

Annual Water Conservation Summary Report for 2019

Water System ID. # 94900P



INTRODUCTION:

This report consists of a progress summary of water conservation actions and measures taken by the City in 2019, and identifies those Water Conservation efforts planned in future years.

Water Conservation Data Collection Elements:

REQUIREMENTS:

Type of Data	Units of Measure	Frequency of Collection
Source of Supply Meter Readings	Gallons	Collect: Read daily but reported only monthly and annual totals
Peak Day/Peak Month	Gallons from the Supply Sources	Collect: Each year's peak day and peak month totals
City of Richland Intertie - Amount Imported	Gallons	Collect: Monthly totals
<u>Service Meter Readings</u>		
Single-Family	Total Gallons Used by this Customer Class	Collect: Monthly totals
Multi-Family	Total Gallons Used by this Customer Class	Collect Monthly totals
Commercial/Industrial	Total Gallons Used by this Customer Class	Collect: Monthly totals
Government/Municipal	Total Gallons Used by this Customer Class	Collect: Monthly totals
Parks	Total Gallons Used by this Customer Class	Collect: Monthly totals
Storm Drainage Facilities	Total Gallons Used by this Customer Class	Collect: Monthly totals
Fire Hydrants	Total Gallons Used by this Customer Class	Collect: Annual totals
Unmetered Water - Accounted for Water	Gallons	Collect: Annual totals
Total Accounted for Water	Gallons	Collect: Annual totals
Unaccounted for Water	Gallons	Collect: Annual totals
Population Served	Estimate the number of customers & connections served in the residential classes and the number of connections served in the commercial, government, and industrial classes.	Collect: Annual totals
Economic Data	Existing water rates for each class.	Existing water rates
Conservation Data	Report the type of measure, the level of implementation of duration of the measure and the date at which they were begun.	Collect: Once per year

2016 - 2019 Water Conservation Data Collection Elements

Type of Data	2016		2017		2018		2019	
Source of Supply Meter Readings in MG								
Total Water System Pumpage - Wells 1,2,7,9,&10	716.123		674.514		685.416		719.495	
City of Richland Intertie - Amount Imported	<u>355.859</u>		<u>375.249</u>		<u>421.645</u>		<u>358.425</u>	
TOTAL WATER PRODUCTION	1071.982		1049.763		1107.061		1077.92	
Peak Day/Peak Month in MG	July 29, 2016	August	August 2, 2017	July	July 16, 2018	July	July 14, 2019	July
Wells 1,2,7,9&10 Plus Intertie	5.802	167.092	6.225	180.206	6.798	190.15	6.882	193.479
Total Water System Pumpage								
Service Meter Readings in MG								
Single-Family	742.29		728.41		770.45		733.53	
Multi-Family	105.93		113.35		114.20		117.84	
Commercial/Industrial	69.53		65.09		70.17		63.90	
Municipal/Government	3.89		3.72		5.68		4.65	
Parks	10.00		6.64		8.84		8.55	
Storm Drainage Facilities	7.60		6.01		7.83		7.51	
Fire Hydrant Meters	17.05		8.15		28.79		34.52	
Total Consumption	956.29		931.37		1005.96		970.50	
Unmetered Water Reports in MG								
Accounted for water	7.80		27.97		21.81		5.45	
Total Accounted for Water in MG - (Service meter Readings + Annual Unmetered Water Report)	964.09		959.34		1027.77		975.95	
Unaccounted for Water (See Calculations*)	107.89	10.1%	90.43	8.6%	79.29	7.2%	101.97	9.5%
Estimated Population Served								
West Richland Population Only*	14,340		14,660		15,230		15,340	
Single Family Residential Connections	4474		4593		4608		4720	
Multi-Family Residential Connections	112		137		151		149	
Commercial/Industrial Connections	144		165		165		173	
Municipal/Government Connections	17		17		17		17	
Parks	18		18		17		17	
Storm Drainage Facilities	8		7		6		6	
Total Active Water System Connections	4773		4937		4964		5082	
Economic Data								
Conservation Data								

CALCULATIONS:

- (1) Source of Supply Meter Readings
Production in Million Gallons (MG) per day
- (2) Unaccounted for Water
Unaccounted for Water (MG) = Total Production (MG) – Total Accounted for Water (MG)

$$\% \text{ Water Loss} = \frac{\text{Unaccounted for Water (MG)}}{\text{Total Production (MG)}} \times 100\%$$
- (3) Service Meter Readings
 - a) Total consumption is the total of all metered water usage within the City of West Richland utility service area.
 - b) All metered accounts are read on a monthly basis.
 - c) Customer classification used for this report section includes: Single and Multi-Family, Commercial/Industrial, and Government/Municipal. The Non-Revenue classification reflects the total metered water usage by Government/Municipal non-revenue accounts. The Un-metered Water– Accounted for Water includes estimated un-metered water use by City crews, and used by County Fire Departments for maintenance and other purposes. This amount is “Accounted for Water”.
- (4) Estimated Population Served
Population is determined by the Washington State Office of Financial Management (OFM)

Economic Data: See TABLE 1 on the following page.

TABLE 1 – SUMMARY OF WATER RATES 2019

**Table 1
Summary of Water Rates 2019**

Customer Class	Inside City	Outside City
Residential		
Base fee		
Includes 3/4" meter	\$30.95/monthly	\$46.43/monthly
Includes 1" meter	\$30.95/monthly	\$46.43/monthly
Consumption per 100 Gallons	\$0.175/100GAL	\$0.26/100GAL
Multi-Family/Commercial/Industrial		
Base Fee		
3/4" meter	\$30.95/monthly	TO BE DETERMINED
1"	\$30.95/monthly	
1 1/2"	\$71.70/monthly	
2"	\$114.80/monthly	
3"	\$229.70/monthly	
4"	\$358.90/monthly	
6"	\$717.75/monthly	
Consumption per 100 Gallons	\$0.175/100GAL	

CONSERVATION DATA:

The following water conservation actions or program measures were taken during 2019.

✓ **Leak Detection**

In 2019 the City did not conduct leak detection.

✓ **Reservoir Leak Testing Program**

The City schedules bi-annual reservoir cleaning and inspection. The inspection and cleaning was last completed in January 2019. Below are the inspection summaries for 2019 which were conducted by H2O Solutions, LLC.

Flat Top Reservoir 1 had no major repairs. The exterior wall, exterior hatch lid, exterior roof, vent, vent screen and exterior manway all appeared to be in good condition with no visible signs of corrosion. The coating systems have less than 5% coating failure. The exterior hatch has minor surface corrosion around the knife edge as well as the lid with less than 5% corrosion overall. The interior walls, column, floor, overflow and manway are in good condition with no signs of surface corrosion. The center of the interior ceiling appeared to be in good condition with areas of minor surface corrosion with 15% corrosion present. The interior manway’s gasket is in good condition. The interior overflow base has no visible signs of corrosion. The interior inlet/outlet appeared to be in good working condition with areas of minor corrosion with 5% corrosion present. There was approximately ¼” of sediment evenly throughout the reservoir bottom. Cleaning and inspection is recommended every 3-5 years.

Flat Top Reservoir 2 had no major repairs. There were a few minor external hairline cracks with efflorescence on the walls and roof. The exterior overflow pipe appeared to be in good working condition with no visible signs of corrosion. Exterior hatch appeared to be in good condition with no visible signs of corrosion. The exterior hatch lid appeared to be in good working condition with no signs of corrosion. The interior ladder is structurally sound with moderate corrosion of 25%. The interior ladder coating system is in poor condition with 100% failure. The interior floor, and walls have minor hairline cracks and minor staining with no signs of corrosion. The interior ceiling appears to be in good condition with areas of minor hairline cracks filled with efflorescence. The interior inlet/outlet appeared to be in good working condition with moderate corrosion with 25% corrosion present. The interior inlet/outlet coating system is in poor condition with 100% coating failure. The interior drain has minor surface corrosion with an overall corrosion of 10%. The interior overflow is in good working conditions with surface corrosion of 50%. The interior overflow coating system is in poor condition with areas of delamination with a 100% overall coating failure. There was approximately ¼” of sediment evenly throughout the reservoir bottom. Cleaning and inspection is recommended every 3-5 years.

Brotherhood Reservoir was not inspected in 2019. The Reservoir was scheduled to be decommissioned in the second half of 2019. The City completed the construction of the new 1MG Brotherhood Reservoir in 2019.

Candy Mountain Reservoir had no major repairs. The roof and walls appeared to be in excellent condition with no signs of surface corrosion. Exterior hatches, vents, screens, railings, overflow are in good condition with no visible signs of corrosion. Interior ladder is structurally sound with no signs of surface corrosion. Inside walls are in good condition with areas of minor staining. Interior overflow, drain, and chlorine analyzer are in good condition with no visible signs of corrosion. The interior inlet/outlet pipe is in good condition with no surface corrosion. Interior ceiling is in excellent condition with no surface corrosion. Interior floor is in good condition with areas of minor hairline cracks and staining. There was approximately 1/4” of sediment evenly throughout the reservoir bottom. Cleaning and inspection is recommended every 3-5 years.

The City has repaired the water draining from the under drain system of the Candy Mountain 2 MG reservoir.

✓ **City Large Meters (Larger than 2 inch)**

The City has ten (10) - 3 inch meters, five (5) - 4 inch meter and one (1) - 6-inch meter.

✓ **Residential Meter Repair / Replacement Program**

The City began a meter replacement program in 2005 to replace residential water meters that had outlived their useful life. The meters are

replaced and equipped with radio transmitters. In 2007 the City began testing old meters for flow accuracy. Flow was tested under low, mid, and high flow conditions. Low flow is tested at a rate of $\frac{3}{4}$ gallons per minute (gpm) for the total of 10 gallons. The medium flow test is run at 4 gpm for the total of 10 gallons. The high flow test is run at 30 gpm for the total of 100 gallons. Approximately 47% of the 164 old meters tested in 2019 were outside manufacturer flow tolerances.

In 2019, 7 – $\frac{3}{4}$ inch meters and 98 – 1 inch meters were replaced at a cost of \$50,000. To date the City has replaced 1277, $\frac{3}{4}$ inch and 1 inch water meters at a cost of \$400,000. For 2020, \$50,000 is budgeted to continue the meter replacement program.

✓ **Non-Residential Meter Replacement and New Construction Meter Installation**

In 2019, 4 – 1 1/2 inch meter and 4 – 2 inch meter were replaced by the City. For new construction, 108 new meters were installed in 2019.

✓ **Source Metering Replacement and Improvement**

All City wells are metered and recorded. Meters at Wells 1, 2, 7, and 9 were last calibrated in 2019.

✓ **Water Audit Program for Large Water Users**

The City currently does not have any large water users. In the future, the City will establish a Water Audit Program. Currently a program is in draft form covering all entities in the Quad City Water Right.

✓ **Unmetered Water Reporting**

In 2004, the City of West Richland began an Unmetered Water Program to identify and track unaccounted for water. Such uses include maintenance and operation activities such as street sweeping, flushing of water mains, dust control, vactor truck, fire response, etc. by the City, County, and private parties. The Unmetered Water Report for 2019 shows 5.45 MG can be accounted for by routine City maintenance and other activities. It is accurately measured or estimated and is added as part of our total consumption. Through new software and changes in the billing and tracking of the City water, consistencies in reporting values are expected to increase.

✓ **Data Interpretation and Conclusions:**

The data collection elements from 2019 show the following:

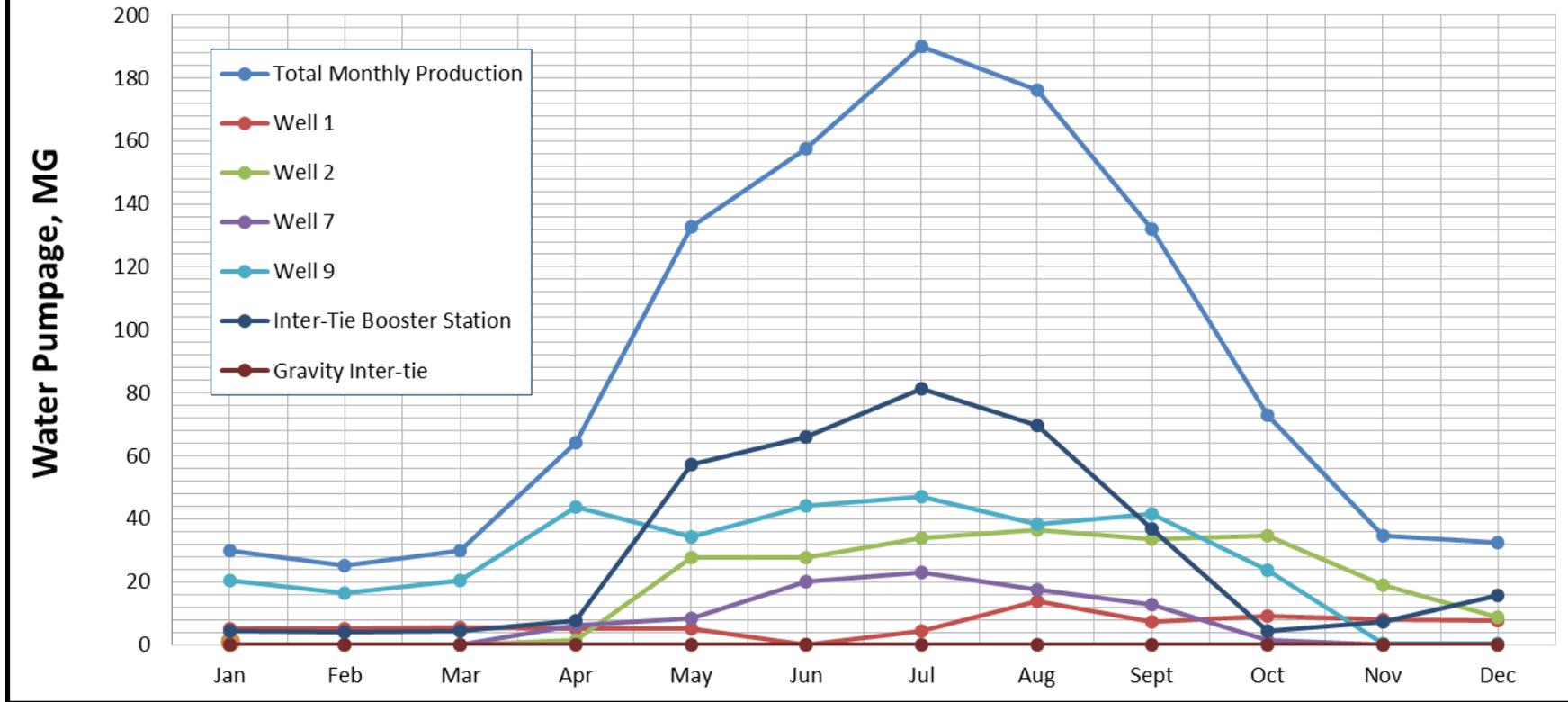
Unaccounted for water met the City's goal of less than 10%. The City has spent many hours training personnel and other agencies to aid in this process. The estimated unaccounted for water in 2019 was 9.5%. We believe the low percentage is due to the City's water system being fully metered since August 2005, nearly 12 years prior to the Department of Health's deadline. Our water system standard for newly installed infrastructure being stricter than AWWA standards (new water mains shall have no water loss) and accurate documentation collected by the

maintenance department and local Fire District, as well as increased accuracy in metering and account management has significantly helped the City meet and maintain their goal for unaccounted for water.

In year 2000, the unaccounted for water was at 43% and has been reduced to 9.5% in 2019. The three year average from 2017-2019 is 8.4%.

City of West Richland
Water Conservation Summary Report 2019

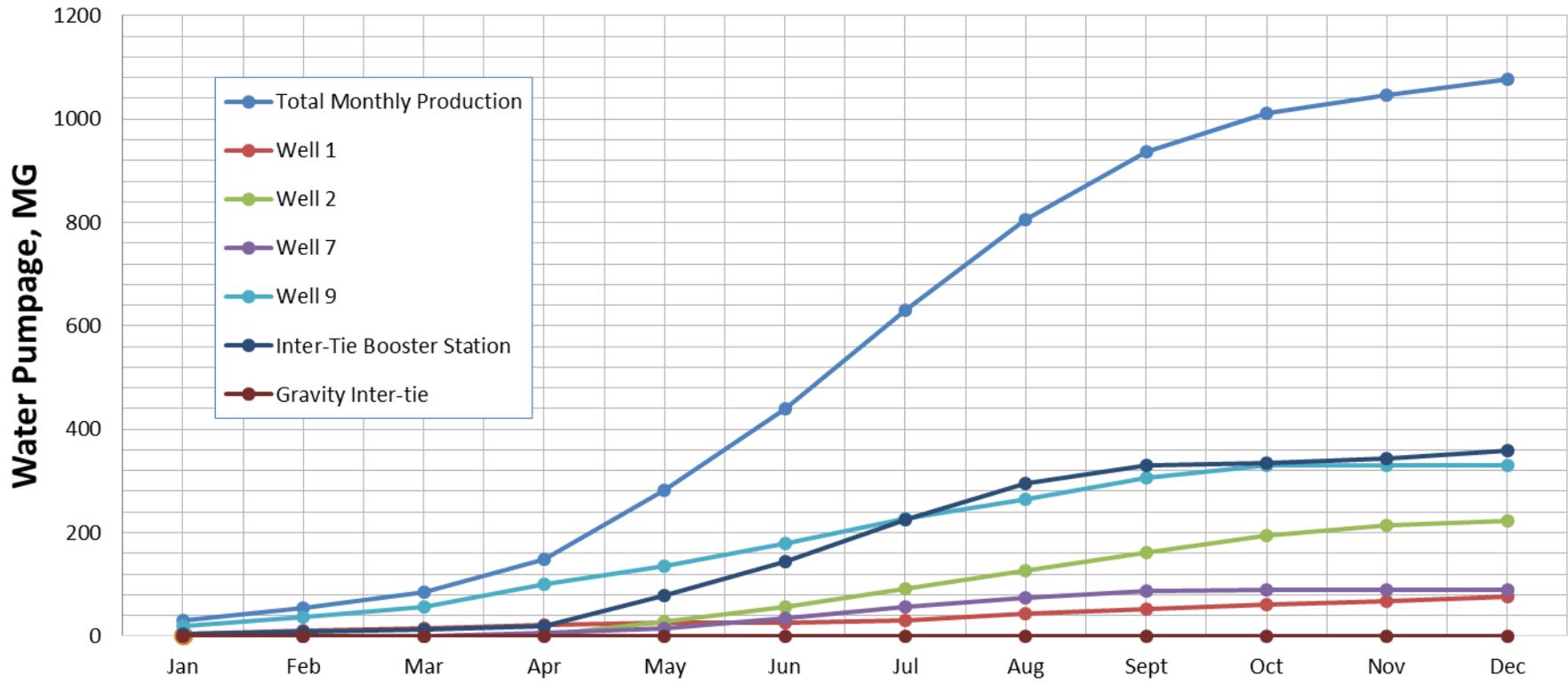
2019 Monthly Water Production by Source



Water Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Total Monthly Production	29.952	25.214	29.949	64.133	132.788	157.590	189.970	176.188	131.925	73.037	34.618	32.556
Well 1	5.086	4.944	5.297	5.275	4.985	0.000	4.467	14.004	7.384	9.103	8.082	7.842
Well 2	0.000	0.000	0.000	1.395	27.772	27.638	33.891	36.496	33.541	34.666	19.003	8.686
Well 7	0.000	0.000	0.000	6.045	8.371	20.011	23.023	17.625	12.751	1.358	0.000	0.000
Well 9	20.373	16.371	20.331	43.940	34.325	44.080	47.170	38.459	41.441	23.586	0.382	0.296
Inter-Tie Booster Station	4.493	3.899	4.321	7.478	57.335	65.861	81.419	69.604	36.808	4.324	7.151	15.732
Gravity Inter-tie	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

City of West Richland
Water Conservation Summary Report 2019

2019 Cumulative Water Production by Source



Water Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Total Monthly Production	29.9521	55.1662	85.115	149.248	282.036	439.626	629.596	805.784	937.709	1010.746	1045.364	1077.920
Well 1	5.086	10.03	15.327	20.602	25.587	25.587	30.054	44.058	51.442	60.545	68.627	76.469
Well 2	0	0	0.000	1.395	29.167	56.805	90.696	127.192	160.733	195.399	214.402	223.088
Well 7	0	0	0	6.045	14.416	34.427	57.45	75.075	87.826	89.184	89.184	89.184
Well 9	20.373	36.744	57.075	101.015	135.34	179.42	226.59	265.049	306.49	330.076	330.458	330.754
Inter-Tie Booster Station	4.493	8.392	12.713	20.191	77.526	143.387	224.806	294.41	331.218	335.542	342.693	358.425
Gravity Inter-tie	0	0	0	0	0	0	0	0	0	0	0	0