

2015 Drinking Water Consumer Confidence Report JBLM Main and North

Published June 2016



Ensuring Safe Drinking Water

The Joint Base Lewis-McChord (JBLM) Directorate of Public Works (DPW) produces and distributes drinking water from systems permitted by the Washington State Department of Health (DOH). The JBLM Lewis drinking water system designation is Public Water System Identification Number (PWSID) 26050 Q. JBLM Annual Consumer Confidence Reports (CCR) for drinking water are prepared and distributed every summer, in accordance with DOH requirements (Washington Administrative Code WAC 246-290-72001 thru 720012) and US Environmental Protection Agency (EPA) requirements of the Safe Drinking Water Act (40 CFR 141.155[a]). This water report is prepared for to consumers on JBLM Lewis Main and North. A separate and similar water report for JBLM-McChord Field drinking water consumers is made available as well.

Is my water safe?

We are pleased to present this year's Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. During 2015, over 1300 analyses were performed on drinking water in the JBLM Lewis water system. This report is a snapshot of last year's (2015) water quality. We are committed to providing you with information because informed customers are our best allies.

Where does my water come from?

Drinking water produced at Lewis Main and North is from ground water sources. Groundwater is an excellent source of drinking water due to the natural filtration process that takes place in the aquifers. The JBLM Lewis system supplies water to over 45,000 people. JBLM has one primary drinking water source (Sequalitchew Spring) and eight secondary drinking water source groundwater wells at various locations. The secondary source wells are available for use during peak demand periods or for emergency operation. JBLM produced more than 1.75 billion gallons of drinking



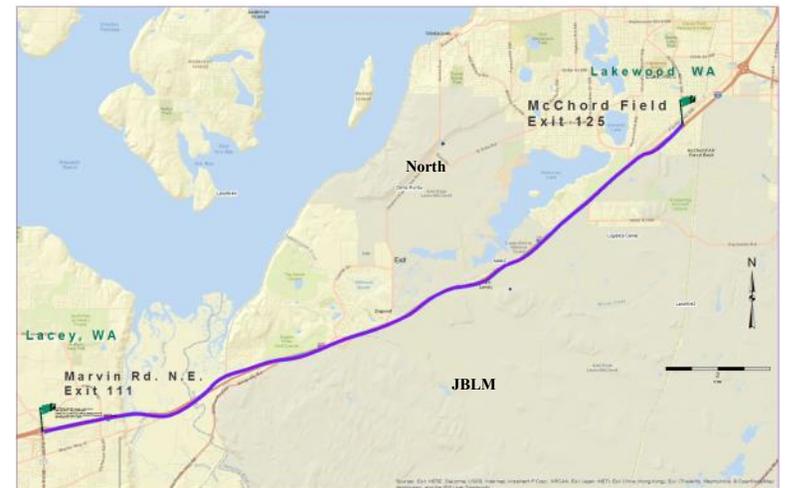
Did You Know? Water is a finite resource—even though about 70 percent of the Earth's surface is covered by water, less than 1 percent is available for human use and consumption.

drinking water systems that supply the Eagles Pride Golf Course (PWSID: 462312), the Ammunition Supply Point (PWSID: 46241A), and Range 17 (PWSID: AB008D).



Picture This!

In 2015, the average combined drinking water production for JBLM Lewis and McChord equaled approximately 4.8 million gallons per day (3,300 gallons per minute). For a population of about 75,000 that's 64 gallons per person, per day. To visualize this amount of water imagine placing it all in 5 gallon water bottles (water cooler type). Then place the bottles in rows of twelve, one lane wide on Interstate 5, and continue adding rows until 80,000 rows are in place. The lane of bottles would extend 13.6 miles from Exit 111, near Marvin Road NE in Lacey to Exit 125, the McChord Field off ramp to Bridgeport Way. This 13.6 miles of bottles represents JBLM water production for one day!



Water Treatment and Monitoring

The JBLM Lewis water system has never experienced a shut down due to drinking water standards contamination. Below are just a few of the measures taken to ensure our water is safe to drink. Before entering the distribution system, the water is disinfected with chlorine to protect against microbial organisms. In addition, the water from the wells servicing the housing area is fluoridated to control tooth decay.

Federal and State health regulations require that public drinking water providers have their water quality tested using EPA approved methods by a state certified laboratory on a regular schedule. In accordance with a sampling schedule dictated by the Washington Administrative Code (WAC), DPW has established a sampling and analysis program for each drinking water well and the water distribution system. The WAC requires community systems to test for various contaminants including chlorine, fluoride, disinfection byproducts, microbial organisms, arsenic, lead and copper, pesticides, nitrates, radiological and volatile organics. Detected Contaminants are explained in a following table.

Chlorine is added to our water to control microbial growth safe levels and are monitored daily at each active drinking water source and throughout the distribution system. Consuming water containing chlorine levels in excess of recommended levels could cause irritating effects to the eyes, nose and stomach discomfort.

Fluoride is added to water to help prevent tooth decay. Fluoride levels are monitored daily to ensure they are within the safe optimum range in order to avoid possible side effects such as dental fluorosis (mottling).

Disinfection Byproducts. Total Trihalomethanes (TTHM) and five Halo-Acetic Acids (HAA5) are the most common type of disinfection byproducts. The stage I and II Disinfectant and Disinfection Byproduct Rules established by the EPA require Public Water Systems to monitor for two groups of chlorinated byproducts which may occur in chlorinated water.

Nitrate in drinking water at levels of 10 ppm is a health risk for infants less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate is evaluated annually. Nitrate levels may rise quickly for short periods because of rainfall or agricultural activity. If you are caring for an infant you should contact your healthcare provider.

Microbial Testing. Every month at least 80 microbial samples are tested for the presence of total coliform bacteria and fecal coliform bacteria. Of the over 1000 bacteriological samples collected and processed in 2015, none tested positive for total coliform bacteria or fecal coliform bacteria.

Arsenic. JBLM drinking water meets EPA's standard for arsenic, but it does contain very low levels of arsenic. EPA is reviewing the drinking water standard for arsenic because of special concerns that it may not be stringent enough. Arsenic is a naturally occurring mineral known to cause cancer in humans at high

concentrations. EPA continues to research the health effects of low levels of arsenic which is also linked to other health effects such as skin damage and circulatory problems.

Lead and Copper. Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for thirty (30) seconds to two (2) minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791), or at <http://www.epa.gov/safewater/lead>.

JBLM Lewis 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 reduce the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking.

JBLM will be conducting scheduled lead and copper compliance monitoring during July 2016. The current sampling frequency includes at least 30 samples to be collected once every three years. The most recent round of sampling included 35 samples at locations around JBLM in 2013. None of these samples exceeded Federal Action Levels (AL).

Potential Sources of Contaminants - In order to ensure that our water is safe to drink, the EPA develops regulations that limit the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which provide the same protection 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 the water poses a health risk. 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, radioactive material in some cases, and can pick up substances resulting from the presence of animals or from human activity:

Microbial contaminants, including viruses and bacteria, may originate from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

Inorganic contaminants, such as salts and metals, can be naturally occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, and mining activities. Copper and lead may be present in older drinking water pipes and fixtures.

Organic chemical contaminants, including synthetic and volatile organic compounds (VOC's), are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Pesticides & Herbicides may come from sources such as agricultural or residential application and be transported in stormwater runoff.

Radioactive contaminants may be naturally occurring or manmade.

More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791) or online at <http://water.epa.gov/drink/>

Significant Deficiencies -The JBLM Lewis Water System was surveyed by a representative from the Washington state Department of Health on June 16, July 16, July 30, and August 11, 2015. While the water system is considered in substantial compliance and adequate for existing uses, it is also our responsibility to share the nature of significant deficiencies found by the state inspector.

Most significant deficiencies identified required simple repairs and included:

- Openings to the system that might provide routes of entry for contaminants to sources and/or storage facilities.
- Damage to protective linings/coverings for insulation in some source pump houses.
- A need for Re-locating some storage facility overflows.
- Need for improved function to various flapper gates at new storage facilities.

Efforts by JBLM in 2015 to address these deficiencies included:

- Installation of sufficient gauge wire mesh or "duckbill" check valves, and modifications to existing infrastructure to prevent routes of entry to the water system where identified by the state inspector.
- Repairs to damaged insulation and protective coverings identified in the survey.
- The re-locating of storage facility overflows where needed.
- Modification of new flapper gates at new storage facilities to provide better closing and access reduction for possible contamination.

Guidance for those with Weakened Immune systems

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. EPA/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 Water Drinking Hotline (800-426-4791) or <http://water.epa.gov/drink/>.

Detected Contaminants

Washington state allows JBLM to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. As a result, some of the data is more than a year old. [See next page for a list of definitions or acronyms used in the table below]

Detected Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Disinfectants & Disinfection By-Products								
(There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants)								
Chlorine (as CL2) (ppm)	4	4	2.2	0.08	2.2	2015	No	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb)	NA	60	0.43	NA	0.43	2015	No	By-product of drinking water chlorination
Fluoride (ppm)	4.0	2.0		0.048	1.1	2015	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Inorganic Contaminants								
Arsenic (ppb)	0	10	0.38	NA	0.38	2015	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium, (ppm)	2	2	0.0022	ND	0.0022	2012	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Nitrate [measured as Nitrogen] (ppm)	10	10	1.4	ND	1.4	2015	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Radioactive Contaminants								
Radium (combined 226/228) (pCi/L)	0	5	1.3	Close to 0	1.3	2015	No	Erosion of natural deposits
Lead and Copper (Action Level at consumer taps)	MCLG	Action Level (AL)	Your Water	Sample Date	# Samples Exceeding AL	Exceeds AL	Typical Source	
Copper - (ppm)	1.3	1.3	0.19	2013	0	No	Corrosion of household plumbing systems; Erosion of natural deposits	
Lead - (ppb)	0	15	4	2013	0	No	Corrosion of household plumbing systems; Erosion of natural deposits	
Unit Descriptions								
ppm: parts per million, or milligrams per liter (mg/L)			ppb: parts per billion, or micrograms per liter (µg/L)			pCi/L: picocuries per liter (a measure of radioactivity)		
NA: not applicable			ND: not detected			NR: monitoring not required, but recommended.		

Secondary Contaminants

The Environmental Protection Agency has established National Secondary Drinking Water Regulations (NSDWRs) that set non-mandatory water quality standards for 15 contaminants. EPA does not enforce exceedances of these "secondary maximum contaminant levels" (SMCLs). They are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color and odor. These contaminants are not considered to present a risk to human health at the SMCL. Water systems may experience increased levels of secondary contaminants in association with changes in pressure, system maintenance and intermittent use of seasonally operated source wells. Examples of secondary contaminants in potable water supplies include iron or rust that may turn water brownish-red and give it an undesirable metallic taste, while manganese may give water a blackish hue.

Please contact the DPW Water Program Manager at (253) 966-1768 with any drinking water quality concerns.

Secondary Contaminants	Secondary MCL	Your Water	Exceedances	Explanation and Comment
Color (2012)	15 Color Units	5	No	visible tint
Iron (2012)	.3 ppm	.44 ppm	Yes	naturally occurring
Manganese (2012)	.05 ppm	.011 ppm	No	black to brown color; black staining; bitter metallic taste
pH (2015)	6.5 - 8.5	7.01-7.3	No	low pH: bitter metallic taste; corrosion high pH: slippery feel; soda taste; deposits
Sulfate (2012)	15 Color Units	5 Color Units	No	naturally occurring
Total Dissolved Solids (TDS) (2012)	500 ppm	120 ppm	No	naturally occurring, soil runoff
Sulfate (2012)	250 ppm	5.13 - 7.95	No	salty taste

*In general, hardness values of less than 75 mg/L as calcium carbonate (CaCO₃) represent soft water, and values above 150 mg/L CaCO₃ represent hard water .
Next samples scheduled to be collected in 2016.

Important Drinking Water Definitions

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

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.

MNR: Monitored Not Regulated

MPL: State Assigned Maximum Permissible Level

MRDL: Maximum residual disinfectant level - 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.

MRDLG: Maximum residual disinfection level goal - 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.

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

Variations and Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

Water Use Efficiency (WUE)



Source Water Assessment Program (SWAP)

The SWAP evaluates potential threats to the safety of our water supplies by assessing sources of contamination. Additional information is provided in the form of assessment reports and global Information Systems (GIS) coverage and can be found at:

<http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/SourceWater/SourceWaterProtection.aspx>

JBLM McChord Field primary and seasonal drinking water sources have susceptibility ratings ranging from low to high. Historically the higher susceptibility is associated with wells in closer proximity to trichloroethylene (TCE) contaminated groundwater. In the past, TCE, a colorless solvent, was used primarily in industrial processes to remove grease from metal parts and in dry cleaning operations. This solvent is no longer in use. In order to reduce historical TCE groundwater contamination in these areas, JBLM operates a groundwater remediation pump and treat system. There has been great success in containing the TCE plume(s) over time and reducing the threat of TCE contamination to the drinking water supplies.

The 2003 Municipal Water Supply-Efficiency Requirements Act is part of a multi-year effort to reform the state's water laws. The rule requires municipal water suppliers to use water efficiently and demonstrate that they are doing so. One of the requirements is to report on WUE goals and to submit performance reports annually.

In 2012, the Pacific Northwest National Laboratory completed a comprehensive water balance assessment for JBLM. This assessment resulted in a water conservation roadmap that allows JBLM to identify water use deficiencies and improve overall water use practices throughout the installation. Currently JBLM is incorporating the roadmap findings into project planning to improve water system performance.

JBLM's capital improvement, sustainment, repair and maintenance plans are carefully created and screened to support and move toward the Army's Net Zero goals, fulfilling Executive Orders 13514 and 13423. JBLM has a goal to reach Net Zero discharge by 2020. Ultimately, this means the water we pump out of the ground is 100% utilized and no wastewater is discharged to Puget Sound. The first steps moving toward this goal involves using less water by installing low flow equipment and controlled irrigation systems. Other steps involve active leak detection, water use auditing, and JBLM reclaimed water reuse plans all working together to reduce consumption, increase reuse, and ultimately recharge regional aquifers. Consumer conservation efforts, and repair and replacement of water distribution infrastructure have all contributed to water use reductions.

Water Conservation

As JBLM and surrounding communities continue to grow, the demand for water increases along with the need for conservation. Water conservation levels ensure a sustainable water supply exists for present and future training needs at JBLM (FL Regulation 11-5). In 2016, irrigation conservation measures were developed according to specific soil conditions, plant needs, and historic water demand. By determining soils' water loss through evaporation and balancing that with plant needs, effective irrigation methods were identified to ensure optimum water uptake by the root systems during times of drought or diminished water supply.

Water Conservation Levels

At certain times of the year, JBLM may be subjected to drought conditions or periods of diminished water supplies. This can affect water production capabilities for meeting water supply demands. To meet water needs, individuals in the JBLM community are required to reduce outdoor water use as outlined by water conservation levels. JBLM strives to meet Executive Order water conservation goals, Army Net Zero Water goals, apply water conservation best practices, and sustain our quality of life in the Pacific Northwest.

Level I (Green)

Residential-

- Houses with even numbers water on even days. Outdoor watering limited to no more than 10 minutes per area between 0400 and 0600 or 1700 and 2000.
- Houses with odd numbers water on odd days. Outdoor watering limited to no more than 10 minutes per area between 0400 and 0600 or 1700 and 2000.
- POV washing permitted once a week during daylight hours. Divert water from POV washing to grassy areas.
- Water is not to run into the street or storm drains.
- Do not use water during rain events greater than 0.3 inches (a steady rain greater than drizzle).

Level II (Amber)

Residential-

- Houses with even numbers water on Wednesday and Saturday. Outdoor watering limited to no more than 10 minutes per area between 0400 and 0600 or 1700 and 2000.
- Houses with odd numbers water on Thursday and Sunday. Outdoor watering limited to no more than 10 minutes per area between 0400 and 0600 or 1700 and 2000.
- POV washing permitted once a week during daylight hours. Divert water from POV washing to grassy areas.
- Water is not to run into the street or storm drains.
- Do not use water during rain events greater than 0.3 inches (a steady rain greater than drizzle).

Level III (Red)

Residential-

- Outdoor water use not allowed.
- Washing limited to commercial car wash facilities using recycled water.

Water use is restricted to that required for human health, fire protection, permitted landscape areas and mission support operations. Some irrigation exemptions are permitted with written permission from the JBLM Water Program.

Come See Dewey!



Dewey is JBLM's water conservation mascot. You can see Dewey at various Sustainability events throughout the year.

Be sure to catch his video at:
<https://vimeo.com/90688873>

For Non-residential water conservation levels, refer to the 2016 Appendix A in Fort Lewis Regulation 11-5.

For questions concerning JBLM conservation measures, contact the JBLM Water Program at 253-967-1768.

Issues and Complaints

Sometimes customers notice that their tap water has a brownish, yellow, or rusty color. The off-color is often first noticed against a white background, such as a sink, bathtub, or toilet, and usually appears suddenly. In most areas of Joint Base Lewis-McChord, changes in water quality are localized and temporary, generally caused by some nearby activity.

What causes brown water?

“Brown” or discolored water is usually caused by deposits, sediment, or rust that may have accumulated in the water mains over time (see secondary contaminants section). Any activity that disturbs the pipes or results in a rapid change in water pressure can cause a temporary discoloration of the water. Such activities include water main repairs, construction, power outages, and opening or closing a fire hydrant or valve. Hydrants are routinely opened to flush a water main after repair, address a water quality problem, fill a street sweeper or other mobile tank, or to exercise the valves to ensure fire protection. JBLM crews try to flush water mains on a regular basis as part of our preventive maintenance program. The schedule for any planned flushing program is publicized in advance to alert residents to possible water quality effects in their neighborhood. Some parts of JBLM, especially older areas, are served by iron water mains that have become rusty over time. To correct this problem, corrosion-resistant pipes are now used in the distribution system when possible and older water mains will be upgraded as they are replaced.

Is the water safe to drink?

There is no indication that the discolored water is unsafe. However, in the event of an unusual episode of discolored water, JBLM recommends that residents avoid drinking the water until the appearance has returned to normal. It's also best to postpone doing laundry until the water has cleared up because the residue can stain clothing.

How can I get rid of discolored water?

The first step is to flush out the household plumbing. This is best accomplished by turning on several cold water taps and letting them run for 10 to 20 minutes. JBLM does not recommend running the hot water as it may result in pulling sediment into the water heater. If the problem doesn't clear up, wait about 30 minutes and flush the taps again.

Doesn't flushing the water mains and household plumbing waste water?

Although JBLM encourages responsible water use, achieving and maintaining good water quality must sometime take precedence over conservation. Any water used beneficially is not truly wasted, and flushing water mains and home plumbing is sometimes necessary. At home, you can conserve by flushing the taps into large containers and using the water for plants, or by using the sprinklers or garden hose to flush the pipes and water the lawn or garden at the same time.

Contact us:

If you have any further questions or concerns you may contact us by calling (253) 966-1768 or 253-966-6130.



We Want You To Be Informed About Your Drinking Water!

Your opinion matters

Much of the language in this report is required by the Environmental Protection Agency (EPA), but we've done what we can to make it easier to understand and read. If you are interested in learning more about your water service and water quality at JBLM, or have suggestions on how we could improve this report, please feel free to contact the Water Program Manager at JBLM Public Works Environmental Division at (253) 967-1768.



JOINT BASE LEWIS-MCCHORD 2015 DRINKING WATER REPORT AVAILABLE ONLINE 1 JULY 2016

DPW is no longer distributing the annual Drinking Water Reports in bulk mailing to residents of JBLM. Customers will be able to view the JBLM-Lewis Main and McChord Field water quality reports online.

For the JBLM Lewis Main and North report:

<http://www.lewis-mcchord.army.mil/publicworks/docs/envir/LewisH2O.pdf>

For the JBLM McChord Field report:

<http://www.lewis-mcchord.army.mil/publicworks/docs/envir/McChordH2O.pdf>

This report contains important information about the sources and quality of your drinking water. Please call 253-967-1768 if you would like a paper copy of this report sent to your home.