

TECHNICAL MEMORANDUM

To: Eagle Bend Metro District (EBMD)-Board of Directors

From: Mitchell Weldon and Justin Korkus, PE

Date: November 18th, 2020

Subject: Final Water Operations Summary for September 2020

CC: Larry Moore-President-EBMD, Denise Denslow-District Manager CliftonLarsonAllen, LLC.

Project No.: 0416019.01

This Technical Memorandum provides a summary of the EBMD water operations for the month of September 2020.

Water Supply Operations

South Well:

- During September 7,640 kilogallons (kgal) of water were delivered from the South Well to the Heritage Eagle Bend (HEB) golf course irrigation pond.
- The maximum flow rate achieved was 273 gpm, and the minimum flow rate while pumping was 247 gpm.
- During recovery periods in September, the water level in the South Well reached a maximum of 275 feet above transducer. Pumping water level reached a minimum of 121 feet.
- The pump ran for approximately 21 days during September.

Figure 1 – South Well Drawdown and Recovery (September 2020)

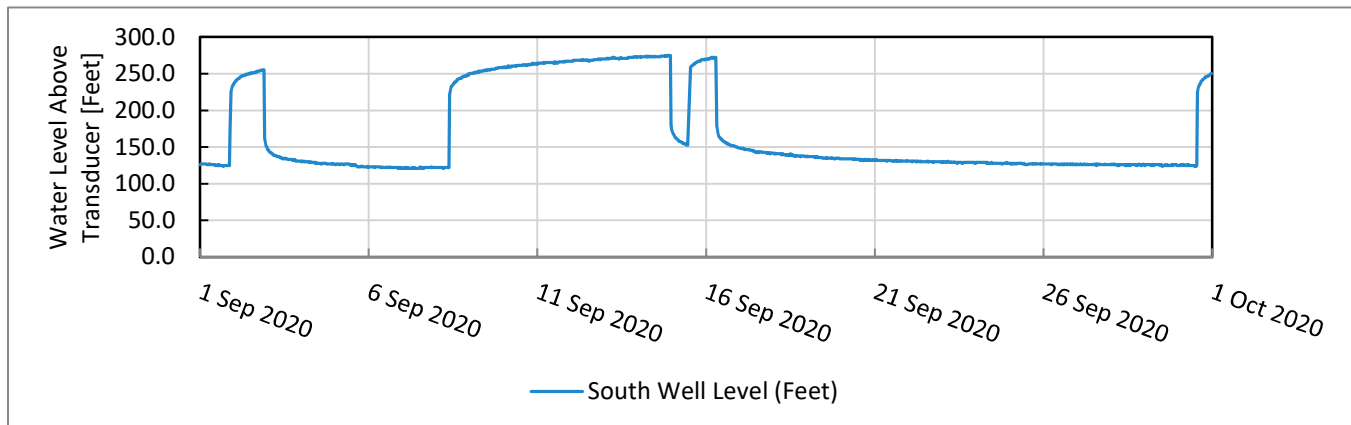
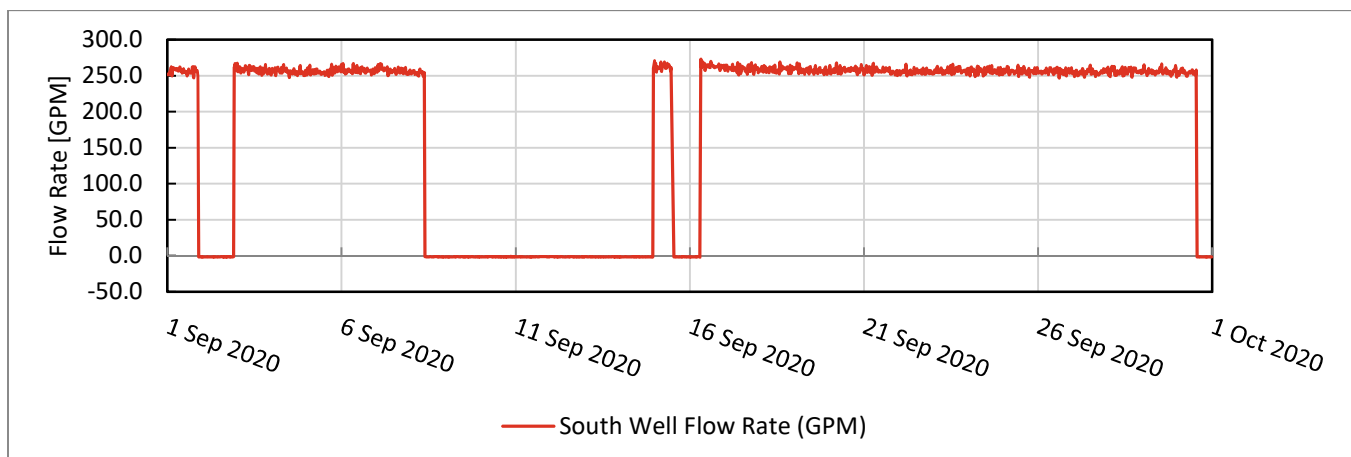


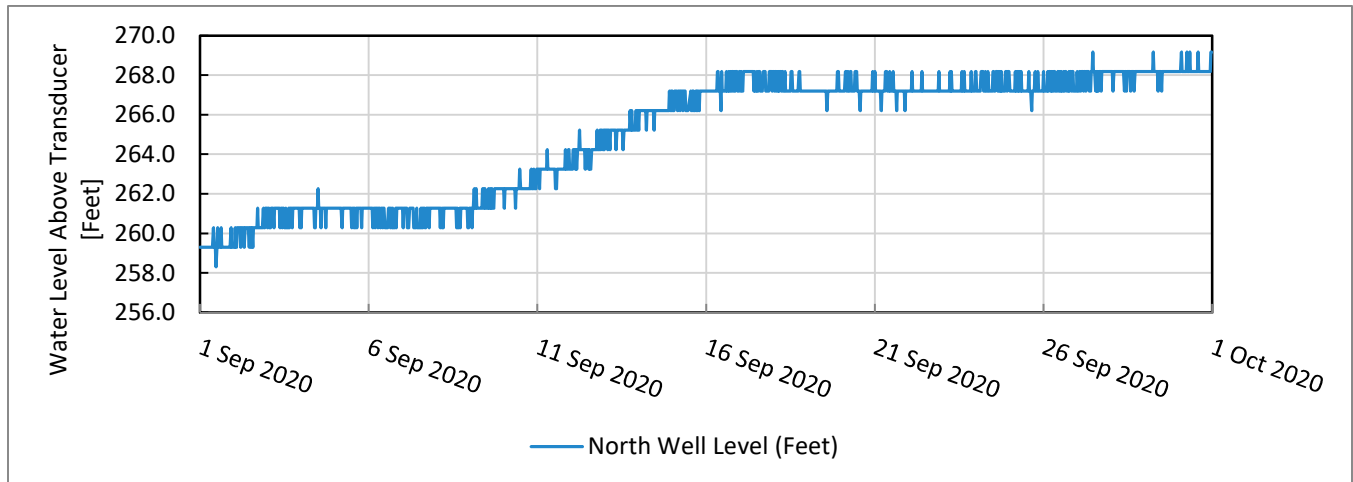
Figure 2 – South Well Production Rate (September 2020)



North Well:

- During the month of September, the North Well did not deliver water to the Heritage Eagle Bend (HEB) golf course irrigation pond, due to pump motor failure on August 30th.
- Static Water Level in the North Well recovered from 258 feet above the transducer to 269 feet during September.
- On September 24th, the well and pump contractor, Layne, revisited the North Well and confirmed that the VFD runs properly; however, the downhole motor did not start. Lamp Rynearson has requested quotes for offseason replacement of the downhole pump and motor for consideration by EBMD.

Figure 3 – North Well Drawdown and Recovery (September 2020)



Aurora Raw Water Line:

- Apart from water delivered during testing, the first delivery of water from the Aurora Raw Water Line occurred on September 26th.
- Deliveries occurred on the following days: September 26th, 29th, and 30th.
- The total volume delivered during September was 2,067 kgal.

ECCV/WISE Waterline:

- Per our August 17th discussion with Glen Bedell, ECCV Water Operator, water will not be available from the ECCV/WISE line for the rest of the irrigation season.
- On September 21st, during startup of the Aurora Raw Water Line (RWL), Aurora’s meter on the ECCV line was removed to provide a physical barrier and control of a potential cross-connection between the ECCV line (potable) and the Aurora RWL (non-potable). To reinstall the service, a protocol for maintenance and testing of the District’s backflow preventer must be developed in consultation with South Metro Water Supply Authority, who operates the ECCV line at the District’s tap. Coordination with Aurora for reinstallation of the flow meter must also take place before the service can be restored.

Buchanan Tap:

- The Buchanan Tap was used for supplemental irrigation water during September. The total volume metered was 3,152 kgal.

Field Operations

- On September 21st, Mitchell Weldon visited the irrigation pond to meet with Steve Weber (Aurora Water) and Roe Sherbert. Roe opened the butterfly valve manually to allow water delivery from the Aurora Raw Water line. Mitchell visited the ECCV vaults with Aurora Water to verify isolation of the ECCV line. Winterization of the Aurora vault was confirmed, and Mitchell closed the two gate valves located within the District vault and drained the line. Aurora removed the 6" meter within its vault. South Metro Water Supply Authority arrived to witness the disconnection of the meter.
- On September 24th, the well and pump contractor, Layne, revisited the North Well and confirmed that the VFD runs properly; however, the downhole motor did not start.

Utility Locates

- Lamp Rynearson no longer monitors utility locate requests on behalf of the District for buried utilities owned and operated by the District. Diversified Underground has been authorized by EBMD to respond to all locate requests as of July 2020.

Water Production Summary

Water production data has been updated through September 2020. EBMD's historical water delivery summary is provided in Table 1 from 2010 through present, and graphically in Figure 5 - Cumulative Annual Water Deliveries by Month, and Figure 6 - Monthly Water Deliveries (2010-2020). For monthly water production and billing for 2020, refer to Table 2.

Table 1 – Annual Water Production

Year	North Well		South Well		Buchanan Tap		ECCV Line, Aurora Pkwy Tap		Aurora Raw Water Line		Total kgal
	kgal	%	kgal	%	kgal	%	kgal	%	kgal	%	
2010	26,564	33	43,702	54	0	0	10,259	13			80,525
2011	29,408	37	38,888	48	0	0	12,273	15			80,569
2012	25,416	28	55,493	61	0	0	10,368	11			91,277
2013	26,223	38	38,791	55	0	0	4,982	7			69,996
2014	18,472	33	33,808	60	0	0	4,036	7			56,316
2015	20,510	30	37,999	57	0	0	8,650	13			67,159
2016	21,569	25	55,478	63	0	0	10,824	12			87,871
2017	21,277	31	33,884	49	0	0	14,097	20			69,258
2018	22,971	28	50,100	62	5,400	7	2,747	3			81,218
2019	22,265	29	45,311	60	3,654	5	4,449	6			75,679
2020	19,975	22	52,706	57	16,970	18	848	1	2067	2	92,566
Average (2010- 2019)	23,123	31	43,306	57	4,527	1	8,047	11	-	-	75,483

Table 2 – Monthly Water Production and Billing for Eagle Bend Metro District (2020)

Eagle Bend Metro District Water and Energy Utilities - through September 2020														
Service Month (nominal)	Initial	January	February	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	YTD
Meter Reads														
North Well (Meter No. 12066794)	52,528	52,528	52,528	52,528	53,419	57,913	65,271	70,433	72,503	72,503				
South Well (Meter No. 12269060)	7,443	7,443	7,443	7,448	10,083	19,523	32,630	42,373	52,509	60,149				
ECCV (Meter No. 05359993)	17,280	17,280	17,280	17,280	17,280	17,280	17,280	17,280	17,280	17,280				
Aurora-Buchanan Way (Meter No. 06170036)	34,351	34,351	34,351	34,351	34,351	34,353	38,114	40,644	48,169	51,321				
Aurora-7623 South Aurora Parkway (Meter No. 05150070)	6,509	6,509	6,509	6,509	6,572	6,653	6,929	7,081	7,225	7,357				
kgal														
North Well		0	0	0	891	4,494	7,358	5,162	2,070	0			0	19,975
South Well		0	0	5	2,635	9,440	13,107	9,743	10,136	7,640			0	52,706
ECCV		0	0	0	0	0	0	0	0	0			0	0
Aurora (Buchanan Way)		0	0	0	0	2	3,761	2,530	7,525	3,152			0	16,970
Aurora (Aurora Pky)		0	0	0	63	81	276	152	144	132			0	848
Aurora Raw Water Line (Gun Club)										2,067				2,067
Total - kgal		0	0	5	3,589	14,017	24,502	17,587	19,875	12,991				92,566
Total - af		0.0	0.0	0.0	11.0	43.0	75.2	54.0	61.0	39.9				284.1
COA Billing*														
														* Late fees not included
North Well		\$0.00	\$0.00	\$0.00	\$392.04	\$1,977.36	\$3,237.52	\$2,271.28	\$910.80	\$0.00				\$8,789.00
South Well		\$0.00	\$0.00	\$2.20	\$1,159.40	\$4,153.60	\$5,767.08	\$4,286.92	\$4,459.84	\$3,361.60				\$23,190.64
ECCV		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00				\$0.00
Aurora (Buchanan Way)		\$0.00	\$0.00	\$0.00	\$0.00	\$59.61	\$29,384.20	\$20,130.69	\$59,741.04	\$25,063.15				\$134,378.69
Aurora (Aurora Pky)		\$17.58	\$17.58	\$17.58	\$471.81	\$601.59	\$2,007.54	\$1,158.57	\$1,159.50	\$1,046.76				\$6,498.51
Aurora Raw Water Line (Gun Club)										\$0.00				\$0.00
Total		\$17.58	\$17.58	\$19.78	\$2,023.25	\$6,792.16	\$40,396.34	\$27,847.46	\$66,271.18	\$29,471.51				\$172,856.84
Xcel Energy Billing														
North Well		\$391.44	\$391.44	\$407.09	\$426.28	\$4,170.92	\$5,591.30	\$5,327.70	\$3,826.47	\$11.92				\$20,544.56
South Well		\$470.47	\$470.47	\$488.99	\$2,840.56	\$5,883.75	\$7,147.75	\$6,858.18	\$6,691.04	\$6,425.78				\$37,276.99
Total		\$861.91	\$861.91	\$896.08	\$3,266.84	\$10,054.67	\$12,739.05	\$12,185.88	\$10,517.51	\$6,437.70				\$57,821.55
Xcel \$/kgal (approx., some time lag)														
North Well		-	-	-	\$0.48	\$0.93	\$0.76	\$1.03	\$1.85	-				\$1.03
South Well		-	-	\$97.80	\$1.08	\$0.62	\$0.55	\$0.70	\$0.66	\$0.84				\$0.71
Combined		-	-	\$179.22	\$1.08	\$0.62	\$0.62	\$0.82	\$0.86	\$0.84				\$0.80

Figure 5 – Cumulative Annual Water Deliveries by Month (2010 – 2020)

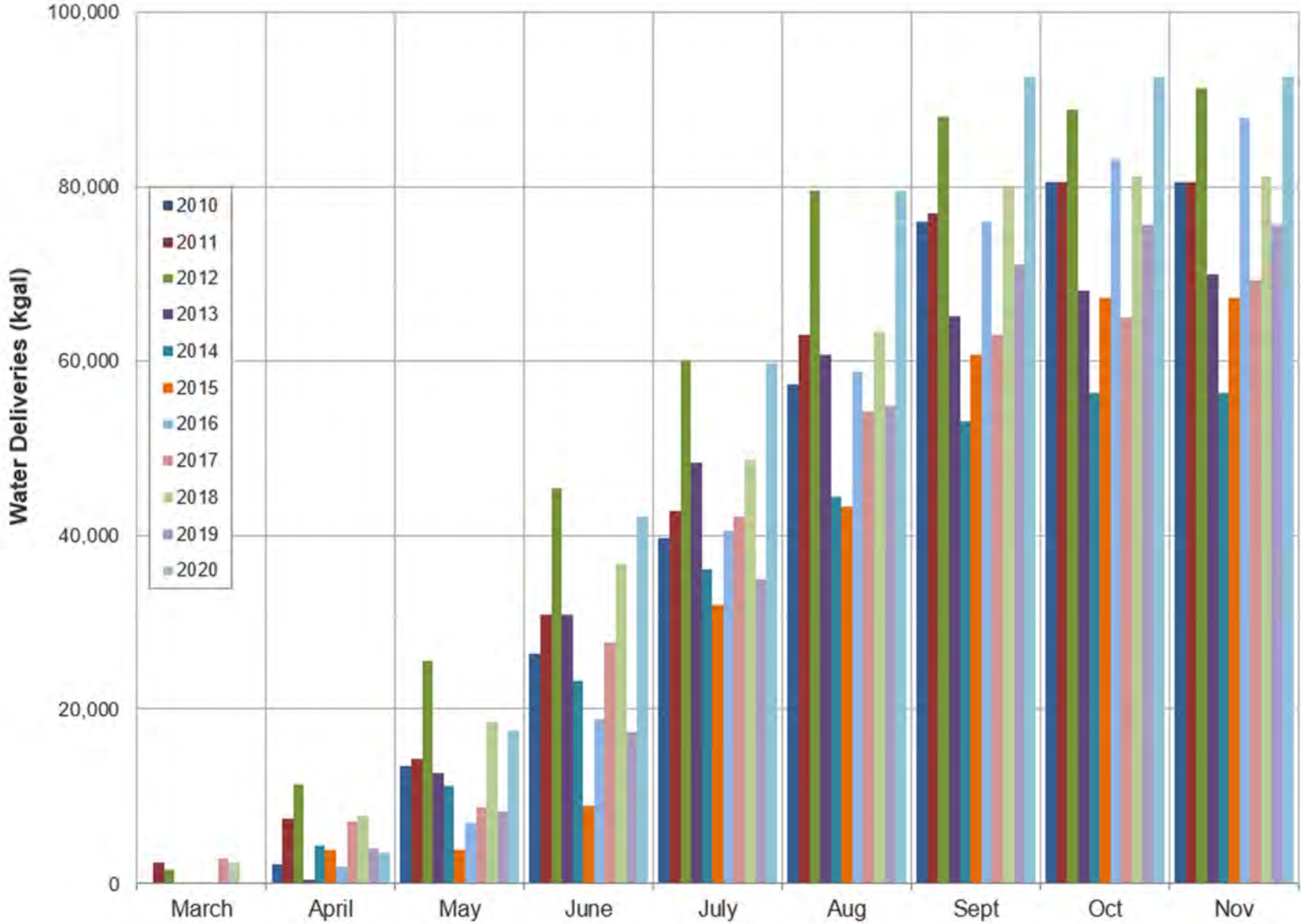


Figure 6 –Historic Monthly Water Deliveries (2010 – 2020)

