

*Annual Water Conservation Summary
Report for 2014*

Water System ID. # 94900P



Introduction:

This report consists of a progress summary of water conservation actions and measures taken by the City in 2014, 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

2011 - 2014 Water Conservation Data Collection Elements

Type of Data	2011		2012		2013		2014	
Source of Supply Meter Readings in MG								
Total Water System Pumpage - Wells 1,2,7,9,&10	727.231		741.669		693.267		613.890	
City of Richland Intertie - Amount Imported	<u>120.212</u>		<u>122.675</u>		<u>163.141</u>		<u>380.788</u>	
TOTAL WATER PRODUCTION	847.443		864.344		856.408		994.678	
Peak Day/Peak Month in MG	June 28, 2011	July	July 31, 2012	August	August 12, 2013	July	July 28, 2014	July
Wells 1,2,7,9&10 Plus Intertie	5.303	142.90	5.529	137.51	5.095	132.865	6.023	163.591
Total Water System Pumpage								
<u>Service Meter Readings in MG</u>								
Single-Family	624.02		605.54		653.96		710.14	
Mult-Family	75.65		69.90		86.84		92.98	
Commercial/Industrial	15.78		54.08		43.85		62.76	
Municipal/Government	2.3		1.27		1.61		3.11	
Parks	3.71		4.17		4.72		10.17	
Storm Drainage Facilities	0.81		1.18		0.89		6.97	
Fire Hydrant Meters	104.26		9.54		4.35		6.66	
Total Consumption	826.53		745.68		796.22		892.79	
<u>Unmetered Water Reports in MG</u>								
Accounted for water	1.29		24.66		3.00		4.83	
Total Accounted for Water in MG - (Service meter Readings + Annual Unmetered Water Report)	827.82		770.34		799.22		897.62	
Unaccounted for Water (See Calculations*)	19.62	2.3%	94.00	10.9%	57.19	6.7%	97.06	9.8%
Estimated Population Served								
West Richland Population Only*	*update not available*		12,570		13,080		13,620	
Single Family Residential Connections	3846		3917		4148		4258	
Multi-Family Residential Connections	94		103		93		93	
Commercial/Industrial Connections	83		123		130		131	
Municipal/Government Connections	9		13		14		14	
Parks	15		15		16		16	
Storm Drainage Facilities	5		5		6		8	
Total Active Water System Connections	4052		4,176		4407		4520	
Economic Data	Listed in Following Narrative							
Conservation Data	Listed in Following Narrative							

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)

 $\% \text{ Water Loss} = \text{Unaccounted for Water (MG)} / \text{Total Production in MG} \times 100\%$
- (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. It is Accounted for Water.
- (4) Estimated Population Served
Population is determined by the Washington State Office of Financial Management (OFM)

Economic Data:
(see table next page)

**Table 1
Summary of Water Rates 2014**

Customer Class	Inside City	Outside City
Residential		
Base fee		
Includes 3/4" meter	\$34.00/monthly	\$51.00/monthly
Includes 1" meter	\$34.00/monthly	\$51.00/monthly
Consumption per 100 Gal.	\$0.150/100GAL	\$0.150/100GAL
Multi-Family/Commercial/Industrial		
Base Fee		
3/4" meter	\$34.00/monthly	
1"	\$34.00/monthly	
1 1/2"	\$68.00/monthly	To
2"	\$108.80/monthly	Be
3"	\$217.60/monthly	Determined
4"	\$340.00/monthly	
6"	\$680.00/monthly	
Consumption per 100 Gal.	\$0.150/100Gal	

Conservation Data:

The following water conservation actions or program measures were taken during 2014.

✓ Leak Detection

In 2014 the City conducted leak detection in Collins Ridge, Luanne Estates, Edgewater Manor, Kingview Addition 2, Desert Glades and South Highlands Sub-divisions on approximately 5 miles of water line and detected no leaks. The majority of the waterlines in the City are new due to the amount of new development that has occurred in the past 10 years. Old steel and AC lines having the potential of leakage are being systematically replaced. In 2015 the City plans to replace old waterlines on S. 38th Avenue and Butte Court

✓ Reservoir Leak Testing Program

The City schedules bi-annual reservoir cleaning and inspection. The inspection cleaning is on even years and was last completed in May 2014. Below are the inspection summaries from 2014 which were conducted by H2O Solutions, LLC.

Flat Top Reservoir 1 had no major repairs. There were a few minor external hairline cracks with efflorescence. The exterior hatch has minor surface corrosion around the knife edge as well as the lid with less than 5% corrosion overall. The interior ladder had minor surface corrosion on the stand offs, heaving staining and oil residual throughout with an overall corrosion of 20%. The interior flow had some minor hairline cracks and minor staining. The interior walls and column had minor hairline cracks and minor to moderate staining. The interior inlet/outlet had moderate uniform surface corrosion as well as areas of moderate concentration

cell corrosion with an overall corrosion of 50%. The interior drain had minor surface corrosion on the grate and the pipes had minor to moderate surface corrosion with an overall corrosion of 20%. The interior overflow had moderate and heavy uniform surface corrosion throughout the pipe with an overall corrosion of 75%. The interior ceiling had areas of minor hairline cracks. There was approximately ¼" of sediment evenly throughout the reservoir bottom. Recommended cleaning and inspection every 3-5 years

Flat Top Reservoir 2 had no major repairs. There were a few minor external hairline cracks with efflorescence. The exterior overflow pipe has a few isolated spots of minor surface corrosion with less than 5% overall corrosion present. Exterior hatch has minor surface corrosion around the knife edge as well as the lid and less than 5% corrosion present. The exterior surface of the roof has minor hairline cracks. The interior ladder is structurally sound with minor surface corrosion on the stand offs. There is heavy staining and pump oil residue throughout and an overall corrosion of 20%. The interior floor, walls and columns have minor hairline cracks and minor staining. The interior inlet/outlet has moderate uniform surface corrosion as well as areas of moderate concentration cell corrosion with an overall corrosion of 50%. The interior drain has minor surface corrosion on the grate and the pipes have minor to moderate surface corrosion throughout with an overall corrosion of 20%. The interior overflow has moderate and heavy uniform surface corrosion throughout the pipe and overall corrosion of 75%. There was approximately ¼" of sediment evenly throughout the reservoir bottom. Recommended cleaning and inspection every 3-5 years.

Brotherhood Reservoir exterior walls had areas of minor hairline cracks with efflorescence and the exterior roof had areas of minor hairline cracks. The exterior hatch had moderate surface corrosion around the knife edge as well as the lid with an overall corrosion of 10%. The exterior vent had moderate uniform surface corrosion as well as minor delamination in the coating with an overall corrosion of 10%. The interior ladder was found to not be structurally sound with heavy uniform surface corrosion throughout and the bottom run is missing with an overall corrosion of 100%. It was recommended to replace with stainless steel ladder. The City will be constructing a new reservoir to replace the Brotherhood Reservoir within the next 2-3 years so no repairs to the existing ladder will be performed. The interior drain/inlet/outlet showed signs of heavy surface corrosion on the grate with the pipes showing moderate surface corrosion with an overall corrosion of 30%. The interior floor had areas of minor hairline cracks and minor staining and interior walls had areas of minor cracking and minor to moderate staining. The interior overflow had heavy surface corrosion below the waterline with an overall corrosion of 100%. The interior overflow had moderate to heavy uniform surface corrosion throughout the pipe with an overall corrosion of 75%. Only 5% of the pipe coating remains. The interior floor has areas of minor hairline cracks and minor staining. Ceiling had areas of minor hairline cracking. There was approximately 1/16" of sediment evenly throughout the reservoir bottom. Recommended cleaning and inspection every 3-5 years.

Candy Mountain Reservoir had no major repairs. There were a few minor exterior hairline cracks with efflorescence on the sidewalls and areas of minor hairline cracks on the exterior roof. Inside walls had signs of hairline cracks and minor

staining. Interior drain had a few isolated spots of surface corrosion along the outside edge with an overall of 10% corrosion present. Interior overflow had minor surface corrosion on some of the weld seams with less than 5% corrosion present overall. The interior inlet/outlet pipe had minor to moderate surface corrosion along the pipe itself as well as the flanges and 15% overall corrosion present. There was approximately ¼” of sediment evenly throughout the reservoir bottom. Recommended cleaning and inspection every 3-5 years.

The City has continued to notice some water draining from the under drain system of the Candy Mountain 2 MG Reservoir but leak quantities are within Department of Health limits for allowable leakage for concrete reservoirs.

The next reservoir inspection is scheduled for 2016.

- ✓ City Large Meters (Larger than 2 inch)
The City has three (3) - 3 inch meters, four (4) - 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 ¾ 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 82% of the old meters tested in 2014 were outside manufacturer flow tolerances.

In 2014, 47 - ¾ inch and 64 - 1 inch meters were replaced at a cost of \$25,000. To date the City has replaced 880 - ¾ inch and 1 inch water meters at a cost of \$250,000. In 2015, \$25,000 is budgeted to continue the meter replacement program.
- ✓ Source Metering Replacement and Improvement
All City wells are metered and recorded. Meters at Wells 1, 2, 7, and 9 were calibrated in 2014.
- ✓ 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 2014 shows 4.83 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, consistency in reporting values are expected to increase.

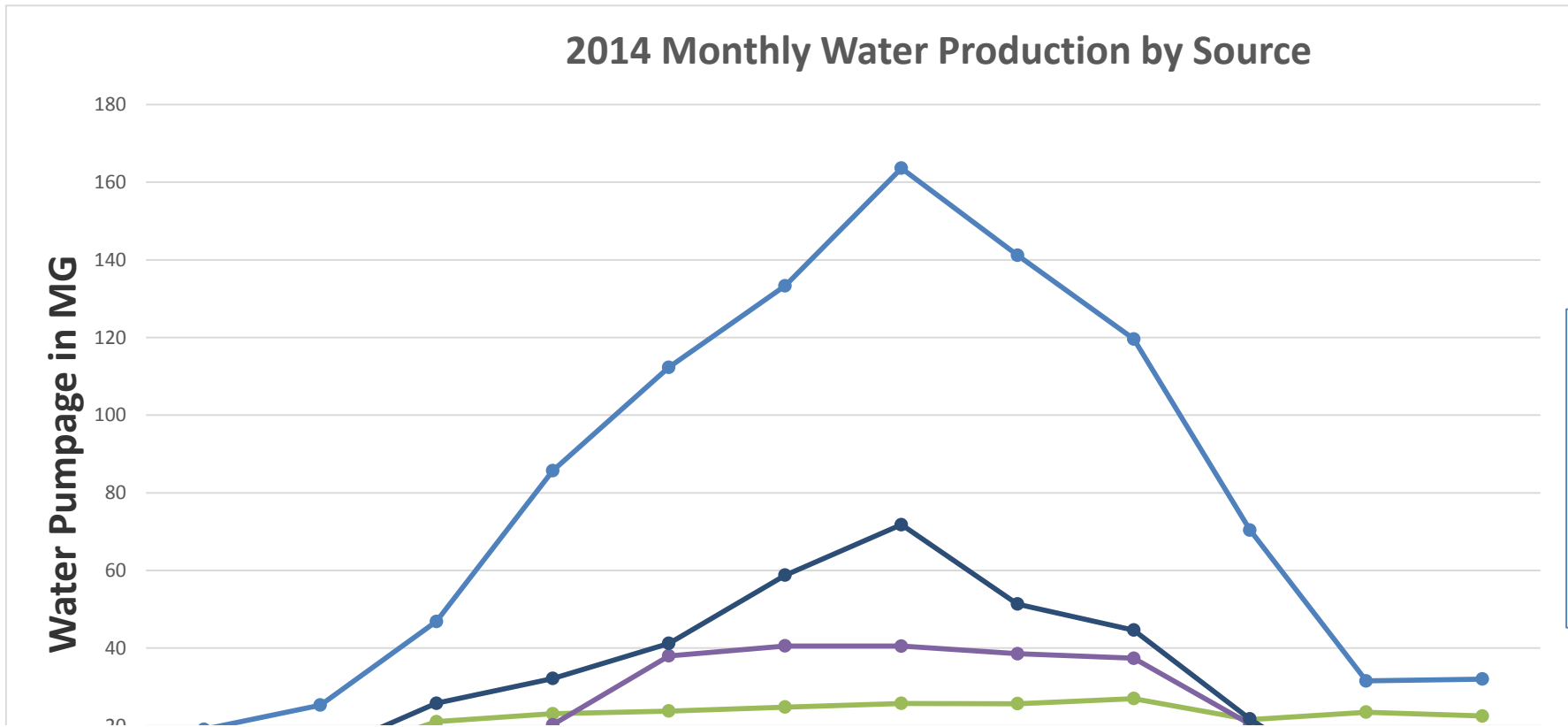
Data Interpretation and Conclusions:

The data collection elements from 2014 show the following:

- ✓ Unaccounted for water in West Richland met the City's goal of 10%. The City has spent many hours training personal and other agencies to aid us in this process. The estimated unaccounted for water in 2014 was 9.8%. We believe the low percentage is due to replacement of old meters, installation of meters at all City parks, and accurate documentation collected by the maintenance department and local Fire District as well as increased accuracy in metering and account management. We have yet to see a drastic effect from leak detection due to most of the waterlines in our system have been installed in the last 15 years.

In year 2000, the unaccounted for water was at 43% and has been reduced to 9.8% in 2014. The 3 year average from 2012-2014 is 9.13%.

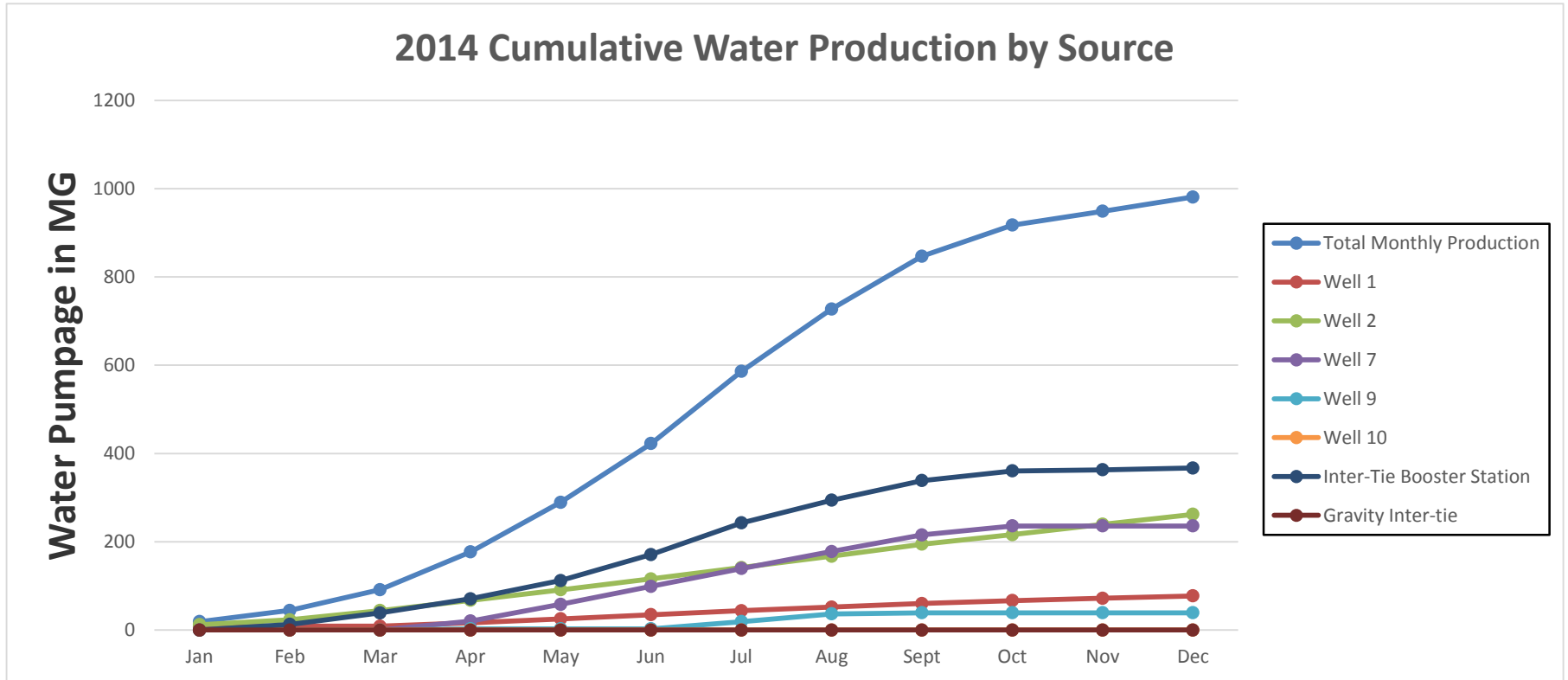
City of West Richland
Water Conservation Summary Report 2014



Water Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Total Monthly Production	19.089	25.308	46.864	85.677	112.32	133.303	163.59	141.182	119.604	70.4	31.552	32.017
Well 1	6.979	1.567	0.017	7.451	9.33	9.176	9.123	8.208	8.052	6.589	5.42	5.417
Well 2	12.11	10.952	21.051	23.116	23.78	24.813	25.776	25.691	27.01	21.596	23.517	22.515
Well 7	0	0	0	20.267	37.991	40.544	40.512	38.552	37.397	20.449	0	0
Well 9	0	0	0.004	2.665	0	0	16.369	17.373	2.51	0	0	0
Well 10	0	0	0	0	0	0	0	0	0	0	0	0
Booster Station	0	12.789	25.792	32.178	41.219	58.77	71.81	51.358	44.635	21.766	2.615	4.085
Inter-tie	0	0	0	0	0	0	0	0	0	0	0	0

City of West Richland

Water Conservation Summary Report 2013



Water Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Total Monthly Production	19.089	44.397	91.261	176.938	289.258	422.561	586.151	727.333	846.937	917.337	948.889	980.906
Well 1	6.979	8.546	8.563	16.014	25.344	34.52	43.643	51.851	59.903	66.492	71.912	77.329
Well 2	12.11	23.062	44.113	67.229	91.009	115.822	141.598	167.289	194.299	215.895	239.412	261.927
Well 7	0	0	0	20.267	58.258	98.802	139.314	177.866	215.263	235.712	235.712	235.712
Well 9	0	0	0.004	2.669	2.669	2.669	19.038	36.411	38.921	38.921	38.921	38.921
Well 10	0	0	0	0	0	0	0	0	0	0	0	0
Booster Station	0	12.789	38.581	70.759	111.978	170.748	242.558	293.916	338.551	360.317	362.932	367.017
Inter-tie	0	0	0	0	0	0	0	0	0	0	0	0