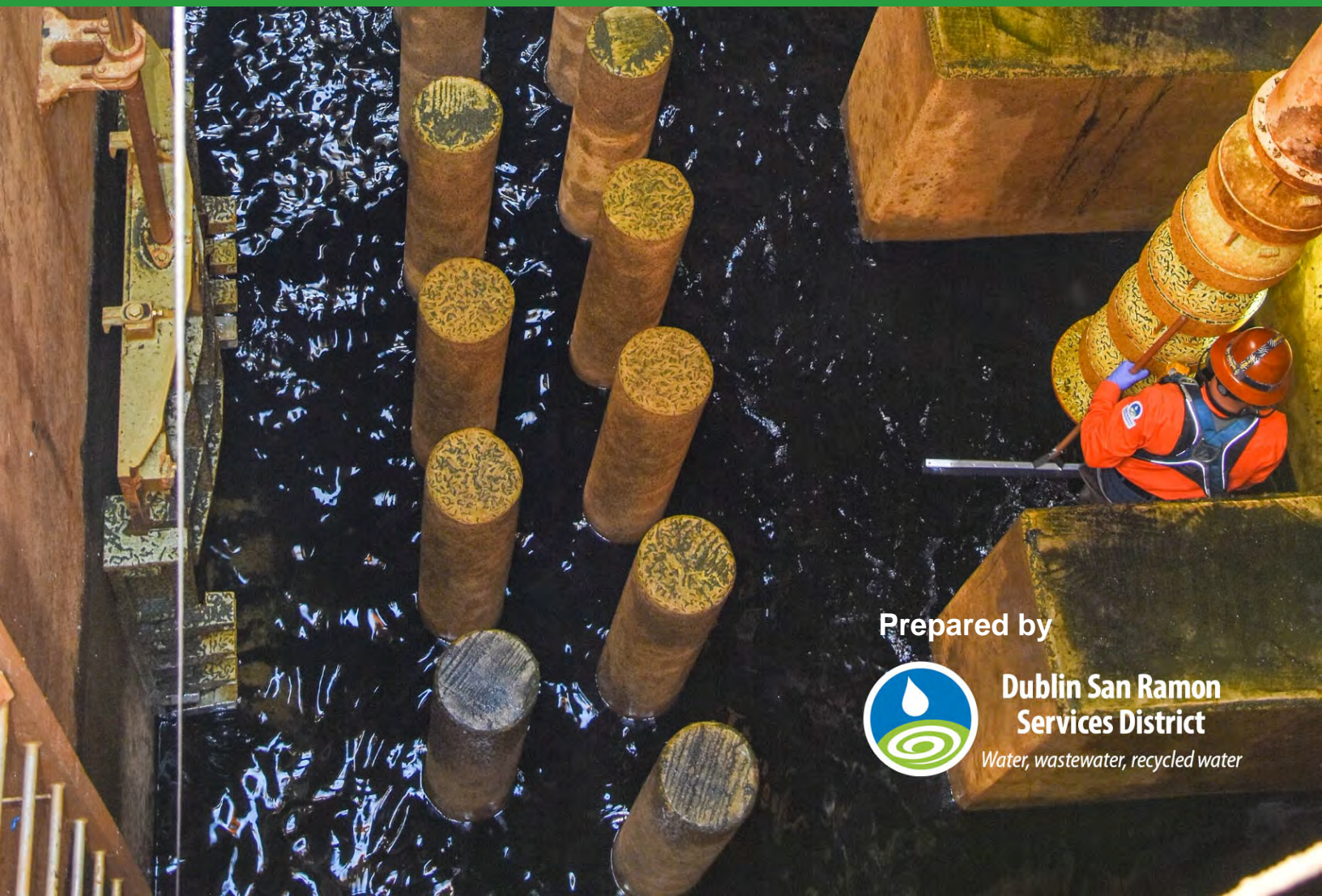




# LAVWMA

QUARTERLY REPORT OF OPERATIONS

FY 2022-2023, 4th Quarter



Prepared by



**Dublin San Ramon  
Services District**

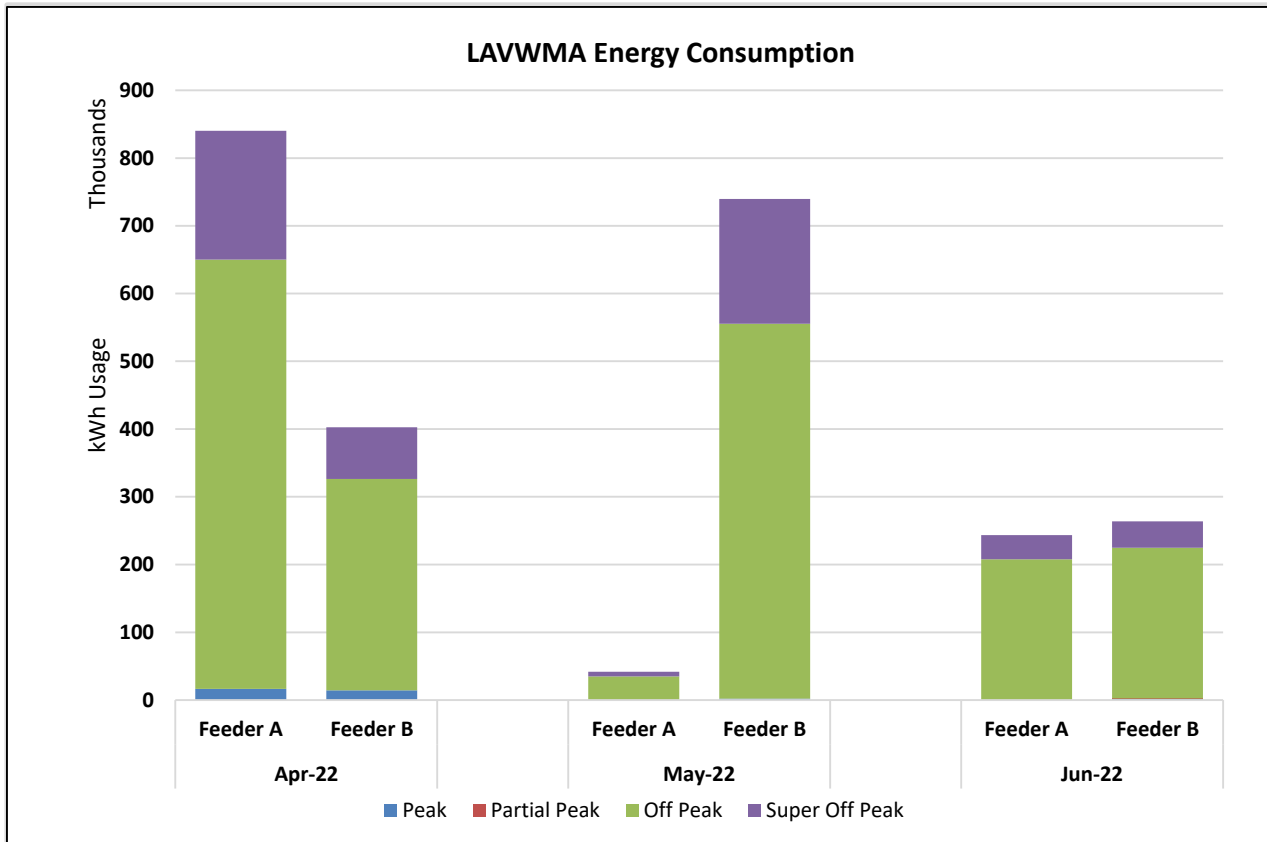
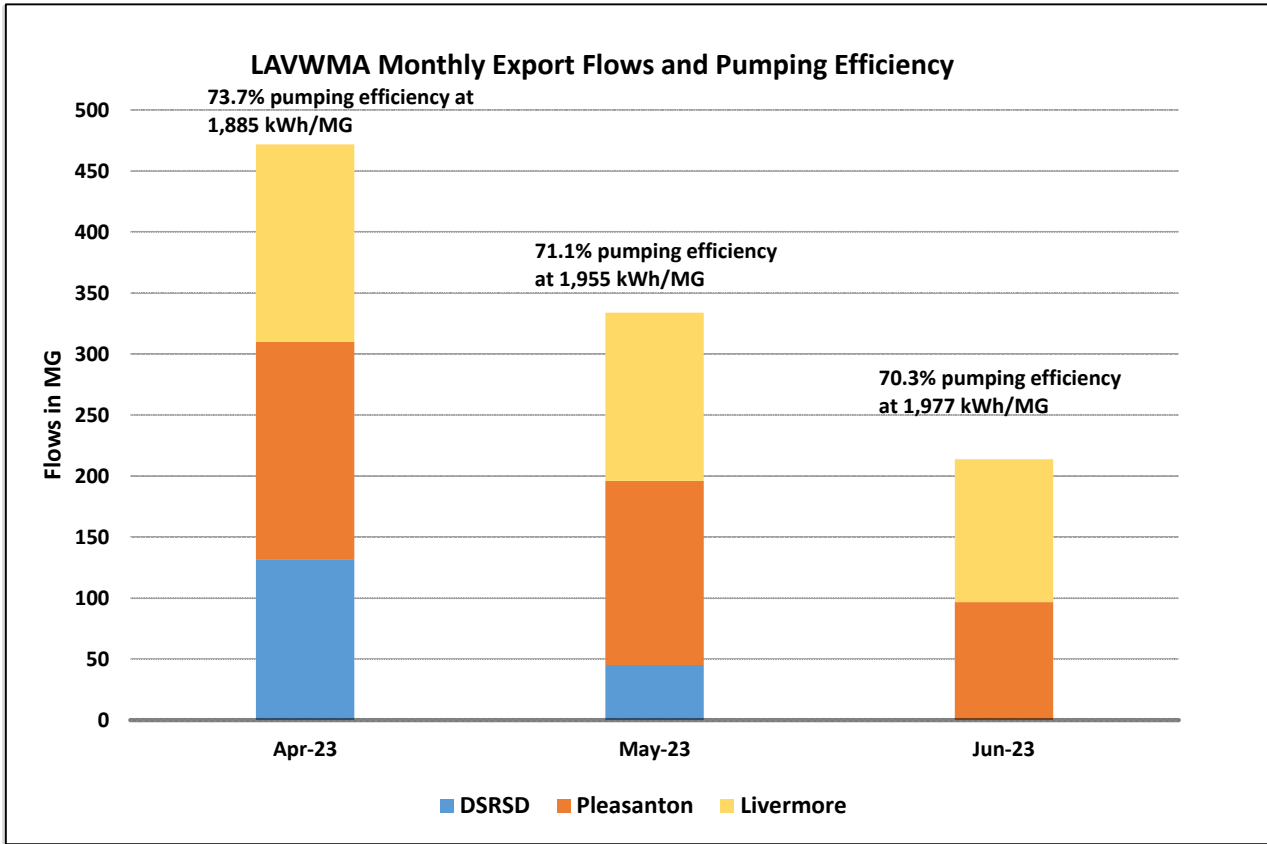
*Water, wastewater, recycled water*



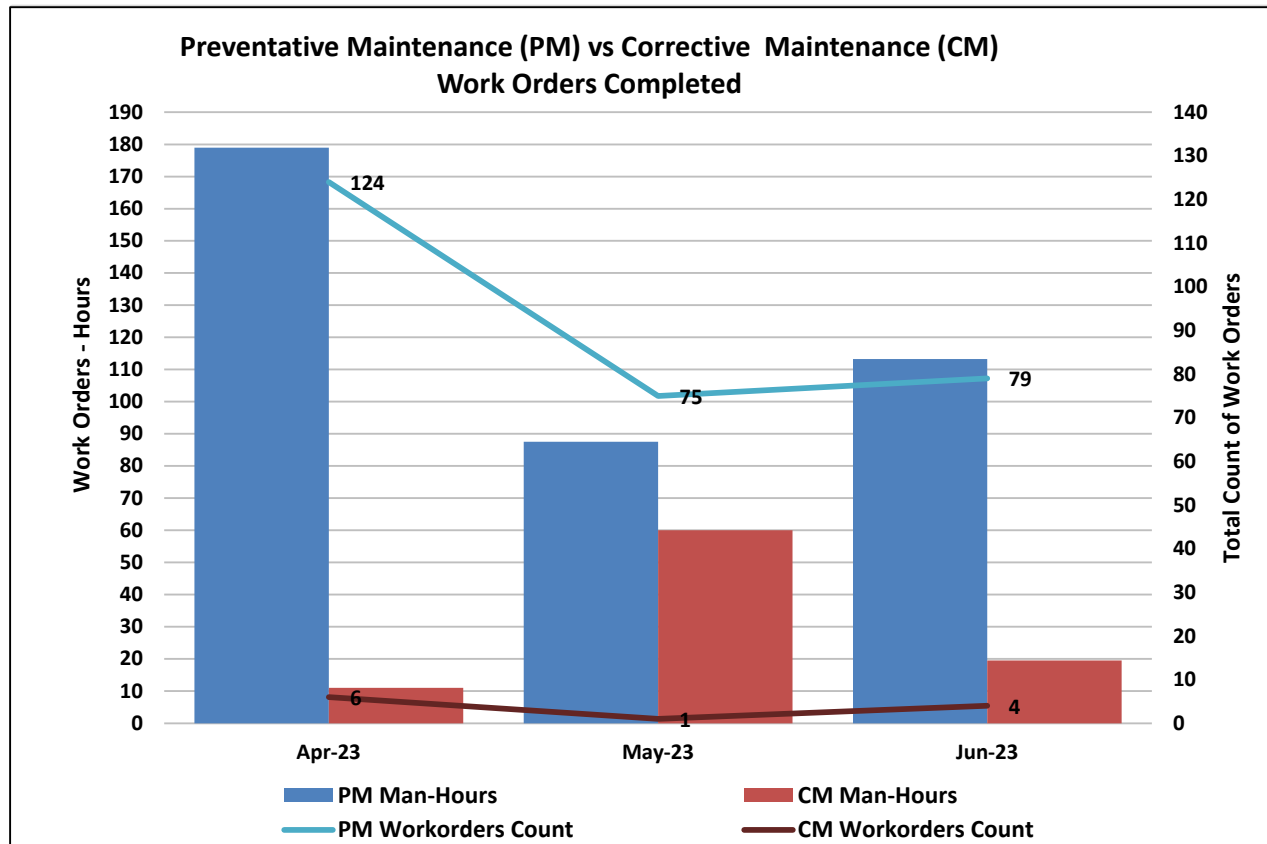
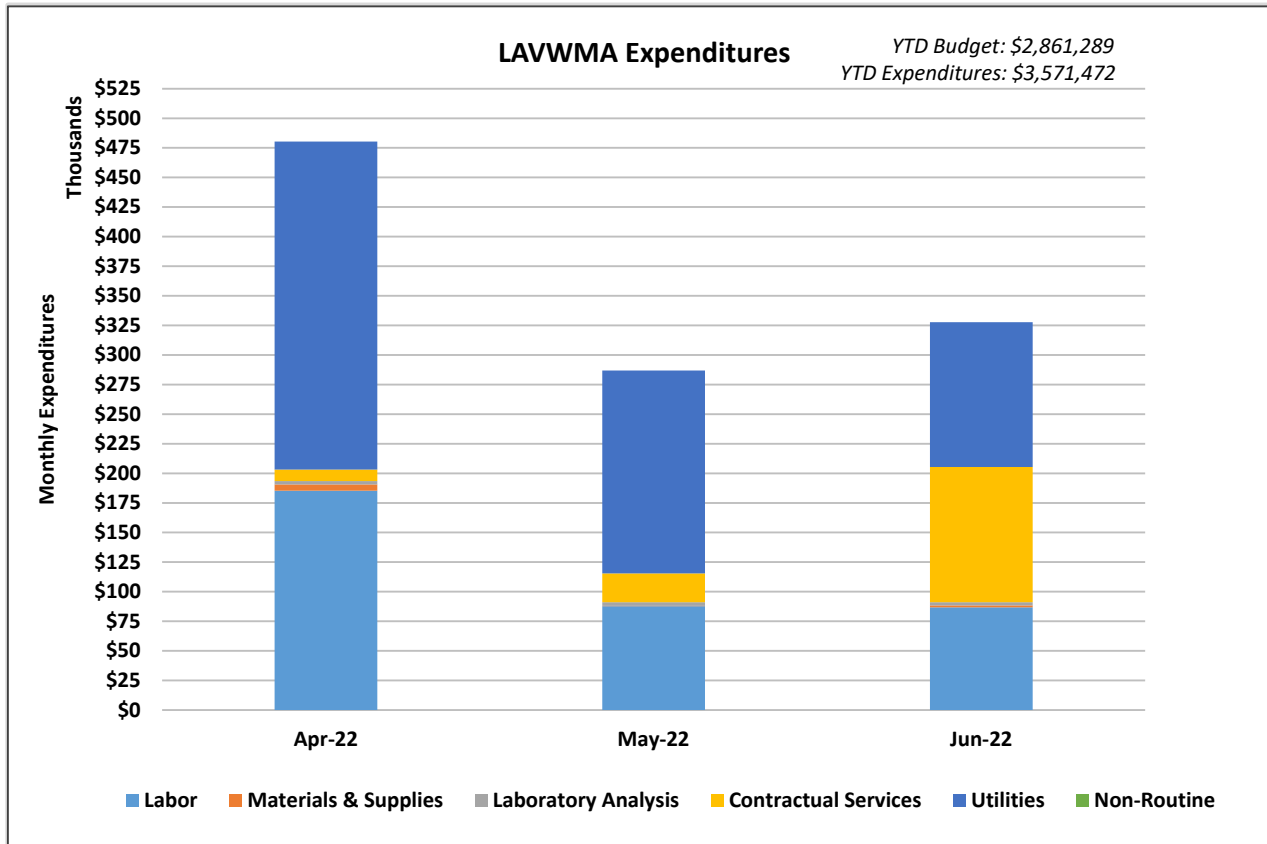
**QUARTERLY REPORT OF OPERATIONS  
LAVWMA PUMPING AND CONVEYANCE SYSTEM  
4th Quarter FY 2022-2023: April to June 2023**

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# LAVWMA FYE 2023 FOURTH QUARTER AT A GLANCE



## LAVWMA FYE 2023 FOURTH QUARTER AT A GLANCE



**QUARTERLY REPORT OF OPERATIONS**  
**LAVWMA PUMPING AND CONVEYANCE SYSTEM**  
***4th Quarter FY 2022-2023: April to June 2023***

**1. EXECUTIVE SUMMARY**

The Livermore-Amador Valley Water Management Agency (LAVWMA) pumping and effluent conveyance system operated normally during the fourth quarter of Fiscal Year 2022-2023. A total of 1,019.21 million gallons of fully treated secondary effluent were pumped to San Francisco Bay via the East Bay Dischargers Authority (EBDA) outfall diffuser and San Leandro Sample Station (SLSS). The overall efficiency of the pumping system averaged 71.7%, with an average electrical cost of \$438 per million gallons, or \$143 per acre-foot.

For the fourth quarter, O&M expenses for the quarter totaled \$1,094,845 for an average cost of \$1,074 per million gallons pumped or \$350 per acre-foot. Total year-to-date operations and maintenance (O&M) expense was \$3,571,472 – or 125% of the O&M annual budget amount of \$2,861,290 – and the overall cost of operation was \$753 per million gallons pumped or \$245 per acre-foot.

**2. OPERATIONS**

Of the 1,019.21 million gallons of effluent conveyed through the LAVWMA system, approximately 417 million gallons came from the City of Livermore, 426 million gallons from City of Pleasanton and 177 million gallons from DSRSD. The monthly export flow summary is shown on Table 4. Monthly reports sent to EBDA which detail daily export flows and monitoring analysis of the treated effluent during the quarter are shown on Table 9.

Currently PG&E implements a rate plan – broken down into peak, partial peak, off peak, and seasonal super off peak periods – that increases rates for energy used during certain periods of the day based on energy demand across the energy grid. LAVWMA’s energy consumption in the fourth quarter reflects the end of PG&E’s seasonal “super off peak” rate, which is available during the spring months of March, April, and May between the hours of 9 AM and 2 PM. Whenever possible throughout the reporting period, staff utilized an enhanced Operations Strategy, implementing an efficient pumping plan and avoided pumping during partial peak and peak PG&E energy demand periods. The LAVWMA system experienced a series of brief power outages from PG&E on April 26; PG&E did not provide an explanation for the interruption of power. DSRSD staff utilized empty storage basins and was able to continue to meet the demands of the LAVWMA system; there was no impact during the power outages, which lasted a total of approximately one hour.

DSRSD is the operator for the LAVWMA export and storage facilities that pump the combined flow from the DSRSD WWTP and Livermore WWTP into EBDA’s system for discharge into the San Francisco Bay. Per the 2021 EBDA-LAVWMA Amended and Restated Master Agreement, LAVWMA has rights to pump up to 41.2 MGD to the EBDA system but can be curtailed to 19.72 MGD under certain conditions. From April 21 through April 30, EBDA requested that DSRSD reduce the amount of LAVWMA flow discharged to the EBDA system to address erratic flowmeter readings. Throughout the period staff accommodated EBDA’s request while simultaneously meeting LAVWMA demands due to the seasonal increase of recycled water demand and subsequent decrease in export flows.

Over the past quarter DSRSD staff continued to strategically manage LAVWMA’s holding basins to minimize the number of pumps running during a given billing cycle, based on anticipated flow

from the City of Livermore and DSRSD's wastewater treatment facilities. Energy use is depicted by the LAVWMA Energy Consumption table on page 2.

### **3. MAINTENANCE**

During the quarter, 380 hours were spent to complete 278 preventative maintenance work orders and 91 hours to complete 11 corrective maintenance work orders on LAVWMA equipment and systems.

In June DSRSD staff awarded a contract to a consultant to begin inspections of the effluent pipeline system. Staff anticipate that the inspections will take place throughout the next quarter to take advantage of the summer season's lower flows.

Over the past quarter staff installed the third and final replacement influent flowmeter located at the pump station which had reached the end of its useful life, leading to more accurate flow reading, particularly during the low flow season. DSRSD labor to complete the flowmeter replacement contributed to the increase in corrective work order labor hours in May.

The following are some additional noteworthy maintenance activities during the quarter:

#### **Electrical:**

- Began cathodic protection survey with consultant
- Continued replacement of faulty street lighting throughout the pump station
- Worked with consultant to complete preventative maintenance on MV switchgear
- Worked with consultant to test medium voltage transformer
- Troubleshoot and repaired a high temperature issue with pump #7's resistance temperature detector
- Completed troubleshooting and repair for dewatering pumps at all basins

#### **Instrumentation and Controls:**

- Installed and tested upgraded SLSS SCADA server to panel-mounted industrial computer
- Replaced wire and repotted Livermore flow meter and DSRSD flow meter to maintain water resistance
- Continued to install and test rectifier remote monitoring equipment
- Troubleshoot and repaired air compressor system for surge tanks

#### **Mechanical:**

- Replaced the final 20" flow meter at the pump station
- Completed triennial maintenance on export pumps

### **4. BUDGET VARIANCE AND EXPENSES**

Fourth quarter labor expenses totaled \$359,935 for 1,779 man-hours of effort, an average of 3.4 full time equivalents (FTEs). O&M expenses for the quarter including labor, supplies, laboratory analysis, contractual services, and utilities totaled \$1,094,845 for an average cost of \$1,074 per million gallons pumped or \$350 per acre-foot. The total expense for the Livermore sole use pipeline for the quarter was \$11,540.

In total, O&M expenses for Fiscal Year 2023 exceeded the \$2,861,290 budget by \$710,183 (24.8%) due to electrical charges, contractual services, and labor costs that were associated with the series of severe wet weather events that took place between late December 2022 and March 2023.

Operation and maintenance (O&M) expenses and budget utilization details are shown on Tables 5, 6, 7, and 8.

**TABLE 1 - Electric Usage, Efficiency and Costs**

LAVWMA SYSTEM: Fiscal Year 2022-2023, Quarterly Report

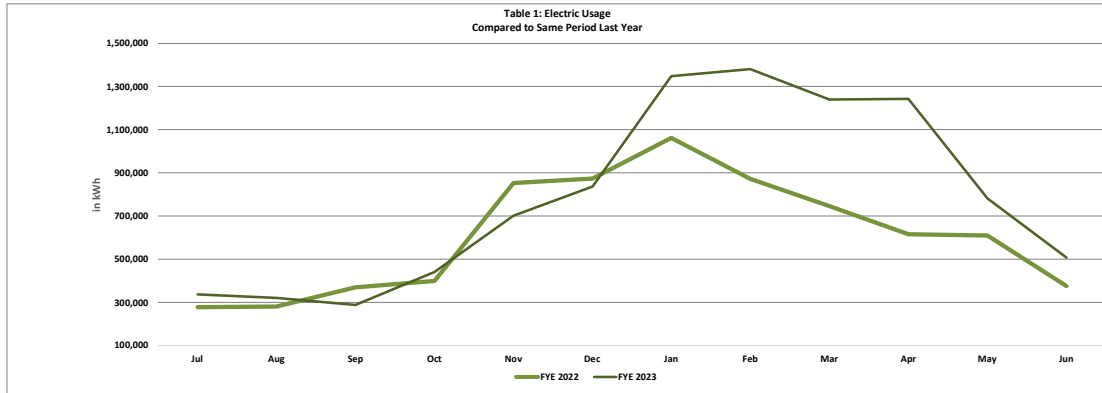
PG&E Service Accounts: Rate Schedule B20 starting March 2021																	Total				
Acct # 8482061923-1							Acct # 8440395259-5						Billing	Total			Export Flow <sup>1</sup>  MG	Pumping			
Service A							Service B							kWh	\$/kWh	\$		kWh/MG	\$/MG	\$/AF	Efficiency
Month	kWh	Peak	Partial Peak	Off Peak	Super Off Peak	\$	kWh	Peak	Partial Peak	Off Peak	Super Off Peak	\$	Days	kWh	\$/kWh	\$					
Jul-22	0	0	0	0	0	\$1,807	336,556	1,732	1,635	333,189	0	\$72,791	31	336,556	\$0.22	\$74,598	167	2,021	\$448	\$146	68.8%
Aug-22	140,062	0	44	140,018	0	\$30,882	180,226	2,139	1,914	176,173	0	\$40,618	32	320,288	\$0.22	\$71,500	163	1,966	\$439	\$143	70.7%
Sep-22	123,902	0	0	123,902	0	\$28,070	165,391	2,105	1,813	161,473	0	\$37,727	30	289,293	\$0.23	\$65,797	131	2,209	\$502	\$164	62.9%
Oct-22	140,195	0	0	140,195	0	\$34,065	301,346	2,156	997	298,193	0	\$67,784	29	441,541	\$0.23	\$101,849	201	2,199	\$507	\$165	63.2%
Nov-22	245,189	0	0	245,189	0	\$54,210	456,025	2,817	0	453,208	0	\$87,368	32	701,214	\$0.20	\$141,578	340	2,063	\$416	\$136	67.4%
Dec-22	175,006	5,433	0	169,573	0	\$34,895	662,353	16,666	0	645,687	0	\$126,168	29	837,359	\$0.19	\$161,063	406	2,061	\$396	\$129	67.5%
Jan-23	514,735	62,976	0	451,759	0	\$121,783	833,426	111,786	0	721,640	0	\$171,299	30	1,348,161	\$0.22	\$293,082	650	2,075	\$451	\$147	67.0%
Feb-23	528,821	39,102	0	489,719	0	\$122,322	852,339	49,185	0	803,154	0	\$175,148	32	1,381,160	\$0.22	\$297,470	691	1,998	\$430	\$140	69.6%
Mar-23	982,853	33,351	0	835,295	114,207	\$187,908	256,407	35,931	0	170,330	50,146	\$65,305	30	1,239,260	\$0.20	\$253,213	650	1,905	\$389	\$127	73.0%
Apr-23	840,396	16,513	0	633,450	190,433	\$166,054	402,537	14,452	0	311,772	76,313	\$110,434	30	1,242,933	\$0.22	\$276,488	659	1,885	\$419	\$137	73.7%
May-23	41,823	0	0	34,897	6,926	\$19,022	739,756	2,038	0	553,372	184,346	\$150,426	31	781,579	\$0.22	\$169,448	400	1,955	\$424	\$138	71.1%
Jun-23	243,457	0	0	207,771	35,686	\$56,038	263,817	1,725	713	222,443	38,936	\$64,964	29	507,274	\$0.24	\$121,003	257	1,977	\$472	\$154	70.3%
Quarter																					
Average	375,225					\$80,371	468,703					\$108,608	30	843,929	\$0.23	\$188,980	439	1,939	\$438	\$143	71.7%
Total	1,125,676					\$241,114	1,406,110					\$325,825	90	2,531,786		\$566,939	1,316	5,818			
Minimum	41,823					\$19,022	263,817					\$64,964	29	507,274	\$0.22	\$121,003	257	1,885	\$419	\$137	70.3%
Maximum	840,396					\$166,054	739,756					\$150,426	31	1,242,933	\$0.24	\$276,488	659	1,977	\$472	\$154	73.7%
YTD																					
Average	331,370					\$71,421	454,182					\$97,503	30	785,552	\$0.22	\$168,924	393	2,026	\$441	\$144	68.8%
Total	3,976,439					\$857,057	5,450,179					\$1,170,031	365	9,426,618		\$2,027,089	4,714	24,315			
Minimum	0					\$1,807	165,391					\$37,727	29	289,293	\$0.19	\$65,797	131	1,885	\$389	\$127	62.9%
Maximum	982,853					\$187,908	852,339					\$175,148	32	1,381,160	\$0.24	\$297,470	691	2,209	\$507	\$165	73.7%

**NOTES:**

1) This Table 1 does not reflect what was the actual expenditures paid for the month and may not match what is in Table 8 Expenditures. The primary purpose of Table 1 is to show the electric usage and efficiency for the month it actually occurred.

2) To calculate pumping efficiency, read dates, electric usage, and export flows are **matched to PG&E billing periods**: 3/15 - 4/13 for April, 4/14 - 5/14 for May, and 5/15 - 6/12 for June.

3) Pumping efficiency is based on continuous average flows and a TDH of 442.8 feet, including static lift of 408.8 feet and piping losses of 34 feet (per Charlie Joyce, B&C, 2/12/07).

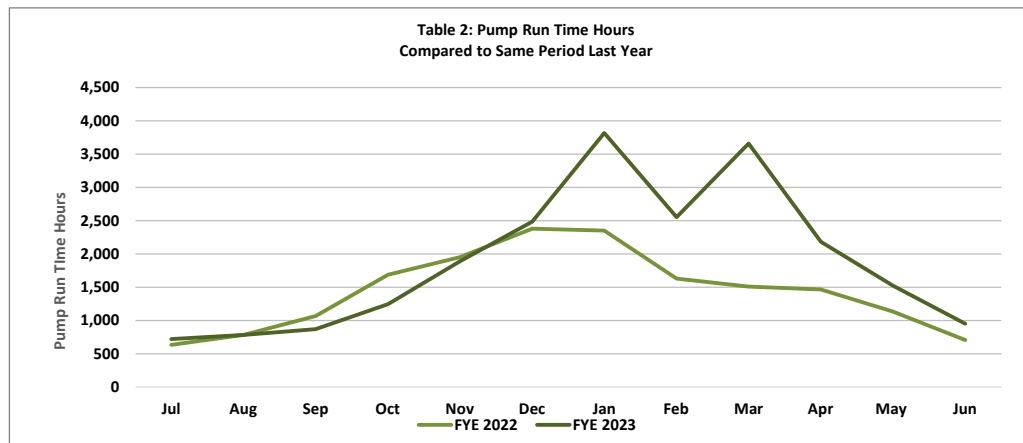




**TABLE 2 - Pump Run Time Hours**

LAVWMA SYSTEM: Fiscal Year 2022-2023, Quarterly Report

											TOTAL	
	Pump No. 1	Pump No. 2	Pump No. 3	Pump No. 4	Pump No. 5	Pump No. 6	Pump No. 7	Pump No. 8	Pump No. 9	Pump No. 10	Pump Run Hours	Pump Utilization %
Month	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	%
Jul-22	0	14	0	338	0	1	0	1	182	183	719	9.7%
Aug-22	0	1	95	296	0	1	93	1	0	298	784	10.5%
Sep-22	0	79	87	124	118	1	125	23	188	124	869	12.1%
Oct-22	0	207	79	186	128	47	309	109	110	68	1,243	16.7%
Nov-22	0	492	255	7	224	30	296	118	459	10	1,890	26.3%
Dec-22	0	430	320	240	301	105	425	110	521	29	2,483	33.4%
Jan-23	0	562	293	537	477	165	423	520	533	306	3,815	51.3%
Feb-23	0	214	279	160	428	376	167	470	169	288	2,550	37.9%
Mar-23	0	511	513	93	544	517	411	539	0	531	3,659	49.2%
<b>Apr-23</b>	<b>0</b>	<b>405</b>	<b>178</b>	<b>230</b>	<b>185</b>	<b>187</b>	<b>379</b>	<b>136</b>	<b>223</b>	<b>260</b>	<b>2,184</b>	<b>30.3%</b>
<b>May-23</b>	<b>0</b>	<b>328</b>	<b>120</b>	<b>334</b>	<b>200</b>	<b>66</b>	<b>166</b>	<b>16</b>	<b>266</b>	<b>28</b>	<b>1,525</b>	<b>20.5%</b>
<b>Jun-23</b>	<b>0</b>	<b>213</b>	<b>65</b>	<b>213</b>	<b>118</b>	<b>12</b>	<b>132</b>	<b>4</b>	<b>142</b>	<b>53</b>	<b>952</b>	<b>13.2%</b>
<b>Quarter</b>												
Average	0	315	121	259	168	89	226	52	210	113	1,553	21.3%
Total	0	946	364	778	503	266	677	156	631	340	4,660	
Minimum	0	213	65	213	118	12	132	4	142	28	952	13.2%
Maximum	0	405	178	334	200	187	379	136	266	260	2,184	30.3%
<b>YTD</b>												
Average	0	288	190	230	227	126	244	170	233	181	1,889	25.9%
Total	0	3,455	2,284	2,759	2,723	1,508	2,927	2,045	2,794	2,177	22,673	
Minimum	0	1	0	7	0	1	0	1	0	10	719	9.7%
Maximum	0	562	513	537	544	517	425	539	533	531	3,815	51.3%

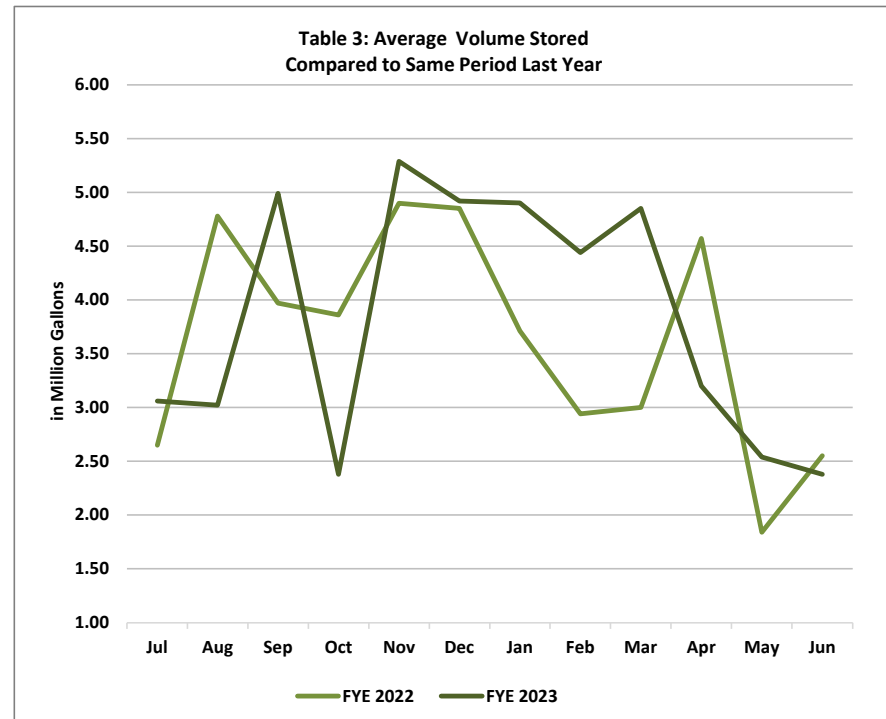


DUBLIN SAN RAMON SERVICES DISTRICT

**TABLE 3 - Monthly Average Storage Basin Levels and Volume**

LAVWMA SYSTEM: Fiscal Year 2022-2023, Quarterly Report

Month	Average Daily Volume			Average Volume Stored MG	Storage Available MG	Storage Basin Utilization %
	Basin No. 1	Basin No. 2	Basin No. 3			
	Feet	Feet	Feet			
Jul-22	1.58	0.21	4.24	3.06	18	17.0%
Aug-22	2.17	0.22	3.82	3.02	18	16.8%
Sep-22	3.18	1.52	5.08	4.99	18	27.7%
Oct-22	3.20	0.21	1.77	2.38	18	13.2%
Nov-22	1.48	2.31	6.06	5.29	18	29.4%
Dec-22	4.06	0.25	5.27	4.92	18	27.3%
Jan-23	4.88	3.45	0.86	4.90	18	27.2%
Feb-23	2.11	0.05	6.03	4.44	18	24.7%
Mar-23	3.08	0.11	6.23	4.85	18	26.9%
<b>Apr-23</b>	<b>3.23</b>	<b>0.01</b>	<b>2.82</b>	<b>3.20</b>	<b>18</b>	<b>17.8%</b>
<b>May-23</b>	<b>2.24</b>	<b>0.10</b>	<b>2.78</b>	<b>2.54</b>	<b>18</b>	<b>14.1%</b>
<b>Jun-23</b>	<b>2.80</b>	<b>0.09</b>	<b>1.95</b>	2.38	<b>18</b>	<b>13.2%</b>
<b>Quarter</b>						
Average	2.76	0.07	2.52	2.71		0.15
Minimum	2.24	0.01	1.95	2.38		0.13
Maximum	3.23	0.10	2.82	3.20		0.18
<b>YTD</b>						
Average	2.95	0.76	3.88	3.83		21.3%
Minimum	1.48	0.01	0.86	2.38		13.2%
Maximum	4.88	3.45	6.23	5.29		29.4%



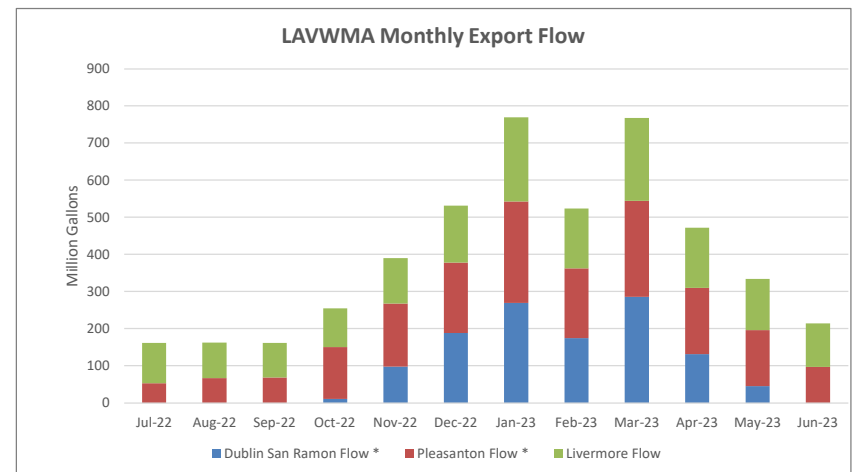
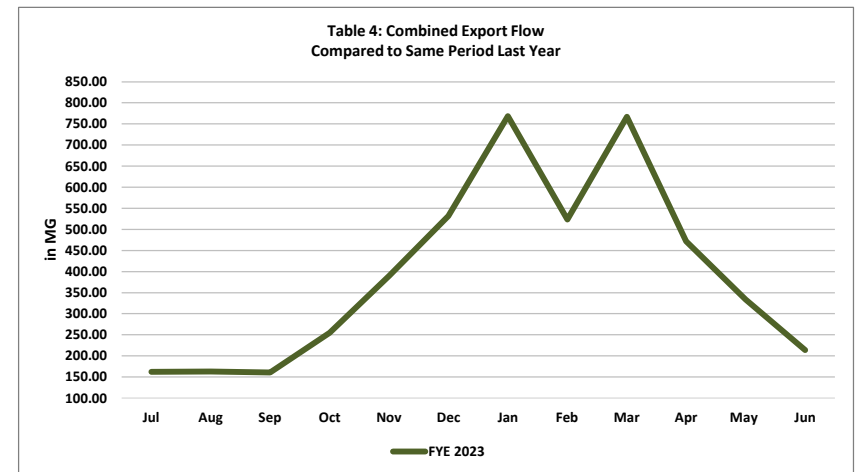
**Note:** Total available storage volume is 18 million gallons.

## TABLE 4 - Monthly Export Flow

LAVWMA SYSTEM: Fiscal Year 2022-2023, Quarterly Report  
Estimated Flow: 3,552 MG

	Dublin San Ramon	Pleasanton	Livermore	Combined Export	
Month	Flow * MG	Flow * MG	Flow MG	Flow MG	Total for Quarter
Jul-22	0.00	52.86	109.08	161.93	
Aug-22	0.00	66.98	95.65	162.62	
Sep-22	0.00	68.48	92.90	161.38	485.94
Oct-22	10.48	140.14	104.04	254.65	
Nov-22	98.09	169.48	122.41	389.98	
Dec-22	187.90	189.56	154.12	531.58	1,176.22
Jan-23	268.84	273.25	227.01	769.11	
Feb-23	174.59	187.42	161.41	523.42	
Mar-23	285.27	259.05	222.97	767.29	2,059.81
<b>Apr-23</b>	<b>131.28</b>	<b>178.59</b>	<b>161.79</b>	<b>471.67</b>	
<b>May-23</b>	<b>45.24</b>	<b>150.75</b>	<b>137.83</b>	<b>333.82</b>	
<b>Jun-23</b>	<b>0.00</b>	<b>96.66</b>	<b>117.07</b>	<b>213.73</b>	<b>1,019.21</b>
<b>Quarter</b>					
Total	176.52	426.00	416.69	<b>1,019.21</b>	
Average	58.84	142.00	138.90	339.74	
Minimum	0.00	96.66	117.07	213.73	
Maximum	131.28	178.59	161.79	471.67	
<b>YTD</b>					
Total	1,201.69	1,833.23	1,706.27	<b>4,741.18</b>	
Average	100.14	152.77	142.19	395.10	
Minimum	0.00	52.86	92.90	161.38	
Maximum	285.27	273.25	227.01	769.11	

Budgeted Flow:  
3552



\* Monthly totals do not include flows diverted for recycling use by DERWA and Pleasanton.

DUBLIN SAN RAMON SERVICES DISTRICT

**TABLE 5 - Labor Effort, Expenditures, and Budget Utilization**

LAVWMA SYSTEM: Fiscal Year 2022-2023, Quarterly Report

FY Labor Budget \$1,161,350

Month	Billed	FTE	Labor	YTD	Budget	Labor	Export	
	Labor		Invoice	Labor	Utilization	Budget	MG	AF
-----	Hours	-----	-----	Expense	-----	Remaining	-----	-----
Jul-22	433.0	2.5	\$83,781	\$83,781	7.2%	\$1,077,569	161.93	497
Aug-22	345.0	2.0	\$73,088	\$156,869	13.5%	\$1,004,481	162.62	499
Sep-22	343.0	2.0	\$66,501	\$223,370	19.2%	\$937,980	161.38	495
Oct-22	567.5	3.3	\$105,424	\$328,794	28.3%	\$832,556	254.65	782
Nov-22	215.0	1.2	\$46,528	\$375,322	32.3%	\$786,028	389.98	1,197
Dec-22	532.5	3.1	\$105,889	\$481,211	41.4%	\$680,139	531.58	1,631
Jan-23	576.0	3.3	\$118,515	\$599,727	51.6%	\$561,623	769.11	2,360
Feb-23	605.5	3.5	\$131,785	\$731,512	63.0%	\$429,838	523.42	1,606
Mar-23	398.5	2.3	\$86,949	\$818,461	70.5%	\$342,889	767.29	2,355
<b>Apr-23</b>	<b>920.3</b>	5.3	\$185,352	\$1,003,813	86.4%	\$157,537	471.67	<b>1,448</b>
<b>May-23</b>	<b>430.5</b>	2.5	\$87,753	\$1,091,566	94.0%	\$69,784	333.82	<b>1,025</b>
<b>Jun-23</b>	<b>428.0</b>	2.5	\$86,830	\$1,178,396	101.5%	-\$17,046	213.73	<b>656</b>
<b><u>QUARTER</u></b>								
Total	<b>1,778.8</b>		<b>\$359,935</b>				1,019.21	3,128
Average	592.9	<b>3.4</b>	\$119,978				339.74	1,043
Minimum	428.0	2.5	\$86,830				213.73	656
Maximum	920.3	5.3	\$185,352				471.67	1,448
<b><u>YTD</u></b>								
Total YTD	5,794.8		\$1,178,396		<b>101.5%</b>	-\$17,046	4,741.18	14,551
Average YTD	482.9	2.8	\$98,200				395.10	1,213
Minimum	215.0	1.2	\$46,528				161.38	495
Maximum	920.3	5.3	\$185,352				769.11	2,360

**Notes:**

April labor costs due to asset management work, discharge exercise

April electricity costs unusually high due to pumping times to compensate for flow meter replacements

June Contractual Services: eOM Modernization project to update LAVWMA electronic Operations Manual

Cathodic Protection Survey project began in June and identified several repairs that were completed concurrent to the survey work

**TABLE 6 - O&M Expenditures and Budget Utilization**

LAVWMA SYSTEM: Fiscal Year 2022-2023, Quarterly Report

Total O&M Budget: **\$2,861,289**

Month	Labor Expenses	A/P Expenses	Total O&M Expenses	YTD O&M Expenses	Budget Utilization	O&M Budget Remaining	Overall O&M Cost		Export Flow	
							\$/MG	\$/AF	MG	AF
Jul-22	\$83,781	\$3,146	\$86,927	\$86,927	3.0%	\$2,774,362	\$537	\$175	161.93	497
Aug-22	\$73,088	\$171,670	\$244,757	\$331,684	11.6%	\$2,529,605	\$1,505	\$490	162.62	499
Sep-22	\$66,501	\$75,275	\$141,776	\$473,460	16.5%	\$2,387,829	\$879	\$286	161.38	495
Oct-22	\$105,424	\$143,851	\$249,275	\$722,735	25.3%	\$2,138,554	\$979	\$319	254.65	782
Nov-22	\$46,528	\$147,294	\$193,823	\$916,558	32.0%	\$1,944,731	\$497	\$162	389.98	1,197
Dec-22	\$105,889	\$168,886	\$274,775	\$1,191,333	41.6%	\$1,669,956	\$517	\$168	531.58	1,631
Jan-23	\$118,515	\$307,699	\$426,215	\$1,617,548	56.5%	\$1,243,741	\$554	\$181	769.11	2,360
Feb-23	\$131,785	\$363,328	\$495,113	\$2,112,661	73.8%	\$748,628	\$946	\$308	523.42	1,606
Mar-23	\$86,949	\$277,017	\$363,965	\$2,476,626	86.6%	\$384,663	\$474	\$155	767.29	2,355
<b>Apr-23</b>	<b>\$185,352</b>	\$294,954	\$480,306	\$2,956,933	103.3%	-\$95,644	\$1,018	\$332	471.67	<b>1,448</b>
<b>May-23</b>	<b>\$87,753</b>	\$199,071	\$286,825	\$3,243,757	113.4%	-\$382,468	\$859	\$280	333.82	<b>1,025</b>
<b>Jun-23</b>	<b>\$86,830</b>	\$240,885	\$327,714	\$3,571,472	124.8%	-\$710,183	\$1,533	\$500	213.73	<b>656</b>
<b><u>QUARTER</u></b>										
Total	\$359,935	\$734,910	<b>\$1,094,845</b>				<b>\$1,074</b>	<b>\$350</b>	1,019.21	3,128
Average	\$119,978	\$244,970	\$364,948						339.74	1,043
Minimum	\$86,830	\$199,071	\$286,825				\$859	\$280	213.73	656
Maximum	\$185,352	\$294,954	\$480,306				\$1,533	\$500	471.67	1,448
<b><u>YTD</u></b>										
Total YTD	\$1,178,396	\$2,393,076	<b>\$3,571,472</b>		<b>124.8%</b>	<b>-\$710,183</b>	<b>\$753</b>	<b>\$245</b>	<b>4,741.18</b>	<b>14,551</b>
Average YTD	\$98,200	\$199,423	\$297,623							
Minimum	\$46,528	\$3,146	\$86,927				\$474	\$155	161.38	495
Maximum	\$185,352	\$363,328	\$495,113				\$1,533	\$500	769.11	2,360

Notes:



## TABLE 7 - O&M Expenditures and Budget Utilization for Livermore Sole Use Facilities

LAVWMA SYSTEM: Fiscal Year 2022-2023, Quarterly Report

Livermore Sole Use Facilities			
Month	Labor	A/P	Total
-----	Expenses	Expenses	Expenses
-----	-----	-----	-----
Jul-22	\$0	\$0	\$0
Aug-22	\$0	\$545	\$545
Sep-22	\$0	\$257	\$257
Oct-22	\$0	-\$461	-\$461
Nov-22	\$0	\$550	\$550
Dec-22	\$0	\$1,245	\$1,245
Jan-23	\$0	\$1,545	\$1,545
Feb-23	\$589	\$140	\$729
Mar-23	\$1,331	\$129	\$1,460
<b>Apr-23</b>	<b>\$0</b>	<b>\$607</b>	<b>\$607</b>
<b>May-23</b>	<b>\$0</b>	<b>\$574</b>	<b>\$574</b>
<b>Jun-23</b>	<b>\$0</b>	<b>\$10,359</b>	<b>\$10,359</b>
<b>Quarter</b>			
Total	<b>\$0</b>	<b>\$11,540</b>	<b>\$11,540</b>
Average	\$0	\$3,847	\$3,847
Minimum	\$0	\$574	\$574
Maximum	\$0	\$10,359	\$10,359
<b>YTD</b>			
YTD Total	\$1,920	\$15,490	\$17,410
YTD Average	\$160	\$1,291	\$1,451
YTD Minimum	\$0	-\$461	-\$461
YTD Maximum	\$1,331	\$10,359	\$10,359

LAVWMA  
BUDGET COMPARISON TO ACTUAL EXPENSES: GOODS & SERVICES

Current FY Period: 12

ACTUAL EXPENSES BILLED TO LAVWMA FOR REGULAR O&M																
	Budget	July	August	September	October	November	December	January	February	March	April	May	June	YTD	YTD	
	FY 2022-2023	2022	2022	2022	2022	2022	2022	2023	2023	2023	2023	2023	2023	TOTAL	Budget	
<b>Project Total:</b>	<b>Labor</b>															
lavcost LAVWMA	Staff	\$1,161,350	\$83,781	\$73,088	\$66,501	\$105,424	\$46,528	\$105,889	\$118,515	\$131,785	\$86,949	\$185,352	\$87,753	\$86,830	\$1,178,396	\$1,161,350
Operations &	Subtotal	\$1,161,350	\$83,781	\$73,088	\$66,501	\$105,424	\$46,528	\$105,889	\$118,515	\$131,785	\$86,949	\$185,352	\$87,753	\$86,830	\$1,178,396	\$1,161,350
<b>Phase Total:</b>	<b>Materials &amp; Supplies</b>															
supply	Operations Supplies	\$13,650	\$74	\$12	\$12	\$12	\$12	\$14	\$14	\$14	\$14	\$14	\$17	\$17	\$227	\$13,650
	Mechanical Supplies	\$27,300	\$432	\$238	\$249		\$1,882	\$1,199	\$3,617	\$657	\$2,355	\$1,921	\$225	\$1,065	\$13,840	\$27,300
	Electrical Supplies	\$48,447	\$19	\$1,188	\$3,675	\$2,274	\$19	\$38	\$2,420	\$1,631	\$10,639	\$3,391	\$11	\$470	\$25,775	\$48,447
	Subtotal	\$89,397	\$526	\$1,438	\$3,936	\$2,286	\$1,913	\$1,251	\$6,051	\$2,302	\$13,007	\$5,326	\$253	\$1,552	\$39,842	\$89,397
<b>Analysis</b>	<b>Laboratory Analysis</b>															
Biochemical Oxy	Compliance Testing	\$10,500	\$848	\$1,060	\$848	\$848	\$1,060	\$848	\$848	\$896	\$1,120	\$896	\$1,120	\$896	\$11,288	\$10,500
Demand & Total	Operational Support Testing	\$4,200	\$392	\$392	\$392	\$392	\$392	\$392	\$392	\$414	\$414	\$414	\$414	\$414	\$4,814	\$4,200
Langelier Index	Special Sampling	\$23,100	\$1,380	\$1,490	\$1,380	\$1,380	\$1,490	\$1,380	\$1,380	\$1,344	\$1,344	\$1,460	\$1,576	\$1,460	\$17,064	\$23,100
	Subtotal	\$37,800	\$2,620	\$2,942	\$2,620	\$2,620	\$2,942	\$2,620	\$2,620	\$2,654	\$2,878	\$2,770	\$3,110	\$2,770	\$33,166	\$37,800
<b>Phase Total:</b>	<b>Contractual Services</b>															
cservi	Sub-surface Repairs	\$15,750													\$0	\$15,750
	Street Sweeping	\$5,250													\$0	\$5,250
	Cathodic Protection Survey & Repairs	\$31,500													\$44,500	\$31,500
	Underground Service Alert	\$4,725				\$508									\$508	\$4,725
	SCADA software maintenance contract	\$17,850		\$5,052							\$376				\$5,428	\$17,850
	Remote monitoring annual service for PS and Rec	\$5,250													\$0	\$5,250
	Med voltage switchgear 3-yr PM (FY22, \$18k)											\$14,845			\$14,845	\$0
	HVAC Maintenance/Repairs	\$788													\$0	\$788
	Termite/Pest Control	\$945													\$0	\$945
	Landscape/weed maintenance	\$10,500			\$980									\$10,292	\$11,272	\$10,500
	Janitorial Service	\$9,975	paid in July	\$440	\$880			\$1,320		\$880	\$880	\$440		\$440	\$5,279	\$9,975
	Fire Extinguisher Maintenance	\$210													\$0	\$210
	Postage/Shipping Charges	\$0													\$0	\$0
	Misc Professional/Contractual Services	\$31,500		\$14,008		\$37,049		\$1,763	\$4,684	\$60,762	\$6,093	\$8,883	\$9,076	\$59,000	\$201,317	\$31,500
	Subtotal	\$134,243	\$0	\$19,499	\$1,860	\$37,556	\$0	\$3,083	\$4,684	\$60,762	\$7,349	\$9,763	\$24,360	\$114,231	\$283,148	\$134,243
<b>Phase Total:</b>	<b>Utilities</b>															
utilit	Electricity (PG&E)	\$1,430,205	paid in Aug	\$147,188	\$66,310	\$101,389	\$142,128	\$161,717	\$293,775	\$297,610	\$253,342	\$277,095	\$170,023	\$121,571	\$2,032,148	\$1,430,205
	Water & Sewer (Pleasanton)	\$945		\$396	\$327		\$311		\$354		\$218		\$1,022	\$450	\$3,077	\$945
	Water (EBMUD)	\$1,050		\$207	\$222			\$215	\$215		\$222		\$215	\$225	\$1,522	\$1,050
	Telephone/communications	\$6,300											\$87	\$86	\$173	\$6,300
	WW Treatment (DSRSD)	\$0													\$0	\$0
	Subtotal	\$1,438,500	\$0	\$147,790	\$66,859	\$101,389	\$142,439	\$161,932	\$294,344	\$297,610	\$253,782	\$277,095	\$171,347	\$122,331	\$2,036,920	\$1,438,500
<b>Phase Total:</b>	<b>Non-Routine</b>															
nonrou		\$0													\$0	\$0
	Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Monthly Total		\$86,927	\$244,757	\$141,776	\$249,275	\$193,823	\$274,775	\$426,215	\$495,113	\$363,965	\$480,306	\$286,825	\$327,714	\$3,571,472	\$2,861,290
	YTD Total	\$2,861,290	\$86,927	\$331,684	\$473,460	\$722,735	\$916,558	\$1,191,333	\$1,617,548	\$2,112,661	\$2,476,626	\$2,956,933	\$3,243,757	\$3,571,472		
	Combined Export Flow, mg	3552	162	163	161	256	390	532	769	523	767	291	334	214	4,561	3,552
	Pumping Efficiency															
	Monthly Cost, \$/mg		\$537	\$1,505	\$879	\$975	\$497	\$517	\$554	\$946	\$474	\$1,652	\$859	\$1,533		
	YTD Running Cost, \$/mg	\$805	\$537	\$1,022	\$974	\$975	\$810	\$716	\$665	\$715	\$665	\$737	\$746	\$783	\$783	

Q4 Notes:

April labor costs due to asset management work, discharge exercise  
 April electricity costs unusually high due to pumping times to compensate for flow meter replacements  
 June Contractual Services: eOM Modernization project to update LAVWMA electronic Operations Manual  
 Cathodic Protection Survey project began in June and identified several repairs that were completed concurrent to the survey work

LAVWMA  
BUDGET COMPARISON TO ACTUAL EXPENSES: LABOR

Current FY Period: 12

ACTUAL EXPENSES BILLED TO LAVWMA FOR REGULAR O&M														
FY 2022-2023	Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023	Feb 2023	Mar 2023	Apr 2023	May 2023	Jun 2023	YTD TOTAL	YTD Budget
<i>Estimated Personnel Hours</i>														
<b>Division 51 - FOD</b>	<b>40</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>10.00</b>	<b>-</b>	<b>10.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>25.00</b>	<b>8.00</b>	<b>-</b>	<b>53.00 40.00</b>
Water/Wastewater Sys Lead Op	0												-	-
Water/Wastewater Sys OP IV-On Call	0									4.00			4.00	150.00
Water/Wastewater Sys OP IV	30												-	30.00
Water/Wastewater Sys OP III	0												-	-
Water/Wastewater Sys OP I/II	10			10.00		10.00				21.00	8.00		49.00	10.00
Maintenance Worker	0												-	-
Supervisor	0												-	-
<b>Division 52 - WWTP</b>	<b>3,080</b>	<b>133.00</b>	<b>121.50</b>	<b>171.00</b>	<b>284.00</b>	<b>123.00</b>	<b>250.50</b>	<b>140.00</b>	<b>125.50</b>	<b>115.00</b>	<b>248.00</b>	<b>155.00</b>	<b>129.50</b>	<b>1,996.00 3,080.00</b>
Process Lead Operator IV/V	150		24.00	1.00	10.00	7.00	7.00	12.50	2.00	12.00	6.50	10.50		92.50
Senior WWTP Operator III	720	37.00	73.50	79.50	72.00	72.00	62.00	27.00	31.00	27.50	46.50	26.00	21.50	575.50
Operator In Training	400	59.50	9.00	79.50	148.00	12.00	95.50	100.50	68.00	58.50	192.00	118.5	108.00	1,049.00
Operator II	1,700	36.50	15.00	11.00	54.00	32.00	86.00				3.00			237.50
Operator II (SLSS)	0													-
Operations Superintendent	110							24.50	17.00					41.50
<b>Division 53 - MECH</b>	<b>1,230</b>	<b>149.50</b>	<b>171.00</b>	<b>138.50</b>	<b>147.50</b>	<b>69.00</b>	<b>207.00</b>	<b>209.50</b>	<b>291.50</b>	<b>162.50</b>	<b>334.50</b>	<b>199.50</b>	<b>227.00</b>	<b>2,307.00 1,230.00</b>
Senior Mechanic-Crane Cert	60	44.00	70.50	69.00	29.50	34.00	77.00	95.00	117.50	88.50	126.00	79.50	91.00	921.50
<b>Senior Mechanic - USA</b>	<b>80</b>		16.50	29.50	12.50	8.00				2.00				68.50
Maintenance Worker	60				5.00									5.00
Mechanic I/II	980	20.50	29.00	28.00	17.00	4.00	62.50	86.50	109.00	40.00	139.00	89.50	66.00	691.00
Mechanic II-Crane Cert	0	68.50	43.00	10.00	43.00	9.00	41.50	8.00	39.00	9.00	24.00	4.50	38.00	337.50
<b>Mechanic I/II - USA</b>	<b>0</b>		4.00	2.00	10.00	2.00	24.00	20.00	17.00	23.00	45.50	26.00	32.00	205.50
<b>Mechanic II-Crane Cert - USA</b>	<b>0</b>	16.50	8.00		30.50	12.00	2.00							69.00
Supervisor	50							9.00						9.00
<b>Division 54 - ELEC</b>	<b>1,130</b>	<b>136.00</b>	<b>44.00</b>	<b>31.00</b>	<b>119.50</b>	<b>16.00</b>	<b>42.00</b>	<b>223.00</b>	<b>174.50</b>	<b>84.50</b>	<b>292.75</b>	<b>58.00</b>	<b>64.50</b>	<b>1,285.75 1,130.00</b>
Senior Instrument/Controls Tech	30	18.00		1.00		2.00	9.00	20.00	14.00	10.00	15.00		1.00	90.00
Instrumentation & Controls Tech I/II	300	55.00	35.00	8.50	63.50	5.00	7.00	68.00	74.50	63.50	139.25	52.00	41.50	612.75
OPS Control Sys Spec	300													-
Senior Electrician	30							36.00	10.00		32.00			78.00
Electrician I/II	440	63.00	7.00	19.50	53.00	8.00	26.00	94.00	73.00	8.00	104.50	2.00	21.00	479.00
Principal Electrical Engineer	30		2.00	2.00	3.00	1.00		5.00	3.00	3.00	2.00	4.00	1.00	26.00
<b>Division 55 - Laboratory</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>24.00</b>	<b>6.00</b>	<b>-</b>	<b>-</b>	<b>30.00</b>
EC Inspector II-Pretreatment	0	-								24.00	4.00			28.00
Laboratory Technician	0	-									1.00			1.00
Supervisor	0	-									1.00			1.00
<b>Division 26 - SAFETY</b>	<b>60</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>60.00</b>
Safety Officer	60	-	-	-	-	-	-	-	-	-	-	-	-	60.00
<b>Division 40 - ENG</b>	<b>260</b>	<b>14.50</b>	<b>8.50</b>	<b>2.50</b>	<b>6.50</b>	<b>7.00</b>	<b>23.00</b>	<b>3.50</b>	<b>14.00</b>	<b>12.50</b>	<b>14.00</b>	<b>10.00</b>	<b>7.00</b>	<b>123.00 260.00</b>
Senior Engineer-Supervisory	0													-
Associate/Senior Civil Engineer-SME	100	14.50	4.50	2.50	6.50	7.00	23.00	3.50	14.00	10.50	14.00	10.00	7.00	117.00
Construction Inspector I/II	80		4.00											4.00
Engineering Technician II	40								2.00					2.00
GIS Analyst	40													-
<b>Total Estimated Personnel Hours</b>	<b>5,800</b>													
<b>FTE</b>	<b>2.8</b>													
<b>Total Monthly Hours</b>	<b>433.00</b>	<b>345.00</b>	<b>343.00</b>	<b>567.50</b>	<b>215.00</b>	<b>532.50</b>	<b>576.00</b>	<b>605.50</b>	<b>398.50</b>	<b>920.25</b>	<b>430.50</b>	<b>428.00</b>	<b>5,794.75</b>	<b>5,800.00</b>

Notes:

Division 55 hours in March and April associated with the discharge exercise

Division 53 hours in April high due to asset management work

Division 54 hours in April high due to flowmeter work which triggered confined space requirements

LAVWMA	April		2023
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Enter only numerical data in the result columns and only qualifiers in the qualifier columns. Any other comments should go in the corresponding cell on the Comments tab.

Parameter	Flow	CBOD Qual	CBOD	TSS Qual	TSS	pH	pH	Total Residual Chlorine	Total Residual Chlorine	Fecal Qual	Fecal Coliforms	Entero Qual	Enterococci
Units	MGD		mg/L		mg/L	SU	SU	mg/L	mg/L		MPN/100mL		MPN/100mL
Test Method	Daily Average (Mean)		SM 5210 B-2011		SM 2540 D-2011	SM 4500-H+B-2011	SM 4500-H+B-2011	Daily Average (N	Daily Average (Mean)		SM 9221 C,E-2006		Enterolert
MDL					1.4								
RL			3.0		4.5						2		10
Location	LAVWMA-EXP		LAVWMA-EXP		LAVWMA-EXP	LAVWMA-EXP	LAVWMA-EXP	LAVWMA-EXP	SLSS		SLSS		SLSS
4/1/2023	24.10					7.13	7.25	3.09					
4/2/2023	19.01					7.17	7.28	2.59					
4/3/2023	20.98					7.15	7.30	2.50					
4/4/2023	16.83					7.17	7.30	2.76		<	2	<	10
4/5/2023	19.21		4.1		8.8	7.15	7.28	2.98					
4/6/2023	18.92					7.15	7.34	2.64					
4/7/2023	18.66					7.18	7.27	2.53					
4/8/2023	19.21					7.15	7.27	2.23					
4/9/2023	18.25					7.15	7.27	2.20					
4/10/2023	17.59					7.08	7.23	1.84					
4/11/2023	16.29					7.10	7.24	1.35			4	<	10
4/12/2023	19.36		6.2		9.6	7.18	7.35	1.06					
4/13/2023	18.99					7.13	7.31	1.63					
4/14/2023	11.12					7.11	7.27	2.00					
4/15/2023	19.07					7.13	7.24	1.84					
4/16/2023	14.59					7.08	7.20	2.04					
4/17/2023	11.82					7.13	7.25	1.91					
4/18/2023	18.19					7.15	7.33	1.70			2		
4/19/2023	14.06		4.4		9.7	7.13	7.31	2.83					
4/20/2023	16.11					7.08	7.27	2.60					
4/21/2023	8.32					7.01	7.23	2.29					
4/22/2023	19.12					7.01	7.17	2.06					
4/23/2023	11.65					7.02	7.18	2.43					
4/24/2023	11.90					7.01	7.18	2.12					
4/25/2023	9.59					7.06	7.22	1.83			4	<	10
4/26/2023	11.88		6.4		10	7.01	7.25	1.92					
4/27/2023	9.56					7.08	7.19	1.76					
4/28/2023	10.54					7.06	7.22	1.41					
4/29/2023	14.06					7.06	7.27	1.52					
4/30/2023	12.71					7.10	7.33	1.90					

Note:

Column G - pH Minimum; online

Column H - pH Maximum; online

LAVWMA	May		2023
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Enter only numerical data in the result columns and only qualifiers in the qualifier columns. Any other comments should go in the corresponding cell on the Comments tab.

Parameter	Flow	CBOD Qual	CBOD	TSS Qual	TSS	pH	pH	Total Residual Chlorine	Total Residual Chlorine	Fecal Qual	Fecal Coliforms	Entero Qual	Enterococci
Units	MGD		mg/L		mg/L	SU	SU	mg/L	mg/L		MPN/100mL		MPN/100mL
Test Method	Daily Average (Mean)		SM 5210 B-2011		SM 2540 D-2011	SM 4500-H+B-2011	SM 4500-H+B-2011	Daily Average (N	Daily Average (Mean)		SM 9221 C,E-2006		Enterolert
MDL					1.4								
RL			3.0		4.5						2		10
Location	LAVWMA-EXP		LAVWMA-EXP		LAVWMA-EXP	LAVWMA-EXP	LAVWMA-EXP	LAVWMA-EXP	SLSS		SLSS		SLSS
5/1/2023	10.89					7.13	7.32	1.55					
5/2/2023	7.03					7.15	7.45	2.27		<	2	<	10
5/3/2023	16.66		6		9.4	7.13	7.31	2.43					
5/4/2023	12.45					7.13	7.78	3.30					
5/5/2023	17.73					7.13	7.30	2.72					
5/6/2023	13.88					7.11	7.25	3.26					
5/7/2023	12.45					7.13	7.28	2.54					
5/8/2023	12.18					7.10	7.42	2.69					
5/9/2023	11.76					7.13	7.40	2.66		<	2	<	10
5/10/2023	11.73		3.8		7.6	7.10	7.24	2.49					
5/11/2023	11.57					7.11	7.28	2.16					
5/12/2023	11.56					7.10	7.27	2.88					
5/13/2023	8.85					7.08	7.29	2.90					
5/14/2023	16.68					7.16	7.29	2.17					
5/15/2023	6.78					7.08	7.27	2.21					
5/16/2023	11.77					7.20	7.31	1.40				<	10
5/17/2023	6.92		5.0		8.4	7.15	7.53	1.88					
5/18/2023	9.07					7.35	7.74	1.41					
5/19/2023	9.19					7.34	7.78	1.34					
5/20/2023	10.34					7.35	7.77	1.34					
5/21/2023	10.28					7.15	7.47	1.13					
5/22/2023	11.39					7.15	7.96	1.12					
5/23/2023	9.29					7.17	7.40	1.47			8	<	10
5/24/2023	10.35		6.1		16	7.34	7.40	0.94					
5/25/2023	11.34					7.35	7.27	0.41					
5/26/2023	7.55					7.15	7.31	1.47					
5/27/2023	9.05					7.20	7.36	0.78					
5/28/2023	8.20					7.18	7.38	2.37					
5/29/2023	7.10					7.16	7.35	1.97					
5/30/2023	10.45					7.10	7.43	1.73			4	<	10
5/31/2023	9.32		6.9		12	7.08	7.28	1.59					

Note:

Column G - pH Minimum; online

Column H - pH Maximum; online



LAVWMA	June		2023
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Enter only numerical data in the result columns and only qualifiers in the qualifier columns. Any other comments should go in the corresponding cell on the Comments tab.

Parameter	Flow	CBOD Qual	CBOD	TSS Qual	TSS	pH	pH	Total Residual Chlorine	Total Residual Chlorine	Fecal Qual	Fecal Coliforms	Entero Qual	Enterococci
Units	MGD		mg/L		mg/L	SU	SU	mg/L	mg/L		MPN/100mL		MPN/100mL
Test Method	Daily Average (Mean)		SM 5210 B-2011		SM 2540 D-2011	SM 4500-H+B-2011	SM 4500-H+B-2011	Daily Average (Mean)	Daily Average (Mean)		SM 9221 C,E-2006		Enterolert
MDL					1.4								
RL			3.0		4.5						2		10
Location	LAVWMA-EXP		LAVWMA-EXP		LAVWMA-EXP	LAVWMA-EXP	LAVWMA-EXP	LAVWMA-EXP	SLSS		SLSS		SLSS
6/1/2023	8.79					7.15	7.28	1.44					
6/2/2023	8.94					7.14	7.21	0.80					
6/3/2023	8.77					7.11	7.19	1.50					
6/4/2023	8.07					7.07	7.12	1.36					
6/5/2023	6.59					7.12	7.22	1.31					
6/6/2023	8.70					7.17	7.17	1.42			30		10
6/7/2023	7.80		6.3		11	7.19	7.21	1.18					
6/8/2023	7.60					7.17	7.21	1.01					
6/9/2023	6.81					7.15	7.19	0.85					
6/10/2023	9.50					7.20	7.21	1.47					
6/11/2023	8.96					7.19	7.21	3.03					
6/12/2023	7.64					7.14	7.21	2.88					
6/13/2023	9.26					7.14	7.20	2.07			22	<	10
6/14/2023	7.34		4.9		10	7.10	7.18	1.71					
6/15/2023	6.16					7.09	7.18	2.26					
6/16/2023	5.74					7.12	7.21	3.33					
6/17/2023	5.23					7.09	7.22	2.09					
6/18/2023	6.83					7.09	7.21	1.47					
6/19/2023	4.96					7.14	7.21	1.18					
6/20/2023	6.24					7.14	7.33	0.95			13	<	10
6/21/2023	5.41		4.0		6.5	7.12	7.26	1.62					
6/22/2023	5.84					7.14	7.16	1.27					
6/23/2023	6.30					7.21	7.16	1.50					
6/24/2023	7.58					7.19	7.21	1.48					
6/25/2023	8.12					7.12	7.13	1.22					
6/26/2023	5.87					7.19	7.21	1.40					
6/27/2023	8.16					7.15	7.17	1.45			30	<	10
6/28/2023	4.44		3.8		5.8	7.12	7.23	1.30					
6/29/2023	6.01					7.12	7.33	1.37					
6/30/2023	6.09					7.02	7.15	1.28					

Note:

Column G - pH Minimum; online

Column H - pH Maximum; online

*DUBLIN SAN RAMON SERVICES DISTRICT  
WASTEWATER TREATMENT FACILITY*

LAVWMA - 2nd Quarter 2023

Langelier pH Saturation Index

Collection DATE	TDS (mg/L)	Temp (°C)	Ca Hardness (mg/L CaCO <sub>3</sub> )	Alkalinity (mg/L CaCO <sub>3</sub> )	pH (Actual)	pH Saturation	Langlier Index
04/04/23	746	17.9	162	342	7.6	7.2	0.4
05/23/23	586	21.6	94	322	7.5	7.4	0.1
06/06/23	525	22.0	77	256	7.5	7.5	0.0
MAXIMUM	746	22.0	162	342	7.6	7.5	0.4
MINIMUM	525	17.9	77	256	7.5	7.2	0.0
AVERAGE	619	20.5	111	307	7.5	7.4	0.2

**DUBLIN SAN RAMON SERVICES DISTRICT  
WASTEWATER TREATMENT FACILITY**

**DSRSD - 2nd Quarter 2023**

Langelier pH Saturation Index

Collection DATE	TDS (mg/L)	Temp (°C)	Ca Hardness (mg/L CaCO <sub>3</sub> )	Alkalinity (mg/L CaCO <sub>3</sub> )	pH (Actual)	pH Saturation	Langlier Index
04/04/23	822	18.4	190	382	7.6	7.1	0.5
05/23/23	581	21.8	110	284	7.4	7.4	0.0
06/06/23	540	22.4	82	222	7.2	7.6	-0.4
MAXIMUM	822	22.4	190	382	7.6	7.6	0.5
MINIMUM	540	18.4	82	222	7.2	7.1	-0.4
AVERAGE	648	20.9	127	296	7.4	7.3	0.1

CITY OF LIVERMORE  
LIVERMORE WATER RECLAMATION PLANT

Langlier pH Saturation Index

Collection DATE	TDS (mg/L)	Temp (°C)	Ca Hardness (mg/L CaCO <sub>3</sub> )	Alkalinity (mg/L CaCO <sub>3</sub> )	pH (Actual)	pH Saturation	Langlier Index
04/05/23	665	20.0	109	333	7.4	7.4	0.0
05/03/23	570	21.0	71	320	7.5	7.6	-0.1
06/07/23	830	23.0	65	316	7.6	7.6	0.0
MAXIMUM	830	23.0	109	333	7.6	7.6	0.0
MINIMUM	570	20.0	65	316	7.4	7.4	-0.1
AVERAGE	688	21.3	82	323	7.5	7.5	0.0

