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January 23, 2019

Kent Jones, P. E.
Utah State Engineer
1594 West Temple
P.O. Box 146300
Salt Lake City, Utah 84114

Subject: Import and Return Flow Quantification in Utah Lake

Dear Kent:

We appreciated meeting with you to discuss the Provo River Water Users Association (Association) proposed return flow quantification method. There were three things that were discussed in our meeting for which you requested additional information:

1. Determine the location of deliveries going south into Utah County from the Point of the Mountain (Utah Lake Distributing Company Canal or Jacob Canal using Association water).
2. Review the Divisions mixed use calculation spreadsheet for Orem and Provo
3. Examine Provo and Orem flows to and from their system to determine percent of indoor return flows.

UTAH LAKE DISTRIBUTING COMPANY DELIVERIES

While both the Jacob Canal and the South Branch of the Utah Lake Distributing Canal serve water south from the Jordan Narrows, most recently the water delivered to the Jacob Canal is pumped water from the Jordan River. Water has been delivered to Utah Lake Distributing Company from Association sources for most years. We have met with the Utah Lake Distributing Company's south branch president Scott Holbrook and have developed the attached map and the table below showing company shares and delivery points along the canal. The company has a total of 2952 shares that are delivered along the canal from the Jordan Narrows to the Tickville Gulch in Saratoga Springs. Mr. Holbrook stated that water deliveries through the canal are constant during the irrigation season at approximately 43 cfs. Any water not used at any of the delivery points along the canal ends up in the Tickville Gulch which drains directly to Utah Lake. As can be seen by the table, over 50% of the deliveries from the canal are delivered past the Pony Express Parkway in Saratoga Springs. These deliveries' return flows should drain to Utah Lake. Also as you examine the route of the canal it parallels the river and for much of the

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length the canal is very close to the river. Any surface or shallow groundwater return flows from the canal deliveries would reach the Jordan River in a very short time.

Utah Lake Distributing Company Canal Deliveries

Delivery Point	Shares	Share Percent of Company	Share Percent Direct to Utah Lake
1	65	2.2%	
2	5	0.2%	
3	381	12.9%	
4	120	4.1%	
5	60	2.0%	
6	47	1.6%	
7	40	1.4%	
8	109	3.7%	
9	112	3.8%	
10	20	0.7%	
11	52	1.8%	
12	288	9.8%	
13	26	0.9%	
14	103	3.5%	
15	80	2.7%	2.7%
16	831	28.2%	28.2%
17	566	19.2%	19.2%
18	47	1.6%	1.6%
	2952	**100.0%**	**51.6%**

The analysis presented in Association's previous letter also outlined the following:

- The total amount of flow in the Jordan River below Utah Lake in the winter is essentially equal to the reduction to Association return flows by your proposed geographic coefficient. The Association is not the only contribution to flows in the river in the winter months.
- Literature on groundwater recharge in the river showing that 50% to 80% of the flow in the river is from groundwater from the principal aquifer, not the shallow aquifer.
- Flow in the river after the irrigation season shows a rapid decrease once irrigation stops. The return flows from deliveries are either surface flows or flows that are contained

within the shallow aquifer. These flows do not take six months to reach the Jordan River or Utah Lake.

Because of this and the further analysis of where the canal flows are delivered, the Association believes that the return flows to the river from the canal should only be reduced by 1/12, or one month after the irrigation season ends.

MUNICIPAL RETURN FLOWS

On the second point, we have reviewed the state engineer's spreadsheet (attached) and found an error in a formula where indoor use was multiplied incorrectly by 6 instead of 12. When corrected, it raises the mixed use return flow numbers from 50% to 58% which is similar to the numbers the Association provided previously.

OREM AND PROVO RETURN FLOW DATA

We attempted to use Provo and Orem data to determine point three. The data obtained from Orem does not make any sense for a number of reasons, including lack of measurement, old service meters, wastewater from outside the city, etc. We have analyzed Provo's data (attached) and they support the Association's numbers. The one caveat is that we had to assume a number for system loss as we are comparing water production numbers with wastewater treatment plant numbers. We used a conservative low estimate of 10%. The Association's consultant has worked with a number of cities and found this to be a reasonable number.

Based on this review and the literature cited in Association's previous letter, we remain comfortable claiming a 90 percent return flow for indoor use. From a practical standpoint, there is very little consumptive use inside of a house.

SUMMARY

The Association believes that the additional investigation of the three points you asked us to further analyze support our initial conclusions. The return flow method proposed accurately reflects the quantity of Association return flows. We would like to meet with you to discuss this additional analysis at your earliest convenience. We appreciate the work you and your staff do.

Sincerely,

PROVO RIVER WATER USERS ASSOCIATION

G. Keith Denos, P. E.
General Manager

Attachments

Utah Lake Distributing Company Canal Deliveri			
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BOWEN COLLINS & ASSOCIATES

UTAH LAKE DISTRIBUTING CANAL
PROVO RIVER WATER USERS ASSOCIATION

FIGURE 1
DELIVERY LOCATIONS

P:\Provo River WUA\Water Rights Return Flow\figures\Figure_1.dwg Plotted: 11/29/2018 1:02 PM By: Justin Collins

State Engineers Analysis of Mixed Use Return Flows
Cities of Provo and Orem
(red lettering shows corrected numbers based on error in spreadsheet calculation)

Provo

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2008	1441	1379	1599	1963	2962	3876	4888	4655	3337	2375	1751	1302	31528
2009	1387	1265	1368	1490	2702	2872	4453	4387	3576	1920	1813	1583	28817
2010	1469	1321	1464	1654	2213	3258	4596	4172	3642	2366	1743	1219	29117
2011	1254	1117	1222	1203	1524	2859	3818	3835	3208	1946	1154	1215	24354
2012	1161	1052	1174	1809	3303	4180	4249	4246	3265	2031	1165	1059	28693
2013	1196	1093	1213	1376	2882	4059	4354	4125	2423	1573	1197	1224	26716
2014	1138	1060	1161	1748	2799	3819	4426	3523	2695	1904	1206	1133	26613
2015	1334	1196	1439	2100	2074	3575	4270	3803	3042	2069	1235	1163	27300
2016	1219	1138	1206	1682	2362	3941	4488	4254	3092	1789	1231	1252	27653
2017	1220	1064	1227	1259	2507	3832	4350	3936	2841	1785	1202	1138	26361
Average	1282	1169	1307	1628	2533	3627	4389	4094	3112	1976	1370	1229	27715
Outdoor Use				357	1262	2356	3118	2822	1841	705			12461
Monthly indoor use			1271										
Mixed Use Irrigation %			62.0%	45.0%									
Mixed Use Indoor %			38.0%	55.0%									
Mixed Use Return Flow			52.1%	59.8%									

Orem

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2008	1109	1143	1243	1707	2908	3824	4715	4545	3325	2512	1046	1083	29162
2009	1103	982	1115	1104	2559	2698	4320	4466	3628	1470	1063	1034	25542
2010	1082	962	1081	1305	2134	3464	4862	4382	3732	2564	1011	980	27559
2011	1024	964	1002	1080	1644	3235	4404	4215	3487	1904	995	1052	25007
2012	1098	902	1041	1684	3785	4671	4620	4963	3451	2618	914	943	30688
2013	1130	1030	1158	1488	3395	4336	4553	4305	2611	1585	1074	1093	27758
2014	1059	975	1136	1657	2658	4219	4752	3736	2987	2307	1117	1052	27655
2015	1114	974	1306	2004	1831	3531	4164	3872	3252	2063	962	1036	26110
2016	1110	1032	1163	1697	2429	4180	4767	4567	3206	1726	1056	1081	28013
2017	1090.8	1021.8	1096.2	1304.46	2862.2	3603.7	4595.4	4156.1	2946.6	1755.5	1038.8	974.07	26446
Average	1092	999	1134	1503	2621	3776	4575	4321	3263	2051	1028	1033	27394
Outdoor Use				446	1563	2719	3518	3264	2206	993			
Monthly indoor use			1057										
Mixed Use Irrigation %			69.9%	53.7%									
Mixed Use Indoor %			30.1%	46.3%									
Mixed Use Return Flow			48.6%	55.8%									

Average of Two Cities	50%	58%

Analysis of Provo City Return Flows
Provo River Water Users Association-Return Flow Analysis

Provo City Water Production (gallons per day, before system losses)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
2015	14,017,871	13,922,357	15,125,968	22,808,033	21,796,000	38,835,233	44,880,290	39,977,581	33,042,833	21,747,452	13,416,700	12,222,903	
2016	12,812,613	12,781,759	12,674,290	18,268,033	24,830,355	42,804,367	47,170,258	44,711,452	33,588,900	18,801,419	13,372,833	13,164,774	
Wastewater Plant Inflows (MGD)													
2015	11.2	10.4									11.7	10.3	
2016	10.8	11.3									10.3	10.1	
Return Flow Percentage Without System Losses or inflow or infiltration (I&I)													
2015	80%	75%									87%	84%	82%
2016	84%	88%									77%	77%	82%
With 10% System Loss													
2015	90%	85%									97%	94%	92%
2016	94%	98%									87%	87%	92%

Notes:

1. 2015-2016 last period of record during dry years, minimal I&I
2. Provo estimates system losses as much as 20%
3. I&I varies based on water year; lowest during dry year scenarios

Return Flow Summary
Provo River Water Users Association
Return Flows to Utah Lake
With State Engineer Proposed Values and Association Adjustments for 2nd response

Year	Return Flow Available (Previous Year Total WY End Return Flow Available)	Return Flow Exchanged	Return Flow Remaining at End of water Year	Current Year Return Flow	Total WY End Return Flow Available After Incremental Evaporation
2012	-	0	0	11,817	11,817
2013	11,817	10,000	1,817	5,732	7,550
2014	7,550	9,000	(1,450)	7,589	6,139
2015	6,139	10,000	(3,861)	11,952	8,090
2016	8,090	0	8,090	9,070	17,160
2017	17,160	0	17,160	6,719	23,879
2018	23,879	0	23,879	12,063	35,942

Return Flow Available	Equal to the prior year return flow carryover (Column H)
Return Flow Usage	Either the requested volume of May 1 election or Provo River System storage water available for exchange
Return Flow Remaining	RF available less Usage
Current Year Return Flow	Annual Return flow as calculated in the preceeding Spreadsheets for each year.
Total WY End Return Flow Available	The volume of Return Flow water Avilable in Utah Lake for use the following year (Column C)

Note: The 2nd response corrections have only been made for the 2018 water year for discussion purposes. Prior year data will not be corrected until a final decision is published from the State Engineer.

2018 Water Year

With State Engineer Proposed Values

Month	EOM Elevation (feet below compromise)	EOM Surface area w/ PRP Water (acres)	EOM Surface area w/o PRP Water (acres)	Incremental Increase in Surface Area (acres)	square inches	Incremental Evaporation Coeffecient (inches)	Incremental Evaporation (acre-feet)	Potable Deliveries (90%) (acre-feet)	M&I Deliveries (58%) (acre-feet)	Irrigation (35%) (acre-feet)	Total Return Flow (acre-feet)	Less Incremental Evaporation	Previous Month Total Surface Area (acres)	Previous Month Total Volume (acre-ft)	Previous Month Total Volume w/o PRP Water (acre-ft)	Total Surface Area of Previous Month Water w/o PRP Water (acres)	Net Area of PRP Water (acres)	Evaporation for Double Counted Area (acre-ft)	Cumulative Return Flow Volume in Utah Lake (acre-ft)
November	-6.73	74,247	74,227	21	129,295,583	2.8	4.81	431.82			431.82	427.01							17,587.09
December	-6.25	75,937	75,914	23	141,696,852	1.14	2.15	490.50			490.50	488.35	75,937	327,687	310,100	74,784	1,153	110	**17,965.92**
January	-5.59	78,199	78,155	44	277,507,274	0.77	2.84	1,023.30			1,023.30	1,020.46	78,199	381,451	363,485	77,226	973	62	**18,923.93**
February	-4.81	80,792	80,751	42	261,012,046	0.72	2.50	1,028.70			1,028.70	1,026.20	80,792	444,930	426,006	79,902	891	53	**19,896.70**
March	-4.29	82,479	82,443	35	221,054,770	0.85	2.50	905.40			905.40	902.90	82,479	485,678	465,781	81,517	962	68	**20,731.46**
April	-3.55	84,823	84,798	25	159,167,096	1.47	3.11	378.00		306.31	684.31	681.20	84,823	548,303	527,572	83,909	914	112	**21,300.67**
May	-2.61	87,424	87,392	31	196,326,999	2.88	7.51		13.92	1,117.24	1,131.16	1,123.65	87,424	630,087	608,787	86,755	668	160	**22,263.95**
June	-2.7	87,207	87,162	45	281,732,805	4.03	15.08		338.14	1,294.13	1,632.27	1,617.19	87,207	621,367	599,103	86,492	715	240	**23,640.94**
July	-3.2	85,912	85,823	88	554,509,986	6.92	50.98		636.61	1,830.02	2,466.63	2,415.65	85,912	578,129	554,488	84,911	1,001	577	**25,479.46**
August	-3.77	84,132	84,048	84	529,475,218	9.33	65.63		829.02	1,416.82	2,245.84	2,180.21	84,132	531,428	505,949	83,087	1,045	813	**26,846.86**
September	-4.18	82,831	82,725	106	667,588,541	8.3	73.61		1,219.49	1,533.69	2,753.18	2,679.56	82,831	493,926	467,079	81,568	1,263	873	**28,653.13**
October*	-4.1	83,086	83,043	43	272,295,699	5.19	18.77		848.34	286.06	1,134.40	1,115.62	83,086	502,201	473,548	81,825	1,261	546	**29,223.18**
								4,257.72	3,885.51	7,784.26	15,927.50	**15,678.01**						**3,615**	

*Estimated ut lake elevation

1 acre =
6,272,640
square inches

1 cubic inch =
1.33E-08
acre-feet

Return Flow Estimates-Imported Water From Duchesne and Weber Basins

Provo River Water Users

Water Year 2018

With State Engineer Proposed Values and Association Adjustments for 2nd response

Shareholder	Nov A	Nov B	Dec A	Dec B	Jan A	Jan B	Feb A	Feb B	Mar A	Mar B	Apr A	Apr B	May A	May B	June A	June B	July A	July B	Aug A	Aug B	Sep A	Sep B	Oct A	Oct B	Totals	Potable	Potable (90%)	General M&I Deliveries	General M&I Deliveries (50%)	Irrigation	Irrigation (35%)	Total Return Flows
Provo City	238.8	241.0	235.0	251.0	255.0	275.0	253.0	218.0	248.0	266.0	251.0	67.0	17.0	7.0	11.0	283.0	196.5	297.7	261.6	27.4	78.0	8.1	253.3	259.8	4,499.1	2,799	2,519	1,700	850		-	3,369
Orem City																											-				-	-
Provo Res. Co.	0.0	0.0	0.0	59.0	266.0	341.0	330.0	342.0	290.0	202.0	102.0	0.0	0.0	0.0	48.0	179.0	0.0	0.0	0.0	0.0	0.0	530.1	246.5	154.0	3,089.6	1,932	1,739	1,158	704		-	2,443
Provo Bench	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	159.0	152.0	145.1	195.0	212.3	98.7	61.6	1,023.7		-				-	-
MWD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	392.4	380.7	363.4	561.0	453.7	210.9	131.6	2,493.7		-				-	-
Dixon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	62.0	0.0	52.0	50.7	48.4	4.0	60.4	28.5	17.8	323.8		-				-	-
JVWCD Jacob Canal							0.0	0.0	0.0	0.0	0.0	194.1	326.7	585.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,106.1		-			1,106	387	387
Highland City - Provo Res. Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	4.8	327.4	54.7	0.0	0.0	0.0	114.1	361.6	0.0	0.0	872.3		-			872	305	305
Highland City HCD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	298.6	485.9	332.5	437.9	362.1	0.0	77.8	0.0	1,994.7		-			1,995	698	698
Pleasant Grove City																											-			-	-	-
Provo Res. Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	5.4	0.0	67.0	51.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	125.4		-			125	44	44
MWD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	217.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	217.0		-			217	76	76
Irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	235.0	126.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	361.0		-			361	126	126
Provo Bench	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.0		-			61	21	21
Lindon City																											-			-	-	-
Provo Res. Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0		-			3	1	1
Lindon City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		-			-	-	-
Provo Bench	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		-			-	-	-
Provo Res. Co. - Alpine District	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.1	112.9	127.1	0.0	0.0	121.9	94.2	11.9	0.9	567.1		-			567	198	198
Lehi City																											-			-	-	-
Provo Res. Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.1	114.3	0.0	0.0	0.0	0.0	47.5	44.3	48.0	0.0	289.2		-			289	101	101
Lehi City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	64.3	92.8	49.7	85.7	102.1	94.9	0.0	0.0	494.3		-			494	173	173
HCD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.0	70.5	166.7	156.4	148.4	137.3	0.0	0.0	734.2		-			734	257	257
Lehi Irrigation																											-			-	-	-
Provo Res. Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	121.4	48.2	232.7	161.4	0.0	0.0	0.0	0.0	0.0	0.0	563.8		-			564	197	197
American Fork City																											-			-	-	-
Provo Res. Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	141.0	14.0	0.0	0.0	0.0	0.0	155.0		-			155	54	54
MWD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.0	147.0	181.0	0.0	0.0	138.1	107.0	187.9	44.4	0.0	838.4		-			838	293	293
HCD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	220.0	17.0	138.1	267.0	0.0	0.0	0.0	642.1		-			642	225	225
Highland Con. Dist Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	89.3	126.8	78.3	119.0	100.1	195.1	164.2	36.6	104.9	115.9	0.0	0.0	1,163.4		-			1,163	407	407
MWD of SL & S Penstock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	633.1	1,003.6	1,055.0	1,072.0	1,141.1	1,150.4	1,222.1	1,053.0	1,117.2	1,048.8	922.1	634.2	0.0	12,052.9		-			12,053	4,219	4,219
																									33,671	**4,731**	**4,258**	**2,858**	**1,554**	**22,241**	**7,784**	**13,596**
																									Return Flow Percentage 2018				**40%**			

Notes:

1. M&I flows estimate as indoor usage from Nov thru April
2. Summer usage from May thru October based on recent State of Utah study showing combined return flows of 60.8%

Highland & Provo Geographic Coefficient	0.916667
Lehi Geographic Coefficient	0.916667
MWD of SL&S Geographic Coefficient	0.916667

Note: The 2nd response corrections have only been made for the 2018 water year for discussion purposes all. Prior year data will not be corrected until a final decision is published from the State Engineer.

Return Flow Estimates-Imported Water From Duchesne and Weber Basins
Provo River Water Users
Water Year 2018

Shareholder	Nov A	Nov B	Dec A	Dec B	Jan A	Jan B	Feb A	Feb B	Mar A	Mar B	Apr A	Apr B	May A	May B	June A	June B	July A	July B	Aug A	Aug B	Sep A	Sep B	Oct A	Oct B	Totals	Potable	Potable (90%)	General M&I Deliveries	General M&I Deliveries (60.8%)	Irrigation	Irrigation (35%)	Total Return Flows
Provo City (Provo MWD)	238.8	241.0	235.0	251.0	255.0	275.0	253.0	218.0	248.0	266.0	251.0	67.0	17.0	7.0	11.0	283.0	196.5	297.7	261.6	27.4	78.0	8.1	253.3	259.8	4499.1	2,799	2,519	1,700	1,034		-	3,553
Orem City																											-				-	-
Provo Res. Co.	0.0	0.0	0.0	59.0	266.0	341.0	330.0	342.0	290.0	202.0	102.0	0.0	0.0	0.0	48.0	179.0	0.0	0.0	0.0	0.0	0.0	530.1	246.5	154.0	3089.6	1,932	1,739	1,158	704		-	2,443
Provo Bench	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	159.0	152.0	145.1	195.0	212.3	98.7	61.6	1023.7		-				-	-
MWD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	392.4	380.7	363.4	561.0	453.7	210.9	131.6	2493.7		-				-	-
Dixon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	62.0	0.0	52.0	50.7	48.4	4.0	60.4	28.5	17.8	323.8		-				-	-
JVWCD Jacob Canal							0.0	0.0	0.0	0.0	0.0	194.1	326.7	585.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1106.1		-			1,106	387	387
Highland City - Provo Res. Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	5.2	357.2	59.7	0.0	0.0	0.0	124.5	394.5	0.0	0.0	951.6		-			952	333	333
Highland City HCD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	298.6	485.9	332.5	437.9	362.1	0.0	77.8	0.0	1994.7		-			1,995	698	698
Pleasant Grove City																											-			-	-	-
Provo Res. Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	5.4	0.0	67.0	51.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	125.4		-			125	44	44
MWD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	217.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	217.0		-			217	76	76
Irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	235.0	126.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	361.0		-			361	126	126
Provo Bench	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.0		-			61	21	21
Lindon City																											-			-	-	-
Provo Res. Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0		-			3	1	1
Lindon City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		-			-	-	-
Provo Bench	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		-			-	-	-
Provo Res. Co. - Alpine District	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	107.0	123.2	138.6	0.0	0.0	133.0	102.8	13.0	1.0	618.6		-			619	217	217
Lehi City																											-			-	-	-
Provo Res. Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.3	124.7	0.0	0.0	0.0	0.0	51.8	48.3	52.4	0.0	315.5		-			315	110	110
Lehi City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	70.1	101.2	54.3	93.5	111.3	103.5	0.0	0.0	539.2		-			539	189	189
HCD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	76.9	181.8	170.6	161.9	149.8	0.0	0.0	801.0		-			801	280	280
Lehi Irrigation																											-			-	-	-
Provo Res. Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	132.4	52.6	253.9	176.1	0.0	0.0	0.0	0.0	0.0	0.0	615.0		-			615	215	215
American Fork City																											-			-	-	-
Provo Res. Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	141.0	14.0	0.0	0.0	0.0	0.0	155.0		-			155	54	54
MWD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.0	147.0	181.0	0.0	0.0	138.1	107.0	187.9	44.4	0.0	838.4		-			838	293	293
HCD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	220.0	17.0	138.1	267.0	0.0	0.0	0.0	642.1		-			642	225	225
Highland Con. Dist Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.3	97.4	138.3	85.4	129.9	109.2	212.8	179.1	39.9	114.5	126.4	0.0	0.0	1269.2		-			1,269	444	444
MWD of SL & S Penstock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	690.7	1094.9	1150.9	1169.5	1244.8	1255.0	1333.2	1148.8	1218.7	1144.2	1005.9	691.9	0.0	13148.6		-			13,149	4,602	4,602
																									35,192	**4,731**	**4,258**	**2,858**	**1,738**	**23,762**	**8,317**	**14,312**
																									Return Flow Percentage 2018				**41%**			

Notes:

1. M&I flows estimate as indoor usage from Nov thru April
2. Summer usage from May thru October based on recent State of Utah study showing combined return flows of 60.8%