

June 6, 2019

Mr. Lester Dalton
Washington City
1305 E. Washington Dam Road
Washington, UT 84780

RE: Coral Canyon Golf Course Irrigation Water User Rate Analysis

Dear Lester,

The purpose of this letter is to present an updated irrigation water user rate analysis for water used by the Coral Canyon Golf Course. Currently the rate for the golf course is \$0.40 per 1,000 gal used. This does not cover the higher costs the Washington County Water Conservancy District (WCWCD) charges for raw water, or the O&M costs for the City to deliver the raw water that must come from Quail Lake. The cost of raw water from the WCWCD will be \$0.70 per 1,000 gallons on July 1, 2019 and will continue to increase by \$0.10 each year.

Water Usage

The City provided water usage totals for the Coral Canyon Golf Course that was gathered from the meter on the Coral Canyon Golf Course irrigation pond. The data from 2013 to 2018 was used for this study. The monthly usage, annual usage, and average monthly usage is found in Table 1 below.

Table 1 Irrigation Water Usage

From Well Production Report (1,000 Gal)						
	2013	2014	2015	2016	2017	2018
JAN	1,509	1,877	1,101	1,128	840	2,327
FEB	missed read	3,434	4,641	5,436	2,999	3,813
MAR	2,114	7,268	5,407	7,530	3,000	5,514
APR	6,236	11,844	13,959	8,358	14,597	10,642
MAY	12,646	17,857	8,967	13,120	19,313	19,970
JUN	16,895	21,483	21,678	30,175	25,878	20,707
JUL	23,573	26,662	24,739	22,916	23,707	22,525
AUG	18,179	14,621	18,911	20,072	20,204	22,330
SEP	17,766	14,170	18,664	15,909	14,062	18,199
OCT	9,061	11,892	5,086	10,522	12,612	9,379
NOV	10,001	3,581	4,007	3,550	6,510	5,956
DEC	3,544	2,295	158	1,030	1,248	899
Year Total	121,524	136,984	127,318	139,746	144,970	142,261
AVG MON	11,093	11,415	10,610	11,646	12,081	11,855

From the data in Table 1 we calculated a 6-year monthly average of 11,450 thousand gallons (1,000 gallon units are used for billing purposes). This average was put into an annual amount by multiplying by 12 months to get 137,400 thousand gallons per year. These numbers are used below to calculate the user rate required to generate revenues to cover the costs.

City Expenses

The following steps were made to obtain the portion of the City's expenses used to deliver water to the golf course. City expenses were broken down into 4 categories:

1. Operation and Maintenance (O&M) of the Quail Lake Booster Pump
2. Power costs from the Quail Lake Booster Pump
3. General O&M of Washington City's distribution system
4. The cost of raw water from the WCWCD

To determine the Coral Canyon Golf Course share of the O&M and power costs at the Quail Lake Booster Pump Station, we applied the ratio of water delivered to the golf course divided by the total water pumped. This comparison was made from data over a 3-year period (FY2017-FY2019). The 3-year annual averages for O&M and power costs to pump raw water to the golf course are shown below in Table 2.

Table 2: Golf Course Portion of Expenses on Booster Pump

Quail Lake Booster Station 3-Year Annual Average Expenses	
Operation and Maintenance	\$ 1,132.13
Power	\$ 13,508.53

A comparison was also made to determine the golf course share of O&M expenses on the pipelines that deliver the water from the Quail Lake Booster Pump to the golf course ponds. We calculated the value of the City's entire distribution system and compared that to the value of the 20", 16", and 12" pipelines between the Quail Lake Booster Pump to the golf course. This value was determined by the size and length of pipes multiplied by a cost of pipe per lineal foot of pipe. This comparison results in a ratio of 1.87% of the value of the entire system. The comparison is shown in Table 3.

Table 3: Quail Lake Pipeline Ratio to Value of the System

Value of Pipelines	
City System Value	\$ 48,570,169.95
Quail Pipeline Value	\$ 906,000.00
% Ratio	1.87%

Because the line going to the golf course is 1.87% of the value of the system, the assumption was made that 1.87% of the overall Water Department O&M expenses is applicable to the pipelines from the Quail Lake Booster Pump. The total projected city

expenses for FY2018 from the Master Plan update was \$2,309,073 (This only includes expenses that apply to the golf course). Taking the total O&M expenses multiplied by 1.87% results in an O&M share of \$24,749 annually for the pipeline from the Quail Lake Booster Pump. The water from the Quail Lake Booster Pump serves the both golf course and the treatment plant. Because of this, the \$24,749 was multiplied by the percent of the water that goes to the golf course from the Quail Lake Booster Pump (30%), which results in an annual O&M cost of \$7,526.18.

The cost of raw water is the annual usage of 137,400 thousand gallons is multiplied by the \$0.70 rate of the WCWCD. This results in an annual cost of \$82,440.

Rate analysis

The combined costs from above were used to calculate a base rate and an overage rate (cost per 1,000 gallons). The base rate covers the fixed expenses of the system and the overage rate covers the rest of the expenses. The percent of costs being fixed or variable was taken from the Culinary Water Master Plan Update 2016. The results of the analysis are shown in Table 4.

Table 4: Water Rate Analysis

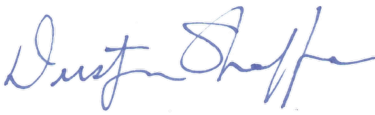
Average Water Rate Analysis							
Coral Canyon Golf Course							
FY 2018		%	Fixed	%	Variable	Total	
CC O&M Share of Transmission Pipeline							
Salaries & Wages	50%	\$	1,162	50%	\$	1,162	\$ 2,324.73
Employee Benefits	50%	\$	732	50%	\$	732	\$ 1,464.58
Overtime	0%	\$	-	100%	\$	57	\$ 56.87
Uniforms	80%	\$	4	20%	\$	1	\$ 5.38
Dues And Memberships	0%	\$	-	100%	\$	15	\$ 14.86
Conference & Travel	0%	\$	-	100%	\$	81	\$ 80.82
Office Expense & Supplies	25%	\$	2	75%	\$	7	\$ 9.81
Equipment- Supplies & Maint.	25%	\$	73	75%	\$	218	\$ 290.81
Fuel & Oil	0%	\$	-	100%	\$	175	\$ 175.31
Building & Grounds	75%	\$	27	25%	\$	9	\$ 35.78
Utilities	25%	\$	545	75%	\$	1,636	\$ 2,180.94
Telephone	25%	\$	10	75%	\$	30	\$ 40.35
Professional & Technical	50%	\$	423	50%	\$	423	\$ 845.95
Total CC O&M Share of Transmission Pipeline		40%	\$ 2,979	60%	\$ 4,547	\$	7,526.18
City Expenses							
1. BP Labor, Equipment O&M	100%	\$	1,132	0%	\$	-	\$ 1,132.13
2. BP Power	50%	\$	6,754	50%	\$	6,754	\$ 13,508.53
3. General O&M of Distribution System	40%	\$	2,979	60%	\$	4,547	\$ 7,526.18
4. Raw Water	0%	\$	-	100%	\$	96,180	\$96,180.00
Total Expenses:		\$	10,866		\$	107,481	\$ 125,873
BASE AND OVERAGE RATE DETERMINATION							
Monthly Cost to recover Fixed Costs		\$ 905.47					
Monthly Cost to recover Variable Costs		\$ 8,956.77					
Monthly Base Rate		Base Rate					\$ 905.47
Cost per 1000 Gal Over Base Amount		Per 1000 gal					\$ 0.78

The results of the Irrigation Water User Rate Analysis advise a base rate of \$905.47 and a usage rate of \$0.78 per thousand gallons. Based on the assumptions used this base rate and usage rate will cover the expenses incurred by the City to deliver irrigation water to the Coral Canyon Golf Course.

It should be noted that the raw water rate from the WCWCD will continue to increase by \$0.10 per year. To keep up with the rate as shown in the analysis the usage rate would need to be increased by \$0.10 per year as well.

If you have any question or concerns, please feel free to call.

Best Regards,



Dustyn Shaffer, P.E.
Principal Engineer