REPORT ON CITY OF SPOKANE DRINKING WATER FOR 2014

Reported by
Doug Greenlund, Environmental Analyst
1 April 2015

Note: *This report provides a summary of the drinking water monitoring conducted during 2014 only. For a comprehensive review of past monitoring, please see the 2010 report and subsequent annual reports.*

The City of Spokane's water is of very high quality. Many different tests are conducted at varying intervals to confirm that the City's drinking water meets Washington state and federal EPA drinking water quality standards. The City's drinking water supply, to date, has consistently met all state and federal standards. This report is meant to provide consumers and other interested parties with insight into what analytical tests have been conducted and, in some cases, substances that have been detected. The state and federal Maximum Contaminant Level (MCL) information is provided as a risk benchmark.

This report also summarizes the amount of water the City used in 2014, and documents some indicators to show the progress being made to meet conservation goals adopted by the City in its Water Stewardship Strategic Plan.

The final pages (appendices) of this report summarize the most recent analytical testing. Appendix II has a comprehensive list of substances tested in City water. Appendix III summarizes the testing completed during 2014. Appendix IV provides a summary of inorganic testing results. Appendix V provides the results from distribution system disinfection by-product testing. The following narrative and attachments summarize and explain recent results in more detail. Appendix VI and the last two pages of this narrative (General Information) contain information relevant to the annual Consumer Confidence Report. As such, the information may be redundant, relative to the main text of this report.

All of the City of Spokane's drinking water comes from the Spokane Valley-Rathdrum Prairie Aquifer - designated a sole source aquifer in 1978. The Spokane Valley-Rathdrum Prairie Aquifer slowly flows through two different states and a number of different counties and is the source water for a large number of water purveyors including the City of Spokane. This water and any contaminants freely move across political boundaries. Many groups and/or private individuals may claim this water to be used for diverse purposes. Some of these competing interests include (but are not limited to) drinking water rights, irrigation, fisheries, hydroelectric power, and industrial processes. The Spokane Aquifer (that portion of the larger aquifer lying within Washington State) and the Spokane River exchange water. While the aquifer contains a large volume of water, many factors play into the volume of water in the Spokane River, complicating the management of these resources. Some of these factors include pumping for irrigation and potable water, hydroelectric dam operations, and the variations of weather and precipitation. The rates and locations of exchange between the aquifer

English:
This report contains important information about the drinking water supplied by the City of Spokane. Translate it, or speak with someone who understands it well.

Spanish:
Este reporte contiene información importante acerca del agua potable suministrada por la Ciudad de Spokane. Tradúzcalo, o hable co
n alguien que lo entiende bien.
(Para ver información adicional, visite al; www.epa.gov/espanol/ciudadanos.html

Russian:
В этом отчете содержится важная информация относительно питьевой воды, поставляемой службой города Спокэн. Переведите этот отчет или поговорите с тем, кто его хорошо понимает.

Vietnamese:
Bản phúc trình này chứa đựng những thông tin quan trọng về nước uống được cung cấp bởi City of Spokane. Hãy phiên dịch, hay hỏi thăm người nào hiểu rõ về tài liệu này.

and the Spokane River have been re-examined as part of the Bi-State Aquifer Study. In January 2008, the states of Washington and Idaho announced signing a Memorandum of Agreement (www.idwr.idaho.gov/WaterInformation/projects/svrp/PDFs/svrp_MOA_10-26-07.pdf) concerning the *"…continued coordination involving the maintenance and improvement of the technical tools developed in a bi-state water study."* Discussions to agree on how to utilize these technical tools to manage this valuable resource will continue. The results of these studies and agreements will help give the City information it needs to continue to supply high-quality water to the citizens of Spokane.

Due to the porous nature of the ground surface and the number of potential contaminant sources, the possibility of contaminating the aquifer exists if good housekeeping measures are not followed for all activity over and adjacent to the aquifer. The physical and economic health of our area depends on the quality of our drinking water. In order to safeguard water quality, the City continues its efforts to make available to the community information about, and appropriate disposal mechanisms for, dangerous wastes that are generated in the Aquifer Sensitive Area. The City, in cooperation with other local governments and the Spokane Aquifer Joint Board, continues to work toward strengthening regulations for the storage and use of critical materials to safeguard the local water supply.

For additional information regarding the City of Spokane's drinking water or related issues:

City of Spokane Water Department	(509) 625-7800	www.spokanewater.org/
City of Spokane-Environmental Programs	(509) 625-6570	www.greenspokane.org/
Spokane County - Water Resources	(509) 477-3604	www.spokanecounty.org/WQMP/
Spokane Regional Health District – Environmental Health Div.	(509) 324-1560	www.srhd.org/services/environment.asp
Washington State Department of Health - Eastern Regional Office (Drinking Water)	(509) 329-2100	www.doh.wa.gov/YouandYourFamily/HealthyHome/DrinkingWater
Washington State Department of Ecology – Eastern Regional Office	(509) 329-3400	www.ecy.wa.gov/
U.S. EPA Safe Drinking Water Hotline	1-800-426-4791	water.epa.gov/drink/index.cfm

REPORT ON CITY OF SPOKANE DRINKING WATER FOR 2014

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To obtain free software to read some of these digital files:

- Adobe Acrobat files: www.adobe.com/products/acrobat/readstep2.html
- Microsoft Word files: www.microsoft.com/downloads/details.aspx?FamilyID=3657ce88-7cfa-457a-9aec-f4f827f20cac&displaylang=en

QUANTITY - Water for the Future

As a result of increasing recognition of the limits of our groundwater resources, the state has encouraged local interests and authorities to come together to manage this resource. The City of Spokane has taken an active role in area-wide partnerships to safeguard the quality and quantity of our water supply. The City of Spokane and all its water customers are challenged to use water resources wisely and responsibly. The City of Spokane Water Stewardship Program Strategic Plan was established by resolution of the City Council on May 1, 2006 (Resolution 06-49).

Changes in federal building standards have resulted in water savings nationwide. The City's Building Services Dept. enforces these standards. The City of Spokane Water Department has taken additional steps to conserve water through education programs, metering water use, reducing the loss of water resulting from leaking pipes, and implementing a conservation-oriented rate structure. The Water Use Efficiency Rule (WAC 246-290-810) requires that municipal water suppliers adopt a plan to make more efficient use of their water. Two of the quantifiable elements, conservation goals and distribution system leakage, are discussed in this section.

GOALS

In April 2014, the City of Spokane updated the Water Use Efficiency Goals. These new goals were adopted on April 21 through resolution 2014-0046. There are four new goals based on metered consumption. Of the four goals three of them deal with reduction in outdoor water use for the largest sectors: commercial/industrial, government, and residential. Residential includes single family residences. The government sector includes all levels of government served by the water department as well as parks, public schools, and public post-secondary education facilities. The commercial/industrial sector focuses only on identified outdoor irrigation uses. The fourth goal deals with indoor water use for residential customers. The updated goals differ from the City's previous goals. They are based on measured use not measured pumping, associated with a specific customer segment, and primarily cover the outdoor summertime use. The goals, as adopted, are stated below:

1. Continue the reduction of indoor residential use by one half percent (0.5%) on average for residential connections annually, over the next six (6) years.
2. Reduce outdoor residential use by two percent (2%) on average for residential connections annually, over the next six (6) years.
3. Reduce metered outdoor irrigation commercial/industrial use by two percent (2%) for Commercial/Industrial connections annually, over the next six (6) years.
4. Reduce outdoor metered government use by two percent (2%) for governmental connections annually, over the next six (6) years.

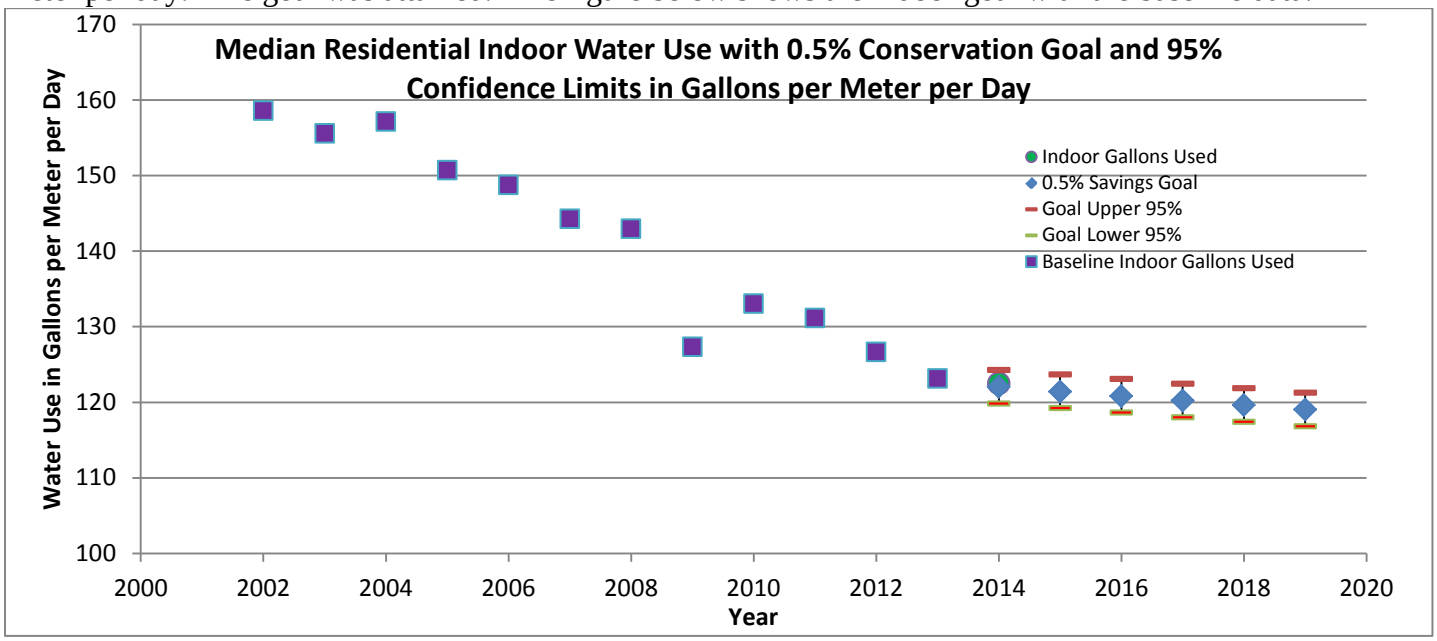
Three of the four goals were attained in 2014. The commercial/industrial goal was above the 95% confidence interval and therefore very likely not met.

All of the conservation goals are based on a reduction in use from the baseline period of 2002 to 2013. The indoor use is for the period of December 15 to February 14. The outdoor use is for the period of July 15 to September 14. The outdoor use is the read summer time use minus the indoor use for the preceding period. The outdoor use is further corrected for the pan evaporation as measured at the Spokane National Weather

Service office. The results presented are comparing pan evaporation corrected baseline goals with pan evaporation corrected results

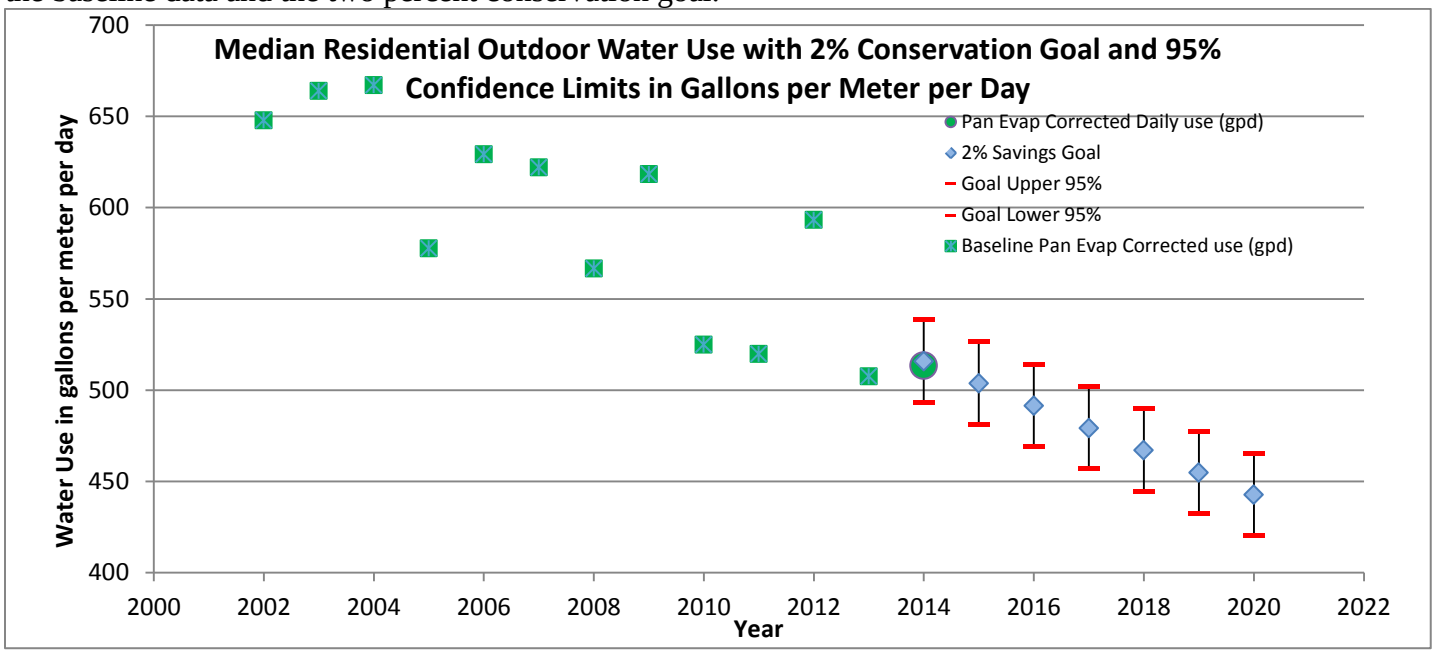
Indoor Residential

The indoor residential goal for 2014 was 122 gallons per meter per day. The measured use was 122 gallons per meter per day. The goal was attained. The figure below shows the indoor goal with the baseline data.



Outdoor Residential

The outdoor residential goal for 2014 was 516 gallons per meter per day. The measured results were 513 gallons per meter per day. This goal was also attained. The figure below is for the residential outdoor use with the baseline data and the two percent conservation goal.



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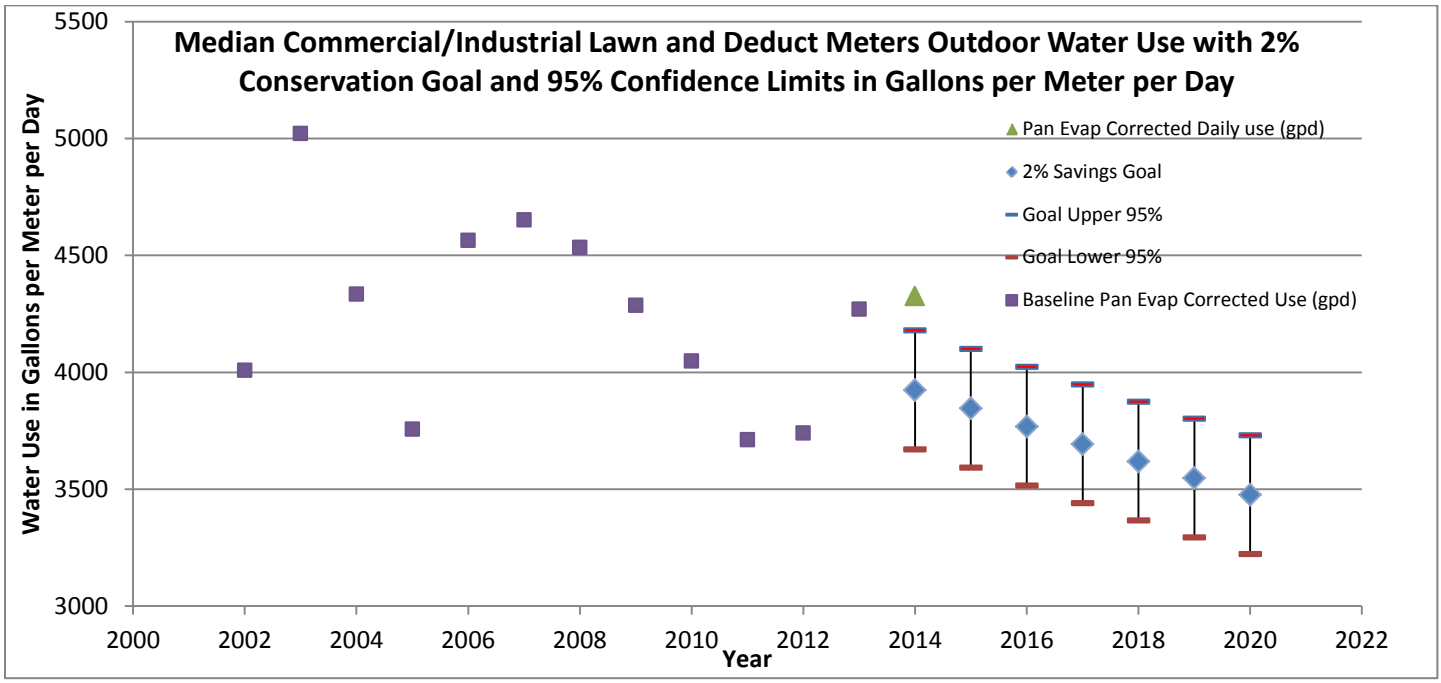
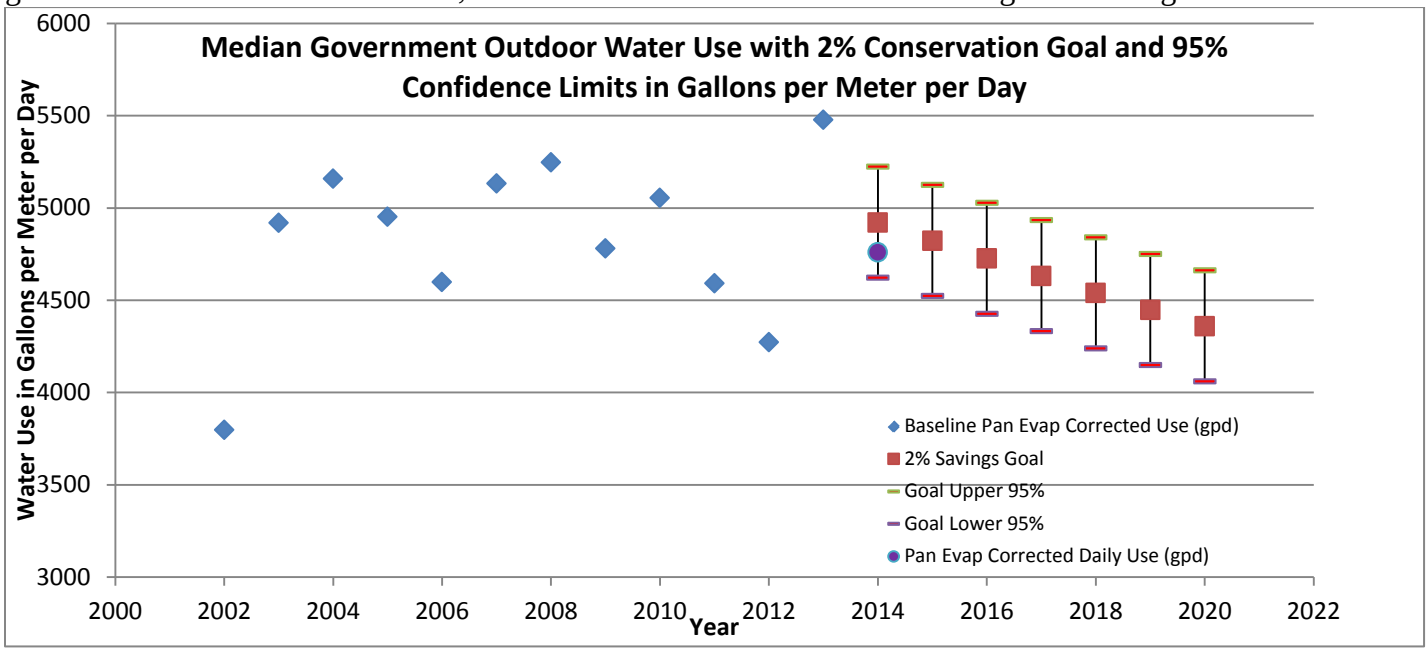
Outdoor Commercial/Industrial

The conservation goal for the commercial/industrial sector was 3,923 gallons per meter per day. The measured result was 4,325 gallons per meter per day. This is above the 95% confidence; therefore it is very likely the goal was not met. The figure below shows the baseline commercial/industrial data with the conservation goal and confidence intervals.



Outdoor Government

The 2014 government sector outdoor conservation goal was 4,921 gallons per meter per day. The pan evaporation corrected use was 4,759 gallons per meter per day. The figure below shows the 2% conservation goal with 95% confidence intervals, and the baseline water use. The outdoor government goal was attained.



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Goals 2006 to 2014

The 2006 City of Spokane Water Stewardship Strategic Plan included goals for per capita reductions in water use. The goals were based on total pumpage for all uses including residential, commercial, industrial, and government, and are expressed on a per capita basis. These goals were set for limiting the water consumption through 2017 and were specified for seasonal periods of October through March, April through June, and July through September. The goals differ by year and period.

The October through March timeframe is typically a period of mostly indoor water use. The amount used during this period is nearest the water use essential for health and safety. Furthermore, a modest, but constant rate of growth for our community is assumed.

The April through June timeframe is a transitional period from mostly indoor use to increasing outdoor use.

The July through September period includes increasing demand for outdoor irrigation. This is also the most critical period for flows in the Spokane River. The per capita reduction in water use for this period is the most ambitious.

The detailed source water pumping totals versus the adopted Water Stewardship Goals are in Appendix I. The following table and graphs illustrates this information for 2014:

WATER YEAR	2014 pumpage (x1,000 gallons)		
Period	Total	Goal	Result
October 2013 through March 2014 (winter)	6,397,435	7,080,000	-9.6%
April through June (spring)	6,246,070	6,960,000	-10.3%
July through September (summer)	9,632,114	8,470,000	13.7%
Sum of seasonal totals	22,275,619		

The preceding table shows the difference between the Goal and the actual Use as a percentage. A positive value equals exceedance of the goal. Total pumpage for the periods for 2006 - 2014 is available in Appendix I.

It is our estimate that the City, while continuing to show improvement, did not achieve its water conservation pumpage goal for 2014, specifically for the timeframe of July – September 2014. The following graph demonstrates the actual pumpage and goals for each season for 2006 thru 2014 on a per person per day basis. The water service area projected population from the Water Stewardship Strategic Plan is available in Appendix I.

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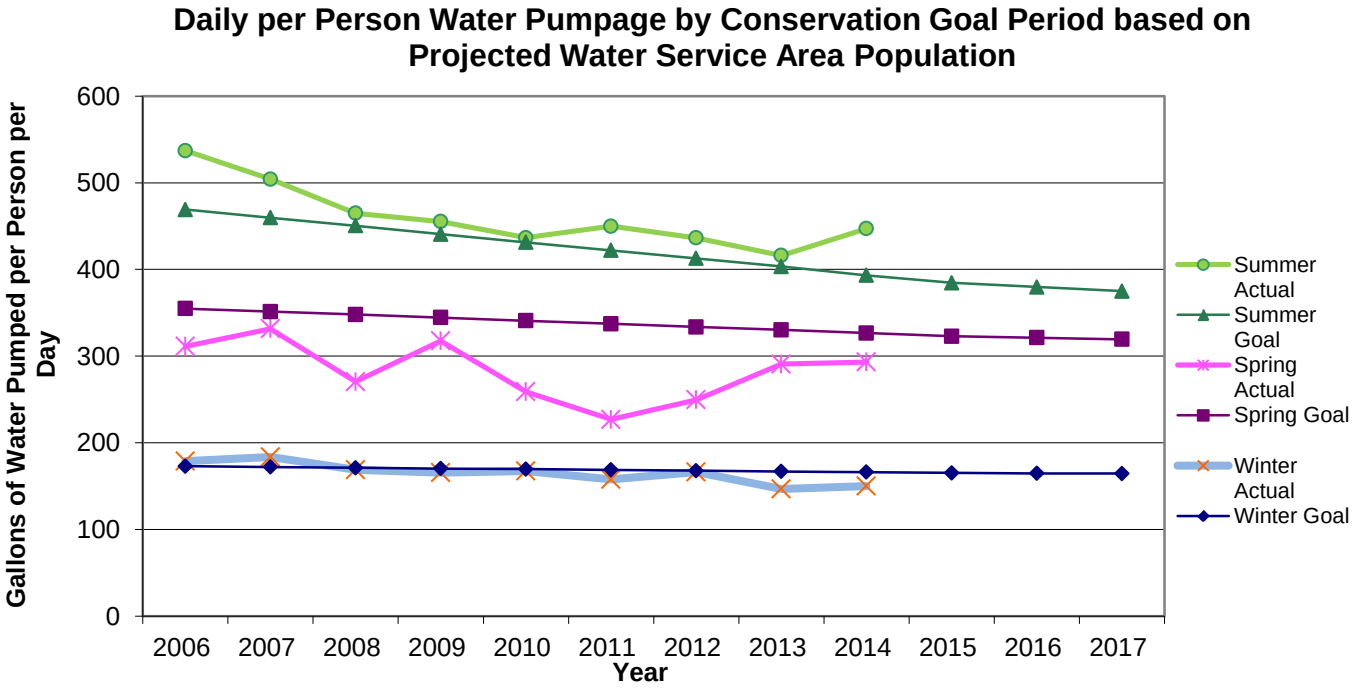


In 2014, the City met the conservation goal for the winter period of October 2013 through March 2014. This was the seventh consecutive year for meeting this conservation goal.

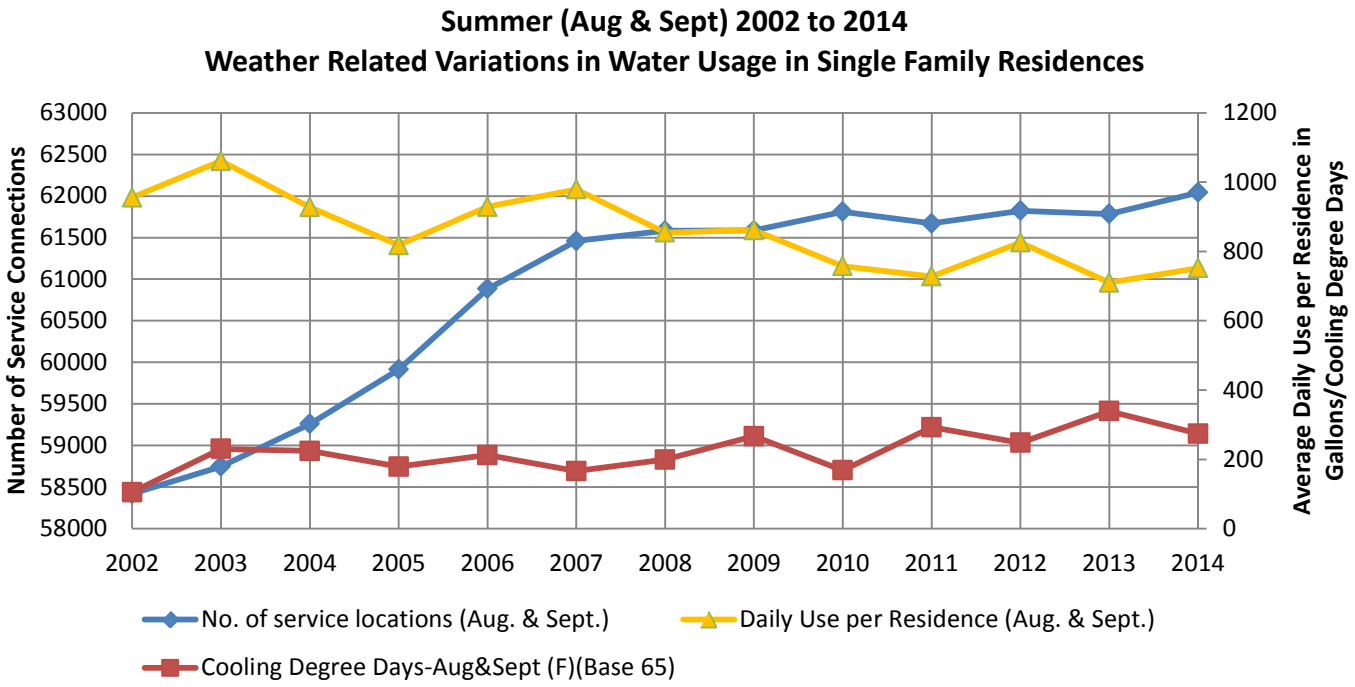
The City of Spokane has consistently met the conservation goal for the months of April, May and June**. The City met its goal for April through June again in 2014.**

The City did not meet its goal for July through September in 2014. To date, the City has not met its goal for July through September. Note that the rate of water use reduction is most ambitious during this season.

It is important to note that the commitment taken on by the City is based on per capita usage and the actual population served in 2014 is not immediately known. However, an indicator of population would be the number of single-family residences served. The following table provides the number of single-family residences over the last 10 years. Please note that the number of residences is typically lower in the winter because some local residents go south for the winter, and during that time, such residences are not counted as "connections."

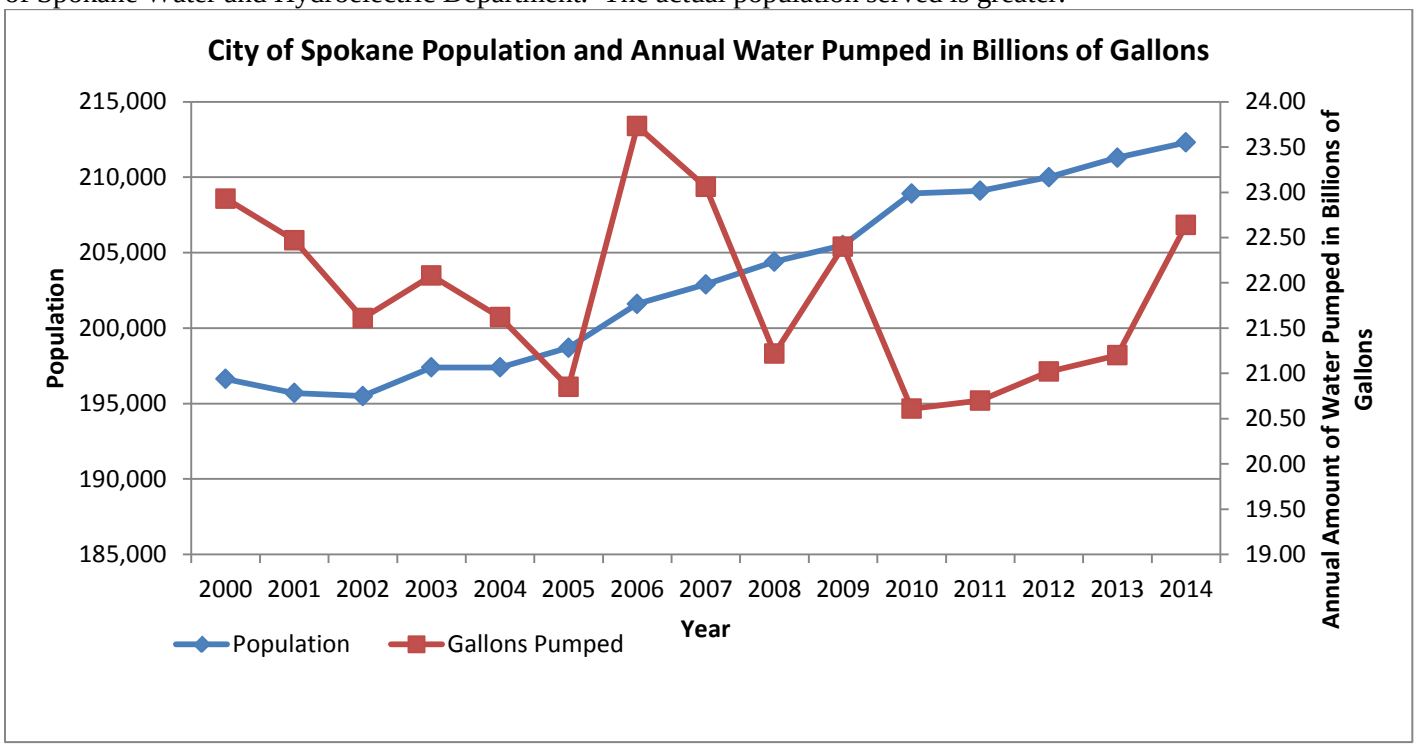
	No. of service locations (Jan. & Feb.)	***No. of service locations (Aug. & Sept.)***
2005	**58,403**	**59,914**
2006	**59,231**	**60,883**
2007	**59,881**	**61,459**
2008	**60,435**	**61,581**
2009	**60,683**	**61,585**
2010	**60,608**	**61,810**
2011	**60,492**	**61,671**
2012	**60,478**	**61,822**
2013	**59,384**	**61,783**
2014	**61,403**	**62,042**

In addition to total population served, seasonal weather variations impact water use. The following graph illustrates daily usage (City of Spokane billing records) in single-family residences during the summer for the period 2002-2014:



The preceding graph compares water usage of single-family residences with temperature (i.e. cooling degree days). July 2014, which is not included in this data, was the hottest July in Spokane since 1906. There was Water Stewardship Program outreach and communication in 2014.

The following graph shows the growth in the City of Spokane and the total amount of water annually pumped by the City of Spokane Water and Hydroelectric Department. The actual population served is greater.



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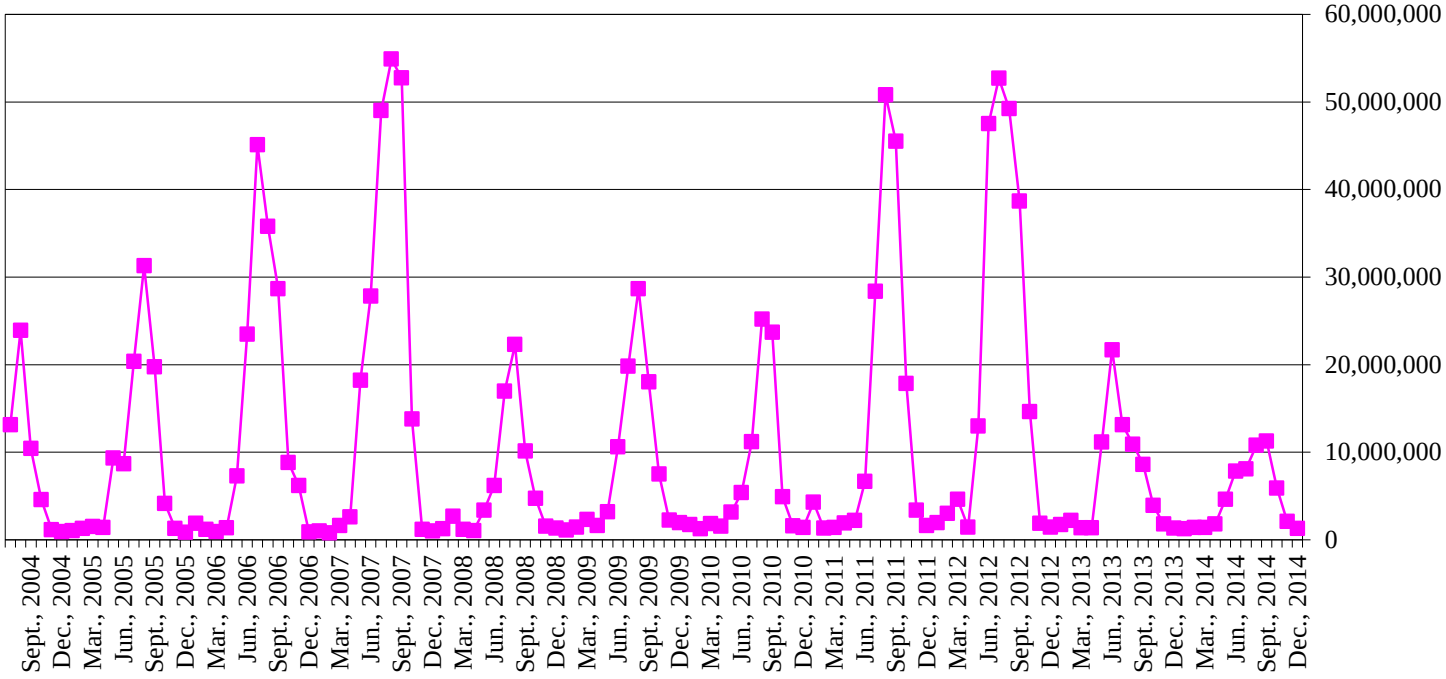
The following table shows the annual total gallons delivered to our wholesale customers:

	Annual Total Intertie Demand, gal.	Percent Change From Previous Year
2005	161,179,040	
2006	190,312,144	18.1 %
2007	227,270,824	19.4 %
2008	75,063,296	- 67.0 %
2009	95,439,564	27.1 %
2010	108,846,716	14.0 %
2011	165,106,788	51.7%
2012	231,569,580	40.3%
2013	79,169,816	-65.8%
2014	51,154,224	-35.4%

The following graph displays the total gallons per month wholesaled to water purveyors outside the City's water service area:

Total Intertie Water Demand, gallons per month



WATER YEAR	2014 pumpage (x1,000 gallons)				
Period	Total	Intertie Demand	Adjusted Total	Goal	Adjusted Result
October 2013 through March 2014 (winter)	6,397,435	11,103	6,386,332	7,080,000	-9.8%
April through June (spring)	6,246,070	14,251	6,231,819	6,960,000	-10.5%
July through September (summer)	6,632,114	30,130	9,601,984	8,470,000	13.4%
Sum of seasonal totals	22,275,619				

If wholesale water use were not counted in the conservation goal measurements, we would be 0.4 % closer to achieving the summer goal.

2014 Water Use Efficiency Program Summary

The City of Spokane continues to engage and educate water customers in water efficient practices. Water Stewardship outreach was concentrated in crucial summer months where water use more than triples and water efficiency goals are at their highest.

Our work for 2014 included:

- Participation in nine community events over the summer, distribution of educational materials and hosting activities on water wise practices
- Presentation of water conservation lessons to two after school programs
- Sponsorships of a Hoopfest Court and the Spokane Indians Baseball grounds crew, with associated advertising and awareness opportunities
- Partnering with local agencies and universities to create, plan, and host four community engagement events
- Information sharing through social media outlets, the City's website, utility bill inserts, and media interviews
- Offering free irrigation assessments to customers
- Providing 216 indoor water saving toilet accessories, low-flow showerheads, aerators, and leak detectors as well as 103 outdoor hose timers to customers

In November 2014, the City Council adopted a new wastewater bill discount for customers who use less water. Under the credit program, which will begin in January 2015, the lowest 20 percent of indoor water users receive credits totaling $60 a year. The lowest 20 percent of indoor water users is determined annually based on water use during the winter when most water use is for indoor purposes and ultimately reaches the City's Riverside Park Water Reclamation Facility. Credits for 2015 will be based on 2014 winter water usage numbers. Although the credit is designed primarily to introduce equity in the City's wastewater rate system and lower operating costs for the City's wastewater utility, it also helps the City achieve its water use efficiency goals, especially the goal for lower residential indoor water use.

Outreach education and engagement with water customers is designed to increase awareness over time and encourage responsible use of our water resources. Statistical data and customer feedback will provide critical information on customer behavior and program effectiveness. For more information, visit: EPA-WaterSense Program (www.epa.gov/watersense/) H2OUSE-Watersaver Home (www.h2ouse.net/) and the City of Spokane Water Stewardship Program at www.waterstewardship.org/

Distribution System Loss (DSL)

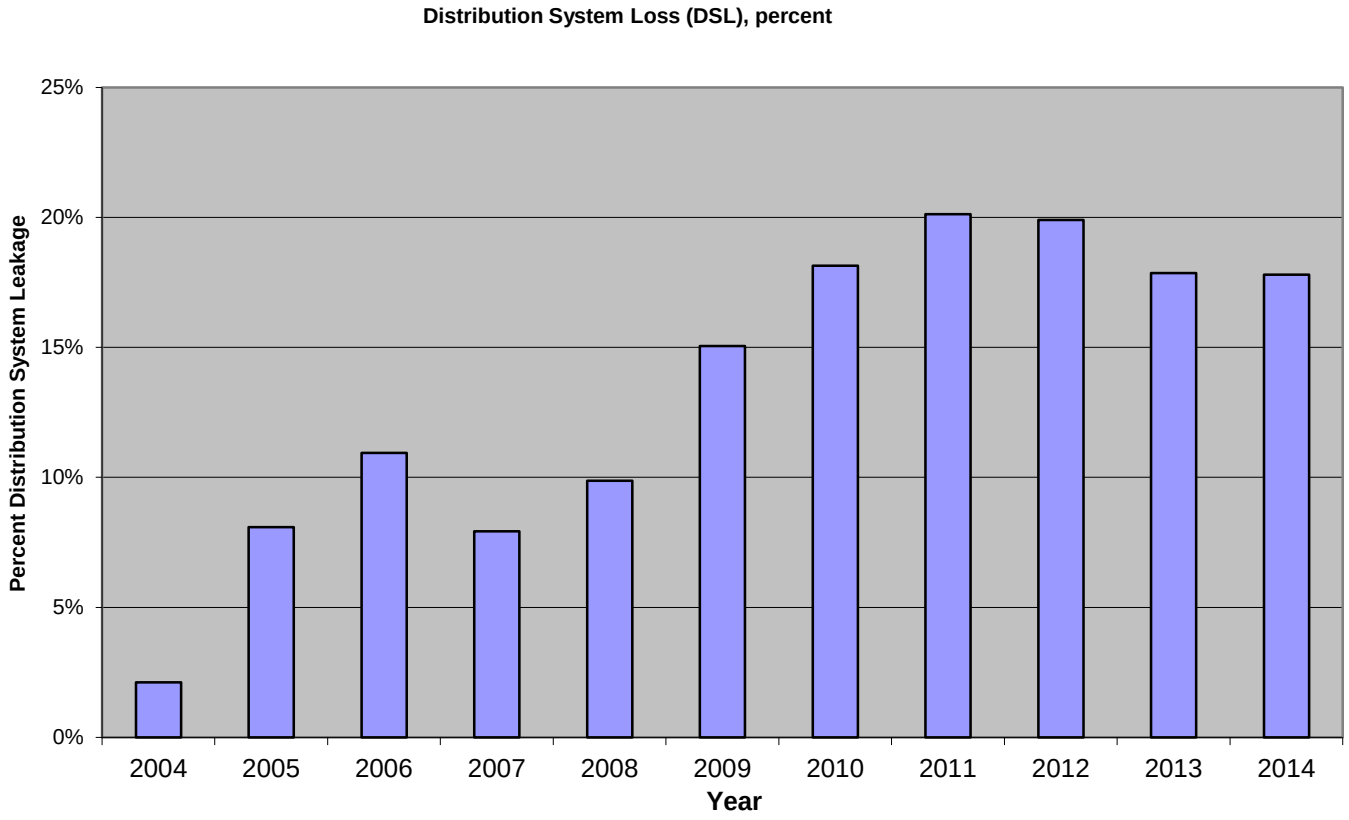
The Water Use Efficiency Rule requires the calculation of system water loss. Prior to this calculation, water systems are required to install service meters on all direct service connections[1] before January 22, 2017. The City of Spokane has had a long-standing policy of metering service connections. The calculations determine the volume of water not attributed to delivery to a customer and thus assumed to be lost to the ground. This loss is to be reported as a volume and as a percentage. In both cases, the DSL is determined as a running three-year average, and the water system must relate this DSL to the DSL standard promulgated by Washington Department of Health. The water use category of Non-Revenue Accounted-For Water is included in the Total Authorized Consumption (AC). This category, which is estimated (non-metered), includes such uses as street cleaning, cleaning water tanks/reservoirs, and water system maintenance (flushing). This estimate was reevaluated in 2013.

The method for DSL calculation and the data for the calculation are in Appendix I, pg. 24. The volume and percent DSL for the last three years are as follows:

[1] WAC 246-290-820(2)(a)

	2012	*2013*	*2014*	*Average*
DSL, percent	19.9%	17.9%	17.8%	18.5%
DSL, volume (gallons x 1000)	4,190,911	3,787,117	4,032,455	4,003,494

The most direct means to comply with the Water Use Efficiency Rule standard for DSL is for the three-year running average to be less than 10% [2]. **The DSL for the City of Spokane Water System is 18.5%, which does not meet the standard.** The City will continue to encourage the responsible use of our water resources, continue to assess the accuracy of our reporting, and implement projects to reduce our system leakage. In 2014, the City of Spokane Water Department continued to improve accounting of water from hydrant permits by using hydrant meters with select permit holders. Following is a graph depicting the annual DSL for 2004-2014:



[2] WAC 246-290-820(1)(b)(i)

QUALITY Drinking Water
An Invaluable Community Resource

INORGANICS

The City typically has a Washington State Department of Ecology accredited laboratory run a full drinking water inorganics analysis once every three years on each of our source wells. In addition, nitrates are tested annually, as required. The most recent inorganic results from accredited laboratories are in Appendix IV. **All sources are in compliance with existing National Primary Drinking Water Regulations for Inorganic Maximum Contaminant Levels (MCL)**.

ARSENIC

The arsenic readings in 2014 at the Grace and Hoffman wells were 2.55 µg/L, and 3.00 µg/L respectively. The MCL for arsenic is 10 µg/L, or parts per billion (ppb). For City drinking water, 5.13 µg/L of arsenic in 2009 from Ray Street Well represents the highest result to date.

City drinking water currently meets EPA's drinking water standard for arsenic. However, it does contain low levels of arsenic. There is a small chance that some people who drink water containing low levels of arsenic for many years could develop circulatory disease, cancer, or other health problems. Most types of cancer and circulatory diseases are due to factors other than exposure to arsenic. EPA's standard balances the current understanding of arsenic's health effects against the cost of removing arsenic from drinking water.

Further information concerning health impact issues, regulatory requirements, and compliance costs for water utilities/water customers can be found at water.epa.gov/drink/contaminants/basicinformation/arsenic.cfm and www.doh.wa.gov/Portals/1/Documents/Pubs/331-167.pdf.

FIELD MEASUREMENTS

The City of Spokane routinely measures water parameters at the wells including water pH and temperature.

These are the average, maximum, and minimum pH measurements from the source wells in 2014. pH has a secondary maximum contaminate level (SMCL) of 6.5 to 8.5. SMCL's are guidelines for water purveyors to manage drinking water for cosmetic, aesthetic, and technical effects. Technical effects include scaling and corrosion.

Source Water pH

Source Well	*Average*	*Maximum*	*Minimum*
Central	7.99	8.18	7.57
Grace	7.88	8.18	7.21
Hoffman	7.95	8.09	7.83
Nevada	7.91	8.14	7.51
Parkwater	7.87	8.26	7.35
Ray Street	7.63	7.78	7.10
Well Electric	7.97	8.72	7.39

The following are average, maximum, and minimum source water temperatures in degrees Fahrenheit for 2014. We track and provide this information as water temperature changes can result in water quality changes and because of the increased interest in using the aquifer and aquifer water as a heat source and/or sink.

	Water Temperature ° F		
Source Well	*Average*	*Maximum*	*Minimum*
Central	54.1	57.2	51.8
Grace	53.8	55.4	52.7
Hoffman	53.9	54.5	53.6
Nevada	54.3	55.4	53.6
Parkwater	52.9	55.4	50
Ray Street	53.8	55.4	51.8
Well Electric	53.8	59	50

These are measurements at the source. The values at a service location will be different based on the season and where it resides within the distribution system. The federal government has not established guidelines for drinking water temperature.

NITRATE - NITROGEN

The Ray Street Well continues to be monitored quarterly for Nitrate-N. **In 2014, the highest accredited lab quarterly result for the Ray Street Well was 3.23 mg/L.** The federal MCL for Nitrate –N is 10 mg/L. The result from a duplicate sample analyzed by the Riverside Park Water Reclamation Facility (RPWRF) Laboratory was 3.54 mg/L. The quarterly results for Ray Street Well for 2014 are as follows:

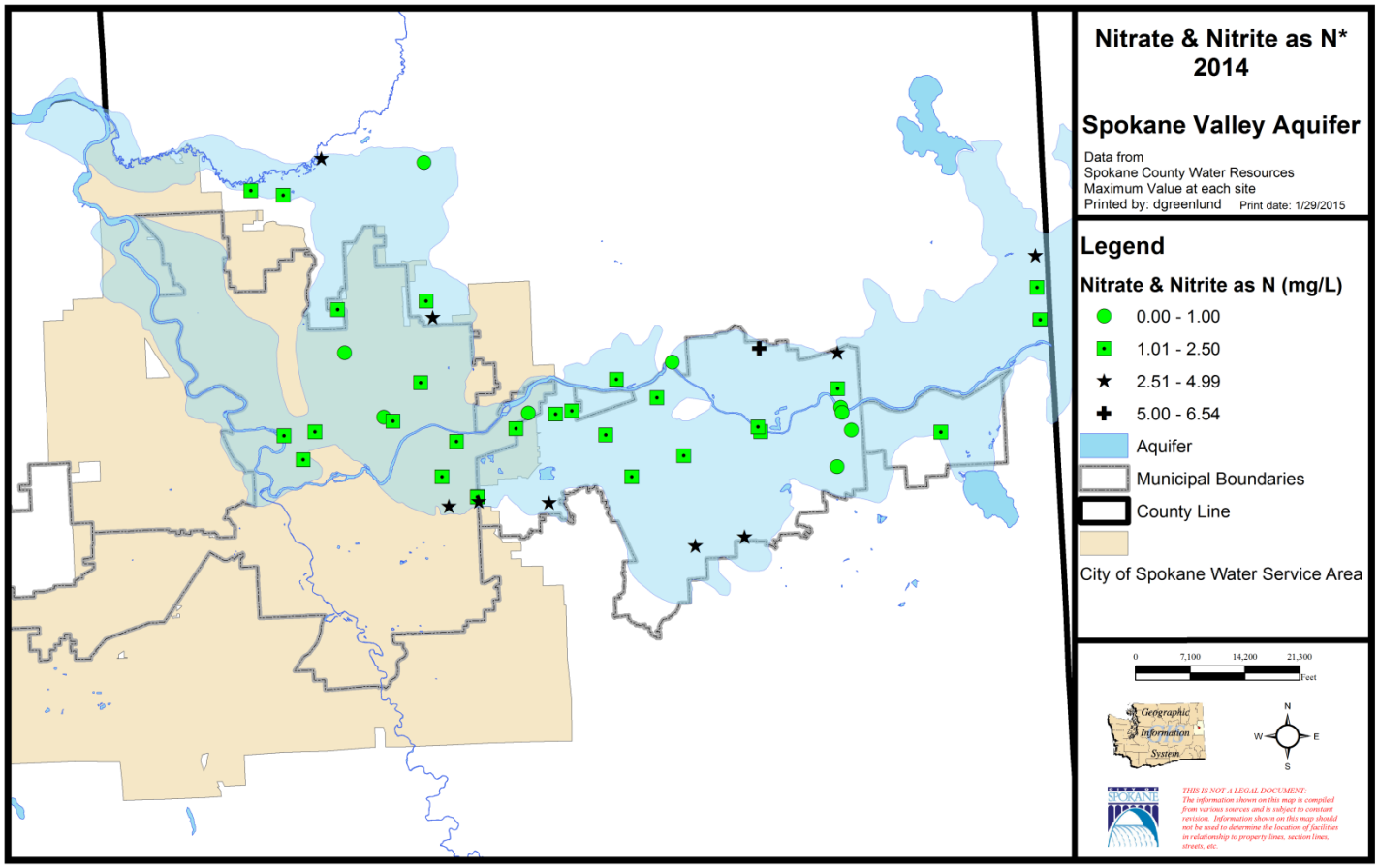
Sample Date	*Accredited Laboratory Result - Nitrate-N, mg/L*	*RPWRF Laboratory Result – Nitrate+Nitrite-N, mg/L*
28-January-2014	3.15	3.42
29-April-2014	3.07	3.08
29-July-2014	2.82	3.17
28-October-2014	3.23	3.54

The trend for nitrate-nitrogen at the Ray Street Well has remained constant to slightly declining for a number of years.

All other City sources average 1.19 mg/L for 2014, less than a fifth of the MCL for nitrate-nitrogen. The 2014 results for the other City source wells are as follows:

Source Well	*Accredited Laboratory Result - Nitrate-N, mg/L*	*RPWRF Laboratory Result – Nitrate+Nitrite-N, mg/L*
Well Electric	1.37	1.58
Parkwater	1.55	1.68
Hoffman	1.24	1.38
Grace	0.68	0.72
Nevada	0.80	0.86
Central	0.90	0.93

The following map depicts the results of monitoring wells sampled during 2014 by the Spokane County Water Resources Program. The results are for nitrate+nitrite as nitrogen from monitoring wells and springs along the Spokane River and purveyor wells over the Spokane Aquifer. Where multiple sampling events occurred at the same location, the highest result is depicted on the map. There are a number of wells that had results between 2.51and 6.54 mg/L. These wells, including the City of Spokane Ray Street Well, are typically located along the edge of the aquifer and appear to be subject to nitrate loading to the aquifer that originates at higher elevations.



For further information concerning nitrate in drinking water and potential health issues, you can access the EPA website at water.epa.gov/drink/contaminants/basicinformation/nitrate.cfm or the Washington State Dept. of Health website at www.doh.wa.gov/Portals/1/Documents/Pubs/331-214.pdf.
(Para ver información adicional, visite al; www.doh.wa.gov/Portals/1/Documents/Pubs/331-214s.pdf)

PHOSPHORUS

Drinking water regulations primarily deal with human health-related impacts. Phosphorus is not a drinking water regulated contaminant, but is of significant concern in this region as a pollutant in the Spokane River. Local groundwater makes significant contribution to the River and is the background for water discharged to sewer.

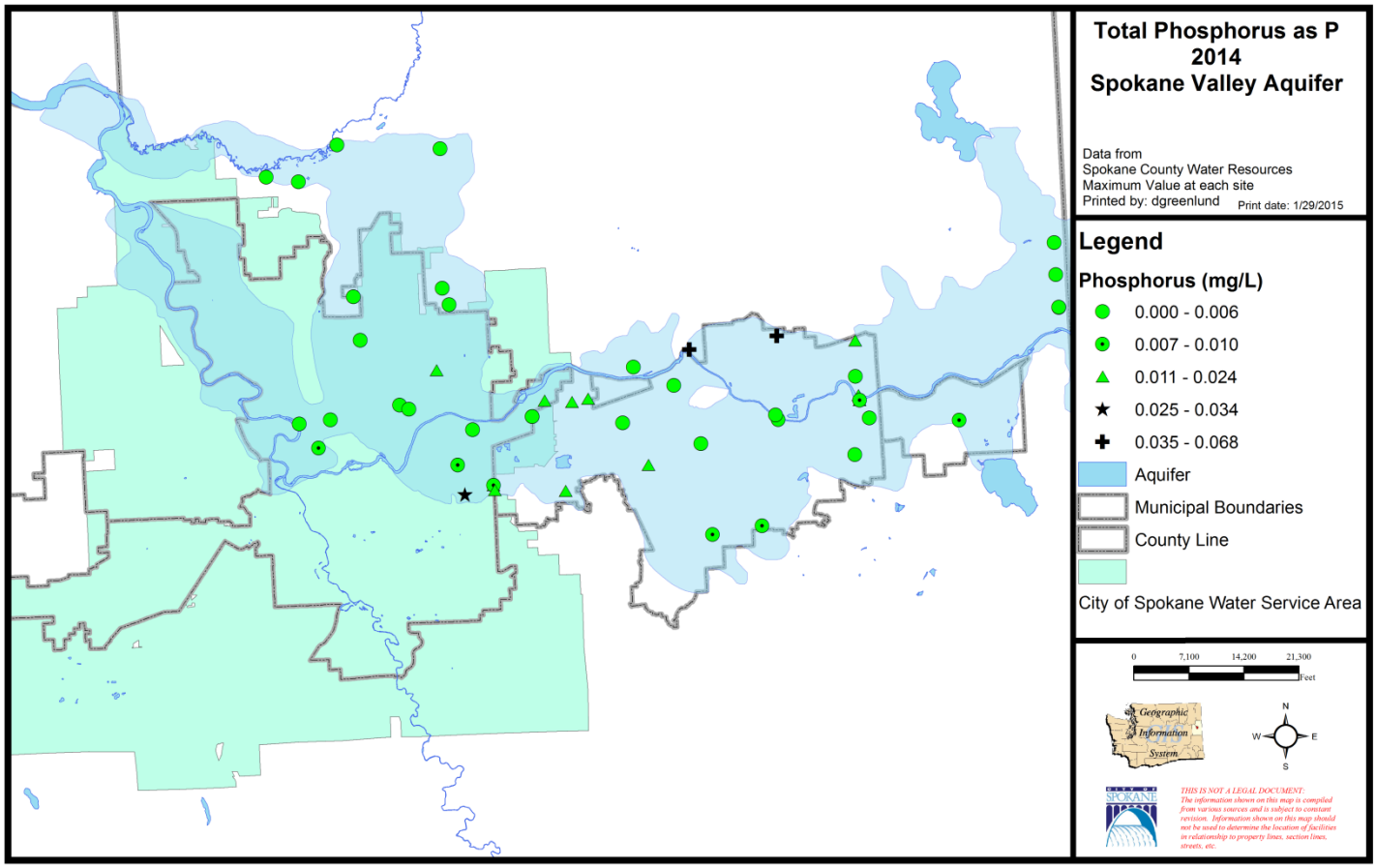
In July 2013, groundwater samples from the City source wells were analyzed by the City RPWRF Laboratory. **Similar to nitrate concentrations, most City wells have fairly low concentrations. The average concentration of the six city wells not including the Ray Street well was 0.004mg/L. Ray Street Well was sampled four quarters and the greatest result was .025mg/L.**

Location	*Date Sampled*	*PO4-P, mg/L*	*Location*	*Date Sampled*	*PO4-P, mg/L*
Electric	7/29/2014	0.0031	Central	7/29/2014	0.0008
Parkwater	7/29/2014	0.0006	Ray Street	1/28/2014	0.0206
Nevada	7/29/2014	0.0012	Ray Street	4/29/2014	0.048 *
Grace	7/29/2014	0.0001	Ray Street	7/29/2014	0.0157
Hoffman	7/29/2014	0.0184	Ray Street	10/28/2014	0.0246

*RPWRF analyzed this sample with SM Method 4500P-E not the low level method, EPA 365.3 The result is presented but is not considered a representative result.

There is no drinking water regulatory limit for phosphorus, but to give this some context, the Total Maximum Daily Loading for Dissolved Oxygen for the Spokane River calls for a phosphorus concentration limit of 0.010 mg/L in the river during the critical summer season.

During 2014, the Spokane County Water Resources Program collected and analyzed 133 samples from 49 locations for total phosphorus (including duplicate samples at several locations). Of that number, 32 samples from 14 different locations exceeded 0.010 mg/L. Following is a map demonstrating the distribution of total phosphorus results on the Washington side of the Spokane Valley-Rathdrum Prairie Aquifer.



This map illustrates that, similar to nitrate concentrations in groundwater, phosphorus concentrations are greatest along the sides of the valley. This likely indicates loading from run-off from higher elevations. There are a couple of sampling sites with higher values that appear not to be located near the sides of the valley or near the Spokane River. These sampling sites have total phosphorus concentrations in the range of 0.011 to 0.024 mg/L.

RADIONUCLIDES & RADON

RADIONUCLIDES

In 2014, the City of Spokane tested the Parkwater and Ray Street source wells for Radium 228 and Gross Alpha. The table below has the results.

	Gross Alpha Particle Activity	Radium 228	Combined Radium 226/228 *
Parkwater	2.10	.52	2.10
Ray Street	< 1	1.04	1.54

All results in pCi/L

Gross Alpha particle activity has an MCL of 15 pCi/L. The federal MCL for Radium 226 and Radium 228 (combined) is 5 pCi/L. The City of Spokane results were below the MCL.

The radionuclide rule allows Gross Alpha results to be used in lieu of Radium 226 if the Gross Alpha particle activity is below 5 pCi/L. If the gross alpha particle activity result is below the detection limit, one-half of the detection limit is used to determine compliance[3]. The radionuclide rule also allows a Gross Alpha particle activity measurement to be substituted for the required uranium measurement provided that the measured gross alpha particle activity does not exceed 15 pCi/l. The Gross Alpha activity was below 15 pCi/L so the City did not test for Uranium.

* If the Radium 228 or 226 value is <1.0, a value of zero will be used to calculate the Combined Radium 226/228[4].

For more information on radionuclides in drinking water, access the EPA website at water.epa.gov/lawsregs/rulesregs/sdwa/radionuclides/index.cfm

RADON

The Water Department monitored the Parkwater, and Ray Street wells in 2014, with results of 441 pCi/L, and 443 pCi/l respectively. The Environmental Protection Agency has published a proposed rule for regulating the concentration of radon-222 in drinking water. The rule proposes a maximum contaminant level goal (MCLG) of zero, a maximum contaminant level (MCL) of 300 pCi/L, and an alternative maximum contaminant level (AMCL) of 4000 pCi/L. The proposed rule would require that community water supply systems (including the City's) generally would have to comply with the MCL of 300 pCi/L, unless there is a multi-media mitigation program (MMM) in place. With a MMM, the AMCL of 4000 pCi/L would apply.

The publication of the proposed rule was November 2, 1999, and the comment period closed February 4, 2000. The final rule was expected to be published one year from that date. The rule had been listed on the Unified Agenda of Federal Regulatory and Deregulatory Actions with the status of the radon regulation final action "To Be Determined." In the January 2012 update of the Unified Agenda, the rule was removed.

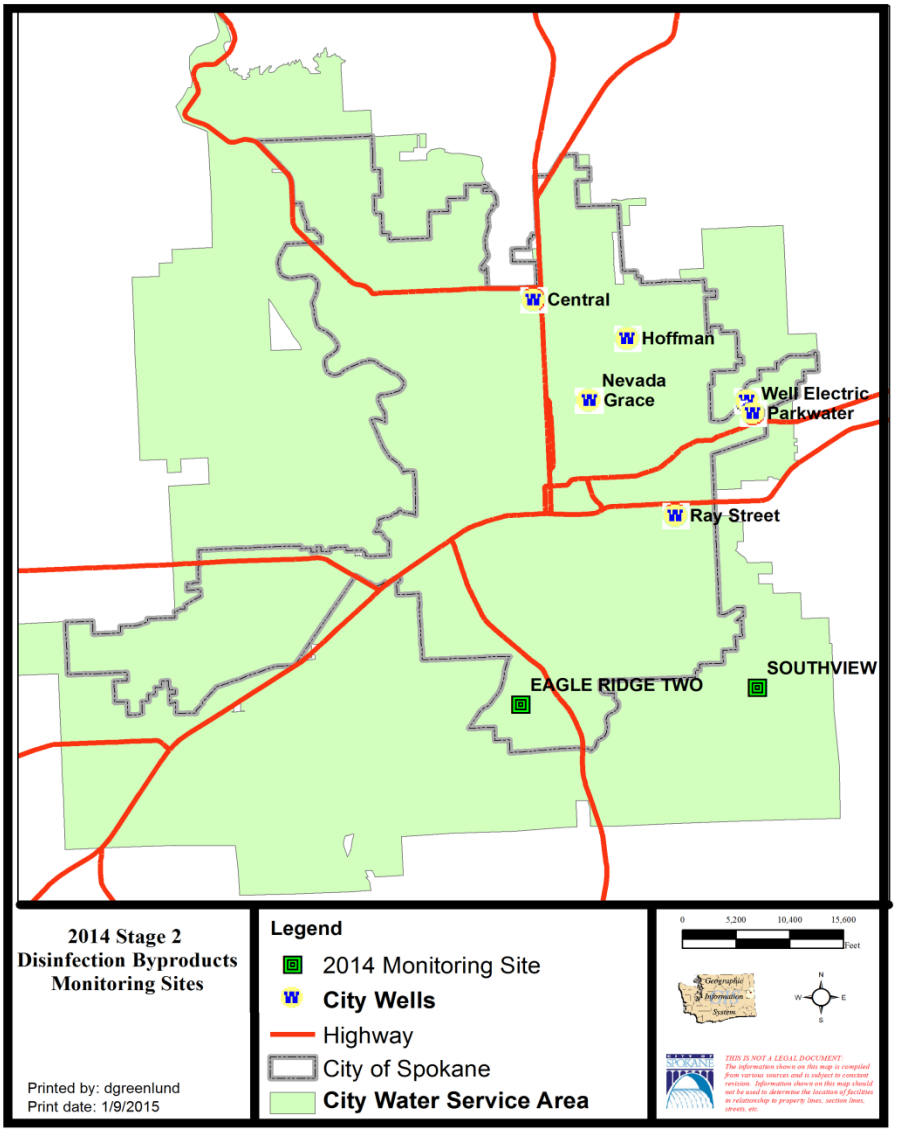
Radon gas is one of a number of radioactive elements that result from the radioactive decay of uranium found locally in natural deposits. Exposure to excessive amounts of radon may increase cancer risk. Most of these risks result from exposure to radon in indoor air. The EPA has determined that 1-2% of the radon in indoor air comes from drinking water. For further information concerning radon in drinking water, access the EPA website at www.epa.gov/radon/rnwater.html. For more general information concerning radon in the environment and the associated health issues, access the EPA website at www.epa.gov/radon/index.html or call the Radon Hotline at *1-800-SOS-RADON [*1-800-767-7236]. An EPA publication titled "A Citizen's Guide to Radon" can be downloaded from www.epa.gov/radon/pubs/citguide.html.

[3] 40 CFR 141.26a (5)
[4] 40 CFR 141.26c (3) v

ORGANICS

DISINFECTION BY-PRODUCTS – DISTRIBUTION SYSTEM

The maximum value during 2014 compliance monitoring of the distribution system for total trihalomethanes (TTHM) was 3.94 ppb and for haloacetic acids (HAA5) was no detection. This is well below the federal MCL of 80 ppb for total trihalomethanes and 60 ppb for the sum of five haloacetic acids and is only detected at the extreme end of the distribution system. The Stage 2 Disinfectants and Disinfection By-products Rule requires a Locational Running Annual Average (LRAA) be used for reporting compliance. This is the average of four quarterly samples for each sampling location. The City uses small amounts of chlorine as a drinking water disinfectant. However, the disinfectants themselves can react with materials in the water to form byproducts, which may pose health risks. The maximum value for TTHM was 5.02 ppb. Appendix V has the results for all 2014 quarterly sampling. There were no detections of haloacetic acids at any sampling site in 2014. The Stage 2 Disinfectants and Disinfection By-products Rule allows for reduced monitoring if the results are less than one half the MCL. This is 40 ppb for TTHM and 30 ppb for HAA5. The City met this requirement and was granted a reduced monitoring schedule from the Washington State Department of Health. Beginning in 2014, the City sampled quarterly at the Southview and Eagle Ridge Two locations.



In 2014, two sites were sampled every quarter. They were Eagle Ridge Two, and Southview. For more information on the Stage 2 DBPR, go to the EPA website water.epa.gov/lawsregs/rulesregs/sdwa/stage2/index.cfm

2014 was the third year of sampling under the Stage 2 Disinfectants and Disinfection Byproducts Rule. Starting in 2007 and continuing until 2010, the City Water Department performed assessment monitoring at over 20 locations (approximately five each year) to determine the potential for disinfection by-products (DBP) to be formed during the detention period in the distribution system. The DBP assessment sampling sites were selected from the existing coliform sampling sites. Based on this sampling and analysis of the retention time of water in the distribution system, locations were determined for the Stage 2 distribution system sampling program.

MtBE (Methyl tert-Butyl Ether)

Central and Nevada well stations were monitored for MtBE in 2014 in conjunction with the regularly scheduled Volatile Organic Compounds (VOC) monitoring. There were no detections at a detection limit of 0.5 µg/L. The City has included testing for MtBE with the VOC monitoring since 2005 and has had no detections.

MtBE is a gasoline additive used throughout the United States to reduce carbon monoxide and ozone levels caused by automobile emissions. There is currently a drinking water advisory for MtBE water.epa.gov/action/advisories/drinking/mtbe.cfm. This advisory recommends a range of 40 µg/L or less based on consumer acceptance of potential taste and odor. The EPA believes this would also provide a large margin of exposure safety from toxic effects.

Further information concerning the health impact, environmental effects, and technical background of MtBE can be found at the following website: the EPA Office of Water at water.epa.gov/drink/contaminants/unregulated/mtbe.cfm

Other Volatile Organics

Many compounds have been tested for and not detected. Appendix II: "TESTS RUN ON CITY OF SPOKANE WATER" on page **26** has a comprehensive list of the volatile and synthetic organic chemicals tested in 2014. Refer to Appendix VI in the 2010 Drinking Water Report for a historic summary of ORGANIC CHEMICAL DETECTIONS for each well station that contributes to the City Water System. Only organic compounds that have previously been detected in City water are listed in the 2010 Drinking Water Report table.

In 2014, the City of Spokane tested the Central and Nevada well stations for Volatile Organic Compounds (VOC). There were no detections.

Trihalomethanes (THMs, chloroform, bromoform, bromodichloromethane, dibromochloromethane) are one group of volatile organic, disinfection by-products. That is to say, they can originate from chemical interactions between a disinfectant (chlorine gas in the City's system) and any organic matter present in the raw water. **There were no detections of THMs in source water monitoring for 2014**.

Synthetic Organics

The City of Spokane tested the Central, Grace, and Hoffman wells for Synthetic Organic Chemicals (SOC) in 2014. There were no detections. The City conducts tests for more than 140 different chemicals including pesticides, herbicides, PCBs, and phthalates (plasticizers).

Microbiological Contaminants

Coliform Bacteria - Source

The City of Spokane well station raw source water (the water before disinfectant chlorination) has been tested regularly for coliform bacteria. While historically there has been no requirement to test for coliform bacteria in source water, the City has monitored for this water quality parameter. More recently, testing requirements to determine whether hydraulic continuity exists with the Spokane River have increased the testing frequency. **In 2014, out of 74 tests for coliform bacteria in the City source water wells, there were no detections of total coliform, and no detections of fecal coliform.**

Out of 409 tests over the five-year period from 2010 through 2014, there have been no detections of total coliform. There have been no detections of fecal coliform in the source water during this time frame.

HETEROTROPHIC PLATE COUNT BACTERIA – SOURCE

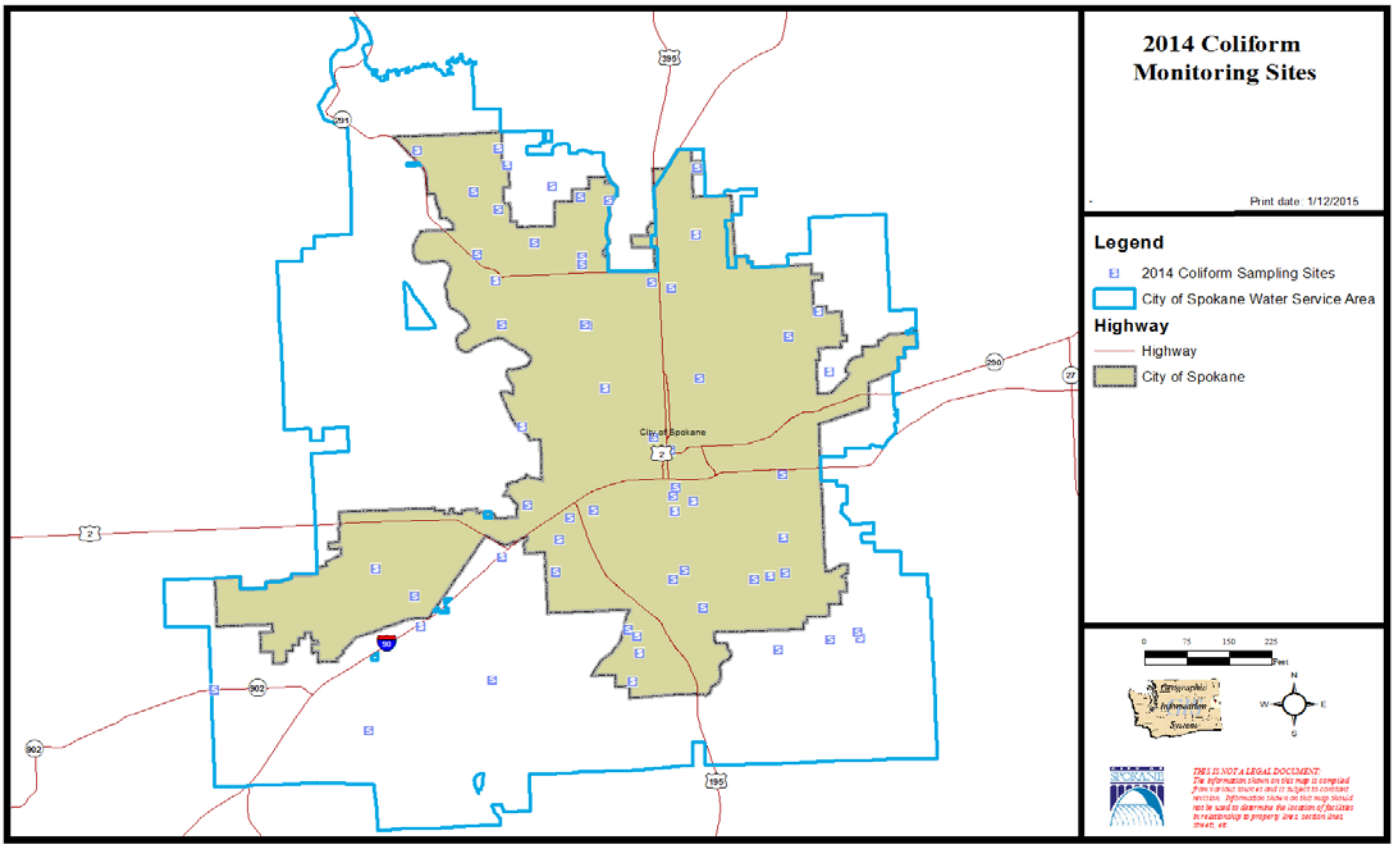
In 2014, out of 58 Heterotrophic Plate Count (HPC) tests on source water, there were 10 positive results. The greatest concentration was 22 colonies per milliliter of sample at the Hoffman Well. HPC tests were conducted 354 times over the five-year period from 2010 through 2014 on raw source water. There have been 89 positive HPC results. Washington state drinking water regulations state: *"Water in a distribution system with a HPC level less than or equal to 500/mL is considered to have a detectable residual disinfectant concentration."*[5] The maximum detection during this five-year period was 806 colonies per milliliter at the Hoffman well in 2011. Without regard to source water HPC levels, City source water is treated with chlorine to safeguard drinking water quality. This is done based on the historical use of open reservoirs (which no longer exist) and to preserve the sanitary quality when a well or piping is open to the environment during construction, repair or routine maintenance. Some water utilities in this area (drawing from the same aquifer) do not add any disinfectant.

COLIFORM BACTERIA - DISTRIBUTION SYSTEM

Coliform testing is typically done four days a week from various points in the distribution system. The Water Department has more than 220,000 customers. This population tier[6] requires taking 150 samples per month, which was adopted as the target for distribution system coliform monitoring by the Water Dept. in 2007. When a coliform positive test result is reported, re-sampling is done in compliance with the Total Coliform Rule and the Groundwater Rule. **During 2014, the City Water Department had 1,974 coliform bacteria samples analyzed. There were no detections.** 1,974 samples were analyzed in 2013 and, 1,974 samples were analyzed in 2012.

The Water Department staff has worked to refine the sampling sites for the distribution system. Concerns about inadvertent contamination of sampling sites and locations that don't adequately represent the distribution of the water system has caused the Water Department staff to establish more dedicated sampling sites at locations more representative of the entire system. Following is a map of the distribution system sampling sites during 2014, overlaid on the City's water service area. It is important to note that the sample sites are evenly placed based on the distribution system, which may not currently reach all parts of the water service area, and population density.

[5] Ref. WAC 246-290-451 (3)(c)
[6] ref. WAC 246-290-300 (3)(e-Table 2)



Water Department staff state that coliform bacteria have not been confirmed in the distribution system for at least the last 35 years. Sample handling or collection errors are suspected causes of the original detections.

PROTOZOA

A number of cities and towns throughout the country, in years past, have experienced problems with giardia and/or cryptosporidium getting into the distribution systems. Most times, problems with these parasitic organisms in potable water have been associated with surface water sources. **The City is not aware of, nor has the State Department of Health or Spokane Regional Health District indicated an awareness of, cases where infections with these organisms were traced back to the City's water system**.

Please note that cryptosporidium and other water borne organisms can be spread in many ways. For further risk information go to the Centers for Disease Control and Prevention (CDC) at www.cdc.gov/parasites/crypto/gen_info/infect.html. People who become ill as a result of consuming giardia and/or cryptosporidium typically recover after suffering severe bouts of diarrhea. However, small children, people whose immune systems are compromised, or who are otherwise in poor health can die as a result of these infections. For further information concerning the potential health effects issues, access the websites at the CDC at www.cdc.gov/parasites/crypto/index.html (cryptosporidium) and www.cdc.gov/parasites/giardia/index.html (giardia) and the EPA website at www.epa.gov/safewater/consumer/pdf/crypto.pdf (Para ver información adicional, visite water.epa.gov/drink/agua/upload/crypto_spanish.pdf)

GENERAL INFORMATION

English:
This report contains important information about the drinking water supplied by the City of Spokane. Translate it, or speak with someone who understands it well.

Spanish:
Este reporte contiene información importante acerca del agua potable suministrada por la Ciudad de Spokane. Tradúzcalo, o hable con alguien que lo entiende bien. (Para ver información adicional, visite al; www.epa.gov/espanol/ciudadanos.html)

Russian:
В этом отчете содержится важная информация относительно питьевой воды, поставляемой службой города Спокэн. Переведите этот отчет или поговорите с тем, кто его хорошо понимает.

Vietnamese:
Bản phúc trình này chứa đựng những thông tin quan trọng về nước uống được cung cấp bởi City of Spokane. Hãy phiên dịch, hay hỏi thăm người nào hiểu rõ về tài liệu này.

Across the nation, the sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material and can pick up substances resulting from the presence of animals or human activity.

Contaminants that may be present in source water include:

- Biological contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm run-off, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, storm water run-off, and residential uses.
- Organic chemicals, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water run-off and septic systems.
- Radioactive materials, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food & Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protections for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by contacting the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791, or you can access additional information at EPA websites: water.epa.gov/drink/index.cfm or water.epa.gov/drink/info/index.cfm

HEALTH INFORMATION

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Additional information concerning:

Radon: During 2014, the City conducted tests at Parkwater and Ray Street wells for Radon-222. The results were 441 pCi/L, and 443 pCi/L. The EPA has proposed a MCL of 300 pCi/L, which has not been finalized.

Radon is a radioactive gas that you can't see, taste, or smell and is a known carcinogen. Compared to radon entering the home through soil, radon entering the home through tap water will, in most cases, be a small source of radon in indoor air. Breathing air containing radon can lead to lung cancer and/or drinking water containing radon also may cause increased risk of stomach cancer. If

you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that aren't too costly. For additional information, call EPA's Radon Hotline (866-730-GREEN) or access the EPA website at www.epa.gov/radon/hotlines.html.

Arsenic: The arsenic readings in 2014 at the Grace, and Hoffman wells were 2.55 ppb and 3.00 ppb respectively. The Maximum Contaminant Level (MCL) for Arsenic is 10 ppb.

City of Spokane drinking water currently meets EPA's revised drinking water standard for arsenic. However, it does contain low levels of arsenic. There is a small chance that some people who drink water containing low levels of arsenic for many years could develop circulatory disease, cancer, or other health problems. Most types of cancer and circulatory diseases are due to factors other than exposure to arsenic. EPA's standard balances the current understanding of arsenic's health effects against the cost of removing arsenic from drinking water. Information on arsenic in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at water.epa.gov/lawsregs/rulesregs/sdwa/arsenic/index.cfm.

Lead: During 2012, the City tested 54 at-risk residences for lead. The single highest result was 15 ppb. This result for lead is equal to the 15 ppb Action Level for lead**.** The lead results, based on City in-home sampling, also continue to qualify our water system as having "Optimized Corrosion Control." Source water is analyzed for lead concurrent with the in-home testing. The maximum concentration in 2012 source water testing for lead was 0.35 ppb.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Spokane is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your drinking water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline, 1-800-426-4791 or at water.epa.gov/drink/info/lead/index.cfm

CITY OF SPOKANE'S SYSTEM

All of the City of Spokane's drinking water comes from the Spokane Valley-Rathdrum Prairie (SVRP) Aquifer - designated a "sole source" aquifer in 1978. The Spokane Aquifer (that portion of the SVRP aquifer lying within Washington State) and the Spokane River exchange water. The rates and locations of exchange are the subject of continued study.

Due to the porous nature of the ground surface and the number of potential contaminant sources, the possibility of contaminating the aquifer exists if good "housekeeping" measures are not followed for all activity over and adjacent to the aquifer. In order to safeguard water quality, the City, in coordination with other stakeholders, is currently implementing a Wellhead Protection Program. This program endeavors to inform the public about the Spokane Valley-Rathdrum Prairie Aquifer, and about appropriate disposal mechanisms for dangerous and/or critical materials that are generated in the Aquifer Sensitive Area. The program seeks land use regulations to help protect drinking water wells from contamination.

For additional information regarding the City of Spokane's Drinking Water or related issues, you can call:

City of Spokane Water & Hydroelectric Services	509-625-7800
City of Spokane Environmental Programs	509-625-6570

The Mayor recommends Water and Hydroelectric Services policy and rates to the Spokane City Council.
The Council meets most Mondays at 6:00 p.m. in the Council Chambers at
Spokane City Hall (808 W. Spokane Falls Blvd., Spokane, WA).

Appendix I - Water Use Efficiency compliance data 18-Feb-2015

Distribution System Leakage (DSL)

	2014	2013	2012	2011	2010	2009	2008	2007	2006
Service Meter Reading-Single Family, gallons	9,024,016,000	8,481,889,000	8,340,082,788	8,004,190,202	8,317,983,390	9,649,430,384	8,624,299,376	8,992,947,286	8,998,900,409
Service Meter Reading-Multi Family, gallons	2,312,170,000	2,281,194,000	2,209,050,964	2,123,911,196	2,156,077,200	2,360,823,156	3,065,246,404	3,534,713,255	3,449,781,864
Service Meter Reading-Commercial/Industrial, gallons	4,020,022,000	3,934,823,000	3,810,799,262	3,712,856,606	3,896,950,147	4,217,716,655	5,565,693,716	6,218,000,969	6,260,652,288
Service Meter Reading-Government, gallons	1,481,666,000	1,412,515,000	1,450,574,304	1,340,906,695	1,325,244,765	1,643,114,508	1,587,638,976	2,061,287,117	2,059,728,405
Purchased, permit ***	1,128,395,000	646,646,000	5,349,696						
Emergency Interties, gallons	**	**	**	**	* *	* *	* *	* *	* *
Wholesale Amount Sold, gallons	56,198,736	79,169,816	231,569,580	165,106,788	108,846,716	95,993,084	75,146,324	222,581,612	159,655,364
Non-Revenue Accounted for Water, gallons (estimate) *	583,677,000	580,548,000	784,644,731	1,189,855,000	1,064,380,000	1,064,380,000	209,440,000	209,440,000	209,440,000
Total Authorized Consumption, gallons *	18,606,144,736	17,416,784,816	16,832,071,326	16,536,826,487	16,869,482,218	19,031,457,788	19,127,464,796	21,238,970,240	21,138,158,330
Total Authorized Consumption (gal. X1000) (AC) *	18,606,145	17,416,785	16,832,071	16,536,826	16,869,482	19,031,458	19,127,465	21,238,970	21,138,158
Total Production (gal. X1000) (TP)	22,638,600	21,203,902	21,022,982	20,702,520	20,608,800	22,402,716	21,222,058	23,066,258	23,735,049
Distribution System Loss (DSL), volume (gal. X1000)	4,032,455	3,787,117	4,190,911	4,165,694	3,739,318	3,371,258	2,094,593	1,827,288	2,596,891
Distribution System Loss (DSL), percent	17.8%	17.9%	19.9%	20.1%	18.1%	15.0%	9.9%	7.9%	10.9%

* Total Authorized Consumption includes Non-Revenue Accounted for Water, which is consistent with Water Use Efficiency Rule guidance (see definition at right). This is different from past practice in previous Water System Plans. The value for Non-Revenue Accounted for Water (estimated, non-metered) was reassessed in 2009 and again in 2012

WAC 246-290-010 Definitions. - "Authorized consumption" means the volume of metered and unmetered water used for municipal water supply purposes by consumers, the purveyor, and others authorized to do so by the purveyor, including, but not limited to, fire fighting and training, flushing of mains and sewers, street cleaning, and watering of parks and landscapes. These volumes may be billed or unbilled.

* * Emergency intertie volumes are combined with wholesale amount sold

*** Prior to 2012, this was included in non-revenue accounted for water. Water use by selected permit holders was monitored with hydrant meters in 2013 and the estimated use revised.

Method for calculating the Distribution System Loss (DSL)

Calculating Percent DSL

To calculate percent DSL, use the following equation:

Percent DSL = [(TP - AC) / (TP)] x 100

Where:

DSL = Percent (%) of distribution system loss

TP = Total water produced and purchased

AC = Authorized consumption

Calculating Volume DSL

To calculate volume DSL, use the following equation:

Volume DSL = TP - AC

Report volume DSL in millions of gallons or gallons

Total System Pumpage vs. Water Stewardship Strategic Plan Goals (source - City of Spokane Water Department)

WATER YEAR (Oct. through Sept.)	2014	2013	2012	2011	2010	2009	2008	2007	2006
					pumpage (x1,000 gallons)				
Total - Oct. (prev. yr.)through Mar.	6,397,435	6,178,688	6,910,801	6,475,952	6,778,277	6,618,666	6,670,191	7,161,742	6,884,687
Total - Apr. through Jun.	6,246,070	6,118,455	5,184,227	4,655,473	5,241,226	6,439,647	5,340,540	6,463,462	5,991,545
Total - Jul. through Sept.	9,632,114	8,850,530	9,164,570	9,329,077	8,938,048	9,202,243	9,277,452	9,936,735	10,451,223
Total - sum of seasonal totals	22,275,619	21,147,673	21,259,598	20,460,502	20,957,551	22,170,556	21,288,183	23,561,939	23,327,455
Goal - Oct. (prev. yr.) through Mar.	7,080,000	7,020,000	6,970,000	6,920,000	6,870,000	6,810,000	6,760,000	6,710,000	6,660,000
Goal - Apr. through Jun.	6,960,000	6,950,000	6,930,000	6,920,000	6,900,000	6,890,000	6,870,000	6,850,000	6,830,000
Goal - Jul. through Sept.	8,470,000	8,580,000	8,670,000	8,750,000	8,830,000	8,910,000	8,990,000	9,060,000	9,130,000
Population Estimate	234,154	231,194	228,250	225,387	222,538	219,726	216,947	214,207	211,500
Difference between Goal & Use as a percentage (positive value equal exceedance of goal)									
Result - Oct. (prev. yr.) through Mar.	-9.6%	-12.0%	-0.8%	-6.4%	-1.3%	-2.8%	-1.3%	6.7%	3.4%
Result - Apr. through Jun.	-10.3%	-12.0%	-25.2%	-32.7%	-24.0%	-7.8%	-22.3%	-5.6%	-12.3%
Result - Jul. through Sept.	13.7%	3.2%	5.7%	6.6%	1.2%	3.3%	3.2%	9.7%	14.5%

Single Family Residences, total volume billed (entire service area) (Source - Utility Billing)

year	billing period	gallons (total)	no. of service locations	gal per service location per day	% change of service locations (Aug. & Sept.)
2002	Jan. & Feb.	661,658,308	57,239	199	
2002	Aug. & Sept.	3,349,808,500	58,418	956	
2003	Jan. & Feb.	621,954,490	57,238	187	
2003	Aug. & Sept.	3,739,564,671	58,747	1061	0.56%
2004	Jan. & Feb.	718,183,965	57,978	214	
2004	Aug. & Sept.	3,297,148,096	59,259	927	0.87%
2005	Jan. & Feb.	604,612,888	58,403	178	
2005	Aug. & Sept.	2,940,177,049	59,914	818	1.11%
2006	Jan. & Feb.	709,090,289	59,231	206	
2006	Aug. & Sept.	3,392,957,337	60,883	929	1.62%
2007	Jan. & Feb.	610,421,856	59,881	176	
2007	Aug. & Sept.	3,610,435,980	61,459	979	0.95%
2008 *	Jan. & Feb.	605,478,234	60,435	170	
2008	Aug. & Sept.	3,158,038,235	61,581	855	0.20%
2009	Jan. & Feb.	655,566,618	60,683	186	
2009	Aug. & Sept.	3,183,286,496	61,585	861	0.01%
2010	Jan. & Feb.	597,449,771	60,608	170	
2010	Aug. & Sept.	2,809,319,289	61,810	758	0.37%
2011	Jan. & Feb.	622,672,473	60,492	177	
2011	Aug. & Sept.	2,693,465,720	61,671	728	-0.22%
2012	Jan. & Feb.	520,332,871	60,478	146	
2012	Aug. & Sept.	3,064,418,368	61,822	826	0.24%
2013	Jan. & Feb.	527,271,506	59,384	153	
2013	Aug. & Sept.	2,631,712,994	61,783	710	-0.06%
2014	Jan. & Feb.	602,851,273	61,403	170	
2014	Aug. & Sept.	2,799,952,511	62,042	752	0.42%
			Avg. percent change of service		0.50%

* Heavy winter weather during Feb. 2008 resulted in estimating north side accounts

Appendix II - Tests Run on City of Spokane Water 12-Jan-2015

FIELD TESTS
Chlorine, Total Residual
Conductivity
Hardness
pH
Temperature
Turbidity

RADIONUCLIDES
Alpha emitters (gross)
Radon 222
Radium 228

MICROBES
BACTERIA
Total Coliform - Before & After Treatment
Fecal Coliform - Before & After Treatment
Heterotrophic Plate Count - Raw water

GENERAL INORGANICS
Color
Conductivity
Hardness, Total
Total Dissolved Solids
Turbidity

INORGANIC IONS
Chloride
Cyanide
Fluoride
Nitrate Nitrogen
Nitrite Nitrogen
Phosphorus
Sulfate

INORGANIC METALS
Aluminum
Antimony
Arsenic
Barium
Beryllium
Cadmium
Calcium
Chromium
Copper
Iron
Lead
Magnesium
Manganese
Mercury
Nickel
Selenium
Silver
Sodium
Thallium
Zinc

VOLATILE ORGANICS
Benzene
benzene, 1,2,3-Trichloro-
benzene, 1,2,4-Trichloro-
benzene, 1,2,4-Trimethyl-
benzene, 1,3,5-Trimethyl-
benzene, Bromo-
benzene, Butyl-
benzene, Chloro-
benzene, Ethyl
benzene, Isopropyl-
benzene, m-Dichloro-
benzene, o-Dichloro-
benzene, p-Dichloro-
benzene, Propyl-
benzene, sec-Butyl-
benzene, tert-Butyl-
Butadiene, Hexachloro-
Chloride, Carbon Tetra-
Chloride, Methylene (aka methane, dichloro)
Chloride, Vinyl
ethane, 1,1,1,2-Tetrachloro-
ethane, 1,1,1-Trichloro-
ethane, 1,1,2,2-Tetrachloro-
ethane, 1,1,2-Trichloro-
ethane, 1,1-Dichloro-
ethane, 1,2-Dichloro-
ethane, Chloro-
ethene, 1,1-Dichloro-
ethene, cis-1,2-Dichloro-
ethene, Tetrachloro-
ethene, trans-1,2-Dichloro-
ethene, Trichloro-
methane, Bromo-
methane, Bromochloro-
methane, Chloro-
methane, Dibromo-
methane, Dichlorodifluoro-
methane, Trichlorofluoro- (Freon 11)
Naphthalene
propane, 1,2,3-Trichloro-
propane, 1,2-Dichloro-
propane, 1,3-Dichloro-
propane, 2,2-Dichloro-
propene, 1,1-Dichloro-
propene, cis-1,3-Dichloro-
propene, trans-1,3-Dichloro-
Styrene
Toluene
toluene, o-Chloro-
toluene, p-Chloro-
toluene, p-Isopropyl-
Xylene, m&p-
Xylene, o-
Xylene, total

Appendix II (continued)

GENERAL ORGANICS

ether, Methyl tert-Butyl (MtBE)

DISINFECTION BY-PRODUCTS

TRIHALOMETHANES

Chloroform
Bromoform
methane, Dibromochloro-
methane, Bromodichloro-
Total Trihalomethanes

FIVE HALOACETIC ACIDS (HAA5)

acetic Acid, Monochloro-
acetic Acid, Dichloro-
acetic Acid, Trichloro-
acetic Acid, Monobromo-
acetic Acid, Dibromo-

OTHER DISINFECTION BY-PRODUCTS

acetic Acid, Bromochloro-

SYNTHETIC ORGANICS

2-Chloronaphthalene
2-Methylnapthalene
4-bromophenyl phenyl ether
4-Chlorophenyl phenyl ether
5-Hydroxydicamba
Acenaphthene
Acenaphthylene
Acifluorfen
Adipate, Di-(2-ethylhexyl)
Alachlor
Aldicarb
Aldicarb Sulfone
Aldicarb Sulfoxide
Aldrin
Amtryne
Anthracene
Anthracene, Benz(a)-
Anthracene, Dibenz(a,h)-
Arochlor 1016
Arochlor 1221
Arochlor 1232
Arochlor 1242
Arochlor 1248
Arochlor 1254
Arochlor 1260
Atraton
Atrazine
Baygon
Benefin
Bentazon
benzene, Hexachloro-
benzoic acid, 3,5-Dichloro-
BHC (alpha)
BHC (beta)
BHC (delta)
Bromacil
Butachlor
Butylate
Carbaryl
Carboxin
Chloramben
Chlordane
Chlordane, alpha-
Chlordane, gamma-
Chlorpropham
Chrysene
Cyanazine
Cycloate
D, 2,4-
Dalapon
DB, 2,4-
DCPA (Dacthal)
DDD, 4,4-
DDE, 4,4-
DDT, 4,4-
Diazinon
Dibenzofuran
Dicamba
Dichlorprop
Dichlorvos
Dieldrin
Diesel (as straight alka chain)
Dimethoate
Dinoseb
Diphenylamine
Diquat
Disulfoton
Disulfoton sulfone
Disulfoton sulfoxide (A)
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endothall
Endrin
Endrin aldehyde
EPTC
Ethoprop
Ethylene Dibromide
Fenamiphos
Fenarimol
Fluoranthene
Fluoranthene, Benzo(b)
Fluoranthene, Benzo(k)
Fluorene
Fluridone
furan, 3-Hydroxycarbo-
furan, Carbo-
Glyphosate
Heptachlor
Heptachlor Epoxide
Hexachloroethane
Hexazinone
Isodrin
Isophorone
Isopropalin
Isosafrole
Lindane
Malathion
Merphos
Methiocarb
Methomyl
Methoxychlor
Methyl paraoxon
Methylparathion
Metolachlor
Metribuzin
Mevinphos
MGK-264
Molinate
N-Nitrosodi-N-propylamine
Napropamide
Nonachlor, cis-
Nonachlor, trans-
Norflurazon
Oxadiazon
Oxamyl
Oxyfluorfen
Pendamethalin
Pentachloronitrobenzene
pentadiene, Hexachlorocyclo-
Perylene, Benzo(g,h,i)
Phenanthrene
phenol, 2,4,6-Trichloro
phenol, 2,4-Dichloro
phenol, 4-Chloro-3-methyl
phenol, Pentachloro-
phenyls, Polychlorinated Bi- (PCB, total Arochlor)
phthalate, Butylbenzyl-
phthalate, Di-(2-Ethylhexyl)-
phthalate, Di-n-Butyl-
phthalate, Diethyl
phthalate, Dimethyl-
Picloram
Profuralin
Prometon
Propachlor
propane, Dibromochloro- (DBCP)
Pyrene
pyrene, Benzo a-
Pyrene, Indeno(1,2,3,c,d)
Safrole
Simazine
T, 2,4,5-
Terbacil
Terbuphos
Toxaphene
TP, 2,4,5-
Trifluralin
Vernolate

Appendix III - Annual Testing Summary - Tests Run on City of Spokane Water 4-Feb-2015

2014 DRINKING WATER SOURCE - COMPLETED QUARTERLY MONITORING

	SOURCE #	8	6	5	1	3	4	2
	WELL	CENTRAL	GRACE	HOFFMAN	NEVADA	PARKWATER	RAY	WELL ELECTRIC
BACTERIA								
COLIFORM - RAW SOURCE *		8 / 0	8 / 0	4 / 0	5 / 0	12 / 0	10 / 0	27 / 0
Total Coliform -number of samples per year / number of positive detections		8 / 0	8 / 0	4 / 0	5 / 0	12 / 0	10 / 0	27 / 0
Fecal Coliform - number of samples per year / number of positive detections								
HETEROTROPHIC PLATE COUNT - RAW SOURCE *		8 / 1	8 / 1	4 / 22	5 / 0	12 / 1	10 / 1	21 / 10
number of samples per year / greatest result value								
* All operating wells are typically sampled once per month								
INORGANIC								
FULL LIST- ACCREDITED LAB (phase II & V included)	3rd Qtr - Jul		completed-see App. IV	completed-see App. IV				
NITRATE	1st Qtr - Jan						3.15	
	2nd Qtr - April						3.07	
	3rd Qtr - Jul	0.9	0.683	1.24	0.80	1.55	2.82	1.37
	4th Qtr - Oct						3.23	
NITRATE + NITRITE - RPWRF LAB	1st Qtr - Jan						3.42	
	2nd Qtr - April						3.08	
	3rd Qtr - Jul	0.93	0.72	1.38	0.86	1.68	3.17	1.58
	4th Qtr - Oct						3.54	
ORGANIC								
VOLATILES	1st Qtr - Jan	no detections						
(including TRIHALOMETHANES)	2nd Qtr - April							
	3rd Qtr - Jul				no detections			
	4th Qtr - Oct							
SYNTHETIC ORGANICS (515.1, 525.2, 531.1)	2nd Qtr - April							
	3rd Qtr - Jul	no detections	no detections	no detections				
	4th Qtr - Oct	no detections						
	4th Qtr - Dec		no detections					
RADIOACTIVE CONTAMINANTS								
Radium 228 - pCi/L,	2nd Qtr - April					0.52	1.04	
Gross Alpha - pCi/L	2nd Qtr - April					2.10	<1	
Radon - pCi/L	2nd Qtr - April					441	443	

UNITS ARE AS REPORTED, ppb FOR ORGANICS, ppm FOR INORGANICS, except where noted.

CITY OF SPOKANE 18-Feb-2015

DRINKING WATER INORGANICS SUMMARY

MOST RECENT WELL STATION MONITORING ANALYTICAL RESULTS

ACCREDITED LABORATORIES

								Maximum Contaminant Levels		CURRENT DATA SUMMARY			
WELL STATION	CENTRAL	ELECTRIC	GRACE	HOFFMAN	NEVADA	PARKWATER	RAY	MCL's**	Goals MCLG's	MEAN	MAX	MIN	COUNT
SAMPLING DATE	30-Jul-2013	30-Jul-2013	29-Jul-2014	29-Jul-2014	31-Jul-2012	31-Jul-2012	31-Jul-2012						
LABORATORY	(Anatek)	(Anatek)	(Anatek)	(Anatek)	(Anatek)	(Anatek)	(Anatek)						
ALKALINITY	not tested	not tested	not tested	not tested	90	147	155	unregulated		131	155	90	3
HARDNESS (as CaCO3) #	131	131	96	136	97	163	171	unregulated		132	171	96	7
CONDUCTIVITY (µmos/cm)	256	284	214	305	207	335	383	700 t		283	383	207	7
TURBIDITY (NTU)	< 0.100	< 0.100	< 0.1	< 0.1	< 0.100	< 0.100	< 0.100	1 t			< 0.1	< 0.1	7
COLOR (color units)	< 5.00	< 5.00	< 5	< 5	< 5.00	< 5.00	< 5.00	15 s			< 5.00	< 5.00	7
CHLORIDE	3.67	3.91	3.66	5.24	3.67	5.59	12.8	250 s		5.51	12.8	3.66	7
TOT. DISSOLVED SOLIDS	140	148	136	167	119	201	220	500 s		162	220	119	7
MAGNESIUM	14.1	14.0	8.3	15.1	8.74	17.6	16.3	unregulated		13.4	17.6	8.3	7
CALCIUM	27.1	31.8	23	29	23.9	35.9	49.4	unregulated		31.4	49.4	23	7
ORTHO-PHOSPHATE	0.02	< 0.01	< 0.01	0.02	< 0.01	< 0.01	0.02	unregulated		0.02	0.02	< 0.010	7
AMMONIA	< 0.030	< 0.030	not tested	not tested	< 0.05	< 0.05	< 0.05	unregulated			< 0.05	< 0.030	5
CYANIDE	< 0.0100	< 0.0100	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.2	0.2		< 0.0100	< 0.0100	7
FLUORIDE	< 0.5	< 0.5	< 0.01	< 0.01	< 0.1	< 0.1	< 0.1	2 s	4		< 0.5	< 0.01	7
NITRATE (NO3-N)	0.87	1.36	0.68	1.24	0.8	1.35	2.51	10	10	1.26	2.51	0.68	7
NITRITE (NO2-N)	< 0.050	< 0.050	< 0.01	< 0.01	< 0.1	< 0.1	< 0.1	1	1		< 0.1	< 0.01	7
SULPHATE	11.5	11	6.68	11.5	7.58	15.1	13.1	250 s	400	10.9	15.1	6.7	7
ALUMINUM	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01	0.05 - 0.2 s			< 0.080	< 0.01	7
ANTIMONY	< 0.00300	< 0.00300	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.006	0.006		< 0.00300	< 0.001	7
ARSENIC	0.0035	0.00475	0.00255	0.003	0.00288	0.00326	0.00458	0.010	0	0.0035	0.00475	0.00255	7
BARIUM	0.0232	0.0201	0.0164	0.0255	0.0168	0.0277	0.0472	2	2	0.0253	0.0472	0.0164	7
BERYLLIUM	< 0.000800	< 0.000800	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	0.004	0.004		< 0.0008	< 0.0003	7
CADMIUM	< 0.00200	< 0.00200	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.005	0.005		< 0.001	< 0.000200	7
CHROMIUM	< 0.0060	< 0.0060	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.1	0.1		< 0.0060	< 0.001	7
COPPER	0.0083	< 0.010	0.00445	0.00458	0.00298	0.00058	0.000481	TT	1.3	0.0036	0.0083	0.000481	7
IRON	< 0.060	< 0.060	< 0.01	< 0.01	0.019	< 0.01	< 0.01	0.3 s		0.0190	0.019	< 0.01	7
LEAD	< 0.00100	< 0.00100	< 0.00100	< 0.00100	0.00013	0.00003	0.00035	TT	0	0.00017	0.00035	0.00003	7
MANGANESE	< 0.01	< 0.01	< 0.001	< 0.001	< 0.01	< 0.01	< 0.01	0.05 s			< 0.01	< 0.001	7
MERCURY	0.0002	0.00022	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.002	0.002	0.0002	0.00022	< 0.0001	7
NICKEL	< 0.005	0.00133	< 0.001	0.00114	< 0.001	< 0.001	< 0.001	0.1 * * *	0.1 * * *	0.00124	0.00133	< 0.001	7
SELENIUM	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.05	0.05		< 0.002	< 0.001	7
SILVER	< 0.1	< 0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.1 s			< 0.1	< 0.001	7
SODIUM	3.11	3.84	2.48	3.87	2.57	3.94	7.35	unregulated		3.9	7.35	2.48	7
THALLIUM	< 0.00100	< 0.00100	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.0005		< 0.00100	< 0.001	7
ZINC	0.0283	0.00537	0.0116	0.0156	0.0125	0.012	0.0153	5 s		0.01438	0.0283	0.00537	7

RESULTS ARE IN mg/L EXCEPT WHERE OTHERWISE NOTED

* TT = Treatment Technique; s = Secondary MCL; t = State only MCL

* * Aluminum is a secondary regulated contaminant

* * * The MCL and MCLG for Nickel were remanded on February 9, 1995, monitoring requirements still in effect

divide by 17.1 to convert to grains per gallon

Appendix V - Distribution System Disinfection By Products

CITY OF SPOKANE 4-Feb-2015

Disinfection By Products TriHaloMethanes (THMs)

2013	Sample Date	Location	Chloroform	Bromodichloromethane	Chlorodibromomethane	Bromoform	Total THMs	LRAA (locational running annual average)
First Quarter (Q1)	1/17/2013	Strong Road	< 0.25	0.62	0.93	< 0.50	1.55	
	1/17/2013	Cedar Hills	< 0.25	0.59	0.95	< 0.50	1.54	
	1/17/2013	Mallen Hill	< 0.25	0.55	0.81	< 0.50	1.36	0.79
	1/17/2013	BPA Easement	0.55	1.12	1.35	< 0.50	3.02	1.82
	1/17/2013	Eagle Ridge Two	0.42	0.76	1.23	0.52	2.93	2.16
	1/17/2013	Southview	0.39	0.92	1.58	0.65	3.54	3.55
Second Quarter (Q2)	4/4/2013	Strong Road	0.42	0.9	1.15	< 0.50	2.47	2.69
	4/4/2013	Cedar Hills	0.29	0.59	0.86	< 0.50	1.74	1.63
	4/4/2013	Mallen Hill	0.29	0.66	0.91	< 0.50	1.86	1.1
	4/4/2013	BPA Easement	0.58	1.00	1.19	0.50	3.27	2.16
	4/4/2013	Eagle Ridge Two	0.44	0.81	1.03	< 0.50	2.38	2.12
	4/4/2013	Southview	0.41	0.95	1.21	0.58	3.15	3.14
Third Quarter (Q3)	7/18/2013	Strong Road	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	1.52
	7/18/2013	Cedar Hills	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	1.24
	7/18/2013	Mallen Hill	< 0.25	< 0.5	0.54	< 0.5	0.54	1.23
	7/18/2013	BPA Easement	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	2.16
	7/18/2013	Eagle Ridge Two	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	2.35
	7/18/2013	Southview	0.26	0.76	1.40	0.85	3.27	3.26
Fourth Quarter (Q4)	10/17/2013	Strong Road	0.39	0.70	1.19	< 0.5	3.19	1.80
	10/17/2013	Cedar Hills	0.28	< 0.5	0.66	0.51	1.57	1.21
	10/17/2013	Mallen Hill	< 0.25	< 0.5	< 0.5	< 0.5	< 0.5	0.94
	10/17/2013	BPA Easement	0.27	< 0.5	0.62	< 0.5	0.89	1.80
	10/17/2013	Eagle Ridge Two	0.37	0.73	1.02	< 0.5	2.95	2.07
	10/17/2013	Southview	0.46	0.98	1.52	0.78	4.26	3.56
2014								
First Quarter (Q1)	1/16/2014	Eagle Ridge Two	0.49	0.76	1.02	< .5	2.27	1.90
	1/16/2014	Southview	0.58	1.11	1.43	0.6	3.72	3.60
Second Quarter (Q2)	4/16/2014	Eagle Ridge Two	0.43	0.76	0.87	< .5	2.06	1.82
	4/16/2014	Southview	0.47	1.00	1.22	0.69	3.38	3.66
Third Quarter (Q3)	7/17/2014	Eagle Ridge Two	< 0.25	< .5	< .5	< .5	< 0.5	1.82
	7/17/2014	Southview	0.36	0.9	1.36	1.03	3.65	3.75
Fourth Quarter (Q4)	10/16/2014	Eagle Ridge Two	< 0.25	< .5	< .5	< .5	< 0.5	1.08
	10/16/2014	Southview	0.37	0.99	2.01	1.65	5.02	3.94

All values are reported in µg/L

First quarter LRAA 2014 would include Total THM for second, third and fourth quarters of 2013 and first quarter 2014.

CONTAMINANTS FOUND IN DRINKING WATER TESTING IN 2014

CITY OF SPOKANE, WATER & HYDROELECTRIC SERVICES

Data presented, if not from 2014, is from the most recent testing done in accordance with the regulations.

SOURCE WATER TESTING CONTAMINANT	Units	Highest Average	Detected Maximum	Detected min.	Number Positive Samples	Number of Samples	MCL	MCLG	MAJOR SOURCES
Arsenic	µg/L	**(a)**	**3.0**	**2.6**	**2**	**2**	**10**	**0**	**Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes**
Nitrate	mg/L	**(a)**	**3.23**	**0.68**	**10**	**10**	**10**	**10**	**Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits**
Gross Alpha	pCi/L	**(a)**	**2.1**	**< 1.0**	**1**	**2**	**15**	**0**	**Erosion of natural deposits**
Combined Radium 226 and 228 (b)	pCi/L	**(a)**	**2.1**	**1.54**	**2**	**2**	**5**	**0**	**Erosion of natural deposits**
DISTRIBUTION SYSTEM TESTING CONTAMINANT	Units	LRAA	Detected Maximum	Detected min.	Number Positive Samples	Number of Samples	MCL	MCLG	MAJOR SOURCES
Disinfection Byproducts - TTHMs [Total Trihalomethanes]	µg/L	**3.94**	**5.02**	**2.06**	**6**	**8**	**80**	**0**	**By-product of drinking water chlorination**
		date sampled	**90th Percentile (d)**	**Number of Sites exceeding AL**	**Number Positive Samples**	**Number of Samples**	**MCL**	**MCLG**	
Copper (c)	mg/L	**Aug-12**	**0.09**	**0**	**54**	**54**	**TT, AL= 1.3**	**1.3**	**Corrosion of household plumbing systems; Erosion of natural deposits: Leaching from wood preservatives**
Lead (c)	µg/L	**Aug-12**	**3.80**	**0**	**54**	**54**	**TT, AL= 15**	**0**	**Corrosion of household plumbing systems; Erosion of natural deposits**

Notes

(a) Compliance with MCL is determined by single sample results, so no average is used.

(b) Gross Alpha results were used in lieu of Radium 226, one half of the detection limit of 1.0 was used for the ND

(c) Faucet samples were from 'at risk' homes (those with lead service lines and those with copper pipes with lead solder joints).

(d) 90% of at-risk homes had this concentration, or less, of lead/copper.

Key to Table

AL = Action Level = The concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow.

LRAA = Locational Running Annual Average

MCL = Maximum Contaminant Level = The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG = Maximum Contaminant Level Goal = The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

pCi/L = picocuries per liter (a measure of radioactivity)

µg/L = micrograms per Liter = parts per billion

mg/L =milligrams per Liter = parts per million

TT = Treatment Technique = A required process intended to reduce the level of a contaminant in drinking water.

ND = None Detected

< less than