

WATER SYSTEM FACTS

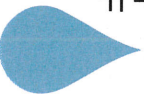
THE WATER SUPPLIED TO THE CITY OF PATTERSON COMES SOLELY FROM GROUNDWATER WELLS.

THE CITY'S WATER DISTRIBUTION LINES TOTAL **64 MILES** OF PIPELINE.



IN **2018**, THE CITY'S SEVEN POTABLE WELLS PUMPED A TOTAL OF **1.3 BILLION** GALLONS OF WATER.

IN **2018**, THE CITY OFFSET **76.3 MILLION** GALLONS OF DRINKING WATER BY INCORPORATING THE CITY'S NON-POTABLE SYSTEM.



IN **2018**, THE CITY AND ITS RESIDENTS CONSERVED OVER **226.4 MILLION** GALLONS OF GROUNDWATER (COMPARED TO THE STATE'S 2013 BASELINE YEAR)

- The city's non-potable system is made up of three non-potable groundwater wells.
- The non-potable water system (purple pipe distribution lines) allows parks and schools to be irrigated using nonpotable water (water that does not meet drinking water standards). With implementation of this system, we are able to conserve the water that is eligible for human consumption while irrigating the landscaping of our parks and schools with water that may not meet water drinking standards.
- Water meters are equipped with a profiler function that enables operators to download water flow data from each meter. The feature allows staff to diagnose or verify unseen or undetected water leaks.
- The Cross Connection Control Program protects the city's drinking water from potential hazards posed by certain types of industries.
- All water operators are certified by the State Water Resources Control Board in the distribution and treatment of drinking water.

CITY OF PATTERSON 2018 ANNUAL WATER QUALITY REPORT

This brochure contains details of where your water comes from, what it contains and how it compares to State and Federal standards. The city of Patterson is committed to providing you with the best and most accurate information regarding the quality of our water. This year's Annual Water Quality Report covers all testing completed January 1 through December 31, 2018. Our goal is to continue to provide you with a safe and dependable supply of drinking water.

YOUR OPINION COUNTS!

Council meetings are held the 1st and 3rd Tuesday of each month at 7:00 pm in the Council Chambers located at City Hall.

FOR MORE INFORMATION ON THESE AND OTHER SERVICES, PLEASE SEE BELOW:



Water Conservation, Quality and Public Works
Emergencies:
(209) 895-8060 (during business hours
(209) 895-8000, option 9 (after business hours)

Utility Billing, Payments, Services (On/Off):
Ph (209) 895-8040
Fax (209) 895-8059

2018 ANNUAL WATER QUALITY REPORT



City of Patterson
Department of Public Works
1 Plaza, Patterson, Ca 95363
Fax: (209) 895-8069
Email: publicworks@ci.patterson.ca.us



SOURCES OF DRINKING

WATER

'include: rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of land and into the ground, it dissolves naturally-occurring minerals and radioactive materials and has the potential to pick up substances resulting from the presence of animals or from human activity.

The city of Patterson draws all its drinking water from seven potable groundwater wells located throughout the city to service the current population of 23,764. Our distribution system is looped and interconnected and operates in three pressure zones: Zone 3 services the Patterson Gateway area, known as Villa de Lago. Zone 2 services the West Patterson Business Park and the Patterson Gardens subdivision and Zone 1 services the remainder of the city. A source water assessment for all seven wells was completed in April 2014. These sources are considered the most vulnerable to the following activities (not associated with any contaminants): gas stations, confirmed leaking tanks, dry cleaners, car repair shops, chemical and petroleum pipelines, sewer lines, utility and maintenance stations, known contaminated plumes, agricultural and irrigation wells and drainage, pesticide, fertilizer and petroleum storage.

To view a copy of the complete assessments, contact the Department of Public Works at 209-895-8060 or contact the State Water Resources Control Board, Division of Drinking Water, at 31 E Channel Street, Room 270 in Stockton, CA or by calling (209-948-7696.



OUR COMMITMENT

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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

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 by Cryptosporidium and other microbial contaminants.

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. City of Patterson is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing. 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 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 or at <http://www.epa.gov/safewater/lead>.

For systems that detect nitrate (NO3) above 5 mg/L can be considered a health risk for infants of less than 6 months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate (NO3) levels above 45 mg/L may also affect the ability of the blood to carry oxygen. In other individuals, such as pregnant women and those with specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advise from your health care provider.

In order to ensure that tap water is safe to drink, the USEPA and the SWRCB, Division of Drinking Water, prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. SWRCB regulations also establish limits for contaminants in bottled water that provide the same protections for public health. All ten tables on the inside of this brochure list all the water contaminants that were detected during the most recent water sampling. The presence of these contaminants do not necessarily indicate that the water poses a health risk. SWRCB allows us to monitor for certain contaminants less than once a year because the concentrations of these contaminants do not change frequently. Some of the data through representative of the water quality, are more than one year old.



Contaminants that may be present in source water include:

- Microbial 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 water runoff, 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, urban storm water runoff, and residential uses.
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- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or the result of oil production and mining activities.



2018 Annual Water Quality Report for the City of Patterson

We test the drinking water quality for many constituents as required by State and Federal regulations. This report shows the results of our monitoring for the period of January 1 – December 31, 2018. According to the State Water Resources Control Board (SWRCB) records, the city's only source of water is groundwater. This assessment was done using the Default Groundwater System Method. Your water comes from seven (7) sources: Well 2 – North 5th Street, Well 5 – Hartley Avenue, Well 6 – Poppy Avenue, Well 7 – Hartley Avenue, Well 8 – Orange Avenue, Well 9 – Orange Avenue and Well 11 – Sycamore Avenue. The public can participate in decisions that affect drinking water quality by attending City Council meetings on the 1st and 3rd Tuesday of every month at 7pm. City Council meetings are held in the City Hall Council Chambers located at 1 Plaza, Patterson, CA 95363. For more information about this report or any questions related to your drinking water, please call (209) 895-8060 or visit our website www.ci.patterson.ca.us. Any violation of MCL, AL or MRDL is highlighted.

Este informe tiene información muy importante con respecto a su agua potable. Por favor tradúzalo a un habla con alguien que lo entienda bien.

The city's drinking water is only dependent of seven groundwater wells. Contaminants that may be present in source water include: Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife. Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil, gas production, mining or farming. Pesticides and herbicides, that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses. Organic chemical contaminants, including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems. Radioactive contaminants, that 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 USEPA and the State Water Resource Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that provide the same protection for public health. Tables 2, 3, 4, 5, 6, 7, 8, 9 and 10 list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The State Board allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative of the water quality, are more than one year old. Additional General Information on Drinking Water

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts in some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791). Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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. USEPA/Centers for Disease Control (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). Lead Specific Language for Community Water Systems: 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 the service lines and home plumbing. City of Patterson Drinking Water 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 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 or at <http://www.epa.gov/lead>. Summary Information for Violation of a MCL, MRDL, AL, TT, or Monitoring and Reporting Requirement

About our Lead: Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure. About our 1,2,3-Trichloropropane (1,2,3-TCP): Some people who use water containing 1,2,3-trichloropropane in excess of the action level over many years may have an increased risk of getting cancer, based on studies in laboratory animals. About our Hexavalent Chromium: Some people who drink water containing hexavalent chromium in excess of the MCL over many years may have an increased risk of getting cancer. About our Color: Color was found at levels that exceed the secondary MCL. The color MCL was set to protect you against unpleasant aesthetic effects due to color. Violating this MCL does not pose a risk to public health. About our Iron: Iron was found at levels that exceed the secondary MCL. The Iron MCL was set to protect you against unpleasant aesthetic effects such as color, taste, odor and the staining of plumbing fixtures (e.g., tubs and sinks), and clothing while washing. Violating this MCL does not pose a risk to public health. About our Specific Conductance: The conductivity of your water was found at levels that exceed the secondary MCL. The secondary MCLs were set to protect you against unpleasant aesthetic effects such as color, taste and odor. Violating this MCL does not pose a risk to public health. About our Total Dissolved Solids: The TDS or Total Dissolved Solids in your water was found at levels that exceed the secondary MCL. The TDS MCLs were set to protect you against unpleasant aesthetic effects such as color, taste or hardness. Violating this MCL does not pose a risk to public health. About our Turbidity: Turbidity is Secondary Drinking Water Standards and has found no health effects. However, high levels of turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches. A copy of the complete assessment may be viewed at: SWRCB, DDW, 31 East Channel Street, Room 270, Stockton, CA, 95202. You may request a summary of the assessment be sent to you by contacting the SWRCB, District 10 office at (209) 948-3816.



TABLE 1 - SAMPLING RESULTS FOR LEAD AND COPPER

Constituent (Unit of Measure)	Year Sampled	No. of Samples Collected	90th Percentile Level	# Sites Exceeding AL	AL	PHG	Typical sources of contaminant
Lead (ug/L)	2018	46	1.7	1	15	0.2	Internal corrosion of household water plumbing systems; discharge from industrial manufacturers; erosion of natural deposits
Copper (mg/L)	2018	46	0.18	0	1.3	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

TABLE 2 - SAMPLING RESULTS FOR SODIUM AND HARDNESS

Constituent (Unit of Measure)	Year Sampled	Level Detected	Range of Detection	MCL (MRDL)	PHG (MCLG) (MRDLG)	Typical sources of contaminant
Sodium (ppm)	2016-2017	104	63-147	n/a	n/a	Salt present in the water and is generally naturally occurring
Total Hardness (ppm)	2016-2017	371	255-536	n/a	n/a	Sum of polyvalent cations present in the water, generally magnesium and calcium, and are usually naturally occurring

TABLE 3 - DETECTION OF CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD

Constituent (Unit of Measure)	Year Sampled	Level Detected	Range of Detection	MCL (MRDL)	PHG (MCLG) (MRDLG)	Typical sources of contaminant
Arsenic (As) (ppb)	2016-2018	4	ND-6	10	0.004	Erosion of natural deposits; runoff from orchards, glass and electronics production, wastes
Chromium (Total) (ppb)	2016-2017	21	17-25	50	n/a	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride (F) (ppm)	2016-2017	ND	ND-0.3	2	1	Erosion of natural deposits; discharge from fertilizer and aluminum
Hexavalent Chromium* (ug/L)	2017-2018	19.4	15.8-26.3	n/a	0.02	Discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile manufacturing facilities; erosion of natural deposits
Nitrate as N (ppm)	2018	3.9	ND-7.6	10	10	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrate+Nitrate as N (mg/L)	2016-2017	3.5	1.2-7.4	10	10	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Selenium (ug/L)	2016-2017	6	ND-10	50	30	Discharge from petroleum, glass, and metal refineries, mines and chemical manufacturers; erosion of natural deposits; runoff from livestock lots (feed additive)
Gross Alpha (pCi/L)	2012-2016	4.41	2.32-9.55	15	(0)	Erosion of natural deposits
Uranium pCi/L	2012-2016	2.103	ND-3.57	20	0.43	Erosion of natural deposits
1,2,3-Trichloropropane (1,2,3-TCP) (ug/L)	2018	ND	ND-0.011	0.005	0.0007	Erosion of natural deposits

TABLE 4 - TREATED DETECTION OF CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD

Constituent (Unit of Measure)	Year Sampled	Level Detected	Range of Detection	MCL (MRDL)	PHG (MCLG) (MRDLG)	Typical sources of contaminant
Chromium (Total) (ppb)	2016	24	19-30	50	n/a	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Hexavalent Chromium* (ug/L)	2016	17.3	ND-25.9	10	0.02	Discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile manufacturing facilities; erosion of natural deposits
Nitrate as N (mg/L)	2016	4	3.3-4.7	10	10	Runoff and leaching from fertilizers; leaching from septic tanks, sewage; erosion of natural deposits

TABLE 5 - DETECTION OF CONTAMINANTS WITH A SECONDARY DRINKING WATER STANDARD

Constituent (Unit of Measure)	Year Sampled	Level Detected	Range of Detection	MCL (MRDL)	PHG (MCLG) (MRDLG)	Typical sources of contaminant
Chloride (mg/L)	2016-2017	121	35-233	500	n/a	Runoff and leaching from natural deposits; seawater influence
Color (Unfiltered) Units	2016-2017	3	ND-20	15	n/a	Naturally-occurring organic materials
Iron (Fe) (ug/L)	2016-2018	179	ND-1400	300	n/a	Leaching from natural deposits; industrial wastes
Manganese (ug/L)	2016-2017	ND	ND-20	50	n/a	Leaching from natural deposits
Odor Threshold at 60 °C	2016-2017	ND	ND-2	3	n/a	Naturally-occurring organic materials
Specific Conductance (umhos/cm)	2016-2018	1328	816-1710	1600	n/a	Substances that form ions when in water; seawater influence
Sulfate (mg/L)	2016-2018	272	182-351	500	n/a	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (mg/L)	2016-2018	842	520-1100	1100	n/a	Runoff/leaching from natural deposits
Turbidity (NTU)	2016-2018	4.5	ND-14.4	5	n/a	Soil runoff

TABLE 6 - TREATED DETECTION OF CONTAMINANTS WITH A SECONDARY DRINKING WATER STANDARD

Constituent (Unit of Measure)	Year Sampled	Level Detected	Range of Detection	MCL (MRDL)	PHG (MCLG) (MRDLG)	Typical sources of contaminant
Total Dissolved Solids (mg/L)	2016	1107	1060 - 1170	1000	n/a	Runoff/leaching from natural deposits

TABLE 7 - DETECTION OF UNREGULATED CONTAMINANTS

Constituent (Unit of Measure)	Year Sampled	Level Detected	Range of Detection	Notification Level	PHG (MCLG) (MRDLG)	Typical sources of contaminant
Boron (mg/L)	2016-2017	0.4	0.3-0.5	1	n/a	The babies of some pregnant women who drink water containing boron or vanadium in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.
Vanadium (ppm)	2016-2017	0.008	0.007-0.011	0.05	n/a	Some people who use water containing 1,2,3-trichloropropane in excess of the action level over many years may have an increased risk of getting cancer, based on studies in laboratory animals.

TABLE 8 - ADDITIONAL DETECTIONS

Constituent (Unit of Measure)	Year Sampled	Level Detected	Range of Detection	PHG (MCLG) (MRDLG)	Typical sources of contaminant
Calcium (mg/L)	2016-2017	66	46-96	n/a	n/a
Magnesium (mg/L)	2016-2017	50	34-72	n/a	n/a
pH (units)	2016-2017	7.2	6.9-8.0	n/a	n/a
Alkalinity (mg/L)	2016-2017	147	110-170	n/a	n/a
Aggressiveness Index	2016-2017	11.6	11.3-12.3	n/a	n/a
Langelier Index	2016-2017	0	-0.5 - 0.4	n/a	n/a

TABLE 9 - DETECTION OF DISINFECTANT/DISINFETANT BYPRODUCT RULE

Constituent (Unit of Measure)	Year Sampled	Level Detected	Range of Detection	(MRDL)	PHG (MCLG)	Violation	Typical sources of contaminant
Total Trihalomethanes (TTHMs) (ug/L)	2018	15	1-17	80	n/a	No	By-product of drinking water disinfection.
Chloride (mg/L)	2018	0	n/a	4.0	4.0	No	Drinking water disinfectant added for treatment.
Haloacetic Acids (5) (ug/L)	2018	1.75	ND-2	60	n/a	No	By-product of drinking water disinfection.

**There is currently no MCL for hexavalent chromium. Although, the previous MCL of 0.010 mg/L was withdrawn on September 11, 2017, the city continues to monitor its field testing site. These are the results of those tests.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency (USEPA).

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Primary Drinking Water Standards (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Secondary Drinking Water Standards (SDWS): MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWS do not affect the health at the MCL levels.

Regulatory Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

ND: not detectable at testing limit

ppm: parts per million or milligrams per liter (mg/L)

ppb: parts per billion or micrograms per liter (ug/L)

pCi/L: picocuries per liter (a measure of radiation)

NTU: Nephelometric Turbidity Units

umhos/cm: micro mhos per centimeter