

LAKE ARROWHEAD COMMUNITY SERVICES DISTRICT

MEMORANDUM

DATE: SEPTEMBER 24, 2019

TO: BOARD OF DIRECTORS
Lake Arrowhead Community Services District

FROM: 
MATT BROOKS, Operations Manager

SUBJECT: OPERATIONS MANAGER'S REPORT

A. RECOMMENDATION

This is an information item.

B. REASON FOR RECOMMENDATION

This is an information item.

C. BACKGROUND INFORMATION

This report is to give an update on water delivered in 2019, along with any other key mentionables within the Operations Department.

D. FISCAL IMPACT

This is an information item.

E. ENVIRONMENTAL IMPACT

This is an information item.

F. ATTACHMENTS

- 2019 Monthly Report
- 2018 Monthly Report
- August 2019 Water Delivered Annual Analysis and Project Status Updates
- Operations Dept. Photos

**ARROWHEAD WOODS MONTHLY DATA
ACRE FEET**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
2019 MONTH	TRANSFER TO GV LAKE	WELLS TO SYSTEM	BERNINA PLANT	CEDAR GLEN PLANT	COMBINED PLANT	COMBINED PLANT BACKWASH	BERNINA RECYCLE	CLAWA PURCHASE (a)	CLAWA PURCHASE (a) ROTW	CLAWA PURCHASE (a) BRENTWOOD	LAKE DRAW (b)	DELIVERED TO DISTRIBUTION (c)	METERED WATER	STORAGE VOLUME (e)	STORAGE VOLUME CHANGE +/-	UN-METERED WATER (d)
JANUARY	0.00	13.17	0.00	60.63	60.63	4.33	0.00	0.00	0.00	0.00	60.63	69.47	56.45	23.82	0.80	12.22
FEBRUARY	0.00	15.90	1.38	55.11	56.49	4.54	0.00	0.00	0.00	0.00	56.49	67.85	53.02	24.62	2.09	12.74
MARCH	0.00	18.62	11.93	34.18	46.11	3.84	0.29	0.00	0.00	0.00	46.11	61.18	50.91	26.71	-0.28	10.55
1ST QUARTER	0.00	47.69	13.31	149.92	163.23	12.71	0.29	0.00	0.00	0.00	163.23	198.50	160.38	75.15	2.61	35.51
APRIL	0.00	19.37	51.07	0.00	51.07	4.56	2.37	0.00	0.00	0.00	51.07	68.25	57.30	26.43	0.00	10.95
MAY	0.00	17.66	83.86	0.00	83.86	6.93	4.26	0.00	0.00	0.00	83.86	98.85	84.74	26.37	1.78	12.33
JUNE	0.00	16.72	120.37	0.00	120.37	9.54	6.42	0.00	2.34	2.34	120.37	136.31	121.85	28.15	-3.44	17.90
2ND QUARTER	0.00	53.75	255.30	0.00	255.30	21.03	13.05	0.00	2.34	2.34	255.30	303.41	263.89	80.95	-1.66	41.18
SEMI-ANNUAL	0.00	101.44	268.61	149.92	418.53	33.74	13.34	0.00	2.34	2.34	418.53	501.91	424.27	156.10	0.95	76.69
JULY	0.00	17.38	114.45	53.40	167.85	14.46	5.79	0.00	7.63	7.63	167.85	184.19	169.40	24.71	3.29	11.50
AUGUST	0.00	16.93	78.28	59.14	137.42	11.49	5.69	0.00	31.19	31.19	137.42	179.74	165.47	28.00	-1.97	16.24
SEPTEMBER	0.00				0.00					0.00	0.00	0.00		26.03	0.00	0.00
3RD QUARTER	0.00	34.31	192.73	112.54	305.27	25.95	11.48	0.00	38.82	38.82	305.27	363.93	334.87	78.74	1.32	27.74
OCTOBER	0.00				0.00					0.00	0.00	0.00			0.00	0.00
NOVEMBER	0.00				0.00					0.00	0.00	0.00			0.00	0.00
DECEMBER	0.00				0.00					0.00	0.00	0.00				0.00
4TH QUARTER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ANNUAL TOTAL	0.00	135.75	461.34	262.46	723.80	59.69	24.82	0.00	41.16	41.16	723.80	865.84	759.14	234.84	2.27	104.43

(a) CLAWA consumption numbers are based upon monthly billing statements provided by CLAWA. CLAWA reads these meters on or near the 24th of each month, so the numbers may not be an actual representation of water consumed for said calendar month.

(b) Lake Draw = (1) + (5)

(c) Delivered to Distribution = (2) + (5) - (6) + (7) + (10)

(d) Un-Metered Water = ((12) - (13)) - (15)

(e) Storage Volume calculated 8:00 am the 1st of every month.

**ARROWHEAD WOODS MONTHLY DATA
ACRE FEET**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
2018 MONTH	TRANSFER TO GV LAKE	WELLS TO SYSTEM	BERNINA PLANT	CEDAR GLEN PLANT	COMBINED PLANT	COMBINED PLANT BACKWASH	BERNINA RECYCLE	CLAWA PURCHASE (a)	ROTW CLAWA PURCHASE (a)	BRENTWOOD CLAWA PURCHASE (a)	COMBINED PURCHASE (a)	LAKE DRAW (b)	DELIVERED TO DISTRIBUTION (c)	METERED WATER	STORAGE VOLUME CHANGE +/- (e)	STORAGE VOLUME CHANGE +/- (d)	UN-METERED WATER (d)
JANUARY	0.00	11.57	0.00	32.93	32.93	1.57	0.00	19.68	0.00	19.68	32.93	62.61	51.30	27.73	-1.69	13.00	
FEBRUARY	0.00	10.12	0.00	52.02	52.02	2.43	0.00	0.00	0.00	0.00	52.02	59.71	48.50	26.04	1.26	9.95	
MARCH	0.00	11.29	0.00	49.63	49.63	1.69	0.00	0.00	0.00	0.00	49.63	59.23	48.48	27.30	-0.22	10.97	
1ST QUARTER	0.00	32.98	0.00	134.58	134.58	5.69	0.00	19.68	0.00	19.68	134.58	181.55	148.28	81.07	-0.65	33.92	
APRIL	0.00	11.74	0.00	53.17	53.17	3.35	0.00	0.00	5.56	5.56	53.17	67.12	58.56	27.08	-0.84	9.40	
MAY	0.00	10.66	0.00	88.24	88.24	5.38	0.00	0.00	26.83	26.83	88.24	120.35	107.30	26.24	-0.90	13.95	
JUNE	0.00	11.78	0.00	92.50	92.50	6.17	0.00	16.61	40.51	57.12	92.50	155.23	142.44	25.34	2.37	10.42	
2ND QUARTER	0.00	34.18	0.00	233.91	233.91	14.90	0.00	16.61	72.90	89.51	233.91	342.70	308.30	78.66	0.63	33.77	
SEMI-ANNUAL	0.00	67.16	0.00	368.49	368.49	20.59	0.00	36.29	72.90	109.19	368.49	524.25	456.58	159.73	-0.02	67.69	
JULY	0.00	11.50	9.40	99.83	109.23	9.96	0.00	55.46	19.89	75.35	109.23	186.12	170.23	27.71	-2.07	17.96	
AUGUST	0.00	13.97	131.55	48.47	180.02	16.04	6.83	1.90	0.07	1.97	180.02	181.94	170.15	25.64	2.25	9.54	
SEPTEMBER	0.00	13.54	9.19	84.19	93.38	8.19	0.54	60.52	0.00	60.52	93.38	159.79	149.19	27.89	-4.66	15.26	
3RD QUARTER	0.00	39.01	150.14	232.49	382.63	34.19	7.37	117.88	19.96	137.84	382.63	527.85	489.57	81.24	-4.48	42.76	
OCTOBER	0.00	13.07	0.00	75.67	75.67	6.96	0.00	31.73	0.00	31.73	75.67	113.51	102.84	23.23	1.00	9.67	
NOVEMBER	0.00	12.56	0.00	72.33	72.33	5.71	0.00	0.00	0.00	0.00	72.33	79.18	65.62	24.23	-0.63	14.19	
DECEMBER	0.00	12.04	0.00	66.31	66.31	4.59	0.00	0.00	0.00	0.00	66.31	73.76	60.03	23.60	0.22	13.51	
4TH QUARTER	0.00	37.67	0.00	214.31	214.31	17.26	0.00	31.73	0.00	31.73	214.31	266.45	228.49	71.06	0.59	37.37	
ANNUAL TOTAL	0.00	143.84	150.14	815.29	965.43	72.04	7.37	185.90	92.86	278.76	965.43	1318.55	1174.64	312.03	-3.91	147.82	

(a) CLAWA consumption numbers are based upon monthly billing statements provided by CLAWA. CLAWA reads these meters *on or near the 24th of each month*, so the numbers may not be an actual representation of water consumed for said calendar month.

(b) Lake Draw = (1) + (5)

(c) Delivered to Distribution = Bernina System Input Meter + (4) + (8)

(d) Un-Metered Water = ((12) - (13)) - (15)

(e) Storage Volume calculated 8:00 am the 1st of every month.

September 24, 2019

August 2019 Water Delivered Annual Analysis

- In August 2019 (179.74 AF) consumption was very similar when compared to August 2018 (181.94 AF). Through the 1st 8 months of 2019 (865.84 AF), consumption is 3% lower when compared to the 1st 8 months of 2018 (892.31 AF). These numbers are based off of column (12) on the Report, and only counts water delivered to the Distribution System.
- August 2019 Lake Draw = 137.42 AF vs August 2018 = 180.02 AF. Through the 1st 8 months of 2019 Lake Draw = 723.80 AF vs through the 1st 8 months of 2018 = 657.74 AF.
- August 2019 Wells to System = 16.93 AF vs August 2018 = 13.97 AF. Through the 1st 8 months of 2019 Wells to System = 135.75 AF vs through the 1st 8 months of 2018 = 92.63 AF.
- Through the 1st 8 months of 2019 total CLAWA purchase = 41.16 AF vs through the 1st 8 months of 2018 = 186.51 AF.
- Through the 1st 8 months of 2019 total Recycled Water Delivered to the LACC = 149.37 AF vs through the 1st 8 months of 2018 = 200.65 AF.

Operations Department Project Status Updates

- **Project # 188 Lift Station #5A Rehabilitation Project** included the replacement of pumps, valves, piping, and lighting; all of which has been in operation for over 30 years. This was a budgeted project and was completed in August 2019, well under the \$200,000 budgeted amount. Approval to purchase the pumps was made at the regular scheduled Board meeting on January 22, 2019. Photos have been included.
- **Microvi pilot-scale bio-reactor for ammonia removal demonstration (pilot)** commenced at the Grass Valley Wastewater Treatment plant on June 28, 2019. The pilot has shown favorable results since it has been put on-line over two months ago. The District hired Dudek to assist with evaluating the pilot. This evaluation includes generating sampling protocols and different scenarios, evaluating the data, and generating a final report with recommendations. The District has remained in contact with both Dudek and Microvi throughout the entire pilot process, and has been responsible for the rigorous sampling routine and day-to-day operation of the pilot itself. The District toured a full-scale Microvi system in Pasadena on September 4, 2019. The District is going to meet with Dudek and Microvi on October 1, 2019 to discuss the pilot results in more detail.
- **Lake Arrowhead Tracer Study** Dr. Dave James from the UNLV met with District Water Operations staff on September 11, 2019 to discuss the tracer study project in more detail. The primary reason for this visit was to familiarize District staff with the project, discuss the proposed timeline, and show the staff the Rhodamine probes (sensors) that would be deployed at the District's intake facilities, in the event the tracer makes it to the intakes.

Project # 188 Lift Station #5A Rehab Before



Project # 188 Lift Station #5A Rehab



Project # 188 Lift Station #5A After



Microvi Pilot System (GVWWTP)



Microvi Full-Scale System (Pasadena)