.00	\$33.39	
1/11/2021	5,078	109	0	0	0	25,649	0	17.8	0.61	180.0	41.9	\$173.77	\$143.88	0.00	\$0.00	\$0.00	
1/12/2021	6,289	98	0	0	0	22,558	0	15.7	0.54	158.3	36.8	\$152.83	\$126.54	0.00	\$0.00	\$0.00	
1/13/2021	2,570	90	0	0	0	18,196	0	12.6	0.44	127.7	29.7	\$123.28	\$102.07	0.00	\$0.00	\$0.00	
1/14/2021	4,187	101	0	0	0	23,203	0	16.1	0.56	162.9	37.9	\$157.20	\$130.15	0.00	\$0.00	\$0.00	
1/15/2021	12,736	113	0	0	0	36,019	0	25.0	0.86	252.8	58.8	\$244.03	\$202.04	0.00	\$0.00	\$0.00	
1/16/2021	10,168	110	0	0	0	36,415	0	25.3	0.87	255.6	59.4	\$246.71	\$204.27	0.00	\$0.00	\$0.00	
1/17/2021	8,090	112	0	0	0	36,136	0	25.1	0.87	253.6	59.0	\$244.82	\$202.70	0.00	\$0.00	\$0.00	
1/18/2021	3,388	18,318	679	0	663	37,309	0	25.9	0.89	261.9	60.9	\$252.77	\$209.28	5.10	\$16.57	\$117.46	
1/19/2021	152	26,127	837	0	5,277	39,170	0	27.2	0.94	274.9	63.9	\$265.38	\$219.72	40.58	\$131.88	\$144.79	
1/20/2021	0	25,180	837	0	3,703	35,157	70	24.4	0.84	246.8	57.4	\$238.19	\$197.21	28.47	\$92.54	\$144.79	
1/21/2021	4,980	12,795	457	0	16	29,641	0	20.6	0.71	208.0	48.4	\$200.82	\$166.27	0.12	\$0.40	\$79.06	
1/22/2021	7,815	106	0	0	0	33,636	0	23.4	0.81	236.1	54.9	\$227.88	\$188.68	0.00	\$0.00	\$0.00	
1/23/2021	8,559	116	0	0	0	32,680	0	22.7	0.78	229.4	53.3	\$221.41	\$183.31	0.00	\$0.00	\$0.00	
1/24/2021	7,022	109	0	0	0	32,151	0	22.3	0.77	225.7	52.5	\$217.82	\$180.35	0.00	\$0.00	\$0.00	
1/25/2021	5,180	103	0	0	0	32,584	0	22.6	0.78	228.7	53.2	\$220.76	\$182.78	0.00	\$0.00	\$0.00	
1/26/2021	3,169	16,089	580	0	1,977	37,301	0	25.9	0.89	261.8	60.9	\$252.71	\$209.24	15.20	\$49.41	\$100.33	
1/27/2021	12,717	97	0	0	0	36,947	0	25.7	0.88	259.3	60.3	\$250.32	\$207.25	0.00	\$0.00	\$0.00	

	scfm	2.46	18.22	908	69	1.11	29.64	0.15	30	1.0	300	70	\$289.17	\$239.42	12.3	\$40.04	\$169.07
Avg		3,541	26,243	1,537	1,383	1,602	42,682	222	52	1.8	526	122	\$507.66	\$420.32	55.4	\$179.98	\$265.88
Max		26,442	41,082	0	0	7,202	74,932	4,804	13	0.4	128	30	\$123.28	\$102.07	0.0	\$0.00	\$0.00
Min		0	39	0	0	0	18,196	0									
BERS Daily 5/1/2020 - 4/30/2021	LGVSD Waste Gas Burner Flow (FT106) SCF	LGVSD Microturbine Flow (FT103) SCF	LGVSD BERS MicroTurb 1 Power Kilowatt Hour KWH	Raw Data LGVSD BERS MicroTurb 2 Power Kilowatt Hour KWH	LGVSD RNG Gas Flow (FT102) SCF	LGVSD Total Digester Gas Flow (FT 101) SCF	LGVSD RNG Boiler Gas Flow ( FT104) SCF	Total DG SCFM	MMBtu/hr (LHV)	Fuel kW Value	MT Average Power Production on Full DG, 93% Uptime, kW	MT Electricity Value [93% Uptime], \$/d	MT Electricity Value [77% Uptime], \$/d	Alternative 1 (Status Quo): RNG and MT			
														RNG Production, DGE/d	RNG Value, \$/d	MT Electricity Value, \$/d	
1/28/2021	20,294	99	0	0	0	41,440	0	28.8	0.99	290.9	67.6	\$280.76	\$232.45	0.00	\$0.00	\$0.00	
1/29/2021	15,419	107	0	0	0	49,112	0	34.1	1.18	344.7	80.1	\$332.73	\$275.49	0.00	\$0.00	\$0.00	
1/30/2021	12,460	109	0	0	0	50,805	0	35.3	1.22	356.6	82.9	\$344.20	\$284.99	0.00	\$0.00	\$0.00	
1/31/2021	13,159	107	0	0	0	51,893	0	36.0	1.24	364.2	84.7	\$351.57	\$291.09	0.00	\$0.00	\$0.00	
2/1/2021	7,523	19,761	751	0	0	49,617	0	34.5	1.19	348.2	81.0	\$336.15	\$278.32	0.00	\$0.00	\$129.91	
2/2/2021	5,957	15,757	601	0	0	49,346	0	34.3	1.18	346.3	80.5	\$334.32	\$276.80	0.00	\$0.00	\$103.97	
2/3/2021	4,159	21,006	697	0	4,146	46,611	21	32.4	1.12	327.1	76.1	\$315.79	\$261.46	31.88	\$103.61	\$120.57	
2/4/2021	0	29,422	957	0	5,658	43,222	3,180	30.0	1.04	303.4	70.5	\$292.83	\$242.45	43.51	\$141.40	\$165.55	
2/5/2021	4	29,067	957	0	5,102	42,168	2,302	29.3	1.01	296.0	68.8	\$285.69	\$236.54	39.23	\$127.50	\$165.55	
2/6/2021	0	28,257	957	0	3,726	39,249	2,941	27.3	0.94	275.5	64.0	\$265.91	\$220.16	28.65	\$93.12	\$165.55	
2/7/2021	5,585	17,058	568	0	2,256	39,429	2,143	27.4	0.94	276.7	64.3	\$267.13	\$221.17	17.35	\$56.38	\$98.26	
2/8/2021	7,432	305	4	0	0	41,887	0	29.1	1.00	294.0	68.4	\$283.78	\$234.96	0.00	\$0.00	\$0.69	
2/9/2021	8,079	19,417	788	0	0	49,517	0	34.4	1.19	347.5	80.8	\$335.48	\$277.76	0.00	\$0.00	\$136.31	
2/10/2021	10,397	25,247	1,038	0	0	58,939	0	40.9	1.41	413.7	96.2	\$399.31	\$330.61	41.37	\$179.56	\$179.56	
2/11/2021	10,779	26,940	1,026	0	3,033	63,658	1,740	44.2	1.52	446.8	103.9	\$431.28	\$357.08	23.32	\$75.80	\$177.49	
2/12/2021	17,888	12,776	459	0	2,157	67,176	0	46.7	1.61	471.5	109.6	\$455.12	\$376.82	16.59	\$53.90	\$79.40	
2/13/2021	21,180	109	0	0	0	69,031	0	47.9	1.65	484.5	112.6	\$467.68	\$387.22	0.00	\$0.00	\$0.00	
2/14/2021	26,442	109	0	0	0	72,346	0	50.2	1.73	507.8	118.1	\$490.14	\$405.82	0.00	\$0.00	\$0.00	
2/15/2021	20,718	18,031	727	0	0	74,441	0	51.7	1.78	522.5	121.5	\$504.34	\$417.57	0.00	\$0.00	\$125.76	
2/16/2021	10,992	36,292	1,335	0	4,256	74,932	2,859	52.0	1.79	525.9	122.3	\$507.66	\$420.32	32.73	\$106.36	\$230.94	
2/17/2021	7,555	36,104	1,340	0	3,327	73,862	879	51.3	1.77	518.4	120.5	\$500.41	\$414.32	25.58	\$83.14	\$231.80	
2/18/2021	4,818	36,853	1,496	0	0	65,274	0	45.3	1.56	458.1	106.5	\$442.23	\$366.15	0.00	\$0.00	\$258.79	
2/19/2021	2,358	34,886	1,383	0	0	58,420	0	40.6	1.40	410.0	95.3	\$395.79	\$327.70	0.00	\$0.00	\$239.24	
2/20/2021	371	33,207	1,293	0	0	49,302	0	34.2	1.18	346.0	80.5	\$334.02	\$276.55	0.00	\$0.00	\$223.67	
2/21/2021	206	33,313	1,305	0	0	43,128	0	30.0	1.03	302.7	70.4	\$292.19	\$241.92	0.00	\$0.00	\$225.75	
2/22/2021	1,563	27,545	1,032	0	0	40,788	0	28.3	0.98	286.3	66.6	\$276.34	\$228.80	0.00	\$0.00	\$178.52	
2/23/2021	2,088	30,996	1,159	0	1,129	45,405	1,771	31.5	1.09	318.7	74.1	\$307.62	\$254.69	8.68	\$28.21	\$200.49	
2/24/2021	137	33,237	1,296	0	698	44,433	867	30.9	1.06	311.9	72.5	\$301.03	\$249.24	5.37	\$17.44	\$224.19	
2/25/2021	63	33,648	1,292	0	1,987	48,158	0	33.4	1.15	338.0	78.6	\$326.27	\$270.14	15.28	\$49.66	\$223.50	
2/26/2021	43	35,279	1,342	0	2,802	46,561	828	32.3	1.12	326.8	76.0	\$315.45	\$261.18	21.55	\$70.02	\$232.15	
2/27/2021	90	35,604	1,352	0	3,420	46,362	1,955	32.2	1.11	325.4	75.7	\$314.10	\$260.06	26.30	\$85.47	\$233.88	
2/28/2021	102	36,379	1,380	0	3,884	48,625	4,219	33.8	1.16	341.3	79.3	\$329.43	\$272.76	29.87	\$97.06	\$238.72	
3/1/2021	125	35,597	1,336	0	3,451	46,667	1,872	32.4	1.12	327.5	76.2	\$316.17	\$261.77	26.54	\$86.24	\$231.11	
3/2/2021	134	34,772	1,311	0	3,006	45,106	1,972	31.3	1.08	316.6	73.6	\$305.59	\$253.02	23.11	\$75.12	\$226.79	

	scfm	2.46	18.22	908	69	1.11	29.64	0.15	30	1.0	300	70	\$289.17	\$239.42	12.3	\$40.04	\$169.07
Avg		3,541	26,243			1,602	42,682	222									
Max		26,442	41,082	1,537	1,383	7,202	74,932	4,804	52	1.8	526	122	\$507.66	\$420.32	55.4	\$179.98	\$265.88
Min		0	39	0	0	0	18,196	0	13	0.4	128	30	\$123.28	\$102.07	0.0	\$0.00	\$0.00
BERS Daily 5/1/2020 - 4/30/2021	LGVSD Waste Gas Burner Flow (FT106) SCF	LGVSD Microturbine Flow (FT103) SCF	LGVSD BERS MicroTurb 1 Power Kilowatt Hour KWH	Raw Data LGVSD BERS MicroTurb 2 Power Kilowatt Hour KWH	LGVSD RNG Gas Flow (FT102) SCF	LGVSD Total Digester Gas Flow (FT 101) SCF	LGVSD RNG Boiler Gas Flow ( FT104) SCF	Total DG SCFM	MMBtu/hr (LHV)	Fuel kW Value	MT Average Power Production on Full DG, 93% Uptime, kW	MT Electricity Value [93% Uptime], \$/d	MT Electricity Value [77% Uptime], \$/d	Alternative 1 (Status Quo): RNG and MT			
														RNG Production, DGE/d	RNG Value, \$/d	MT Electricity Value, \$/d	
3/3/2021	172	32,969	1,232	0	1,953	41,396	1,941	28.7	0.99	290.5	67.6	\$280.46	\$232.21	15.02	\$48.81	\$213.12	
3/4/2021	359	28,739	975	0	3,488	39,933	0	27.7	0.96	280.3	65.2	\$270.55	\$224.00	26.82	\$87.17	\$168.66	
3/5/2021	607	33,001	1,213	0	2,220	42,351	35	29.4	1.01	297.2	69.1	\$286.93	\$237.56	17.07	\$55.48	\$209.83	
3/6/2021	461	36,762	1,497	0	0	42,580	1,137	29.6	1.02	298.9	69.5	\$288.48	\$238.85	0.00	\$0.00	\$258.96	
3/7/2021	391	32,625	1,208	0	2,365	41,418	777	28.8	0.99	290.7	67.6	\$280.61	\$232.33	18.19	\$59.10	\$208.97	
3/8/2021	811	32,358	1,215	0	1,653	40,569	0	28.2	0.97	284.7	66.2	\$274.85	\$227.57	12.71	\$41.31	\$210.18	
3/9/2021	1,135	36,646	1,489	0	0	43,103	2,971	29.9	1.03	302.5	70.3	\$292.02	\$241.78	0.00	\$0.00	\$257.58	
3/10/2021	923	30,673	1,041	0	4,550	42,966	1,772	29.8	1.03	301.6	70.1	\$291.09	\$241.01	34.99	\$113.71	\$180.08	
3/11/2021	2,475	30,476	1,136	0	1,834	41,705	0	29.0	1.00	292.7	68.1	\$282.55	\$233.94	14.10	\$45.83	\$196.51	
3/12/2021	1,448	36,721	1,487	0	0	44,716	470	31.1	1.07	313.8	73.0	\$302.95	\$250.83	0.00	\$0.00	\$257.23	
3/13/2021	238	32,468	1,164	0	3,195	41,448	5	28.8	0.99	290.9	67.6	\$280.81	\$232.50	24.57	\$79.85	\$201.36	
3/14/2021	1,341	32,468	1,164	0	3,195	41,448	5	28.8	0.99	290.9	67.6	\$280.81	\$232.50	24.57	\$79.85	\$201.36	
3/15/2021	242	30,350	1,076	0	3,306	41,423	1,778	28.8	0.99	290.7	67.6	\$280.64	\$232.36	25.42	\$82.62	\$186.14	
3/16/2021	1,267	32,302	1,203	0	1,958	39,016	898	27.1	0.93	273.8	63.7	\$264.33	\$218.86	15.06	\$48.93	\$208.10	
3/17/2021	8,418	27,753	837	0	6,628	44,009	4,804	30.6	1.05	308.9	71.8	\$298.16	\$246.86	50.97	\$165.64	\$144.79	
3/18/2021	8,604	16,347	485	0	3,769	41,196	2,043	28.6	0.99	289.1	67.2	\$279.10	\$231.08	28.98	\$94.19	\$83.90	
3/19/2021	912	19,617	636	0	2,406	40,317	1,673	28.0	0.97	283.0	65.8	\$273.15	\$226.15	18.50	\$60.13	\$110.02	
3/20/2021	385	30,324	1,057	0	3,524	42,042	1,059	29.2	1.01	295.1	68.6	\$284.83	\$235.83	27.10	\$88.07	\$182.85	
3/21/2021	324	35,542	1,428	0	0	40,651	845	28.2	0.97	285.3	66.3	\$275.41	\$228.03	0.00	\$0.00	\$247.03	
3/22/2021	386	29,895	1,053	0	2,502	38,321	201	26.6	0.92	269.0	62.5	\$259.62	\$214.96	19.24	\$62.53	\$182.16	
3/23/2021	770	27,396	837	0	4,940	39,697	848	27.6	0.95	278.6	64.8	\$268.95	\$222.68	37.99	\$123.45	\$144.79	
3/24/2021	174	28,950	1,007	0	2,961	39,746	1,019	27.6	0.95	279.0	64.9	\$269.28	\$222.95	22.77	\$74.00	\$174.20	
3/25/2021	77	33,182	1,302	0	0	38,523	0	26.8	0.92	270.4	62.9	\$260.99	\$216.09	0.00	\$0.00	\$225.23	
3/26/2021	65	33,016	1,304	0	0	37,570	0	26.1	0.90	263.7	61.3	\$254.54	\$210.74	0.00	\$0.00	\$225.58	
3/27/2021	8,630	29,023	1,003	0	3,279	39,042	33	27.1	0.94	274.0	63.7	\$264.51	\$219.00	25.21	\$81.94	\$173.51	
3/28/2021	5,536	13,984	432	0	2,412	37,535	891	26.1	0.90	263.4	61.3	\$254.30	\$210.55	18.55	\$60.28	\$74.73	
3/29/2021	5,633	22,050	776	0	1,743	37,515	684	26.1	0.90	263.3	61.2	\$254.16	\$210.44	13.40	\$43.56	\$134.24	
3/30/2021	10,064	16,759	530	0	2,343	35,354	116	24.6	0.85	248.1	57.7	\$239.52	\$198.31	18.02	\$58.55	\$91.68	
3/31/2021	5,653	15,575	539	0	0	37,129	304	25.8	0.89	260.6	60.6	\$251.55	\$208.27	0.00	\$0.00	\$93.24	
4/1/2021	4,929	22,343	795	0	801	37,874	0	26.3	0.91	265.8	61.8	\$256.60	\$212.45	6.16	\$20.02	\$137.53	
4/2/2021	13,877	18,857	699	0	0	33,202	0	23.1	0.80	233.0	54.2	\$224.94	\$186.24	0.00	\$0.00	\$120.92	
4/3/2021	12,873	609	18	0	0	31,201	0	21.7	0.75	219.0	50.9	\$211.39	\$175.02	0.00	\$0.00	\$3.11	
4/4/2021	6,459	7,010	257	0	0	32,454	0	22.5	0.78	227.8	53.0	\$219.88	\$182.05	0.00	\$0.00	\$44.46	
4/5/2021	171	16,898	654	0	0	37,440	0	26.0	0.90	262.8	61.1	\$253.66	\$210.02	0.00	\$0.00	\$113.13	



	scfm	2.46	18.22	908	69	1.11	29.64	0.15	30	1.0	300	70	\$289.17	\$239.42	12.3	\$40.04	\$169.07
Avg		3,541	26,243			1,602	42,682	222									
Max		26,442	41,082	1,537	1,383	7,202	74,932	4,804	52	1.8	526	122	\$507.66	\$420.32	55.4	\$179.98	\$265.88
Min		0	39	0	0	0	18,196	0	13	0.4	128	30	\$123.28	\$102.07	0.0	\$0.00	\$0.00
BERS Daily 5/1/2020 - 4/30/2021	LGVSD Waste Gas Burner Flow (FT106) SCF	LGVSD Microturbine Flow (FT103) SCF	LGVSD BERS MicroTurb 1 Power Kilowatt Hour KWH	Raw Data LGVSD BERS MicroTurb 2 Power Kilowatt Hour KWH	LGVSD RNG Gas Flow (FT102) SCF	LGVSD Total Digester Gas Flow (FT 101) SCF	LGVSD RNG Boiler Gas Flow ( FT104) SCF	Total DG SCFM	MMBtu/hr (LHV)	Fuel kW Value	MT Average Power Production on Full DG, 93% Uptime, kW	MT Electricity Value [93% Uptime], \$/d	MT Electricity Value [77% Uptime], \$/d	Alternative 1 (Status Quo): RNG and MT			
														RNG Production, DGE/d	RNG Value, \$/d	MT Electricity Value, \$/d	
4/6/2021	348	28,330	983	0	3,196	38,084	0	26.4	0.91	267.3	62.1	\$258.02	\$213.63	24.58	\$79.87	\$170.05	
4/7/2021	516	25,991	834	0	3,876	37,257	0	25.9	0.89	261.5	60.8	\$252.42	\$208.99	29.80	\$96.86	\$144.27	
4/8/2021	386	27,266	837	0	5,853	41,200	177	28.6	0.99	289.2	67.2	\$279.13	\$231.11	45.01	\$146.27	\$144.79	
4/9/2021	2,947	27,583	837	0	6,229	42,714	1,513	29.7	1.02	299.8	69.7	\$289.39	\$239.60	47.90	\$155.67	\$144.79	
4/10/2021	6,384	28,089	837	0	7,129	48,421	3,505	33.6	1.16	339.9	79.0	\$328.05	\$271.61	54.82	\$178.16	\$144.79	
4/11/2021	8,373	28,324	837	0	7,200	56,191	1,816	39.0	1.35	394.4	91.7	\$380.69	\$315.20	55.36	\$179.93	\$144.79	
4/12/2021	8,267	28,302	837	0	7,189	59,987	1,620	41.7	1.44	421.0	97.9	\$406.41	\$336.49	55.28	\$179.66	\$144.79	
4/13/2021	5,248	33,657	1,145	0	5,945	64,505	2,745	44.8	1.54	452.7	105.3	\$437.02	\$361.83	45.71	\$148.57	\$198.07	
4/14/2021	6,606	41,082	1,526	0	6,012	66,092	906	45.9	1.58	463.9	107.9	\$447.77	\$370.74	46.23	\$150.24	\$263.98	
4/15/2021	1,284	39,510	1,502	0	3,730	63,815	1,851	44.3	1.53	447.9	104.1	\$432.35	\$357.96	28.68	\$93.22	\$259.83	
4/16/2021	88	38,963	1,418	0	5,506	56,771	2,849	39.4	1.36	398.5	92.6	\$384.62	\$318.45	42.34	\$137.60	\$245.30	
4/17/2021	4,328	31,674	1,217	0	232	37,531	0	26.1	0.90	263.4	61.2	\$254.27	\$210.53	1.78	\$5.80	\$210.53	
4/18/2021	5,004	36,639	1,460	0	0	51,008	0	35.4	1.22	358.0	83.2	\$345.58	\$286.12	0.00	\$0.00	\$252.56	
4/19/2021	3,920	36,721	1,437	0	0	52,597	0	36.5	1.26	369.2	85.8	\$356.34	\$295.04	0.00	\$0.00	\$248.58	
4/20/2021	1,717	37,597	1,489	0	0	49,909	0	34.7	1.20	350.3	81.4	\$338.13	\$279.96	0.00	\$0.00	\$257.58	
4/21/2021	2,063	38,966	1,431	0	4,528	54,155	41	37.6	1.30	380.1	88.4	\$366.90	\$303.78	34.82	\$113.16	\$247.55	
4/22/2021	5,996	32,697	1,034	0	7,138	53,764	16	37.3	1.29	377.4	87.7	\$364.25	\$301.58	54.89	\$178.38	\$178.87	
4/23/2021	4,849	31,308	957	0	7,154	57,305	854	39.8	1.37	402.2	93.5	\$388.24	\$321.45	55.01	\$178.78	\$165.55	
4/24/2021	5,174	30,151	957	0	5,630	52,727	2,641	36.6	1.26	370.1	86.0	\$357.22	\$295.77	43.29	\$140.70	\$165.55	
4/25/2021	6,213	31,489	957	0	7,201	57,203	1,817	39.7	1.37	401.5	93.3	\$387.55	\$320.87	55.37	\$179.96	\$165.55	
4/26/2021	4,924	31,537	957	0	6,947	58,393	399	40.6	1.40	409.8	95.3	\$395.61	\$327.55	53.42	\$173.61	\$165.55	
4/27/2021	8,682	31,420	957	0	6,721	55,490	1,638	38.5	1.33	389.5	90.6	\$375.94	\$311.27	51.68	\$167.96	\$165.55	
4/28/2021	1,767	35,801	1,409	0	69	57,894	0	40.2	1.39	406.3	94.5	\$392.23	\$324.75	0.53	\$1.72	\$243.74	
4/29/2021	54	37,617	1,412	0	3,518	53,443	0	37.1	1.28	375.1	87.2	\$362.08	\$299.78	27.05	\$87.92	\$244.26	
4/30/2021	393	38,607	1,423	0	4,886	54,279	173	37.7	1.30	381.0	88.6	\$367.74	\$304.47	37.57	\$122.10	\$246.16	

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## **Attachment C: Cost/Benefit Analyses**

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Year of analysis	2021	Risk adjustments (+/- percent):	Benefits	0%
Escalation rate	3.00%	Capital costs	0%	
Discount rate	1.50%	Running costs	0%	

**Alternative 1A: RNG & Microturbines, 20-Year UL**

**Life Cycle Alternative Cost Analysis (\$000s)**

	Year																			
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Expressed in 2021 dollars, unescalated -- dollars																				
<b>Capital Outlays</b>																				
Truck Retrofit	0																			
Compressor Replaceme	\$159,068																			
Total capital outlays	159,068	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Benefits:</b>																				
Electricity Savings	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712
CNG Value																				
Total benefits	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712
<b>Annual Running Costs:</b>																				
Diesel Purchase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CNG O&M	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000
Total running costs	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
<b>Annual Risk Costs:</b>																				
Risk cost 1																				
Risk cost 2																				
Risk cost 3																				
Risk cost 4																				
Risk cost 5																				
Total risk costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>R&amp;R Costs:</b>																				
R&R cost 1																				
R&R cost 2																				
R&R cost 3																				
R&R cost 4																				
R&R cost 5																				
R&R cost 6																				
R&R cost 7																				
R&R cost 8																				
Total refurbishments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Net Benefit/(cost)</b>	<b>(103,356)</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>	<b>55,712</b>

Year of analysis	2021	Risk adjustments (+/- percent):	Benefits	0%
Escalation rate	3.00%	Capital costs	0%	
Discount rate	1.50%	Running costs	0%	

**Alternative 1A: RNG & Microturbines, 20-Year UL**

**Life Cycle Alternative Cost Analysis (\$000s)**

	Year																			
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Expressed in escalated dollars with sensitivity adjustments																				
<b>Capital Outlays</b>																				
Truck Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Compressor Replaceme	159,068	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total capital outlays	159,068	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Benefits:</b>																				
Electricity Savings	61,712	63,564	65,471	67,435	69,458	71,541	73,688	75,898	78,175	80,520	82,936	85,424	87,987	90,626	93,345	96,146	99,030	102,001	105,061	108,213
CNG Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total benefits	61,712	63,564	65,471	67,435	69,458	71,541	73,688	75,898	78,175	80,520	82,936	85,424	87,987	90,626	93,345	96,146	99,030	102,001	105,061	108,213
<b>Annual Running Costs:</b>																				
Diesel Purchase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CNG O&M	6,000	6,180	6,365	6,556	6,753	6,956	7,164	7,379	7,601	7,829	8,063	8,305	8,555	8,811	9,076	9,348	9,628	9,917	10,215	10,521
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total running costs	6,000	6,180	6,365	6,556	6,753	6,956	7,164	7,379	7,601	7,829	8,063	8,305	8,555	8,811	9,076	9,348	9,628	9,917	10,215	10,521
<b>Annual Risk Costs:</b>																				
Risk cost 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total risk costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>R&amp;R Costs:</b>																				
R&R cost 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total refurbishments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net escalated benefit/(cost)	(103,356)	57,384	59,105	60,878	62,705	64,586	66,523	68,519	70,575	72,692	74,873	77,119	79,432	81,815	84,270	86,798	89,402	92,084	94,846	97,692
<b>Life cycle cost analysis</b>																				
PVs in 2021	(103,356)	56,536	57,371	58,219	59,079	59,952	60,838	61,737	62,650	63,576	64,515	65,469	66,436	67,418	68,414	69,425	70,451	71,493	72,549	73,621
NPV as of 2021	1,126,395																			

Year of analysis	2021	Risk adjustments (+/- percent):	Benefits	0%
Escalation rate	3.00%	Capital costs	0%	
Discount rate	1.50%	Running costs	0%	

**Alternative 1A: RNG & Microturbines, 20-Year UL**

**Life Cycle Alternative Cost Analysis (\$000s)**

	Year																			
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040

Section below can be used to graph individual values for NPV

Truck Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Compressor Replaceme	159,068	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total capital outlays</b>	<b>159,068</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Electricity Savings	61,712	62,624	63,550	64,489	65,442	66,409	67,390	68,386	69,397	70,423	71,463	72,519	73,591	74,679	75,782	76,902	78,039	79,192	80,362	81,550
CNG Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total benefits</b>	<b>61,712</b>	<b>62,624</b>	<b>63,550</b>	<b>64,489</b>	<b>65,442</b>	<b>66,409</b>	<b>67,390</b>	<b>68,386</b>	<b>69,397</b>	<b>70,423</b>	<b>71,463</b>	<b>72,519</b>	<b>73,591</b>	<b>74,679</b>	<b>75,782</b>	<b>76,902</b>	<b>78,039</b>	<b>79,192</b>	<b>80,362</b>	<b>81,550</b>

Diesel Purchase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CNG O&M	6,000	6,089	6,179	6,270	6,363	6,457	6,552	6,649	6,747	6,847	6,948	7,051	7,155	7,261	7,368	7,477	7,587	7,699	7,813	7,929
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total running costs</b>	<b>6,000</b>	<b>6,089</b>	<b>6,179</b>	<b>6,270</b>	<b>6,363</b>	<b>6,457</b>	<b>6,552</b>	<b>6,649</b>	<b>6,747</b>	<b>6,847</b>	<b>6,948</b>	<b>7,051</b>	<b>7,155</b>	<b>7,261</b>	<b>7,368</b>	<b>7,477</b>	<b>7,587</b>	<b>7,699</b>	<b>7,813</b>	<b>7,929</b>



Year of analysis	2021	Risk adjustments (+/- percent):	Benefits	0%
Escalation rate	3.00%	Capital costs	0%	
Discount rate	1.50%	Running costs	0%	

**Alternative 1B: RNG & Microturbines, 5-Year UL**

**Life Cycle Alternative Cost Analysis (\$000s)**

	Year																			
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Expressed in 2021 dollars, unescalated -- dollars																				
<b>Capital Outlays</b>																				
Truck Retrofit	0																			
Compressor Replacement	\$159,068																			
Total capital outlays	159,068	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Benefits:</b>																				
Electricity Savings	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712	\$61,712
CNG Value																				
Total benefits	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712	61,712
<b>Annual Running Costs:</b>																				
Diesel Purchase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CNG O&M	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
Compressor Replacement						\$159,068					\$159,068					\$159,068				
Total running costs	2,000	2,000	2,000	2,000	2,000	161,068	2,000	2,000	2,000	2,000	161,068	2,000	2,000	2,000	2,000	161,068	2,000	2,000	2,000	2,000
<b>Annual Risk Costs:</b>																				
Risk cost 1																				
Risk cost 2																				
Risk cost 3																				
Risk cost 4																				
Risk cost 5																				
Total risk costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>R&amp;R Costs:</b>																				
R&R cost 2																				
R&R cost 3																				
R&R cost 4																				
R&R cost 5																				
R&R cost 6																				
R&R cost 7																				
R&R cost 8																				
Total refurbishments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Net Benefit/(cost)</b>	(99,356)	59,712	59,712	59,712	59,712	(99,356)	59,712	59,712	59,712	59,712	(99,356)	59,712	59,712	59,712	59,712	(99,356)	59,712	59,712	59,712	59,712

Year of analysis	2021	Risk adjustments (+/- percent):	Benefits	0%
Escalation rate	3.00%	Capital costs	0%	
Discount rate	1.50%	Running costs	0%	

**Alternative 1B: RNG & Microturbines, 5-Year UL**

**Life Cycle Alternative Cost Analysis (\$000s)**

	Year																			
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Expressed in escalated dollars with sensitivity adjustments																				
<b>Capital Outlays</b>																				
Truck Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Compressor Replaceme	159,068	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total capital outlays</b>	<b>159,068</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Benefits:</b>																				
Electricity Savings	61,712	63,564	65,471	67,435	69,458	71,541	73,688	75,898	78,175	80,520	82,936	85,424	87,987	90,626	93,345	96,146	99,030	102,001	105,061	108,213
CNG Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total benefits</b>	<b>61,712</b>	<b>63,564</b>	<b>65,471</b>	<b>67,435</b>	<b>69,458</b>	<b>71,541</b>	<b>73,688</b>	<b>75,898</b>	<b>78,175</b>	<b>80,520</b>	<b>82,936</b>	<b>85,424</b>	<b>87,987</b>	<b>90,626</b>	<b>93,345</b>	<b>96,146</b>	<b>99,030</b>	<b>102,001</b>	<b>105,061</b>	<b>108,213</b>
<b>Annual Running Costs:</b>																				
Diesel Purchase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CNG O&M	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610	2,688	2,768	2,852	2,937	3,025	3,116	3,209	3,306	3,405	3,507
Compressor Replaceme	0	0	0	0	0	184,403	0	0	0	0	213,774	0	0	0	0	247,823	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total running costs</b>	<b>2,000</b>	<b>2,060</b>	<b>2,122</b>	<b>2,185</b>	<b>2,251</b>	<b>186,722</b>	<b>2,388</b>	<b>2,460</b>	<b>2,534</b>	<b>2,610</b>	<b>216,462</b>	<b>2,768</b>	<b>2,852</b>	<b>2,937</b>	<b>3,025</b>	<b>250,939</b>	<b>3,209</b>	<b>3,306</b>	<b>3,405</b>	<b>3,507</b>
<b>Annual Risk Costs:</b>																				
Risk cost 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total risk costs</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>R&amp;R Costs:</b>																				
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total refurbishments</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net escalated benefit/(cost)</b>	<b>(99,356)</b>	<b>61,504</b>	<b>63,349</b>	<b>65,249</b>	<b>67,207</b>	<b>(115,181)</b>	<b>71,300</b>	<b>73,439</b>	<b>75,642</b>	<b>77,911</b>	<b>(133,526)</b>	<b>82,656</b>	<b>85,135</b>	<b>87,689</b>	<b>90,320</b>	<b>(154,793)</b>	<b>95,821</b>	<b>98,695</b>	<b>101,656</b>	<b>104,706</b>
<b>Life cycle cost analysis</b>																				
<b>PVs in 2021</b>	<b>(99,356)</b>	<b>60,595</b>	<b>61,490</b>	<b>62,399</b>	<b>63,321</b>	<b>(106,918)</b>	<b>65,206</b>	<b>66,170</b>	<b>67,148</b>	<b>68,140</b>	<b>(115,055)</b>	<b>70,169</b>	<b>71,206</b>	<b>72,258</b>	<b>73,326</b>	<b>(123,811)</b>	<b>75,510</b>	<b>76,626</b>	<b>77,758</b>	<b>78,907</b>
<b>NPV as of 2021</b>	<b>665,090</b>																			

Year of analysis	2021	Risk adjustments (+/- percent):	Benefits	0%
Escalation rate	3.00%	Capital costs	0%	
Discount rate	1.50%	Running costs	0%	

**Alternative 1B: RNG & Microturbines, 5-Year UL**

**Life Cycle Alternative Cost Analysis (\$000s)**

	Year																			
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040

Section below can be used to graph individual values for NPV

Truck Retrofit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Compressor Replaceme	159,068	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total capital outlays</b>	<b>159,068</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Electricity Savings	61,712	62,624	63,550	64,489	65,442	66,409	67,390	68,386	69,397	70,423	71,463	72,519	73,591	74,679	75,782	76,902	78,039	79,192	80,362	81,550
CNG Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total benefits</b>	<b>61,712</b>	<b>62,624</b>	<b>63,550</b>	<b>64,489</b>	<b>65,442</b>	<b>66,409</b>	<b>67,390</b>	<b>68,386</b>	<b>69,397</b>	<b>70,423</b>	<b>71,463</b>	<b>72,519</b>	<b>73,591</b>	<b>74,679</b>	<b>75,782</b>	<b>76,902</b>	<b>78,039</b>	<b>79,192</b>	<b>80,362</b>	<b>81,550</b>

Diesel Purchase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CNG O&M	2,000	2,030	2,060	2,090	2,121	2,152	2,184	2,216	2,249	2,282	2,316	2,350	2,385	2,420	2,456	2,492	2,529	2,566	2,604	2,643
Compressor Replaceme	0	0	0	0	0	171,174	0	0	0	0	184,202	0	0	0	0	198,221	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total running costs</b>	<b>2,000</b>	<b>2,030</b>	<b>2,060</b>	<b>2,090</b>	<b>2,121</b>	<b>173,327</b>	<b>2,184</b>	<b>2,216</b>	<b>2,249</b>	<b>2,282</b>	<b>186,518</b>	<b>2,350</b>	<b>2,385</b>	<b>2,420</b>	<b>2,456</b>	<b>200,714</b>	<b>2,529</b>	<b>2,566</b>	<b>2,604</b>	<b>2,643</b>



Risk adjustments (+/- percent):	
Year of analysis	2021
Escalation rate	3.00%
Discount rate	1.50%
Benefits	0%
Capital costs	0%
Running costs	0%

**Alternative 2A: Microturbines Only, 93% Uptime**

**Life Cycle Alternative Cost Analysis (\$000s)**

Expressed in escalated dollars with sensitivity adjustments	Year																			
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
<b>Capital Outlays</b>																				
Truck Retrofit	134,378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Compressor Replacemen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total capital outlays</b>	<b>134,378</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Benefits:</b>																				
Electricity Savings	105,547	108,714	111,975	115,334	118,794	122,358	126,029	129,810	133,704	137,715	141,847	146,102	150,485	155,000	159,650	164,439	169,373	174,454	179,687	185,078
CNG Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck Salvage Value	10,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total benefits</b>	<b>115,547</b>	<b>108,714</b>	<b>111,975</b>	<b>115,334</b>	<b>118,794</b>	<b>122,358</b>	<b>126,029</b>	<b>129,810</b>	<b>133,704</b>	<b>137,715</b>	<b>141,847</b>	<b>146,102</b>	<b>150,485</b>	<b>155,000</b>	<b>159,650</b>	<b>164,439</b>	<b>169,373</b>	<b>174,454</b>	<b>179,687</b>	<b>185,078</b>
<b>Annual Running Costs:</b>																				
Diesel Purchase	12,636	13,015	13,406	13,808	14,222	14,649	15,088	15,541	16,007	16,487	16,982	17,491	18,016	18,556	19,113	19,686	20,277	20,885	21,512	22,157
CNG O&M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total running costs</b>	<b>12,636</b>	<b>13,015</b>	<b>13,406</b>	<b>13,808</b>	<b>14,222</b>	<b>14,649</b>	<b>15,088</b>	<b>15,541</b>	<b>16,007</b>	<b>16,487</b>	<b>16,982</b>	<b>17,491</b>	<b>18,016</b>	<b>18,556</b>	<b>19,113</b>	<b>19,686</b>	<b>20,277</b>	<b>20,885</b>	<b>21,512</b>	<b>22,157</b>
<b>Annual Risk Costs:</b>																				
Risk cost 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total risk costs</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>R&amp;R Costs:</b>																				
R&R cost 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total refurbishments</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net escalated benefit/(cost)</b>	<b>(31,466)</b>	<b>95,699</b>	<b>98,570</b>	<b>101,527</b>	<b>104,573</b>	<b>107,710</b>	<b>110,941</b>	<b>114,269</b>	<b>117,697</b>	<b>121,228</b>	<b>124,865</b>	<b>128,611</b>	<b>132,469</b>	<b>136,443</b>	<b>140,537</b>	<b>144,753</b>	<b>149,095</b>	<b>153,568</b>	<b>158,175</b>	<b>162,921</b>
<b>Life cycle cost analysis</b>																				
<b>PVs in 2021</b>	<b>(31,466)</b>	<b>94,284</b>	<b>95,678</b>	<b>97,092</b>	<b>98,527</b>	<b>99,983</b>	<b>101,460</b>	<b>102,960</b>	<b>104,481</b>	<b>106,025</b>	<b>107,592</b>	<b>109,182</b>	<b>110,796</b>	<b>112,433</b>	<b>114,095</b>	<b>115,781</b>	<b>117,492</b>	<b>119,228</b>	<b>120,990</b>	<b>122,778</b>
<b>NPV as of 2021</b>	<b>2,019,391</b>																			

Year of analysis	2021	Risk adjustments (+/- percent):	Benefits	0%
Escalation rate	3.00%	Capital costs	0%	
Discount rate	1.50%	Running costs	0%	

**Alternative 2A: Microturbines Only, 93% Uptime**

**Life Cycle Alternative Cost Analysis (\$000s)**

	Year																			
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040

Section below can be used to graph individual values for NPV

Truck Retrofit	134,378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Compressor Replacemen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total capital outlays	134,378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Electricity Savings	105,547	107,107	108,690	110,296	111,926	113,580	115,259	116,962	118,691	120,445	122,225	124,031	125,864	127,724	129,612	131,527	133,471	135,443	137,445	139,476
CNG Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck Salvage Value	10,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total benefits	115,547	107,107	108,690	110,296	111,926	113,580	115,259	116,962	118,691	120,445	122,225	124,031	125,864	127,724	129,612	131,527	133,471	135,443	137,445	139,476
Diesel Purchase	12,636	12,823	13,012	13,205	13,400	13,598	13,799	14,003	14,210	14,420	14,633	14,849	15,068	15,291	15,517	15,746	15,979	16,215	16,455	16,698
CNG O&M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total running costs	12,636	12,823	13,012	13,205	13,400	13,598	13,799	14,003	14,210	14,420	14,633	14,849	15,068	15,291	15,517	15,746	15,979	16,215	16,455	16,698

Year of analysis	2021	Risk adjustments (+/- percent):	Benefits	0%
Escalation rate	3.00%	Capital costs	0%	
Discount rate	1.50%	Running costs	0%	

**Alternative 2B: Microturbines Only, 77% Uptime**

**Life Cycle Alternative Cost Analysis (\$000s)**

	Year																			
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Expressed in 2021 dollars, unescalated -- dollars																				
<b>Capital Outlays</b>																				
Truck Retrofit	\$134,378																			
Compressor Replacemen	\$0																			
Total capital outlays	134,378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Benefits:</b>																				
Electricity Savings	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389	\$87,389
CNG Value																				
Truck Salvage Value	\$10,000																			
Total benefits	97,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389	87,389
<b>Annual Running Costs:</b>																				
Diesel Purchase	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636	\$12,636
CNG O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total running costs	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636	12,636
<b>Annual Risk Costs:</b>																				
Risk cost 1																				
Risk cost 2																				
Risk cost 3																				
Risk cost 4																				
Risk cost 5																				
Total risk costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>R&amp;R Costs:</b>																				
R&R cost 1																				
R&R cost 2																				
R&R cost 3																				
R&R cost 4																				
R&R cost 5																				
R&R cost 6																				
R&R cost 7																				
R&R cost 8																				
Total refurbishments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Net Benefit/(cost)</b>	(49,625)	74,753	74,753	74,753	74,753	74,753	74,753	74,753	74,753	74,753	74,753	74,753	74,753	74,753	74,753	74,753	74,753	74,753	74,753	74,753

Year of analysis	2021	Risk adjustments (+/- percent):	Benefits	0%
Escalation rate	3.00%	Capital costs	0%	
Discount rate	1.50%	Running costs	0%	

**Alternative 2B: Microturbines Only, 77% Uptime**

**Life Cycle Alternative Cost Analysis (\$000s)**

	Year																			
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040

Expressed in escalated dollars with sensitivity adjustments

Capital Outlays	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Truck Retrofit	134,378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Compressor Replacemen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total capital outlays	134,378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Benefits:	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Electricity Savings	87,389	90,010	92,711	95,492	98,357	101,307	104,347	107,477	110,701	114,022	117,443	120,966	124,595	128,333	132,183	136,149	140,233	144,440	148,773	153,237
CNG Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck Salvage Value	10,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total benefits	97,389	90,010	92,711	95,492	98,357	101,307	104,347	107,477	110,701	114,022	117,443	120,966	124,595	128,333	132,183	136,149	140,233	144,440	148,773	153,237

Annual Running Costs:	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Diesel Purchase	12,636	13,015	13,406	13,808	14,222	14,649	15,088	15,541	16,007	16,487	16,982	17,491	18,016	18,556	19,113	19,686	20,277	20,885	21,512	22,157
CNG O&M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total running costs	12,636	13,015	13,406	13,808	14,222	14,649	15,088	15,541	16,007	16,487	16,982	17,491	18,016	18,556	19,113	19,686	20,277	20,885	21,512	22,157

Annual Risk Costs:	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Risk cost 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Risk cost 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total risk costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

R&R Costs:	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
R&R cost 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R&R cost 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total refurbishments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Net escalated benefit/(cost)	(49,625)	76,995	79,305	81,684	84,135	86,659	89,259	91,936	94,694	97,535	100,461	103,475	106,579	109,777	113,070	116,462	119,956	123,555	127,261	131,079
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Life cycle cost analysis	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
PVs in 2021	(49,625)	75,857	76,978	78,116	79,270	80,442	81,631	82,837	84,061	85,304	86,564	87,844	89,142	90,459	91,796	93,153	94,529	95,926	97,344	98,782
NPV as of 2021	1,600,411																			



		Risk adjustments (+/- percent):	
Year of analysis	2021	Benefits	0%
Escalation rate	3.00%	Capital costs	0%
Discount rate	1.50%	Running costs	0%

**Alternative 2B: Microturbines Only, 77% Uptime**

**Life Cycle Alternative Cost Analysis (\$000s)**

	Year																			
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040

Section below can be used to graph individual values for NPV


Truck Retrofit	134,378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Compressor Replacemen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total capital outlays	134,378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Electricity Savings	87,389	88,680	89,991	91,321	92,670	94,040	95,429	96,840	98,271	99,723	101,197	102,692	104,210	105,750	107,313	108,899	110,508	112,141	113,798	115,480
CNG Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck Salvage Value	10,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total benefits	97,389	88,680	89,991	91,321	92,670	94,040	95,429	96,840	98,271	99,723	101,197	102,692	104,210	105,750	107,313	108,899	110,508	112,141	113,798	115,480

Diesel Purchase	12,636	12,823	13,012	13,205	13,400	13,598	13,799	14,003	14,210	14,420	14,633	14,849	15,068	15,291	15,517	15,746	15,979	16,215	16,455	16,698
CNG O&M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total running costs	12,636	12,823	13,012	13,205	13,400	13,598	13,799	14,003	14,210	14,420	14,633	14,849	15,068	15,291	15,517	15,746	15,979	16,215	16,455	16,698

# Agenda Summary Report

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**To:** Board of Directors  
**From:** Dale McDonald, Administrative Services Manager   
(415) 526-1519 [dmcDonald@lgvsd.org](mailto:dmcDonald@lgvsd.org)  
**Meeting Date:** March 17, 2022  
**Re:** Administrative Policy Concerning COVID-19 Supplemental Paid Sick Leave ("SPSL") Under Labor Code Sections 248.6 and 248.7

**Item Type:** Consent  Action  Information  Other   
**Standard Contract:** Yes  No  (See attached) Not Applicable

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## STAFF RECOMMENDATION

Adopt Administrative Policy Concerning COVID-19 Supplemental Paid Sick Leave ("SPSL") and authorize the General Manager or his designee to add the policy to the District's Personnel Policy & Procedures as Section 5 COVID-19, Personnel Policy No. 28.1.

## BACKGROUND

On February 9, 2022, Governor Newsom signed Senate Bill ("SB") 114 into law, which reauthorized COVID-19 Supplemental Paid Sick Leave ("SPSL"), providing new paid leave entitlements to employees who are unable to work or telework due to a number of qualifying reasons related to COVID-19.

The law became effective on February 19, 2022 and entitles qualified employees to SPSL, retroactive to January 1, 2022, and through September 30, 2022.

Employers in the State of California with 26 or more employees are required to provide SPSL. The District currently has 25 employees as of March 17, 2022 and is in the process of filling 4 additional positions.

## PREVIOUS BOARD ACTION

None

## ENVIRONMENTAL REVIEW

N/A

## FISCAL IMPACT

The cost to implement the policy is dependent on the number of eligible employees that request SPSL. Full-time District employees are eligible for two banks of leave up to 40 hours each, compensated at the employees' regular rate of pay up to \$511 per day.

The initial cost is estimated to be \$14,810 for retroactive compensation to January 1, 2022 for employees that have taken qualified leave because of COVID-19. Additional costs through September 30, 2022 are unknown but estimated \$10K and \$40K based on anticipated qualifying SPSL reason. The lower estimated range is based on limited leave taken for anticipated for symptoms after vaccination and/or boosters and care for family members. The higher estimate is for limited outbreak within the workforce.

## 28.1 COVID-19 Supplemental Paid Sick Leave (“SPSL”)

This policy provides all eligible and qualified employees SPSL to which they are entitled under Labor Code sections 248.6 and 248.7.

### A. Definitions

1. “Child” means a biological, adopted, or foster child, stepchild, legal ward, or a child to whom the employee stands *in loco parentis*. This definition of a child is applicable regardless of age or dependency status.
2. “Covered Employee” means any District employee who is unable to work or telework for the District for one or more of the reasons related to COVID-19 as set forth in this policy.
3. “COVID-19 Supplemental Paid Sick Leave” or “SPSL” means paid sick leave pursuant to Labor Code sections 248.6 and 248.7.
4. “Family Member” means any of the following:
  - (i) A “child”, as defined above.
  - (ii) A biological, adoptive, or foster parent, stepparent, or legal guardian of an employee or the employee’s spouse or registered domestic partner, or a person who stood *in loco parentis* when the employee was a minor child.
  - (iii) A spouse.
  - (iv) A registered domestic partner.
  - (v) A grandparent.
  - (vi) A grandchild.
  - (vii) A sibling.

### B. Effective Dates:

The policy is effective immediately upon adoption, and the paid leave benefits provided herein shall be retroactive to January 1, 2022.

SPSL benefits expire after September 30, 2022, except that the District will provide a Covered Employee who is on SPSL at the time of the expiration of such benefits the full amount of SPSL to which the Covered Employee would otherwise be entitled.

Unless the underlying law is extended, this policy will expire by operation of the law after September 30, 2022, except that certain Covered Employees may continue to use SPSL after that date as described above.

C. Employees Eligible for SPSL:

All District Covered Employees are eligible for SPSL if they are unable to work or telework for one or more of the enumerated Qualifying Reasons related to COVID-19 as provided below:

- 1) The employee is subject to a quarantine or isolation period related to COVID-19 as defined by an order or guidelines of the California Department of Public Health (“CDPH”), the federal Centers for Disease Control and Prevention (“CDC”), or a local health officer who has jurisdiction over the workplace;
- 2) The employee has been advised by a health care provider to self-quarantine due to COVID-19;
- 3) The covered employee is attending an appointment for themselves or a family member to receive a vaccine or a vaccine booster for protection against COVID-19;
- 4) The covered employee is experiencing symptoms, or caring for a family member experiencing symptoms, related to a COVID-19 vaccine or vaccine booster that prevent the employee from being able to work or telework;
- 5) The covered employee is experiencing symptoms of COVID-19 and seeking a medical diagnosis;
- 6) The covered employee is caring for a family member who:
  - a) Is subject to a CDPH, CDC, or local health officer order or guidance to isolate or quarantine, or
  - b) Has been advised by a health care provider to isolate or quarantine;
- 7) The covered employee is caring for a child whose school or place of care is closed or otherwise unavailable for reasons related to COVID-19 on the premises; or
- 8) The covered employee, or a family member for whom the covered employee is providing care, tests positive for COVID-19.

If an employee requests SPSL for reason 8, the District may require that the employee provide the positive test result to confirm that the employee qualifies for such leave. The District may also require that the employee provide the family member’s positive test result if the employee is requesting leave in order to provide care to a covered family member.

The District requires an employee who has taken SPSL for qualifying reason 8 to test for COVID-19 on or after day five, following the initial positive test. If the District requires such a test, the District will provide the test at no cost to the employee.



D. Amount of SPSL for Qualifying Reasons 1 - 7:

1. Leave taken as SPSL is in addition to any other statutory and/or contractual leave to which the employee is otherwise entitled, and which is not specific to COVID-19.
2. Employees who worked at least 40 hours per week in the two weeks before they take SPSL, or who the employer considers to be full-time employees, are entitled to 40 hours of SPSL for qualifying reasons 1 through 7, above.
3. Part-time Covered Employees are entitled to SPSL in the following amounts:
  - a. If the part-time Covered Employee has a normal weekly schedule, the total number of hours the Covered Employee is normally scheduled to work for the District over one week for qualifying reasons 1 through 7; or
  - b. If the part-time Covered Employee works a variable number of hours, the Covered Employee is entitled to 7 times the average number of hours the Covered Employee worked each day for the District in the six (6) months preceding the date the Covered Employee took SPSL. If the employee has worked for the District fewer than six months, then the employer calculates the average hours worked for the entire employment period and multiplies the daily average by seven. If an employee works variable hours and has only worked for the District seven days or fewer, then the employee receives an amount of SPSL equivalent to the total number of hours worked for the employer.

E. Amount of SPSL for Qualifying Reason 8:

Employees taking additional COVID-19 supplemental paid sick leave under qualifying reason 8 are entitled to an amount not to exceed that which the employee received under qualifying reasons 1-7.

Covered Employees may determine how many hours of SPSL to use based upon a qualifying reason, up to the total number of hours to which the Covered Employee is entitled.

If a Covered Employee is provided SPSL retroactively for qualifying leave before adoption of this policy, the District will count the retroactive SPSL provided against the SPSL to which the Covered Employee is entitled.

For retroactive SPSL, the District will require the employee sign a "COVID-19 Supplemental Paid Sick Leave Acknowledgment," acknowledging the accuracy of the amount of leave designated retroactively.

F. Compensation While on SPSL:

Covered Employees are entitled to compensation for SPSL at their regular rate of pay or the employee's total wages less any overtime premium pay, including pursuant to any applicable collective bargaining agreement, subject to a cap of \$511 per day and \$5,110 in the aggregate.

G. Employee Notice of Supplemental Paid Sick Leave:

Covered Employees must notify the District that they intend to take SPSL. The Covered Employee may provide such notice either orally or in writing to their immediate supervisor. Employee Request Form for Prospective COVID-19 Supplemental Paid Sick Leave (SPSL) must be completed and signed by the employee.

H. Employee Status While on Leave:

The District will compensate Covered Employees who use SPSL according to the manner described in this policy and will coordinate SPSL leave with other leaves in accordance with District Policy No. 22. Leave of Absence.

I. Employee Obligations for Requesting Entitled Retroactive Payments for Prior Leave that Qualified as SPSL to January 1, 2022:

If the District did not compensate the employee for leave that would otherwise have qualified as SPSL between January 1, 2022 and the effective date of this policy, in an amount equal to or greater to what the employee would have been entitled to under this policy, the employee is eligible for a retroactive payment from the District for such leave.

In order to receive payment for such leave, employees must make an oral or written request to be paid for such leave to the District's Human Resources Department. Employee Request Form for Retroactive COVID-19 Supplemental Paid Sick Leave (SPSL) must be completed and signed by the employee.

For any such retroactive payment, the number of hours of leave corresponding to the amount of the retroactive payment shall count towards the total number of hours of SPSL that the employer is required to provide to the Covered Employee.

AGENDA ITEM 7

**3/17/2022**

**PUBLIC COMMENT**

**This portion of the meeting is reserved for persons desiring to address the Board on matters not on the agenda and within the jurisdiction of the Las Gallinas Valley Sanitary District. Presentations are generally limited to three minutes. All matters requiring a response will be referred to staff for reply in writing and/or placed on a future meeting agenda. Please contact the General Manager before the meeting.**

3/17/2022

## **BOARD MEMBER REPORTS**

### **CLARK**

**NBWA Board Committee, NBWA Conference Committee, 2022 Operations Control Center Ad Hoc Committee , Other Reports**

### **FORD**

**NBWRA, Gallinas Watershed Council/Miller Creek Watershed Council, Marin Special Districts Association, 2022 Engineering Ad Hoc Committee re: STPURWE, 2022 Operations Control Center Ad Hoc Committee, 2022 HR Ad Hoc Committee, Other Reports**

### **MURRAY**

**Marin LAFCO, CASA Energy Committee, 2022 GM Recruitment Ad Hoc Committee, Other Reports**

### **SCHRIEBMAN**

**JPA Local Task Force, Gallinas Watershed Council, 2022 Legal Services Ad Hoc Committee, 2022 HR Ad Hoc Committee, 2022 Biosolids Ad Hoc Committee, Other Reports**

### **YEZMAN**

**Flood Zone 7, CSRMA, Marin Special Districts Association, 2022 Ad Hoc Engineering Sub-Committee re: STPURWE, 2022 Legal Services Ad Hoc Committee, 2022 GM Recruitment Ad Hoc Subcommittee, 2022 Biosolids Ad Hoc Committee, Other Reports**





**AGENDA**

*Agenda Item 8.3*

**Air Quality, Climate Change, and Energy (ACE) Workgroup Meeting** *March 17, 2022*

**Meeting Date/Time:** February 24, 2022 / 8:30 – 10:30 am  
**Meeting Location:** Zoom Link (provided in the meeting appointment)  
**Dial-in:** Zoom Call-In (provided in the meeting appointment)

**COMMENCEMENT**

ITEM	LEAD
Welcome/Roll Call	Jackie Zipkin (Chair), Greg Kester and Sarah Deslauriers (CASA)
Review/Approval of Agenda	All

**LEGISLATIVE UPDATE**

	ITEM	LEAD	STATUS
1.	CASA State Legislative Committee	Jessica	Bill introduction deadline Feb 18, bill summaries and subgroup review 2022 PFAS Disclosure Bill (sponsor partnership) Governor's Budget

**PRIORITY ISSUES/ACTION ITEMS**

	ITEM	LEAD	NOTES
1.	<u>AB 32 Scoping Plan Update: Carbon Neutrality by 2035/2045</u>	Sarah	<u>Workshop Series</u> and latest updates on Natural & Working Lands ( <u>Draft Climate Smart Strategy</u> ), Clean/Renewable Electricity ( <u>SB 100</u> ), Vehicle Electrification, SLCs, Scenario Inputs, and EJAC, Board Hearing Feb 24 (today!) to provide update on Scoping Plan
2.	CARB Advanced Clean Vehicle Regulations (Electrification)	Sarah, Greg, David, Steve	<u>Advanced Clean Truck Rule &amp; Advanced Clean Fleet Rule, 2020 Mobile Source Strategy</u> , Medium- & Heavy-Duty Infrastructure Workgroup series – Mar 10, CEC <u>ZEV Infrastructure Plan</u> , CARB Board Member and Executives outreach (next mtg Mar 8) – updated biogas production potential estimate
3.	<u>SB 1383: Organic Waste Methane Emissions Reductions</u>	Greg, Sarah	<u>SB 1383, CalRecycle Webinar Series</u> : SB 619 notice of intent to comply due Mar 1, begin outreach to discuss county ordinances, "Biosolids 101" Mar 7
4.	CA Adaptation Update	Sarah	Coastal Commission <u>Final Adopted Guidance</u> (released Dec 6) - Critical Infrastructure at Risk: Sea Level Rise Planning, draft <u>Adaptation Strategy</u> released (Nov 17), SWRCB climate change preparedness survey expected in 2022
5.	<u>Criteria Pollutants &amp; Toxics Emissions Reporting &amp; AB 2588 Toxics Program</u>	Sarah, David	<u>Summary of CTR and EICG</u> , CARB <u>Final Statement of Reasons</u> released, business-as-usual reporting of air toxics through 2028, Subgroup preparing approach for statewide two-step process through 2022 (met Feb 3), met with SCAQMD Feb 11

**INFORMATIONAL ITEMS**

	ITEM	LEAD	NOTES
1.	Carbon Sequestration Meta-Analysis	Sarah	Systematic review continuing into early 2022
2.	Biogas/Biomethane Management: EPA <u>Renewable Fuel Standard RINs</u>	Greg	EPA staff considering D3 vs D5 value for sludge vs food waste-based biogas, responding to EPA questions
3.	CEC Integrated Energy Policy Report, <u>Vol. III Decarbonizing CA's Gas System</u>	Sarah	Draft Ch 4: Opportunities for Renewable Gas and Renewable Hydrogen, comments submitted Jan 28
4.	CEC Solutions to Peak Demand Energy Shortages	Greg	CASA engagement with CEC to determine solutions
5.	CPUC <u>SB 144Q Biogas Procurement Proceedings</u>	Greg	<u>Staff Proposal and decision</u>
6.	New BACT for Large Emergency Diesel Engines: BAAQMD, SMAQMD, SCAQMD	Sarah, David	BAAQMD and SMAQMD process complete; SCAQMD public process underway (surveying facilities)

**UPCOMING CONFERENCES/EVENTS**

NAME	DATE/LOCATION
CASA Washington DC Forum	Feb 28 – Mar 2, DC
CASA Biosolids 101 Webinar	Mar 7, <u>Virtual</u>
AWWA Sustainable Water Management Conference	Mar 27 – 30, Denver
CWEA Annual Conference (Pre-Conference Event: Partnering for Impact)	April 11 – 14, Sacramento
WEF Residuals & Biosolids Conference	May 24 – 27, Columbus

NEXT MEETING: March 24<sup>th</sup>, 8:30-10:30 am (webinar/conference call) – discuss potential for in-person/hybrid meetings



## AGENDA

### Air Quality, Climate Change, and Energy (ACE) Workgroup Meeting

#### Additional topics we review periodically for progress or changes:

##### State

- CARB Mandatory GHG Reporting Regulation
- CARB Scoping Plan Updates (Natural & Working Lands, Vehicle Electrification, Clean/Renewable Energy)
- CEQA Guidance on GHG Emissions
- CNRA Climate Change Assessment
- CNRA Online CA Sea Level Rise Database
- CNRA Safeguarding CA: Implementation Action Plans
- CEC Climate Change Research Plan
- OEHHA CalEnvironScreen Tool
- California's Climate Future report (by Governor Brown)
- Funding Opportunities

##### Regional Adaptation Collaboratives

- Bay Area Climate Adaptation Network (BayCAN)
- San Francisco Bay Regional Coastal Hazards Adaptation Resiliency Group (CHARG)
- Southern California Association of Governments (SCAG) Regional Climate Adaptation Framework

##### National

- NEPA Guidance on GHG Emissions
- EPA Creating Resilient Water Utilities
- EPA EJScreen Tool
- EPA Mandatory GHG Reporting Regulation Updates
- EPA Clean Power Plan (on stay)
- EPA Existing Source Performance Standards
- EPA Biogenic Emissions Accounting Framework
- White House Budget for DOE Energy Efficiency and Renewable Energy Programs
- White House Climate Change Support Office
- NACWA Energy Workgroup
- NACWA Climate & Resilience Workgroup
- Funding Opportunities

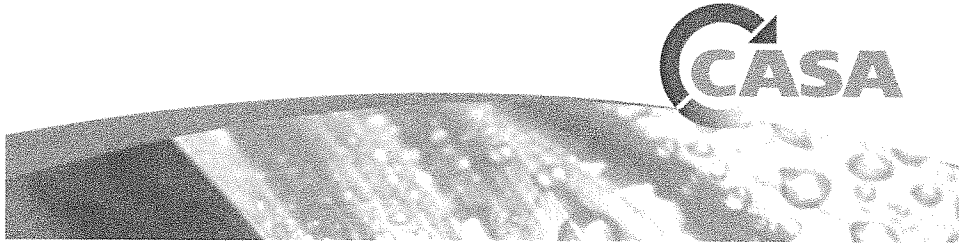
##### International

- Global GAP (Good Agricultural Practices) & Biosolids
- IWA Nitrous Oxide Modeling

## Air Quality, Climate Change, & Energy (ACE) Workgroup Meeting

February 24, 2022 (8:30 – 10:30 am)

Zoom Link – See Meeting Appointment



1

### Legislative Update

- 2022 Bills (ACE Bill list provided, subgroup to convene for review)
- PFAS Disclosure Bill and Others
- Governor's Budget



2

## Priority Issues/ Action Items



3

### 1. AB 32 Climate Change Scoping Plan Update 2022

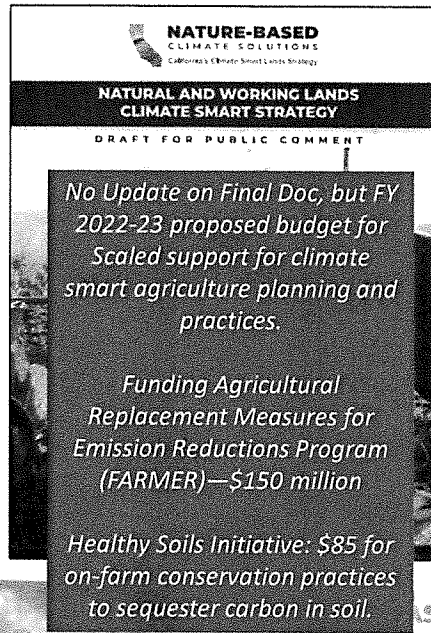
- ▣ **Target:** Carbon neutrality by 2035/2045
- ▣ Scoping Plan Workshops through Spring/Summer 2022 on:
  - Natural and Working Lands (Draft Climate Smart Strategy)
  - Building Decarbonization
  - Electricity Sector (SB 100 report and Integrated Energy Policy Report)
  - Transportation Sector (ACF regulation)
  - Short-Lived Climate Pollutants (SLCP reduction under SB 1383 regulation)
  - Environmental Justice
    - Petition to exclude fuels derived from dairy and swine manure from the LCFS Program (heard by CARB October 27) – CARB responded
    - Update from CARB staff on PATHWAYS model – requested scenario with no combustion and electrified vehicles but recognize 100% may not be feasible
- ▣ February CARB public hearing to provide overview of SPU (today!)
- ▣ Full draft of SPU expected by May 2022 (45-day comment period), final draft in Fall 2022



4

## 2. CNRA Natural & Working Lands Draft Climate Smart Strategy

- ▣ **Natural and Working Lands**
- ▣ Released Oct 2021
- ▣ State cannot meet goals without healthy soils and land management
  - Priority Actions and Approaches
  - Regional Profiles
  - Tracking Progress/Measuring Outcomes
  - Opportunities
- ▣ Landscapes
  - Forests
  - Shrublands and Chaparral
  - Developed Lands
  - Wetlands
  - Seagrasses and Seaweeds
  - Croplands
  - Grasslands
  - Sparsely Vegetated Lands
- ▣ **Next steps to be posted...**



5

## 2. N&WL related 2021 State Legislation

- AB 284 (Rivas) California Global Warming Solutions Act of 2006: climate goal (2030): natural and working lands
  - By January 1, 2024, develop standard methods for state agencies to track GHG reductions, carbon sequestration, and additional benefits from natural and working lands over time
- SB 27 (Skinner) C-sequestration: state goals; natural and working lands: register projects

6



### 3. CARB Advanced Clean Fleet (ACF) Regulations

☒ To be in alignment with the 2020 Mobile Source Strategy:

- Mix of vehicle technologies that would provide the level of emissions reductions needed to meet our goals
- May go beyond levels of clean technologies from current regulatory proposals

Potential New State Implementation Plan (SIP) Strategy Measures

On-Road	Off-Road	Primarily Federally-Regulated
Advanced Clean Fleets Regulation	Tier 5 Off-Road Engine Standard	In-Use Locomotive Regulation
GHG Standards for MD/HD Vehicles, Phase 3	Amendments to In-Use Diesel-Fueled Fleets Regulation	Future Measures for Aviation Emissions Reductions
On-Road Motorcycles New Emissions Standards	Zero-Emission TRU (Part II)	Future Measures for OGV Emissions Reductions
Clean Miles Standard	Commercial Harbor Craft Amendments	
	Cargo Handling Equipment Amendments	Other
	Off-Road Zero-Emission Targeted Manufacturer Rule	Consumer Products
	Clean Off-Road Fleet Recognition Program	Zero-Emission Standard for Space and Water Heaters
	CORE – Construction	
	Spark-Ignition Marine Engine Standards	

CARB Board update on the 2022 SIP Strategy (Q1 2022)

Concepts released

- commented Jan 14th supporting:
- Alternative fuels (to renewable diesel)
- Exemption for emergency uses
- Compliance flexibility
- Feasible records review



### 3. CARB Advanced Clean Fleet (ACF) Regulations

☒ ACF by 2035/2045:

- Draft regulatory language Sept 9<sup>th</sup>, CASA submitted comments
- CARB to release a second draft regulation in first half of 2022
- Target adoption by fall 2022 (similar to Scoping Plan Update)

☒ Workshops/Actions:

- CARB Medium and Heavy-Duty Infrastructure Workgroup – Dec 3 (business considerations), Dec 16 (hydrogen), Jan 12 (electricity and the grid) + **1 more scheduled for Mar 10**, Feb 11 (costs and funding)

☒ CASA Action Items

- Workshop & Public Hearing participation/comment letters
- CARB Board Member meetings – met with Air District representatives
- CARB Executive meeting set for Mar 8<sup>th</sup> to follow up on data requests
- Subgroup met Jan 24<sup>th</sup> – more to be scheduled!



#### 4. SB 1383: Organic Waste Methane Emissions Reduction

- ▣ 40% methane reduction by 2030 (relative to 2013 levels)
- ▣ Organic waste diversion from landfills (includes biosolids, digestate, and sludges)
  - 50% by 2020 (relative to 2014 levels)
  - 75% by 2025 (relative to 2014 levels)
- ▣ Implementation
  - State to enforce jurisdictions Jan 1, 2022 (local entities enter agreements)
  - Local jurisdictions to start enforcement Jan 1, 2024
  - Compliance by Jan 1, 2025



- ▣ Workshop Series
  - SB 619 webinars held Nov 18<sup>th</sup> and Jan 13<sup>th</sup>
  - Statewide Recycling Markets to be held Feb 2<sup>nd</sup> and 16<sup>th</sup>



9

#### 4. AB 619: Notification of Intent to Comply

- ▣ Local governments are facing challenges due to COVID-19
- ▣ Governor Newsom signed SB 619 (Laird, Chapter 508, Statutes of 2021) into law to support local governments in implementing SB 1383
- ▣ SB 619 authorizes CalRecycle to waive civil penalties if a jurisdiction submits a Notification of Intent to Comply (NOIC) for some or all regulatory requirements and successfully implements a plan to correct their violations
- ▣ **NOIC must be submitted no later than March 1, 2022**
- ▣ CalRecycle [webinar](#) on November 18<sup>th</sup> detailed the process to request a NOIC – Part II of the [webinar](#) series was held January 13<sup>th</sup>
- ▣ Forms used to complete an NOIC are [here](#)



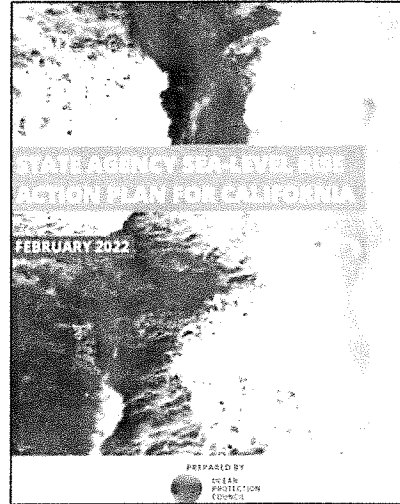
10

## 5. CA Adaptation: OPC Sea Level Rise Action Plan (FY 2021/22 – 2024/25)

Released February 2022 by the Statewide SLR Leadership Team

State Actions by SLR Principle

- 1. Best Available Science
- 2. Partnerships
- 3. Communications
- 4. Local Support
- 5. Alignment
- 6. Resilience Projects
- 7. Equity & Social Justice



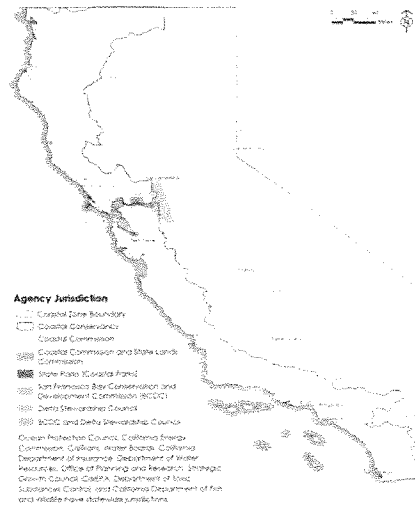
11

## 5. CA Adaptation: OPC Sea Level Rise Action Plan (FY 2021/22 – 2024/25)

Relevant Actions

- Action 5.9: Develop a site-specific infrastructure resiliency plan focused on state roads, railroads, wastewater treatment plants, water supply facilities, ports, and power plants.
- Action 5.16: Inventory regulated permitted facilities that are vulnerable to SLR (e.g., POTWs, industrial stormwater facilities).
- Action 6.4: Support multi-phased wastewater resiliency infrastructure projects that start with planning and end with shovel-ready projects, including wastewater treatment plants and onsite wastewater treatment systems.

**Statewide Coverage**  
 This map shows the coastal jurisdictions of our SLR Leadership Team agencies. While some agencies have clear coastal or regional boundaries, others are statewide.

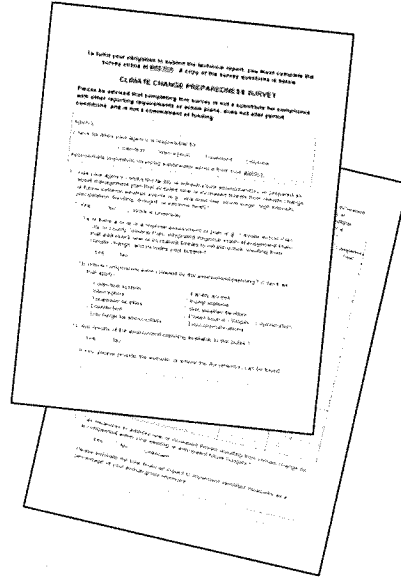


12



## 5. CA Adaptation: SWRCB Climate Change Preparedness Survey

- ▣ State Water Board to:
  - Send NPDES and WDR permit holders to be surveyed in 2022
  - 45-day response
  - Webinar after formal distribution
  - Communicate through Chris Hyun
  - Follow development of SWRCB priority areas:
    - Drinking water
    - Wastewater/co-digestion
    - Sea level rise
    - Harmful algal blooms



13

## 6. Criteria Pollutants & Toxics Reporting and Air Toxics “Hot Spots” Program Updates

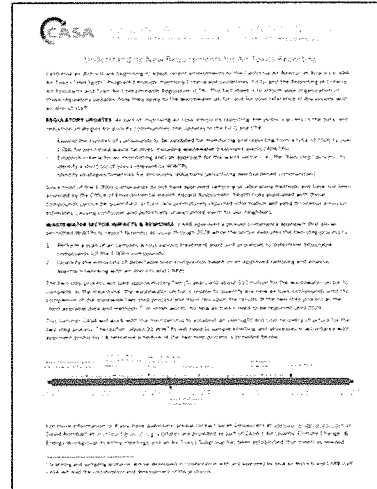
- ▣ AB 617 gives CARB authority to “harmonize” air monitoring, reporting, & emission reductions from stationary sources
- ▣ AB 2588 Hot Spots compound list is >1000 compounds (from >500)
  - Many of the compounds have unknown toxicity levels
  - Many of the compounds have unknown emission factors
  - Many of the compounds are not relevant to WWTPs
- ▣ CASA worked closely with CARB to negotiate phased compliance, allowing WWTPs to:
  - Report business as usual through 2028 (begin reporting in 2029 for 2028 data)
  - Perform a “two-step process” for determining a shortlist of compounds
    - Scanning air space of unit processes to determine detectable compounds
    - Determining the sampling and analysis methods to quantify emissions (Mimic 1990 Pooled Emissions Estimation Program, PEEP)



14

# 6. Next steps for the Wastewater Sector...

- **CASA One-Page Summary *timeline updated***
- **CASA Subgroup met Feb 3<sup>rd</sup> to begin defining:**
  - Timeline/approach to two-step process (including examining source testing requirements)
  - Participating agencies
  - Governing structure
- **Met with SCAQMD Feb 11<sup>th</sup> to begin discussing source testing**
- **Subgroup to meet again**



# Informational Items



# 1. White House EO: Catalyzing Clean Energy Industries and Jobs through Federal Sustainability

- Dec 8, 2021
- Government-Wide Goals
  - Net-zero emissions by 2050
    - 100% carbon pollution-free electricity on a net annual basis by 2030, including 50% 24/7 carbon pollution-free electricity
    - 100% zero-emission vehicle acquisitions by 2035, including 100% zero-emission light-duty vehicle acquisitions by 2027;
    - Net-zero emissions building portfolio by 2045, including a 50% emissions reduction by 2032;
    - 65% reduction in scope 1 and 2 GHG emissions from Federal operations by 2030 from 2008 levels;
    - Net-zero emissions from Federal procurement, including a Buy Clean policy to promote use of construction materials with lower embodied emissions;
    - Climate resilient infrastructure and operations; and
    - Climate- and sustainability-focused Federal workforce.



17

# 2. Carbon Sequestration Meta-Analysis

## Systematic Reviews & Data Extraction

- Virginia Tech to quantify C-sequestration potential from land-applied biosolids based on research/data
- Systematic review of published and unpublished data
- Data (with consent of authors) to be added to open-access repository
- Promote biosolids research, identify gaps, and inform and harmonize future collection methods


## Can You or Someone You Know Help?

- Help review full text
  - Materials and Methods section
  - Checking for soil organic carbon/matter data
- **Please reach out to Mike Badzmierowski, Greg Evanylo, and Lee Daniels!**
- OR if you have data that has not been published already and it shows changes in soil organic carbon/matter concentrations and stocks, please consider sharing



18

### 3. Biogas/Biomethane Management: RINs

- EPA Renewable Fuel Standard RINs
 
  - RFS RIN values for sludge-based biogas (D3, cellulosic) vs food waste-based biogas (D5, advanced biomass fuel)
  - Current interpretation is all biogas from co-digestion will be valued at D5
  - Discussed “plan b” – to allocate D3 and D5 per feedstock
  - Greg surveyed POTWs across US to collect average MCRT, VSR, and scf/lb VSR and submitted data to EPA
  
- EPA to consider approach and how to determine the allocation on a consistent basis
  - Letter sent July 26<sup>th</sup>, met with EPA team July 27<sup>th</sup>
  - Survey results submitted
  - Meeting February 22<sup>nd</sup> to answer EPA’s questions

19

### 4. CEC Integrated Energy Policy Report – Vol. III Decarbonizing CA’s Gas System

- Draft released Jan 13
- Comments submitted Jan 28
- Ch. 4: Opportunities for Renewable Gas & Renewable Hydrogen
  - Definition of renewable gas... “...known as biomethane, is biogas that has been upgraded to meet industry pipeline quality standards.”
  - “The four primary sources of biogas are landfills, livestock facilities, **wastewater treatment plants**, and waste management facilities.”
  - “Livestock, **wastewater treatment**, and waste management all generate organic material that can be used as a feedstock to produce biogas using anaerobic digesters.”
  - Wastewater treatment facilities use sewage sludge as a feedstock for anaerobic digestion, but these facilities can use various waste streams (including food waste), a process known as “codigestion.”
  - “Of the roughly 242 wastewater treatment plants in California, more than 150 have digesters, with 5 of those injecting gas into pipelines.”

20

## 5. CEC Solutions to Peak Demand Energy Shortages

**Peak Demand Response Opportunities of the California Water Sector**

**GOALS**  
 Agree on opportunities intended to shift or offset demands during peak periods for presentation to CEC/CPUC. Identify needs for both wastewater and water utilities in order to execute the opportunities. (See Daily Journalist, Regulatory Policy, permitting, etc.)

**OPPORTUNITIES/POTENTIAL**

- Operational**
  - Use of reservoirs for water storage and shift pumping schedules to avoid peak demand
  - Increase the use of cogeneration to produce additional biogas and thus energy which can allow alternatives to grid demand (as off-grid during peak periods for running of cogeneration units). Note this could be done even without cogeneration
  - Increase the use of and technology of battery storage (increase the effective holding time of energy in batteries)
  - Most flow such that it can be treated during non-peak demand periods (could be demonstrated at San Francisco PUC)
  - Staff made force to work into the existing 10. Adjust mobile shifting demand periods
- Note that wastewater plants are often located in marginalized communities. Could provide an opportunity to achieve multiple community benefits (i.e., charging stations and microgrid installation)

**NEEDS IN ORDER TO EXECUTE OPPORTUNITIES**

- Capital Funding**
  - Infrastructure such as for cogeneration and cogeneration facilities, microgrids
- Funding to offset operation cost impacts**
  - Operational expenses, such as double pumping and double treating
  - Staff expenses, including schedule shift and overtime pay
- Need to streamline permitting (many changes take moderate amount of time, money, and staff)**
- RDU Rates should be changed by the CPUC to reflect the value of the Water Sector going off the grid. Currently there is no incentive to do so as demand charges are imposed whenever pumping is reinstated or a facility goes back on the grid**
- CalEPA must recognize the value of renewable biogas at wastewater treatment plants and incentivize its production and use (as opposed to current push for all electric vehicles, etc.)**
- Add demand management to local assistance entities such as SoCalREN and its sister agencies**
- Consider what can be incentivized through Natural Gas providers such as GGS, which provides it to some POTWs**
- CASA and partners can better quantify the potential for energy production of POTWs and quantify how much energy can be conserved by going off the grid.**

21

## 6. CPUC SB 1440 Biogas Procurement Proceedings

- ☒ CASA is party to proceedings
- ☒ Staff Proposal released June 3<sup>rd</sup>
  - Determine if biomethane procurement targets or goals can be adopted in a cost-effective manner while complying with state and federal law
  - Consider 14 specific issues to ensure compliance with CA Public Utilities (PU) Code Section 651(b)
- ☒ On CPUC's voting agenda **February 10<sup>th</sup>**

FILED  
 BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Under Investigation Rulemaking re: **Market for Methane, Municipal and Wastewater, Pipeline Open Access, Policy, and Related Proceedings**      Rebuttal by CPUC Staff

**ADMINISTRATIVE LAW JUDGE 5 RULING DIRECTING PARTIES TO FILE COMMENTS ON PHASE 4A STAFF PROPOSAL AND RELATED QUESTIONS**

To help implement SB 1440 (Chapter 2018), Energy Division staff has prepared a Staff Proposal as part of Phase 4 of this proceeding, a copy of which is attached to this ruling. The Staff Proposal provides background information, addresses challenges, and makes specific recommendations relating to the establishment of a biomethane procurement program for California gas service providers.

In this ruling, I am directing parties to file comments on the Staff Proposal specifically on the following responses to the Staff Proposal questions:

- Do you agree with Energy Division's proposed method of determining cost effectiveness? Why or why not? What, if anything, would you change?
- Do you agree with Energy Division's proposed procurement targets? Why or why not? What, if anything, would you change?
- Energy Division proposes 10 procurement targets in addition to their proposed cost effectiveness approach and procurement targets. Please address each of the 10 additional recommendations and include a rating.

22

## 7. New BACT for Large Emergency Diesel Engines ≥1,000 bhp – Tier 4 Engines

- ▣ Air District Activities
  - BAAQMD – December 2020
  - Sacramento Metro AQMD – May 2021
  - South Coast AQMD –
    - BACT scientific review committee and public review process underway
    - Surveying facilities
    - Likely to adopt requirements similar to BAAQMD and SMAQMD
  
- ▣ CARB (and local air districts) are exploring Tier 5 BACT:
  - Exploring potential amendments
  - Aiming to reduce emissions of NOx (up to 90 percent) and PM (up to 75 percent) compared to today's Tier 4 final emission standards
  - More stringent exhaust standards for all power categories, including those that do not currently utilize exhaust aftertreatment (i.e., diesel particulate filters and selective catalytic reduction)
  - First-time CO<sub>2</sub> standards may be proposed
  - Proposal to the Board expected in 2024, with implementation of the Tier 5 standards expected to begin in 2028



23

## Conferences/Events

- ▣ **CASA Washington DC Forum**  
February 28<sup>th</sup> – March 2<sup>nd</sup>, DC
- ▣ **AWWA Sustainable Water Management Conference**  
March 27<sup>th</sup> – 30<sup>th</sup>, Denver
- ▣ **CWEA Annual Conference (including Partnering for Impact)**  
April 11<sup>th</sup> – 14<sup>th</sup>, Sacramento
- ▣ **WEF Residuals & Biosolids Conference**  
May 24<sup>th</sup> – 27<sup>th</sup>, Columbus



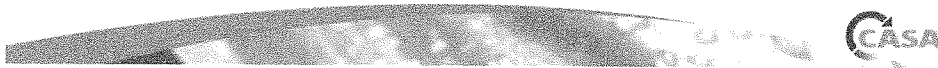
24

## Upcoming Meetings

March 24<sup>th</sup>

Potential for In-Person Meetings (with virtual option) in 2022

Thank you!



25





## CASA ACE Committee Bill Tracker 2/23/2022

**AB 1640 (Ward D) Office of Planning and Research: regional climate networks: regional climate adaptation and resilience action plans.**

**Current Text:** Introduced: 1/12/2022 [html](#) [pdf](#)

**Introduced:** 1/12/2022

**Status:** 1/20/2022-Referred to Com. on NAT. RES.

**Location:** 1/20/2022-A. NAT. RES.

**Summary:** Current law requires, by July 1, 2017, and every 3 years thereafter, the Natural Resources Agency to update, as prescribed, the state's climate adaptation strategy, known as the Safeguarding California Plan. Existing law establishes the Office of Planning and Research in state government in the Governor's office. Current law establishes the Integrated Climate Adaptation and Resiliency Program to be administered by the office to coordinate regional and local efforts with state climate adaptation strategies to adapt to the impacts of climate change, as prescribed. This bill would authorize eligible entities, as defined, to establish and participate in a regional climate network, as defined. The bill would require the office, through the program, to encourage the inclusion of eligible entities with land use planning and hazard mitigation planning authority into regional climate networks.

**Position**

Refer to ACE  
Committee

**Assigned**

CASA ACE Cmte

**AB 1749 (Garcia, Cristina D) Community Air Protection Blueprint: community emissions reduction programs: toxic air contaminants and criteria air pollutants.**

**Current Text:** Introduced: 2/1/2022 [html](#) [pdf](#)

**Introduced:** 2/1/2022

**Status:** 2/10/2022-Referred to Com. on NAT. RES.

**Location:** 2/10/2022-A. NAT. RES.

**Summary:** Current law requires the State Air Resources Board to prepare, and to update at least once every 5 years, a statewide strategy, known as the "Community Air Protection Blueprint" or "Blueprint," to reduce emissions of toxic air contaminants and criteria air pollutants in communities affected by a high cumulative exposure burden. Current law requires the state board, based on the assessment and identification of communities with high cumulative exposure burdens, to select locations around the state for preparation of community emissions reduction programs. Current law requires an air district encompassing any location selected by the state board to adopt a community emissions reduction program to achieve emissions reductions for the location selected using cost-effective measures, as specified, to submit the program to the state board for review and approval as prescribed, and to prepare an annual report summarizing the results and actions taken to further reduce emissions pursuant to the community emissions reduction program, among other things. This bill would require the state board to identify in each statewide strategy update measures to reduce criteria air pollutants and toxic air contaminants in disadvantaged communities, as provided.

**Position**

Refer to ACE  
Committee

**Assigned**

CASA ACE Cmte

**AB 1857 (Garcia, Cristina D) Solid waste.**

**Current Text:** Introduced: 2/8/2022 [html](#) [pdf](#)

**Introduced:** 2/8/2022

**Status:** 2/18/2022-Referred to Com. on NAT. RES.

**Location:** 2/18/2022-A. NAT. RES.

**Summary:** (1)The California Integrated Waste Management Act of 1989 requires the department and local agencies to maximize the use of all feasible source reduction, recycling, and composting options in order to reduce the amount of solid waste that must be disposed of by transformation and land disposal. This bill would require the department to certify that a local agency is in compliance with that requirement before approving a permit for a new transformation, EMSW, or land disposal facility serving the local agency.

**Position**

Refer to ACE  
Committee

**Assigned**

CASA ACE Cmte

**AB 1985 (Rivas, Robert D) Organic waste: list: available products.**

**Current Text:** Introduced: 2/10/2022 [html](#) [pdf](#)

**Introduced:** 2/10/2022

**Status:** 2/18/2022-Referred to Com. on NAT. RES.

**Location:** 2/18/2022-A. NAT. RES.

**Summary:** Current law requires, no later than January 1, 2018, the State Air Resources Board to approve and begin implementing a comprehensive short-lived climate pollutant strategy to achieve a reduction in statewide emissions of methane by 40%, hydrofluorocarbon gases by 40%, and anthropogenic black carbon by 50% below 2013 levels by 2030. Current law requires the methane emissions reduction goals to include a 50% reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020 and a 75% reduction by 2025. Current law requires the Department of Resources Recycling and Recovery, in consultation with the state board, to adopt regulations to achieve these organic waste reduction goals, including a requirement intended to meet the goal that not less than 20% of edible food that is currently disposed of be recovered for human consumption by 2025. This bill would require the department to compile and maintain on its internet website a list, organized by ZIP Code, of information regarding persons or entities that produce and have available in the state organic waste products and update the list at least every 6 months.

Position	Assigned
Refer to Legis Comm	CASA ACE Cmte

**AB 2667 (Friedman D) Electricity: self-generation incentive program.**

**Current Text:** Introduced: 2/18/2022 [html](#) [pdf](#)

**Introduced:** 2/18/2022

**Status:** 2/19/2022-From printer. May be heard in committee March 21.

**Location:** 2/18/2022-A. PRINT

**Summary:** Current law requires the Public Utilities Commission to require the administration, until January 1, 2026, of a self-generation incentive program to increase the development of distributed generation resources and energy storage technologies. In administering the program, current law requires the commission to provide an additional incentive of 20% from existing program funds for the installation of eligible distributed generation resources manufactured in California. This bill would increase the additional incentive for the installation of eligible distributed generation resources manufactured in California to 30%.

Position	Assigned
Refer to ACE Committee	CASA ACE Cmte

**AB 2724 (Bennett D) Green hydrogen.**

**Current Text:** Introduced: 2/18/2022 [html](#) [pdf](#)

**Introduced:** 2/18/2022

**Status:** 2/19/2022-From printer. May be heard in committee March 21.

**Location:** 2/18/2022-A. PRINT

**Summary:** The California Global Warming Solutions Act of 2006 designates the State Air Resources Board (state board) as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases. The state board is required to ensure that statewide greenhouse gas emissions are reduced to at least 40% below the 1990 level by 2030. The act requires the state board to prepare and approve a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions and to update the scoping plan at least once every 5 years. This bill would state the intent of the Legislature to enact subsequent legislation that would incentivize green hydrogen.

Position	Assigned
Spot Bill	CASA ACE Cmte

**AB 2802 (Muratsuchi D) Air pollution: carbon tax and dividend.**

**Current Text:** Introduced: 2/18/2022 [html](#) [pdf](#)

**Introduced:** 2/18/2022

**Status:** 2/19/2022-From printer. May be heard in committee March 21.

**Location:** 2/18/2022-A. PRINT

**Summary:** The California Global Warming Solutions Act of 2006 designates the State Air Resources Board as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases. Current law requires the state board to adopt greenhouse gas emissions limits and emissions reduction measures by regulation to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions in furtherance of achieving a specified statewide greenhouse gas emissions limit. This bill would express the intent of the Legislature to enact future legislation that would create a carbon tax and dividend program that would impose charges on entities responsible for air pollution emissions and allocate the revenue from those charges to frontline communities that suffer from the air pollution caused by those emissions.

Position	Assigned
Refer to ACE Committee	CASA ACE Cmte

**AB 2864 (Rivas, Robert D) Local Government Renewable Energy Self-Generation Program.**

**Current Text:** Introduced: 2/18/2022 [html](#) [pdf](#)

**Introduced:** 2/18/2022

**Status:** 2/19/2022-From printer. May be heard in committee March 21.

**Location:** 2/18/2022-A. PRINT

**Summary:** Current law authorizes the Public Utilities Commission to fix the rates and charges for every public utility and requires that those rates and charges be just and reasonable. Current law, the Local Government Renewable Energy Self-Generation Program, authorizes a local government to receive a bill credit, as specified, to be applied to a designated benefiting account for electricity exported to the electrical grid by an eligible renewable generating facility, as defined, and requires the commission to approve a rate tariff for the benefiting account. Under current law, an electrical corporation is obligated to provide a bill credit to a benefiting account designated by a local government only until that electrical corporation reaches its proportionate share of 250 megawatts of the combined statewide cumulative rated generating capacity of all eligible renewable generating facilities within the service territories of the state's 3 largest electrical corporations. This bill would remove the statewide 250-megawatts limit.

**Position**

Refer to ACE  
Committee

**Assigned**

CASA ACE Cmte

**SB 83 (Allen D) Sea Level Rise Revolving Loan Program.**

**Current Text:** Vetoed: 10/7/2021 [html](#) [pdf](#)

**Introduced:** 12/15/2020

**Last Amend:** 6/29/2021

**Status:** 1/27/2022-Stricken from file. Veto sustained.

**Location:** 10/7/2021-S. VETOED

**Summary:** Current law establishes in state government the Ocean Protection Council. Current law requires the council to, among other things, establish policies to coordinate the collection, evaluation, and sharing of scientific data related to coastal and ocean resources among agencies. Current law establishes the State Coastal Conservancy with prescribed powers and responsibilities for implementing and administering various programs intended to preserve, protect, and restore the state's coastal areas. This bill would require the council, in consultation with the conservancy, to develop the Sea Level Rise Revolving Loan Program for purposes of providing low-interest loans to local jurisdictions for the purchase of coastal properties in their jurisdictions identified as vulnerable coastal property, as provided.

**Position**

Refer to ACE  
Committee

**Assigned**

CASA ACE Cmte,  
Jessica

**SB 867 (Laird D) Sea level rise planning: database.**

**Current Text:** Introduced: 1/24/2022 [html](#) [pdf](#)

**Introduced:** 1/24/2022

**Status:** 2/11/2022-Set for hearing March 8.

**Location:** 2/2/2022-S. N.R. & W.

**Calendar:** 3/8/2022 9 a.m. - John L. Burton Hearing Room (4203) SENATE NATURAL RESOURCES AND WATER, STERN, Chair

**Summary:** Current law requires the Natural Resources Agency, in collaboration with the Ocean Protection Council, to create, update biannually, and post on an internet website a Planning for Sea Level Rise Database describing steps being taken throughout the state to prepare for, and adapt to, sea level rise. Current law further requires that various public agencies and private entities provide to the agency, on a biannual basis, sea level rise planning information, as defined, that is under the control or jurisdiction of the public agencies or private entities, and requires the agency to determine the information necessary for inclusion in the database, as prescribed. Current law repeals these provisions on January 1, 2023. This bill would extend the sunset date for the above provisions until January 1, 2028.

**Position**

Refer to ACE  
Committee

**Assigned**

CASA ACE Cmte

**SB 1078 (Allen D) Sea Level Rise Revolving Loan Pilot Program.**

**Current Text:** Introduced: 2/15/2022 [html](#) [pdf](#)

**Introduced:** 2/15/2022

**Status:** 2/15/2022-From printer.

**Location:** 2/15/2022-S. RLS.

**Summary:** Existing law establishes in state government the Ocean Protection Council. Existing law requires the council to, among other things, establish policies to coordinate the collection, evaluation,

and sharing of scientific data related to coastal and ocean resources among agencies. Existing law establishes the State Coastal Conservancy with prescribed powers and responsibilities for implementing and administering various programs intended to preserve, protect, and restore the state's coastal areas. This bill would require the council, in consultation with the conservancy, to develop the Sea Level Rise Revolving Loan Pilot Program for purposes of providing low-interest loans to local jurisdictions for the purchase of coastal properties in their jurisdictions identified as vulnerable coastal property located in specified communities, including low-income communities, as provided. The bill would require the council, before January 1, 2024, in consultation with other state planning and coastal management agencies, as provided, to adopt guidelines and eligibility criteria for the program. The bill would authorize specified local jurisdictions to apply for, and be awarded, a low-interest loan under the program from the conservancy, in consultation with the council, if the local jurisdiction develops and submits to the conservancy a vulnerable coastal property plan and completes all other requirements imposed by the council. The bill would require the conservancy, in consultation with the council, to review the plans to determine whether they meet the required criteria and guidelines for vulnerable coastal properties to be eligible for participation in the program. This bill contains other related provisions.

<b>Position</b>	<b>Assigned</b>
Refer to ACE Committee	CASA ACE Cmte

**SB 1109 (Caballero D) California Renewables Portfolio Standard Program: bioenergy projects.**

**Current Text:** Introduced: 2/16/2022 [html](#) [pdf](#)

**Introduced:** 2/16/2022

**Status:** 2/17/2022-From printer.

**Location:** 2/16/2022-S. RLS.

**Summary:** Under existing law, the Public Utilities Commission has regulatory authority over public utilities, including electrical corporations, while local publicly owned electric utilities are under the direction of their governing boards. Existing law requires electrical corporations, by December 1, 2016, to collectively procure, through financial commitments of 5 years, their proportionate share of 125 megawatts of cumulative rated generating capacity from bioenergy projects commencing operation before June 1, 2013. Existing law additionally requires a local publicly owned electric utility serving more than 100,000 customers to procure their proportionate shares of 125 megawatts of cumulative rated generating capacity from those kinds of bioenergy projects subject to terms of at least 5 years. This bill would make nonsubstantive changes to the latter provision.

<b>Position</b>	<b>Assigned</b>
Spot Bill	CASA ACE Cmte

**Total Measures: 12**  
**Total Tracking Forms: 12**

**CASA Biosolids 101**

Greg Kester and Ryan Batjiaka

March 7, 2022

Craig K. Murray

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What will be covered: 1. CA Biosolids Management; 2. Climate Change Mitigation Legislation; 3. Biosolids Regulatory Foundation and Requirements; 4. Research and Collaborative Studies; 5. Summary and Conclusion.

CA Legislation to Mitigate Climate Change: 1. Achieve 40% reduction in GHG emissions below 1990 levels by 2030 and Carbon Neutrality by 2045; 2. 100% Clean/Renewable Electrical Energy by 2045 (with 50% by 2026 and 60% by 2030); 3. 20% reduction in Carbon intensity of transportation fuel by 2030; 4. Short-lived climate pollutant reduction - 40% methane reduction by 2030 from 2013 (through SB 1383 implementation); 5. Healthy Soils Initiative, natural and working lands climate smart strategy, and wildlife and forest resilience action plan.

SB 1383 Adopted in 2016 – regulations approved in 2020: 1. Reduce short-lived climate pollutants; 2. Legislation adopted in 2016 and requires: A. 40% reduction emissions with 2013 as the baseline by 2030; B. 75% organics diversion from landfills (including biosolids) relative to 2014 levels by 2025.

Opportunities Offered by the wastewater sector to meet 1383 objectives via co-digestion: 1. Use of existing infrastructure to accept at least 75% of food waste currently landfilled for anaerobic digestion; 2. Increase biogas production to generate renewable energy, low carbon transportation fuel, and pipeline grade RNG, in turn decreasing greenhouse gas emissions; 3. Build healthy soils, sequester carbon, and reduce fossil fuel based inorganic fertilizer use through land application of biosolids; 4. Develop collaborative partnerships with private sector.

SB 1383 Implementation: 1. We believe the state recognizes that Wastewater Sector is key to successful implementation; 2. To that end, two incentives were included in regulations intended to create markets: A. Disallow local ordinances that unreasonably restrict or prohibit land application of biosolids; 2. Every jurisdiction required to divert organic waste must then procure a product of that diversion for compost and/or beneficial use of gas.

## Co-digestion Accelerates Diversion of Organics from Landfills

### Opportunity:

- ~150 wastewater plants already utilize anaerobic digestion and have excess capacity - ~ 90+% of wastewater flow
  - Plants are often located in urban areas near waste generation → shorter haul

### Challenges/Needs:

- Must build partnerships with solid waste sector to maximize effective diversion
- Cleanliness of organic waste stream must be assured (whether for co-digestion, digestion, or compost)
- Markets must be assured for both biogas and biosolids

## Significant Additional Renewable Energy Potential

- If co-digestion is maximized to utilize all existing capacity and 3.4 million tons of food waste is accepted we can increase energy by:
  - 822,800 MegaWatt hours
  - 7.5 million MBTu's
  - 71.4 Million Diesel Gallon Equivalents transportation fuel – when combined with what is produced from sewage sludge digestion - would allow 575 million miles to be driven by Heavy Duty Trucks with Renewable Fuel
- Working with CARB to ensure heavy duty trucks, vactor trucks, etc. can continue to use our RNG!
- Electric options don't exist yet and won't for some time

## Opportunities Offered by the Wastewater Sector to Meet SB 1383 Objectives via Co-Digestion

- **Use of existing infrastructure** to accept at least 75% of food waste currently landfilled for anaerobic digestion
- **Increase biogas production** to generate renewable energy, low carbon transportation fuel, and pipeline grade RNG, in turn decreasing greenhouse gas emissions
- **Build healthy soils, sequester carbon, and reduce fossil fuel based inorganic fertilizer use through land application of biosolids**
- **Develop collaborative partnerships** with private sector

Working with Air Board on increasing biogas production to generate renewable energy, low carbon transportation fuel : Vactor Trucks, Heavy Trucks and Emergency Trucks can run on RNG/CNG. No Source of Electric Powered and applied use of these industry heavy vehicles that regulations otherwise.

## Biosolids Challenges in California






- Rural/Urban disparity – most production in coastal urban centers, largest need in Central Valley and other rural agricultural centers
- Poor management (refusal to fix roads, be good neighbors, etc.) and oversight in early 1990's resulted in restrictive ordinances – both are no longer an issue and no new ordinances since 2007
- Kern and Imperial County Prohibitive ordinances were challenged in court and overturned
- SB 1383 regulations disallow restrictive or prohibitive ordinances on biosolids land application

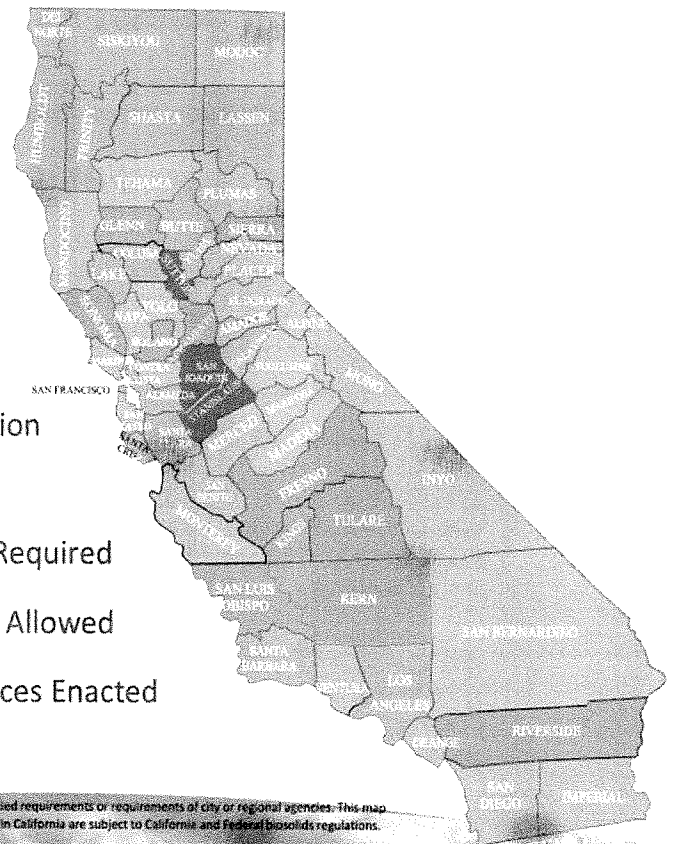
## Further Opportunities for the Water Sector

- CPUC on 2/24 adopted a decision to require Investor Owned Utilities (IOUs) to procure biomethane via pipeline injection
  - POTWs who co-digest will be given priority as targeted customers
- 
- CEC contacted CASA to see how the water sector might help address potential energy shortfall
  - Working with them on opportunities to go off grid during peak demand via storage reservoir pumping shifts, co-gen, & battery storage – operational changes and worker schedule shifts possible

## Biosolids Land Application in California - 2020

### County Ordinance Requirements and Biosolids Bans

-  Ban on All Land Application
-  Ban on Class B
-  Conditional Use Permit Required
-  Class B Land Application Allowed
-  No Regulations/Ordinances Enacted



This map is based on a search of online available Codes and may have missed County other requirements such as non-codified requirements or requirements of city or regional agencies. This map presents findings for individual county requirements and deals only with the unincorporated areas of the counties, all areas in California are subject to California and Federal biosolids regulations.

With 1383 Hope to turn entire State Green, focus on 3 Red complete prohibitions.

## Biosolids Regulatory Foundation

- USEPA adopted risk based federal standards for the use of biosolids in 1993 (40 CFR part 503) – replaced 40 CFR part 257 (which still regulates industrial residuals)
- Biennial review required by CWA which has been done since 2003
- SWRCB adopted Programmatic EIR and General Order in 2004
- Biosolids are dually regulated by USEPA and SWRCB
- Both regulatory frameworks promote the land application of biosolids
- Two reviews by the NAS have supported the US regulations and land app

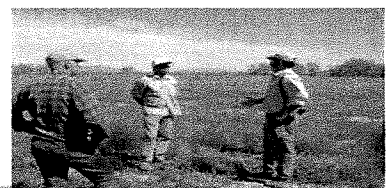
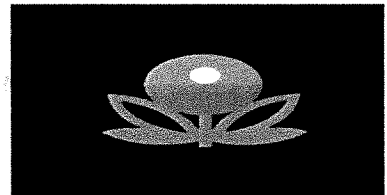
EPA req. to do biennial reviews since 2003 on new chemicals. In CA Biosolids regulated by both EPA and State Water Board. Served on NSA Committee in 2002 to find responsible course of action based on current and sound science. Like PFAS, net Env. Impacts and history of land application.

## Land application requires regulatory compliance with all of the following:

- Pathogen control (Engineered process requirements) – Class A or Class B with Class B + management = Same level of safety as Class A
- Biosolids cannot be a food source for disease carrying organisms – Vector Attraction Reduction required
- Meet Pollutant Concentration limits set by comprehensive risk assessment conducted by USEPA
- Limit the application rate of biosolids to the nitrogen need of crop to be grown (taking all N sources into account)

## BACKGROUND

- ☛ **On February 19, 1993, the final version of 40 CFR Part 503 biosolids rule was promulgated under the CWA and RCRA.**
- ☛ **40 CFR Part 503 was designed to protect the public and environment from any *reasonably* anticipated adverse effects of recycled biosolids.**





Biosolids Generator most usually the WWTP

TABLE A FREQUENCY OF MONITORING		
Amount of Biosolids (Dry Metric Tons per 365 day)	Amount of Biosolids (Dry U.S. tons per 365)	Frequency
$0 < X < 290$	$0 < 320$	Once per year
$290 \leq X < 1500$	$320 \leq X < 1654$	Once per quarter
$1500 \leq X < 15000$	$1654 \leq X < 16540$	Once per 60 days
$15000 \leq X$	$16540 \leq X$	Once per month
<sup>1</sup> Amount of biosolids land applied (dry weight basis). <sup>2</sup> Metric tons = U.S. tons x 0.907		

## **40 CFR Part 503 APPLIES TO...**

- **Biosolids Generator (POTWs)**
- **Mixtures (Composters, Regional facilities)**
- **Land Application**
  - **Contract appliers**
  - **Reclamation (mines, superfund, fire impacted sites)**
- **Surface Disposal**
- **Incineration**
- **Landfills (under 40 CFR part 258)**

**Biosolids must meet all the following to be land applied  
(most restrictive in all three = Exceptional Quality)**

- **METAL CONCENTRATIONS**
  - **POLLUTANT LIMITS (HQ)**
  - **CEILING LIMITS**
- **PATHOGEN CONTROL**
  - **CLASS A or**
  - **CLASS B**
- **VECTOR ATTRACTION REDUCTION**
  - **PROCESS or**
  - **PHYSICAL BARRIER**

Exceptional Quality no longer subject to regulations.

# USEPA Risk Assessment Process

- Started with ~ 400 constituents
- Narrowed to 200 on which a Hazard Index (HI) Assessment was performed
- Full deterministic multi-pathway (14) risk assessment performed for 25 constituents with HI >1
- Ultimately regulated 10 constituents in final rule
- Biennial reviews continue to monitor new science and emerging constituents

Now Called Biosolids Screening Assessment. If greater than 1, need further evaluation. Highly Exposed Individual need to be protected.

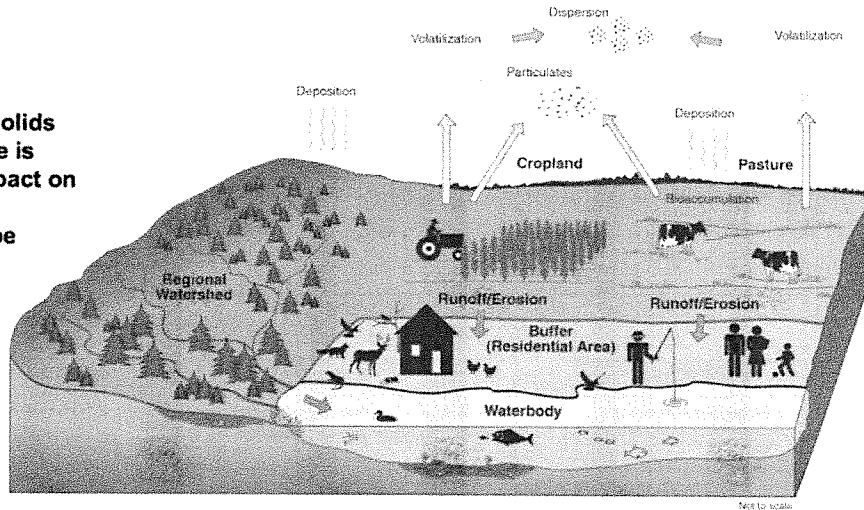
## Highly Exposed Individual – Target of Risk Assessment

- Is a home gardener who applies biosolids to the garden every year for 70 years and...
  - Grows and consumes 60% of their food from their garden, consumes fish from a farm pond, drinks water from a private on-site well – all impacted by land application
  - Home garden is at the maximum pollutant loading limit for all regulated constituents each year over the entire 70-year period
  - 45% home grown meat where livestock consume 100% of their feed from biosolids amended crops and 2.5% of their diet is dirt
  - Food consumption was conservatively assumed based on Exposure Factors Handbook

## 40+ Years of Research... Risk Assessment

EPA Risk Assessment for Part 503:  
Exposure Pathways Assessed  
Agricultural Land Application Scenario to Assess Human Exposure

The presence of a contaminant in biosolids does not mean there is risk; its fate and impact on humans and the environment must be evaluated.



<b>METALS</b> Land Application Pollutant Limits (all values are on a dry weight basis)				
Pollutant	Ceiling Concentration Limits for All Biosolids Applied to Land (milligrams per kilogram)  Table 1	Cumulative Pollutant Loading Rate Limits for CPLR Biosolids (kilograms per hectare)  Table 2	"High Quality" Pollutant Concentration Limits (mg/kg)  Table 3	Annual Pollutant Loading Rate Limits for APLR Biosolids (kilograms per hectare per 365-day period) Table 4 (Obsolete)
Arsenic	75	41	41	2.0
Cadmium	85	39	39	1.9
Chromium	3,000	1,200	3,000	150
Copper	4,300	1,500	1,500	75
Lead	840	300	300	15
Mercury	57	17	17	0.85
Molybdenum <sup>b</sup>	75	-	-	-
Nickel	420	420	420	21
Selenium	100	36-100	36-100	5.0
Zinc	7,500	2,800	2,800	140

Table 2. Metals of pollutant deck. Metals that could be added to soil lifetime. Backed out Table 3 levels to see acceptable levels. Table 3 mg/kg. if less than Table 3 then never reach Table 2: considered a minimal risk. If exceed, then need to keep cumulative records and show never reach Table 2 levels.

Phytotoxicity is limiting for Chromium, determined not scientific credible. Set 10mg/kg. Challenged in court and eliminated. Molybdenum, Selenium (had to go to risk based) and also eliminated. Table 1 ceiling concentrations not risk based. EPA felt should have some upper boundary for no land application. Table 4 never be used, intended for someone bag and exceed table 3 values and therefore need limit. Table 4 absolute and need not be considered. Reality all pollutants in CA and US lower than the 503 limits and shows success on 1980s'1990s pretreatment programs and eliminate industries that could discharge. Often overlooked how successful Pretreatment is and can be used for emerging constituents as well. 1 ppt is one second in 32,000/years for relevance. Class B plus management practices allows same protection as Class A. Salmonella, less than fecal/coliforms and meet one of the process time temp/solids; composting; heat treatment and # of ways to do it. Engineering rather than risk based controls. Looking at heartiest of pathogens in waste stream and if can inactive than can do same on polio, cryptosporidium, therefore seen as pathogen free. In CA most agencies satisfy AD with good mixing and process procedures. At least 38% across the treatment process, biosolids reduction used in CA.

TABLE 7 VECTOR ATTRACTION REDUCTION		
OPTION	LIMIT	WHERE IT MUST BE MET
pH adjustment	>12 S.U. (for 2 hours) and >11.5 (for an additional 22 hours)	When applied or bagged
Drying without primary solids	>75% TS	When applied or bagged
Drying with primary solids	>90% TS	When applied or bagged
Injection	-	When applied
Incorporation	-	When applied

## NUTRIENT MGMT

- Application is limited to the nitrogen needs of the crop during the season for it to be grown – minimize leaching potential
- Since most N in biosolids is organic, it is slowly mineralized and becomes available as the crop needs it
- All sources of nitrogen must be taken into account (manure, commercial fertilizer, carry over from previous biosolids application) when setting application rate

In organic nutrient like urea one shot deal only as it passes by the root zone.

## Land Application Restrictions for Class B Biosolids

- **Must not Endanger Threatened or Endangered Species**
- **Must not Disturb Historical Properties**
- **Soil pH > 5.5**
- **At least 10 meters from surface water/wetlands**
- **Must meet Table C Time Requirements**

TABLE C MINIMUM DURATION BETWEEN APPLICATION AND HARVEST\GRAZING\ACCESS FOR CLASS B BIOSOLIDS APPLIED TO THE LAND			
Criteria	Surface	Incorporation	Injection
Food crops whose harvested part may touch the soil/biosolids mixture (beans, melons, squash, etc.)	14 months	14 months	14 months
Food crops whose harvested parts grow in the soil (potatoes, carrots, etc.)	20/28 months*	20/38 months*	38 months
Feed or other food crops (field corn, hay sweet corn, etc.)	30 days	30 days	30 days
Grazing of animals	30 days	30 days	30 days
Public access restriction			
High potential	1 year	1 year	1 year
Low potential	30 days	30 days	30 days
*The 20 month duration between application and harvesting applies when the surface applied biosolids stays on the surface for 4 months or longer prior to incorporation. The 38 month duration is in effect when the biosolids remains on the surface for less than 4 months prior to incorporation.			

20 or 38 month time period for Carrots or potatoes grown in soil. UV in sun inactivate all pathogens. Not graze animals for 30 days after application. Public Parks : one year req. for application and public can access it.

## Recommended Changes to Biosolids General Order

- Remove ability for local jurisdictions to be more restrictive
- Do not use background soil concentrations as part of the cumulative soil limit since they were included in the risk assessment
- Adopt the federal restriction for animal grazing after application (30 days)
- Do not apply the GO to exceptional quality biosolids
- Delete remanded limit for Molybdenum

Duplicative of EPA, not req. it. More restrictive than Fed. 30. 60-90 days depend on temp. General Order (GO). 18mg/kg Molybdenum want remanded. New value think be 43 rather than 18 and no basis for 18.

## LOCAL PROBLEM SOLVED BY LOCAL STUDY

- January 2020 – Pima County (Tucson, AZ) Board of Supervisors impose moratorium on land application in Pima County
- March – October 2020 – University of Arizona Water and Environmental Technology Center (WET) in collaboration with Pima County Wastewater evaluate incidence and transport of PFAS following long-term land application (since 1984)
- **Data showed low incidence of soil PFAS and limited mobility of PFAS through soil and vadose zone**
- Data presented to Pima County Administrator
- December 2020, moratorium rescinded

### FOR A NATIONAL PROBLEM WE NEED A NATIONAL STUDY

Pima Co. (Tucson) AZ, Board of Supv. Implemented land applied moratorium v. University of AZ, fate of PFAS following application. Found very low incidence of PFAS, very low mobility. 12/2021 moratorium rescinded.

### EVALUATION OF FATE AND TRANSPORT OF PFAS FOLLOWING LONG-TERM LAND APPLICATION: A COLLABORATIVE NATIONAL STUDY

**Principal Investigator:** Ian Pepper  
University of Arizona

**Co-Principal Investigators:** Mark Brusseau  
University of Arizona

Greg Kester  
California Association of Sanitation Agencies

Jeff Prevatt  
Pima County Wastewater



## NATIONAL COLLABORATIVE PROJECT OVERALL PROJECT GOAL

- To evaluate whether or not land application of biosolids is a significant public health route of exposure to perfluorinated compounds (PFAS)

#### **Specific Objectives:**

##### **Evaluate**

- Incidence of PFAS analytes in soil following long-term land application of biosolids
- Mobility (leaching) of PFAS analytes through soil and vadose zone under the influence of rainfall and/or irrigation
- Crop uptake of PFAS analytes

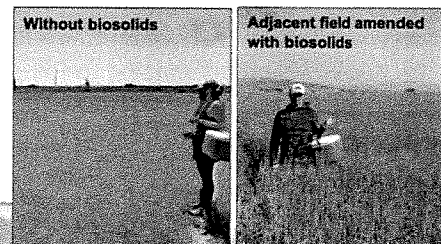
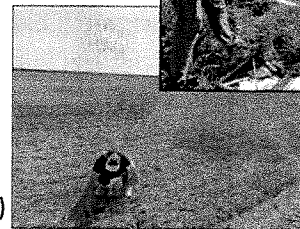
## EPA Office of Inspector General Report

- Released in November 2018 – Viewed as sensational indictment of EPA biosolids program
- Implied land application is unsafe until full risk assessment is conducted on 352 constituents
- CASA began working with Universities (U of AZ, Ohio State, Purdue) to rebut report conclusions
- Submitted formal response July 2020 as product of USDA W4170 Multi-state research committee

Many viewed as sensational indictment of EPA's program. CASA worked with Universities to rebut. Dr. Al Page UCR first review of proposed regs. From EPA and really main view of regs. We have today. Research flaws replaced with field data and Fate/Transport look. Many chemicals in OIG report had actually been done and little exposure and risk below national soil levels. Benefits of Biosolids in CA:

### Benefits of Biosolids in California

- Land application of biosolids provides all the following:
  - Improves soil tilth, increasing soil organic carbon
  - Increases water holding capacity, reducing irrigation demand
  - Reduces crop drought stress
  - Increases crop yields
  - Sequesters carbon long-term
  - Displaces fossil fuel-intense inorganic fertilizer (0.22 gallons of fossil fuel needed for every pound of inorganic nitrogen)
  - Conserves non-renewable resources (like phosphorus) and recycles them
- Can help reclaim disturbed sites such as superfund and other mines, brownfields, and fire-impacted land



Q/A

ADC – County Ords. Not to allow apply in wet conditions ; Red Counties use of /sell bagged products – yes for home use. PFAS/Biosolids complications & PFAS testing in CA and Water Board Regs. – GK: CDM Smith vol. pro bono to eval. 250k rows of geotracker data on influent, effluent data and process of making sense of it. Water Board: not concerned with biosolids (very good to work with understand we don't use them, make them and can apply pretreatment with say Chrome Plater) v. OHEA .007/ppt PFOA and 1/ppt for PFAS. Household dust orders of levels higher than anything else, we get it in carpet, Teflon and may excrete to WWTP and Water Board is cognizant of it. 600 ppt at heavy use sites. Maine has proposed moratorium on land application and not want copy cat'd to other parts of country. EPA working on Federal Standard so not have a patchwork. Reasonable and credible measures. Crops grass

grown w and w/o biosolids. GK: can counter concern that grass grown w/is equal as nutritious. Beam greenhouse gas model: model developed for Canadian led by Dr. Sally Brown and others. NE Biosolids (NEBRA) taken over research. Updated PFAS communication guide for public. One from WEF. CASA developed 2-page fact sheet. On CASA website. Allysa Downs in CASA communications is developing new publication. NERAF (Casa legal and regulatory tab under PFAS) and all these fact sheets.

Biosolids Communication Toolkit is here - <https://www.wef.org/resources/topics/browse-topics-a-n/biosolids/biosolids-communications-toolkit/>

From KathleenBertoldi to Everyone 11:32 AM Curious your view on the state regulatory agencies classifying products generated through gasification and pyrolysis differently? For example - in CA, biochar is regulated as Class A/EQ biosolids (per Bioforcetech, pyrolysis; in NJ, not classified as biosolids (per Aries, gasification)

GK: EPA at CASA DC, still working on at Fed. Level, not envisioned when 503 regs.developed. Pyrolysis considered waste product than beneficial one. Biochar in bay area considered beneficial. EPA does not have a federal answer yet.

Organic certification if biosolids applied. From Mel Liebmann to Everyone 11:32 AM

Has there been any outreach to USDA regarding organic certification of animal feed crops grown with biosolids? A contract rancher that staff works with has expressed concern that our district's pastures will lose organic certification if biosolids are applied. Non-organic crops have little to no market value in our area. **GK:** US Agriculture: Purely *market preference* of the industry. GK: one of my ultimate frustrations, raw manure is used with less restriction than well treated, pathogen reduced material like biosolids. Very uphill battle if we are to fight it and change the minds of the Organic Industry. USDA acquiesced to their industry. We can try to fight it again. No national movement to fight the organic rule.

From KathleenBertoldi to Everyone 11:37 AM VAR: Vector Attraction Reduction

Also curious if any discussion has happened at federal level to expand options for process VAR - as new technologies are advancing to full-scale operation? Example: hydrothermal carbonization, does not fit into original 503 list of options. GK: should have been something similar to the pathogen control side. Think will do for a number of new constituents and VAR on Molybdenum. Still very scant with on 3 biosolids staff on EPA HQ. 503 rule adopted EPA feels that Biosolids application is low priority bec low risk and felt even before regulation. Competing with others that pose more health and environmental risk. EPA would need staff to evaluate VAR if they were to do that. We should convince EPA need to have staff when these are presented.

From Maile Lono-Batura to Everyone 11:42 AM A resource re the question regarding the earlier grain quality - Chapter 7 of this research document addresses this: <https://pubs.extension.wsu.edu/advances-in-dryland-farming-in-the-inland-pacific-northwest-pnw697-reacch-handbook>

RB: Monthly call that discuss Biosolids Regulations. GK: on Regulatory Work Group list serve. Contact GK or Cheryl MacKelvie.

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11:44 #

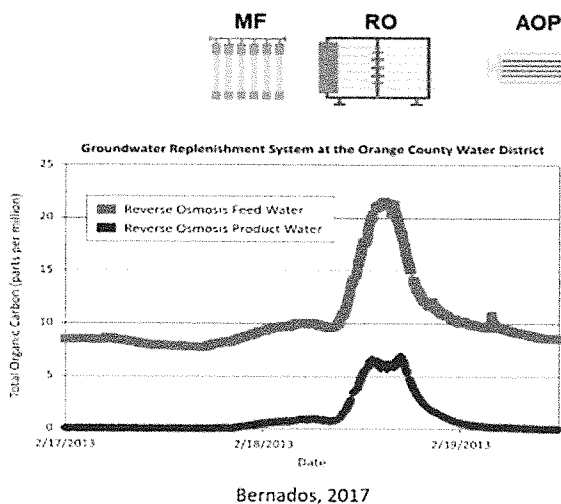


Join this webcast to hear experts in California discuss two alternative approaches that have great potential to **replace** ozone and biologically activated carbon (BAC) in some Direct Potable Reuse (DPR) projects without any substantial impacts on project cost, footprint, or operational complexity.

Draft California DPR regulations include ozone and BAC for chemical control prior to full advanced treatment. While efficacy of ozone-BAC has been well proven, it can also increase operational complexity, footprint, and project costs. California's draft regulations require DPR trains include ozone and biologically activated carbon (BAC) prior to full advanced treatment for chemical control, but also **allow for alternatives** if an agency demonstrates that the proposed train removes contaminants of concern to an equivalent or better level.

Speakers: Dr. Glen Daigger, Univ of Michigan and Dr. Ufuk Erdal, Arcadis  
2 processes to replace Ozone and BAC in DPR. Full Advanced Treatment (FAT), which is MF, then RO then AOP for IPR.

## FAT is Very Effective But Not Bullet Proof

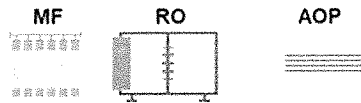


Elicit acetone discharges to OCSD collection system caused RO permeate TOC >> 0.5 mg/L

## FAT Has Also Limitations

- Common characteristics of compounds that are poorly removed (<50%) by FAT:
  - Small, uncharged compounds; molecular weight <100 Daltons (AMUs)
    - Formaldehyde: 30 Daltons, Ethanol: 46 Daltons, Acetone: 58 Daltons
  - Having low Octanol water partition coefficient; log Kow <1
    - Acetone LogKow = -0.24, Formaldehyde LogKow = 0.35
  - Resistant to photolysis and advanced oxidation (e.g.  $K_{OH, c} < K_{OH, 1,4 D}$ )
    - Methanol, acetone, formaldehyde

## FAT Has Limitations Cont'd.

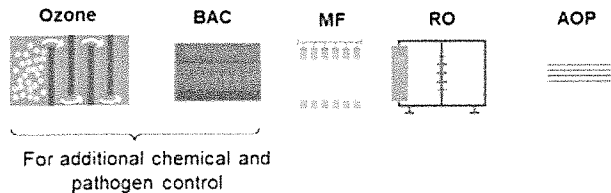


Category	Compounds Poorly Removed (<50%) by FAT
VOCs	Low Molecular Weight (LMW) Haloalkanes (methyl bromide) LMW Alcohols (methanol, ethanol) LMW Aldehydes and Ketones (formaldehyde) Acetonitrile
Herbicides/Pesticides	Methyl Isothiocyanate (MITC)
DBPs	THMs

Adapted from the WRF 4991, 2021

## Additional Barriers Beyond FAT Are Needed for DPR

- Draft CA Regs require high degree of protection for unknown chemicals, chemical peaks and pathogenic organisms
  - > 4 separate treatment processes (1-6 logs)
  - > 3 diverse treatment mechanisms
  - Physical, chemical, and UV must be included



## Concerns with Ozone and BAC

- At  $O_3:TOC \geq 1$  may require a transfer  $O_3$  dose of >8-10 mg/L
  - High CAPEX and OPEX
- Generates DBPs
- Requires ozone generators, LOX storage,  $O_3$  contactors,  $O_3$  destruction units, filtration facilities, spent backwash storage
  - Large footprint
  - High CAPEX and OPEX
  - Increased degree of O&M complexity

Ozone and BAC adds to costs and treatment plant footprint and byproducts production, so agencies not interested in DPR; ok w/IPR

Blending of 10:1 may replace O3/BAC, but not good in all cases.

## What Are Alternative Approaches?

- Blending
- Providing engineered buffer or flow equalization
- Air stripping
- Re-arranging advanced treatment process sequence (O3/BAC to the tail end of AWTF)
- Providing additional advanced treatment
- Improvement in AOP
- Providing enhanced source control
- Improving removal of chemicals in conventional WWTP's
- Enhancement in RO membranes



For each option presented above, we may need additional disinfection barriers to meet 20/14/15 V/G/C requirements

Conventional WWTPs remove a number of compounds. Activated Sludge works for both Adsorption and Absorption. Aeration helps volatilization.

### Adsorption and Absorption

- Effective for Hydrophobic (Non-Polar) Compounds
- Can be absorbed by activated sludge biomass and removed thru solids/liquid separation
- Quantified by Octanol –Water Partition Coefficient
  - Log  $K_{OW}$  >5: Excellent removal
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Compounds	Log $K_{OW}$
Methanol	-0.77
Acetonitrile	-0.34
Ethanol	-0.31
Acetone	-0.24
Formaldehyde	0.35
MITC	0.94
Methyl bromide	1.19
Dibromochloromethane	2.16



## Volatilization

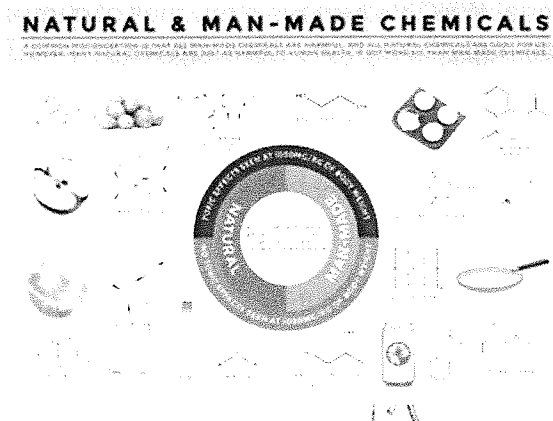
- Non-polar Compounds, Particularly Low Molecular Weight
- High Henry's Law Coefficient Means Less Solubility in Water, and Hence Easier to Volatilize (Strip)
- Significant Knowledge and Experience Gained When WWTP Air Emissions Characterized in Southern California in 1990's

Compounds	Henry's Law Solubility Constant, Pa·m <sup>3</sup> /mol
Formaldehyde	0.03-5.56
Ethanol	0.43-0.91
Methanol	0.43-1.36
MITC	1.12-4.54
Acetonitrile	1.30-34.4
Acetone	3.33-55.5
Dibromochloromethane	83-139
Methyl bromide	526-1,818

Modeling software available [ToxChem, BASTE, etc] to see how standard systems remove chems. Biological conversions of one compound to another = biotransformation; some are bad. Biodegradability varies, depending on biologically based structure.

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- Biogenic Versus Synthetic Compounds
  - Enzymes Have Evolved to Metabolize Biogenic Compounds
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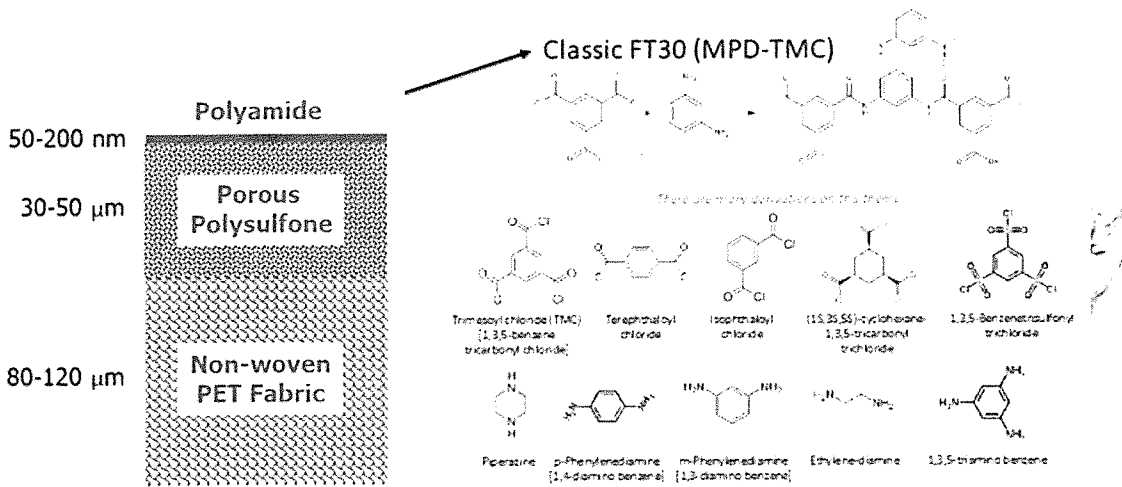
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- Significant Experience From Industrial Wastewater/Hazardous Material Management

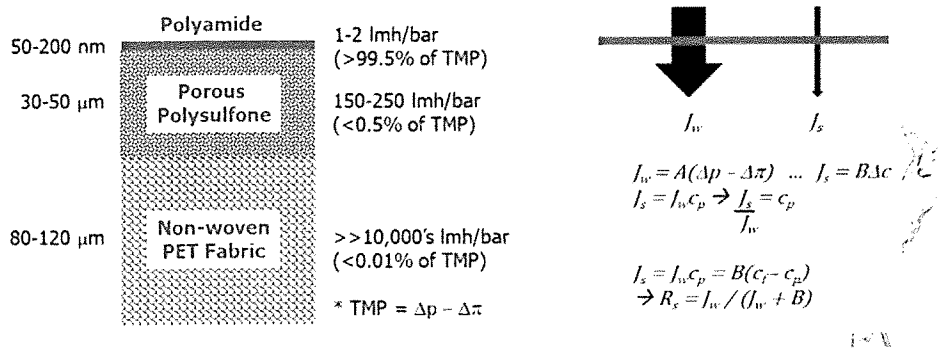
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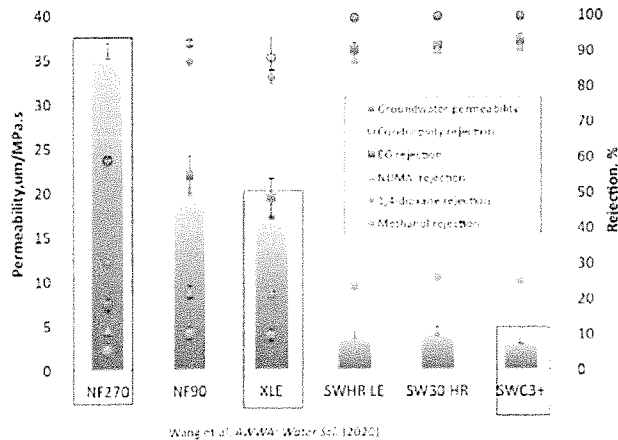


## Solvent and Solute Transport



Diverse chemistry in these structures. Permeability requires a lot of pressure. Energy tradeoffs.

## Trade Between Permeability and Rejection



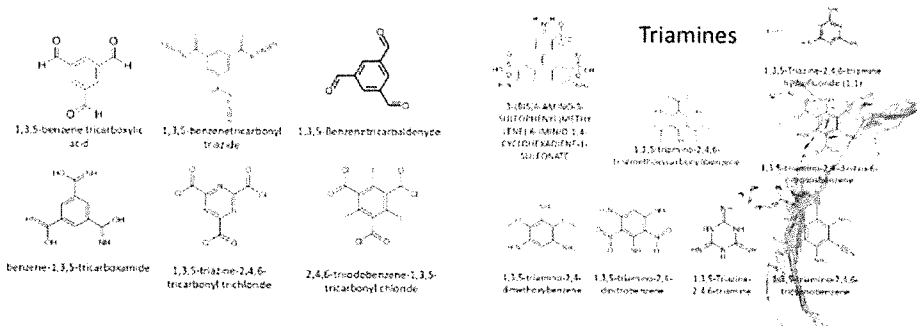
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**Important to note** that we need longer SRT time to allow the slower growing organisms to survive and do their job.

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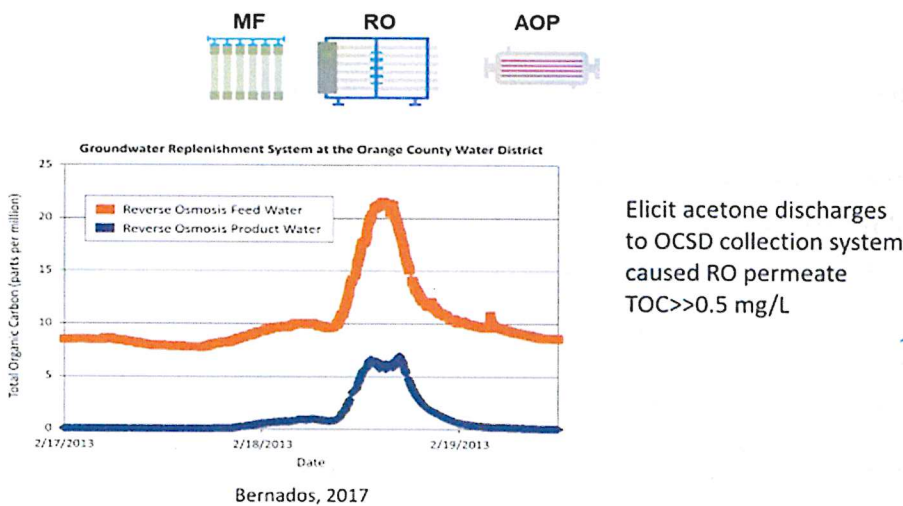
WaterReuse DPR Webinar  
Feb. 24, 2022 Judy Schriebman

Join this webcast to hear experts in California discuss two alternative approaches that have great potential to **replace** ozone and biologically activated carbon (BAC) in some Direct Potable Reuse (DPR) projects without any substantial impacts on project cost, footprint, or operational complexity.

Draft California DPR regulations include ozone and BAC for chemical control prior to full advanced treatment. While efficacy of ozone-BAC has been well proven, it can also increase operational complexity, footprint, and project costs. California's draft regulations require DPR trains include ozone and biologically activated carbon (BAC) prior to full advanced treatment for chemical control, but also **allow for alternatives** if an agency demonstrates that the proposed train removes contaminants of concern to an equivalent or better level.

Speakers: Dr. Glen Daigger, Univ of Michigan and Dr. Ufuk Erdal, Arcadis  
2 processes to replace Ozone and BAC in DPR. Full Advanced Treatment (FAT), which is MF, then RO then AOP for IPR.

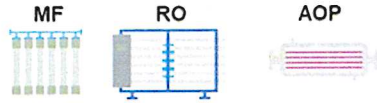
## FAT is Very Effective But Not Bullet Proof



## FAT Has Also Limitations

- Common characteristics of compounds that are poorly removed (<50%) by FAT:
  - Small, uncharged compounds; molecular weight <100 Daltons (AMUs)
    - Formaldehyde: 30 Daltons, Ethanol: 46 Daltons, Acetone: 58 Daltons
  - Having low Octanol water partition coefficient; log Kow < 1
    - Acetone LogKow = -0.24, Formaldehyde LogKow = 0.35
  - Resistant to photolysis and advanced oxidation (e.g.  $K_{OH,C} < K_{OH,1,4D}$ )
    - Methanol, acetone, formaldehyde

## FAT Has Limitations Cont'd.

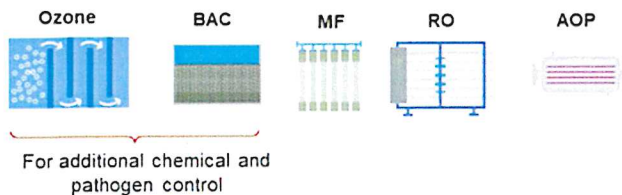


Category	Compounds Poorly Removed (<50%) by FAT
VOCs	Low Molecular Weight (LMW) Haloalkanes (methyl bromide) LMW Alcohols (methanol, ethanol) LMW Aldehydes and Ketones (formaldehyde) Acetonitrile
Herbicides/Pesticides	Methyl Isothiocyanate (MITC)
DBPs	THMs

Adapted from the WRF 4991, 2021

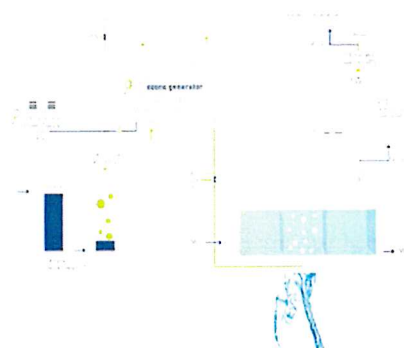
## Additional Barriers Beyond FAT Are Needed for DPR

- Draft CA Regs require high degree of protection for unknown chemicals, chemical peaks and pathogenic organisms
  - > 4 separate treatment processes (1-6 logs)
  - > 3 diverse treatment mechanisms
  - Physical, chemical, and UV must be included



## Concerns with Ozone and BAC

- At  $O_3:TOC \geq 1$  may require a transfer  $O_3$  dose of >8-10 mg/L
  - High CAPEX and OPEX
- Generates DBPs
- Requires ozone generators, LOX storage,  $O_3$  contactors,  $O_3$  destruction units, filtration facilities, spent backwash storage
  - Large footprint
  - High CAPEX and OPEX
  - Increased degree of O&M complexity



Ozone and BAC adds to costs and treatment plant footprint and byproducts production, so agencies not interested in DPR; ok w/IPR

Blending of 10:1 may replace O3/BAC, but not good in all cases.

## What Are Alternative Approaches?

- Blending
- Providing engineered buffer or flow equalization
- Air stripping
- Re-arranging advanced treatment process sequence (O3/BAC to the tail end of AWTF)
- Providing additional advanced treatment
- Improvement in AOP
- Providing enhanced source control
- Improving removal of chemicals in conventional WWTP's
- Enhancement in RO membranes



**For each option presented above, we may need additional disinfection barriers to meet 20/14/15 V/G/C requirements**

Conventional WWTPs remove a number of compounds. Activated Sludge works for both Adsorption and Absorption. Aeration helps volatilization.

### Adsorption and Absorption

- Effective for Hydrophobic (Non-Polar) Compounds
- Can be absorbed by activated sludge biomass and removed thru solids/liquid separation
- Quantified by Octanol –Water Partition Coefficient
  - Log  $K_{OW}$  >5: Excellent removal
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## Volatilization

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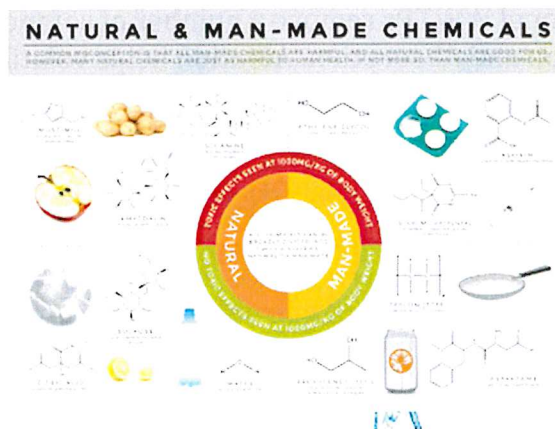
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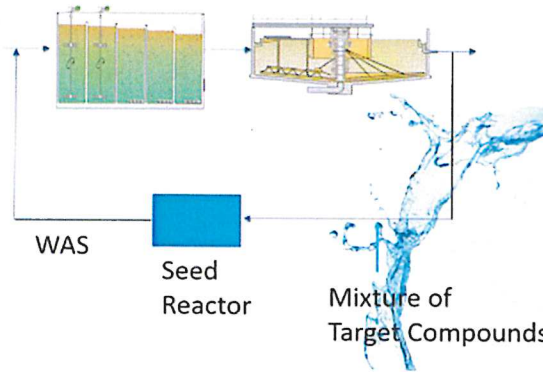


Retaining "competent" biomass is critical. Retaining nitrifying organisms is a good marker for these others as both are slow growing.

# How Can We Ensure Biological Conversion

## 3. Bioaugmentation

- Seed Reactor Fed Mixture of Target Compounds with WAS Fed to Main Treatment System
- Upstream Biological Treatment of Sources with WAS Fed to Main Treatment System



Grease is a good substance to increase capture of hydrophobic compounds. To increase the effectiveness of standard WWTP systems.

## System Thinking Can Effectively Lead to Enhanced Treatment System Resilience

- Implement CEPT
  - Improved Treatment
    - Increased Capture of Hydrophobic Compounds
    - Reduced Secondary Process Loading Allows Increased SRT
      - Improved Nitrification/Denitrification
      - Increased Biodegradation of Slowly Degradable Organics



## Enhancements in RO Membrane Chemistry

- Our major objectives with RO in CA IPR projects are to:
  - Meet <math>< 0.5 \text{ mg/L}</math> TOC
  - Along with AOP, to further reduce concentrations of trace organics (e.g. CECs)
  - Provide salt (TDS) and additional nutrient removal, if needed
- Our interest is to:
  - Reduce energy and chemical uses as much possible
  - Increase RO recoveries (in some cases)

### §60320.218. Total Organic Carbon Requirements.

(a) For each subsequent application GRP used for replenishing a groundwater basin, the GRP's project sponsor shall monitor the applied recycled municipal wastewater for TOC as follows:

- (1) Prior to replenishment, at least one 24-hour composite sample each week;
- (2) Grab samples may be used in lieu of the 24-hour composite samples required in paragraph (1) if the GRP demonstrates that a grab sample is representative of the water quality throughout a 24-hour period.

(b) Analytical results of the TOC monitoring performed pursuant to subsection (a) shall not exceed 0.4 mg/L based on:

- (1) the 20-week running average of all TOC results; and
- (2) the average of the last four TOC results.

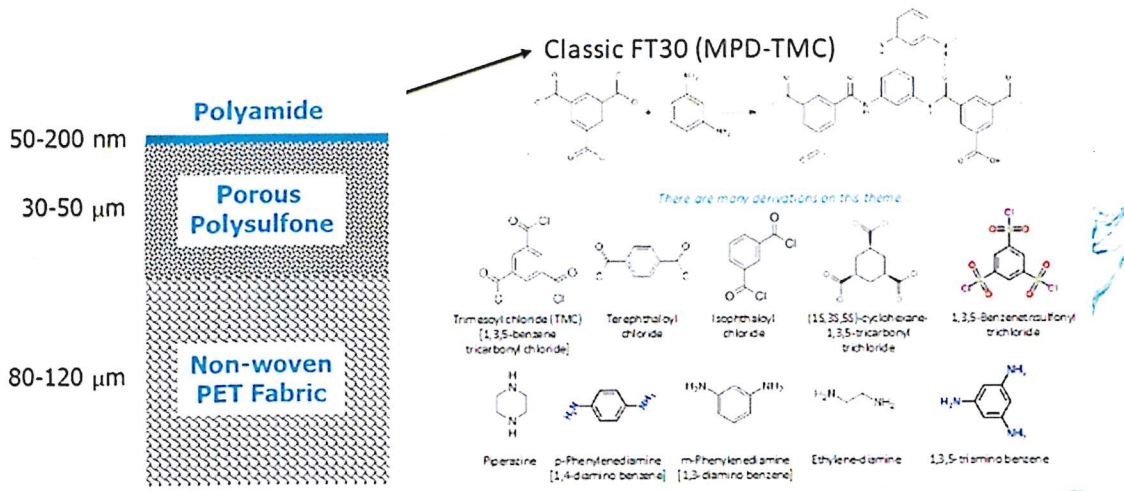
(c) If the GRP exceeds the limit in subsection (b) (1) based on a 20-week running average, a project sponsor shall take the following actions upon being notified of the results:

Last updated October 1, 2019. Amended 2019 22 and 27 California Code of Regulations Title 26, Division of Drinking Water, Recycled Water Regulations

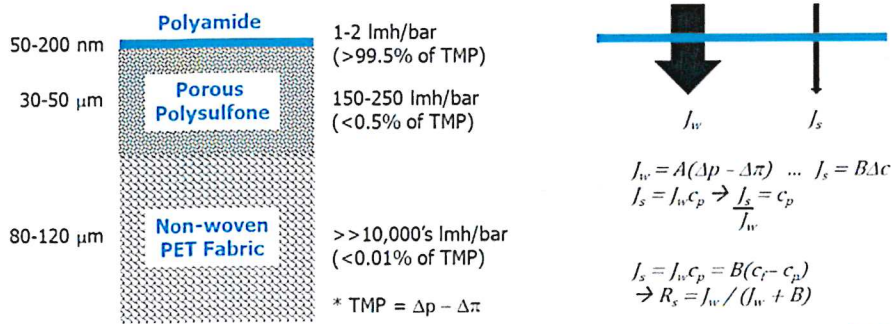
68



# NF/RO Membrane Structure – Current

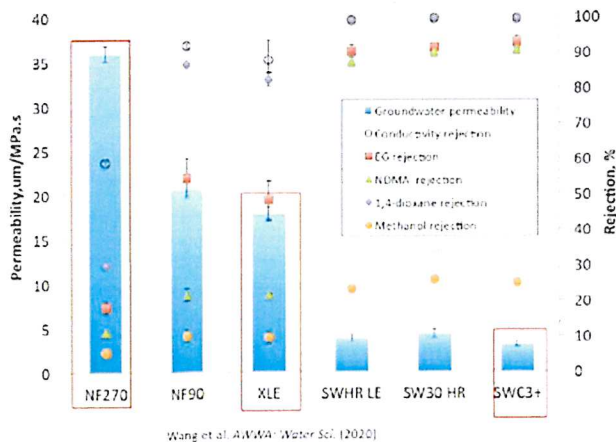


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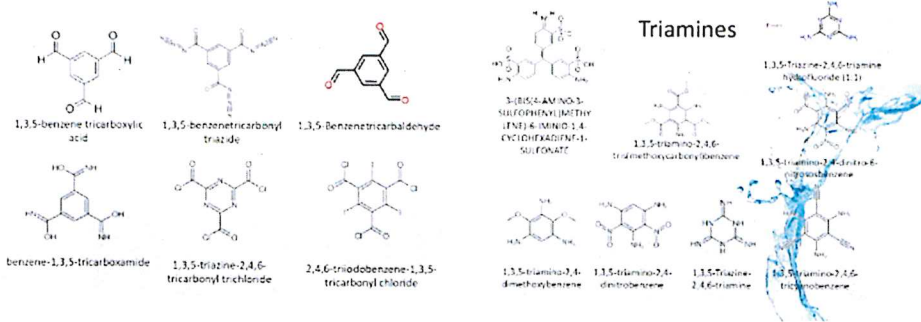


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Biosolids Regulatory Framework  
Greg Kester, CASA  
Monday March 7, 2022  
Judy Schriebman

CA Legislation to Mitigate Climate Change as driver. 100% renewable by 2045. Methane pollutant reduction (methane: 40% reduction). Healthy Soils Initiative. Divert organics from landfill. SB 1383: disallow local ordinances that unreasonably restrict or prohibit land ap of Biosolids; every jurisdiction required to divert organics and derive biogas/compost. Will post slides and video on CASA: dropdown menu on Resources.

Can Greg be asked to help us get our biogas system working? As source of expertise?

## Opportunities Offered by the Wastewater Sector to Meet SB 1383 Objectives via Co-Digestion

- **Use of existing infrastructure** to accept at least 75% of food waste currently landfilled for anaerobic digestion
- **Increase biogas production** to generate renewable energy, low carbon transportation fuel, and pipeline grade RNG, in turn decreasing greenhouse gas emissions
- Build healthy soils, sequester carbon, and reduce fossil fuel based inorganic fertilizer use through **land application of biosolids**
- **Develop collaborative partnerships** with private sector




## Co-digestion Accelerates Diversion of Organics from Landfills

### Opportunity:

- ~150 wastewater plants already utilize anaerobic digestion and have excess capacity - ~ 90+% of wastewater flow
  - Plants are often located in urban areas near waste generation → shorter haul

### Challenges/Needs:

- Must build partnerships with solid waste sector to maximize effective diversion
  - Cleanliness of organic waste stream must be assured (whether for co-digestion, digestion, or compost)
  - Markets must be assured for both biogas and biosolids
- 

## Significant Additional Renewable Energy Potential

- If co-digestion is maximized to utilize all existing capacity and 3.4 million tons of food waste is accepted we can increase energy by:
  - 822,800 MegaWatt hours
  - 7.5 million MBTu's
  - 71.4 Million Diesel Gallon Equivalents transportation fuel – when combined with what is produced from sewage sludge digestion - would allow 575 million miles to be driven by Heavy Duty Trucks with Renewable Fuel
- Working with CARB to ensure heavy duty trucks, vector trucks, etc. can continue to use our RNG!
- Electric options don't exist yet and won't for some time

## Further Opportunities for the Water Sector

- CPUC on 2/24 adopted a decision to require Investor Owned Utilities (IOUs) to procure biomethane via pipeline injection
- POTWs who co-digest will be given priority as targeted customers
- 
- CEC contacted CASA to see how the water sector might help address potential energy shortfall
- Working with them on opportunities to go off grid during peak demand via storage reservoir pumping shifts, co-gen, & battery storage – operational changes and worker schedule shifts possible

CA Biosolids management: Production areas far apart from rural use. Restrictive ordinances on land ap overturned via SB 1383. Incinerators, alternate daily cover in landfills (0 allowed in 2025) and surface disposal: not many and not desirable. Land ap is best alternative.

### Biosolids Land Application in California - 2020



This map is based on a search of online available data and may have missed County Order requirements such as non-qualified requirements for requirements of city or regional agencies. This map presents findings for individual county requirements and does not reflect the sub-regional areas of the counties, all areas in California are subject to California and Federal biosolids regulations.



Only affects unincorporated parts of the counties. 1383 should make entire state green. Focusing on 3 red counties first to revise ordinances.

Biosolids regulatory: USEPA, CWA, SWRCB. Both ok w/Land ap.

## Land application requires regulatory compliance with all of the following:

- Pathogen control (Engineered process requirements) –  
Class A or Class B with Class B + management = Same level of safety as Class A
- Biosolids cannot be a food source for disease carrying organisms –  
Vector Attraction Reduction required
- Meet Pollutant Concentration limits set by comprehensive risk assessment conducted by USEPA
- Limit the application rate of biosolids to the nitrogen need of crop to be grown (taking all N sources into account)

40 CFR Part 503--risk assessment/regulations. Biosolids are fairly homogenous mixture among WWTPs.

TABLE A FREQUENCY OF MONITORING		
Amount of Biosolids (Dry Metric Tons per 365 day)	Amount of Biosolids (Dry U.S. tons per 365)	Frequency
$0 < X < 290$	$0 < 320$	Once per year
$290 \leq X < 1500$	$320 \leq X < 1654$	Once per quarter
$1500 \leq X < 15000$	$1654 \leq X < 16540$	Once per 60 days
$15000 \leq X$	$16540 \leq X$	Once per month
<sup>1</sup> Amount of biosolids land applied (dry weight basis). <sup>2</sup> Metric tons = U.S. tons x 0.907		

## Biosolids must meet all the following to be land applied (most restrictive in all three = Exceptional Quality)

- METAL CONCENTRATIONS
  - POLLUTANT LIMITS (HQ)
  - CEILING LIMITS
- PATHOGEN CONTROL
  - CLASS A or
  - CLASS B
- VECTOR ATTRACTION REDUCTION
  - PROCESS or
  - PHYSICAL BARRIER

Biosolids screening assessment:

## USEPA Risk Assessment Process

- Started with ~ 400 constituents
- Narrowed to 200 on which a Hazard Index (HI) Assessment was performed
- Full deterministic multi-pathway (14) risk assessment performed for 25 constituents with HI >1
- Ultimately regulated 10 constituents in final rule
- Biennial reviews continue to monitor new science and emerging constituents

Assumptions for Risk Assessment:

### Highly Exposed Individual – Target of Risk Assessment

- Is a home gardener who applies biosolids to the garden every year for 70 years and...
  - Grows and consumes 60% of their food from their garden, consumes fish from a farm pond, drinks water from a private on-site well – all impacted by land application
  - Home garden is at the maximum pollutant loading limit for all regulated constituents each year over the entire 70-year period
  - 45% home grown meat where livestock consume 100% of their feed from biosolids amended crops and 2.5% of their diet is dirt
  - Food consumption was conservatively assumed based on Exposure Factors Handbook

Used that model to evaluate limits. Assumed every year a certain amount could be safely applied.

METALS Land Application Pollutant Limits (all values are on a dry weight basis)				
Pollutant	Ceiling Concentration Limits for All Biosolids Applied to Land (milligrams per kilogram) Table 1	Cumulative Pollutant Loading Rate Limits for CPLR Biosolids (kilograms per hectare) Table 2	"High Quality" Pollutant Concentration Limits (mg/kg) Table 3	Annual Pollutant Loading Rate Limits for APLR Biosolids (kilograms per hectare per 365-day period) Table 4 (Obsolete)
Arsenic	75	41	41	2.0
Cadmium	85	39	39	1.9
Chromium	3,000	1,200	3,000	150
Copper	4,300	1,500	1,500	75
Lead	840	300	300	15
Mercury	57	17	17	0.85
Molybdenum <sup>b</sup>	75	-	-	-
Nickel	420	420	420	21
Selenium	100	36-100	36-100	5.0
Zinc	7,500	2,800	2,800	140



Chromium & Molyb challenged in court; based on science, numbers changed. Table 1; if any constituent exceeded this number, could not do land ap; an upper boundary, not risk based. Table 4 never used; obsolete.

Pretreatment regs have worked, dropping pollutant concentrations by 1993 to below risk factors. Fecal coliform or Salmonella used as surrogate for pathogens. If certain bad viruses are inactivated by process(es), assumed ALL virus/pathogens are inactivated.

## Pathogens Must be Reduced

- Class A requires Process to Further Reduce Pathogens (PFRP) which produces a non-detect level for pathogens
  
- Class B requires Process to Significantly Reduce Pathogens (PSRP)
  
- Class B + Management practices (which allow for natural attenuation)  
= same level of protection as Class A

<b>CLASS A</b>		
<b>PARAMETER</b>	<b>UNIT</b>	<b>LIMIT</b>
Fecal Coliform or Salmonella	MPN/g TS	1000
	MPN/4g TS	3
<b>AND, ONE OF THE FOLLOWING PFRP PROCESS OPTIONS</b>		
Temp/Time based on % Solids	Alkaline Treatment	
Prior test for Enteric Virus/Viable Helminth Ova	Post test for Enteric Virus/Viable Helminth Ova	
Composting	Heat Drying	
Heat Treatment	Thermophilic Aerobic Digestion	
Beta Ray Irradiation	Gamma Ray Irradiation	
Pasteurization	PFRP Equivalent Process	

<b>CLASS B</b>		
<b>PARAMETER</b>	<b>UNIT</b>	<b>LIMIT</b>
Fecal Coliform	MPN or CFU/gTS	2,000,000
<b>OR ONE OF THE FOLLOWING PSRP PROCESS OPTIONS</b>		
Aerobic Digestion	Air Drying	
Anerobic Digestion	Composting	
Alkaline Stabilization	PSRP Equivalent	

<b>TABLE 7</b> <b>VECTOR ATTRACTION REDUCTION</b> (One of the following must be satisfied)		
OPTION	LIMIT	WHERE IT MUST BE MET
Volatile Solids Reduction	>38%	Across the process
Specific Oxygen Uptake Rate	<1.5mg O <sub>2</sub> /hr/g TS	On aerobic stabilized sludge
Anaerobic bench-scale test	<17% VS reduction	On anaerobic digested sludge
Aerobic bench-scale test	<15% VS reduction	On aerobic digested sludge
Aerobic Process	>14 days, T>40° C and avg T >45° C	On composted sludge

<b>TABLE 7</b> <b>VECTOR ATTRACTION REDUCTION</b>		
OPTION	LIMIT	WHERE IT MUST BE MET
pH adjustment	>12 S.U. (for 2 hours) and >11.5 (for an additional 22 hours)	When applied or bagged
Drying without primary solids	>75% TS	When applied or bagged
Drying with primary solids	>90% TS	When applied or bagged
Injection	-	When applied
Incorporation	-	When applied

Nutrient management; limit to the crop & season; minimizing leaching. Most N in Biosolids is organic, so slowly mineralized and becomes available as crop needs it.

Land Application Restrictions for Class B Biosolids

- Must not Endanger Threatened or Endangered Species
- Must not Disturb Historical Properties
- Soil pH > 5.5
- At least 10 meters from surface water/wetlands
- Must meet Table C Time Requirements

TABLE C MINIMUM DURATION BETWEEN APPLICATION AND HARVEST\GRAZING\ACCESS FOR CLASS B BIOSOLIDS APPLIED TO THE LAND			
Criteria	Surface	Incorporation	Injection
Food crops whose harvested part may touch the soil/biosolids mixture (beans, melons, squash, etc.)	14 months	14 months	14 months
Food crops whose harvested parts grow in the soil (potatoes, carrots, etc.)	20/28 months*	20/38 months*	38 months
Feed or other food crops (field corn, hay sweet corn, etc.)	30 days	30 days	30 days
Grazing of animals	30 days	30 days	30 days
Public access restriction			
High potential	1 year	1 year	1 year
Low potential	30 days	30 days	30 days
*The 20 month duration between application and harvesting applies when the surface applied biosolids stays on the surface for 4 months or longer prior to incorporation. The 38 month duration is in effect when the biosolids remains on the surface for less than 4 months prior to incorporation.			

Really limits the use of Class B on food crops due to long waiting period. Good if following a field annually. Asking for exceptional quality Biosolids to be released from general order restrictions.

PFOAs:

## LOCAL PROBLEM SOLVED BY LOCAL STUDY

- January 2020 – Pima County (Tucson, AZ) Board of Supervisors impose moratorium on land application in Pima County
- March – October 2020 – University of Arizona Water and Environmental Technology Center (WET) in collaboration with Pima County Wastewater evaluate incidence and transport of PFAS following long-term land application (since 1984)
- **Data showed low incidence of soil PFAS and limited mobility of PFAS through soil and vadose zone**
- Data presented to Pima County Administrator
- December 2020, moratorium rescinded

### FOR A NATIONAL PROBLEM WE NEED A NATIONAL STUDY

National Collaborative Project to evaluate PFAS. Pima an arid county but area had significant irrigation, similar to rainfall in Pacific Northwest.



# NATIONAL COLLABORATIVE PROJECT

## OVERALL PROJECT GOAL

- To evaluate whether or not land application of biosolids is a significant public health route of exposure to perfluorinated compounds (PFAS)

**Specific Objectives:**

Evaluate

- Incidence of PFAS analytes in soil following long-term land application of biosolids
- Mobility (leaching) of PFAS analytes through soil and vadose zone under the influence of rainfall and/or irrigation
- Crop uptake of PFAS analytes

Report in Nov. 2018 from Inspector General indicting EPA's Biosolids program. Working w/Universities to rebut the report's conclusions. Submitted formal response in July 2020, under USDA W4170 multi-state research committee. On CASA website.

## Benefits of Biosolids in California

- Land application of biosolids provides all the following:
  - Improves soil tilth, increasing soil organic carbon
  - Increases water holding capacity, reducing irrigation demand
  - Reduces crop drought stress
  - Increases crop yields
  - Sequesters carbon long-term
  - Displaces fossil fuel-intense inorganic fertilizer (0.22 gallons of fossil fuel needed for every pound of inorganic nitrogen)
  - Conserves non-renewable resources (like phosphorus) and recycles them
- Can help reclaim disturbed sites such as superfund and other mines, brownfields, and fire-impacted land



Expected to run out of Phos reserves; so important to reclaim them from Biosolids.

## Research and Safe Practices of Biosolids

- Not One Documented Adverse Effect of Biosolids Application Over Decades
- Research has Been Done Over the Past 70 Years with Universal Support of Land Application as the most Sustainable and Beneficial Use
- Research and Risk Assessment Continue for Emerging Contaminants of Concern
- EPA Recently Updated its Biosolids Screening and Full Risk Assessment Models
- Science Advisory Board is reviewing them and convened an expert Biosolids panel, to which I have been appointed



Q&A: Prohibition of applications Nov-April due to rainy season? Hard dates don't work; in drought, there is no rain. Fed regs say no ap in saturated soils/during rain events, esp for sites near water bodies. No strict restrictions for landfilling of Biosolids yet but that's coming; yet in emergency where Biosolids were more than storage capacity, could be still available.

PFAS: working w/water boards on this. Pro bono eval of past data in geotracker system being done. Waterboards not concerned re: Biosolids results. Can easily use pre-treatment protocols to protect WWTP from PFOAs from industrial point sources. Household use is bigger problem. Stain resistant carpet, Teflon, etc so need to get it out of commercial products rather than put it on WWTP. Firefighting training sites are hugely contaminated sites. 3 bills in state to reduce PFAs; can use LOS to support this source control legislation.

Allan Savory in a 2013 Ted Talk made the case that by ignoring the degradation of soil quality worldwide, we will probably fail to stop climate change by just abandoning fossil fuels. Biosolids land application can greatly enhance carbon sequestration in soils, as pointed out here.

Quality of crops on fields w or w/o Biosolids? Nutritional quality? Will find that research to show that Biosolids fed crops are equal to or maybe more nutritious. UC Davis researcher has done work in this field.

BEAM GHG model? (Biosolids Emissions Assessment Model) Developed by U of WA. Update coming soon.

<https://www.wef.org/resources/topics/browse-topics-a-n/biosolids/biosolids-communications-toolkit/> Communication Toolkit. Working on more "user friendly" one. Factsheets on CASA website.

Organic certification lost if Biosolids are applied? USDA developed organic cert ok'd Biosolids but organic industry did not like that so squashed. Remains a market preference of the industry. Allows raw manure, untreated, with fewer restrictions between application and harvest on certified organic fields yet bans Biosolids w/longer retention time; etc. Will be an uphill battle. Need to work w/Organic Industry on changing this.

If any discussion has happened at federal level to expand options for process VAR (vector reduction) - as new technologies are advancing to full-scale operation? Example: hydrothermal carbonization--does not fit into original 503 list of options. Will consider it. Looking for revised risk assessment models to be developed and approved; recognizes a need for it. Staffing at EPA is still scant. 3 FT staff in EPA HQ; had only been 1 for years. Once 503 was adopted, *EPA felt Biosolids app was low priority, because it was a low risk program*. Competing with other programs that were a higher risk. Need for an option for equivalency.

A resource re the question regarding the earlier grain quality - Chapter 7 of this research document addresses this: <https://pubs.extension.wsu.edu/advances-in-dryland-farming-in-the-inland-pacific-northwest-pnw697-reacch-handbook>

Monthly call on updated Biosolids info. Regulatory listerv. Ping Greg or Cheryl MacKelvie. Email Greg at any time w/questions.



**BOARD MEMBER  
MEETING ATTENDANCE REQUEST**

Date: \_\_\_\_\_ Name: \_\_\_\_\_

I would like to attend the \_\_\_\_\_ Meeting  
of \_\_\_\_\_

To be held on the \_\_\_\_\_ day of \_\_\_\_\_ from \_\_\_\_\_ a.m. / p.m. to  
\_\_\_\_\_ day of \_\_\_\_\_ from \_\_\_\_\_ a.m. / p.m.

Location of meeting: \_\_\_\_\_

Actual meeting date(s): \_\_\_\_\_

Meeting Type: (In person/Webinar/Conference) \_\_\_\_\_

Purpose of Meeting: \_\_\_\_\_  
\_\_\_\_\_

Meeting relevance to District: \_\_\_\_\_

Request assistance from Board Secretary to register for Conference: YES NO

Frequency of Meeting: \_\_\_\_\_

Estimated Costs of Travel (if applicable): \_\_\_\_\_  
\_\_\_\_\_

Date submitted to Board Secretary: \_\_\_\_\_

Board approval obtained on Date: \_\_\_\_\_

Please submit this form to the Board Secretary no later than 1 week prior to the Board Meeting.

**3/17/2022**

**BOARD AGENDA ITEM REQUESTS**

**Agenda Item 9B**

- Separate Item to be distributed at Board Meeting
- Separate Item to be distributed prior to Board Meeting
- Verbal Report
- Presentation

Water officials see extra benefits in Phoenix Lake

MARIN MUNICIPAL

Reservoir considered for drought, flood prevention

By Will Houston

[whouston@marinij.com](mailto:whouston@marinij.com)

Phoenix Lake might be prized more for its scenic trails than its drinking water, but the drought has water managers exploring a multimillion-dollar project to extract every drop it can from the small reservoir.

Built in 1905-06, Phoenix Lake is the Marin Municipal Water District's second-oldest and second-smallest reservoir, making up only about a half-percent of the total water supply for 191,000 residents.

The lake is not connected to other reservoirs in the district, making it time-consuming to extract water when needed. Water quality issues such as large amounts of sediment and low mineral content also make the water difficult to treat, leading the district to tap only a portion of the water.

"Right now it's not really connected to the water system," said Paul Sellier, district operations director. "We have to do some fairly laborintensive pipework to set it up so we can pump it to the treatment plant."

As a result, the district only taps Phoenix Lake during dry water years such as last year. Prior to 2021, the district had not used the lake since the 2013-2014 drought, Sellier said.

One solution being explored would be to connect Phoenix Lake to the nearby Bon Tempe Lake, about one mile to the west, using a pipeline.

District staff said mixing the Phoenix Lake water into Bon Tempe Lake would work to address water quality issues, making it easier to treat and adding more drinking water to the system. In the rainy season, the district would also be able to extract water from Phoenix Lake more frequently, allowing it to draw on the reservoir multiple times as it refills after rains.

While the district can extract about 200 to 250 acre-feet of water from the 411-acre-foot reservoir,

the upgrades could allow it to obtain an additional 300 to 600 acre-feet, depending on the options, according to district staff.

LAKE »PAGE 2



A new proposed project would make it much faster and more efficient for the Marin Municipal Water District to draw water out of Phoenix Lake.

PHOTOS BY DOUGLAS ZIMMERMAN — SPECIAL TO THE MARIN INDEPENDENT JOURNAL



Phoenix Lake is the Marin Municipal Water District's second-smallest reservoir.

Lake

3

FROM PAGE 1

The proposal is also reviving an idea by the county government to potentially use the lake to capture runoff that would otherwise flood nearby communities such as Ross and Kentfield during storms. The idea would be to have the district draw down Phoenix Lake in anticipation of upcoming storms, allowing the lake to capture runoff that could swell Ross and Corte Madera creeks.

County officials told the district board that this concept was demonstrated during the heavy storm in October, when Phoenix Lake was low.

"We really did notice the value of Phoenix Lake, at least in the first half of that storm," Liz Lewis, a manager at the Marin County Flood Control and Water Conservation District, told the MMWD board this

be managed.

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"From our end, we need to keep it full," Russell said. "From their end, we need to keep it empty."

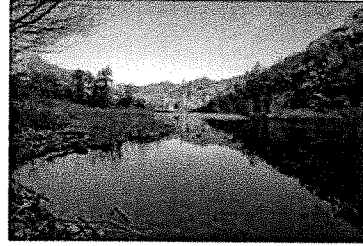
The idea of using Phoenix Lake as a flooding buffer is not a new one. In the early 2010s, the county explored raising the Phoenix Lake dam. But the high cost — estimated at about \$20 million — did not make sense financially, according to Marin County Public Works Director Rosemarie Gaglione.

One benefit of Phoenix Lake is that it already exists, so it doesn't require the construction of new stormwater detention ponds, which can be controversial in some communities, Gaglione said. Additionally, the water transferred from Phoenix to Bon Tempe Lake would be used as part of the district's water supply, as opposed to spilling during storms into Ross Creek and out into the bay.

month. "In the community, we heard from a lot of folks that really felt like Phoenix Lake being empty prior to that event probably resulted in less flooding in Ross and downstream."

"This is just the start of a lot of information gathering," Gaglione said. "We're just grateful to start the conversation."

The project, which would include pump upgrades and about 2,200 feet of new pipe, could cost \$3 million to \$5 million depending on the options, according to staff estimates. Part of this cost could be shared by the county.



The concept received mostly positive reviews from the district board during a presentation this month.

"I really like this project," said board member Larry Bragman. "I think it could have a lot of other future uses."

A new proposed project would make it much faster and more efficient for the Marin Municipal Water District to draw water out of Phoenix Lake.

Board member Monty Schmitt said that if the flood reductions were large enough, they "could have implications for people's flood insurance and other things that reduce costs for our customers."

DOUGLAS ZIMMERMAN — SPECIAL TO THE MARIN INDEPENDENT JOURNAL

Larry Russell, president of the board, raised concerns about the cost. He said paying up to \$5 million for a half-percent of the district's supply seemed "very high."

While the flood control proposal interested him, Russell said the county and the district would have separate priorities on how the lake should

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**MMWD delays decision on desalination measure**

**DROUGHT OPTIONS**

Voters could be asked to repeal their authority

**By Will Houston**

[whouston@marinij.com](mailto:whouston@marinij.com)

When **Marin** last considered building a desalination plant on San Francisco Bay more than a decade ago, residents wary of the high financial and environmental costs reacted by giving voters the power to make that decision.

Now comes the question: should voters retain the power to block what could be an emergency source of water in the event of another crisis?

“The strange weather we’ve had the last few years I think suggests that having more options in the event of a similar kind of emergency we were in this past year is prudent,” **Marin** Municipal Water District General Manager Ben Horenstein told the district Board of Directors on Tuesday. “With this ordinance in place, it does limit our ability in certain ways to move forward if we wanted to with an emergency desal system.”

One option proposed to the board on Tuesday was to put a measure on the June ballot asking voters if they wanted to repeal their authority to decide whether a desalination plant gets funded and built.

The board decided the idea was premature. Rainfall in late 2021 nearly refilled reservoirs, giving the district much-needed relief and more time to explore a variety of new sources of supply from desalination to an emergency pipeline across the Richmond- San Rafael Bridge.

“To me, it’s pretty clear that we’re not there yet and neither is the public,” said board Director Larry Bragman said of the ballot measure. “The issue is really not crystalized for the public as to what this ballot measure even means and what it means to the district. Most of the comments assume it means we’re moving ahead with desal, which it doesn’t.”

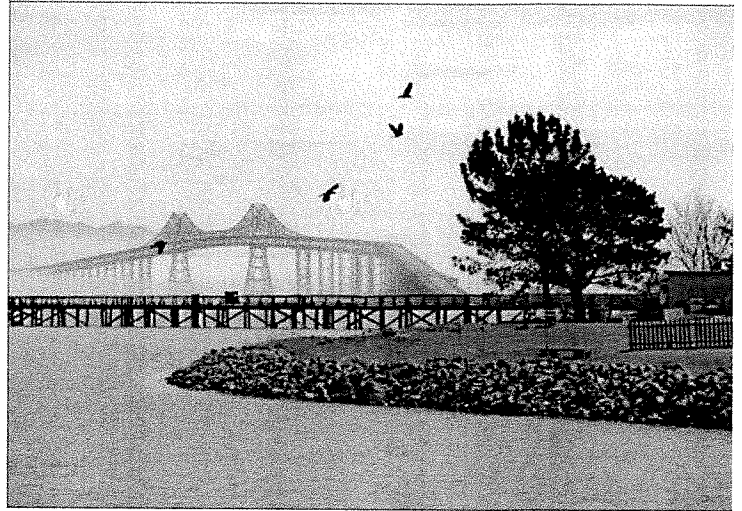
This month, the district began an assessment to weigh the pros and cons of potential new sources of water. The study is set to be completed this summer.

A ballot measure is not entirely off the table. Some board members suggested waiting until after the water supply study is completed this summer and potentially pursuing a ballot measure for the

November election or holding a special election.

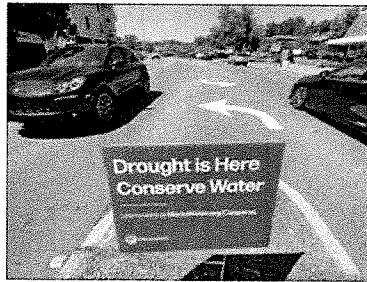
MMWD has been contemplating the idea of desalination on and off since the early

**DROUGHT» PAGE2**



The fishing pier and grounds of the **Marin** Rod and Gun Club stands near the Richmond-San Rafael Bridge. The **Marin** Municipal Water District had tested desalination near this location a couple of times in the past 30years.

ALAN DEP — **MARIN INDEPENDENT JOURNAL**



A sign is placed along a stretch of Sir Frances Drake Boulevard in Fairfax in 2021. The **Marin** Municipal Water District is assessing the pros and cons of potential new sources of water.

SHERRY LAVARS — **MARIN INDEPENDENT JOURNAL, FILE**

**Drought**

(2)

**FROM PAGE 1**

1990s and has tested two pilot desalination plants. It began seriously considering the idea in the late 2000s when forecasts showed its water supply would not meet rising water demands.

Opponents of the idea placed an initiative, Measure T, on the November 2010 election ballot that would require voter approval for any planning, engineering studies and construction of the plant.

↓

(7)

member and district Citizens Advisory Committee member Larry Minikes, said a June initiative allows for little time to explain the measure.

“I think trying to get the public to say, ‘We want to give up the right to vote,’ for reasons that aren’t very clear is just going to backfire,” Minikes told the board.

Sierra Club member Nancy Okada said desalination should be the last option for new water supplies given its greenhouse gas emissions and brine impacts in San Francisco Bay.

3

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Environmental organizations and other residents were concerned that the desalination plant would greenlight unsustainable development and undercut the need to conserve more water. There was also concern about the impacts of the toxic brine on the bay and its wildlife.

Bragman, then the vice mayor of Fairfax, was a supporter of Measure T.

The water district countered Measure T with its own initiative, Measure S, which would only require voter approval for funding and constructing the plant. The district and its supporters stated that Measure T was too restrictive and would block the district from even studying the idea of desal without having to go through a districtwide election.

Measure S won with a nearly 70% majority vote, overtaking Measure T, which received 55% support among voters.

At Tuesday’s meeting, several ratepayers — many of whom opposed the desalination plant in 2010 — questioned why the district was bringing back an issue they said was settled by the voters more than a decade ago.

“I hate to have to think here in my late 70s I’ve got to go back out on the street and do it all over again,” Clayton Smith told the board.

Others, such as **Marin** Conservation League board

“You really need to focus on conservation and people have been showing they are willing to conserve and are conserving,” Okada told the board.

James Krajeski of Corte Madera said that the district’s conservation efforts failed last year and the district was only rescued from a crisis by unusual early rainfall in October. He said other options, including desalination, need to be considered and the district should not wait to pursue them.

“What voters wanted in the past can change,” Krajeski told the board. “At that particular time we had a different population, we don’t have all of the growing population that we have now, we see the effects on our landscape on our lives of extreme conservation measures. So why shouldn’t we have all options on the table at this particular point?”

The district is set to hold its first public workshop on studying new water supplies from 5 to 7 p.m. March 9. More information can be found online at [marinwater.org](http://marinwater.org).

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## Ross Valley Sanitary District OKs headquarters remodel

SAN RAFAEL

2

By Adrian Rodriguez

[arodriguez@marinij.com](mailto:arodriguez@marinij.com)

The Ross Valley Sanitary District is moving forward with a remodel of a San Rafael building it intends to use as its headquarters.

The district board voted 3 to 2 to hire Kirby Construction Co. Inc. for the \$2.4 million project. The Santa Rosa company cast the lowest of eight bids, coming in 17% below the engineer's estimate of \$2.9 million.

Board members Doug Kelly and Pamela Meigs dissented, saying they wanted more time to review the bidding documents. Kelly, the board president, said he wanted to check certain bid items against the condition of the building to ensure the district was not being charged for work that "is completely unnecessary."

"I'd like to move forward, but I don't think we need to get moving today," Kelly said. He said he wanted to push the decision to the board's next meeting.

Board members Thomas Gaffney, Mary Sylla and Michael Boorstein agreed that staff sufficiently vetted the bids and that the price was right.

"The clock is ticking," Boorstein said. "Let's get this show on the road."

The district purchased the twostory building at 1111 Andersen Drive for \$12.8 million in April 2019. Comcast Corp. has been a tenant in the building since before the district acquired it.

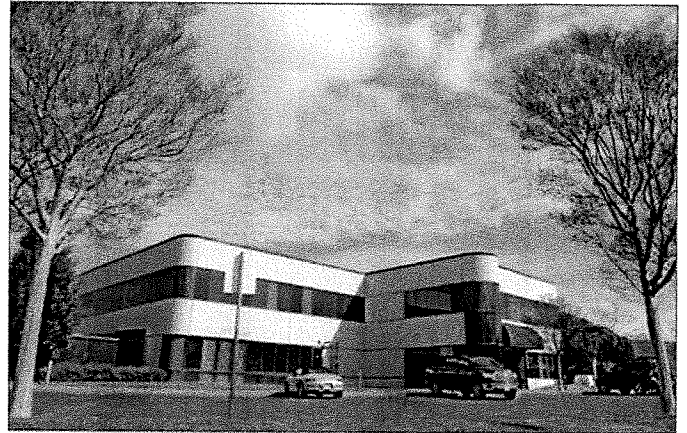
The cable company signed a new lease with the sanitary district last year to continue occupying a portion of the building with options to renew through 2033, said Steve Moore, the district's general manager.

Part of the agreement includes office improvements to Comcast's space that have to be completed within six months of start of construction.

Comcast pays the district about \$25,000 a month for rent. The district has collected about \$1.6 million so far. That money will go toward the cost of the renovation, Moore said.

The district plans to declare its other existing office sites as surplus. Sale revenue would also go toward paying for renovations,

RVSD » PAGE 4



The Ross Valley Sanitary District headquarters at 1111 Andersen Drive in San Rafael.

MARIN INDEPENDENT JOURNAL

RVSD

FROM PAGE 3

Moore said.

The project will bring the 1985 building up to code. The work will include a public reception area; a locker room and showers for sewer workers; and work stations for field workers to process data and work orders. The plan also includes a break room with a kitchenette; conference rooms for different departments; and a board meeting room.

"The RVSD has long understood the need to consolidate its activities under one roof," Moore told the board. He noted that the district is conducting business from five sites: offices at 2960 Kerner Blvd.; a corporation yard and field operations center at Larkspur Landing; a pump station in Greenbrae; a warehouse on Andersen Drive in San Rafael; and a board meeting room it rents from the Central Marin Police Authority.

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At the onset of the pandemic, the district had other priorities that delayed the renovation, Moore said.

"We were focused on delivering the essential government functions of a working sewer system within the constraints of the pandemic, protecting our workers from potential exposure to COVID-19, as well as implementing the county health mandates at our facilities and on our critical infrastructure projects," Moore said in an email.

The district has an annual budget of \$20.6 million.





## Flood project delayed amid mounting costs

SAN RAFAEL

County suspends plan to rebuild berm in Santa Venetia

By Richard Halstead

[rhalstead@marinij.com](mailto:rhalstead@marinij.com)

A \$6 million flood control project in Santa Venetia expected to break ground this summer has been delayed indefinitely.

The project involves rebuilding a nearly 40-year-old timber-reinforced berm behind 115 homes from Meadow Drive to Vendola Drive to protect against tidal flooding. The berm was built in 1984 atop an earthen levee/berm following devastating flooding in 1982 and 1983.

Before beginning construction, the county must secure easements from the owners of 105 properties along Gallinas Creek. So far, the county has signed 22 easement contracts with property owners at a combined cost of \$271,746.

On Tuesday, Supervisor Damon Connolly said he learned from county staff that costs "are now well over the original estimates that were provided to the public."

"I'm working directly with our director of public works, Rosemarie Gaglione, to pause the project to ensure that we know all the facts and that those facts are made public," he said.

Prior to Connolly's announcement, supervisors had been scheduled on March 15 to consider authorizing an eminent domain process to acquire the remaining easements.

Connolly noted that he has worked for seven years with Santa Venetia residents and the public works department on the project.

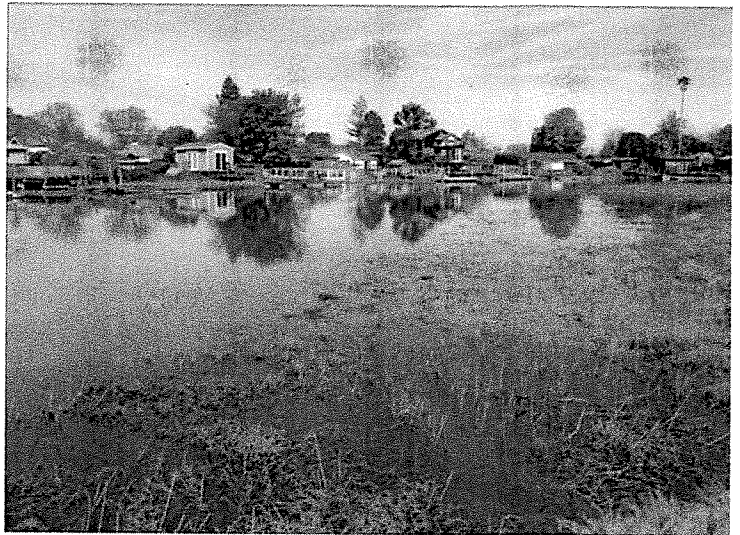
"Needless to say I'm very disappointed," Connolly said. "This project represents countless hours of work by the community in Santa Venetia. We are committed to seeing it through."

In an announcement issued

following Connolly's remarks,

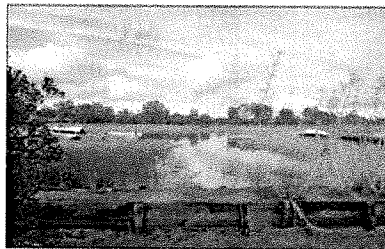
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FLOOD »PAGE 4



Homes on Vendola Drive line Gallinas Creek in the Santa Venetia neighborhood of San Rafael on Wednesday. Work to buttress a tidal protection berm was supposed to start this summer.

PHOTOS BY ALAN DEP — MARIN INDEPENDENT JOURNAL



High tide approaches the Santa Venetia levee in November 2020. More than 100 properties abut the creek in the area.

## Flood

FROM PAGE 1

5

the public works department said it has canceled that scheduled meeting.

"I understand how frustrating this is for Santa Venetia residents," Gaglione said in the announcement. "The department is committed to finding out how we got here and to putting a plan in place to ensure a successful future project."

Gaglione and other public works staffers declined to be interviewed, requesting that all questions be submitted by email.

The project was previously estimated to cost \$6 million, with construction costs accounting for \$4 million of that and easement costs accounting for the remainder. The public works department now estimates construction costs will amount to more than twice that.

In its announcement, department attributed the increased costs to recent changes in the project design to address levee seepage, increased labor and

the project, adding to the \$840,000 the county had previously committed to the effort. Flood Zone District 7, where the project is located, is contributing \$1.6 million.

The public works department said in its announcement that it will apply for a new round of FEMA grants to help cover the increased project cost. It said the project's benefit-to-cost ratio is expected to make it competitive.

The department expects to hear from FEMA by early 2023 on whether more funding will be forthcoming.

"I think somebody or somebodies made a mistake in calculating the estimated cost," said Russ Greenfield, a member of the Flood Zone 7 advisory board and former president of the Santa Venetia Neighborhood Association. "I don't know how it happened or why it happened. We're just hoping to find out more information."

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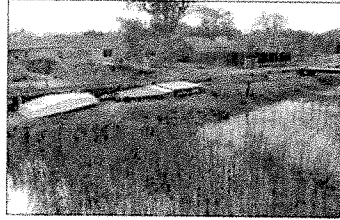
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material shortages, supply chain issues and general inflation.

The department declined to say how much of the increased costs are attributable to the design change or whether the change at this juncture was due to an error by the department.

Funding for the project had been secured from several sources, with the largest chunk, \$3 million, coming from a Federal Emergency Management Agency grant. Initially, that grant was due to expire last month, but an extension to February 2023 was secured, with construction expected to begin in September.

Last summer, Marin County allocated \$1 million in American Rescue Plan Act money for



Gallinas Creek approaches homes in the Santa Venetia neighborhood of San Rafael at high tide in November 2020.

ALAN DEP — MARIN INDEPENDENT JOURNAL

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