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RATES ARE STILL LOW!

Drinking winter well-water

OP ED BY SCOTT FERNANDEZ
M.Sc. BIOLOGY CHEMISTRY/
MICROBIOLOGY/RADIOISOTOPES

There is "no safe level of radon" (USEPA). Our drinking water is now 100% from the Columbia South Shore Well Field (CSSW) that is notorious for its levels of radioactive radon. (*Feb. 13 Portland Water Bureau begins delivering 100 percent groundwater from the Columbia South Shore Well Field. Portland Water Bureau Blog*).

Poor decisions made by upper management of the Portland Water Bureau (PWB) have placed our drinking water and public health of Portland citizens at great risk from radioactive materials. Our drinking water from the CSSW is subject to toxic and carcinogenic chemicals such as radon, pharmaceuticals and heavy metals.

We need our open reservoirs re-activated immediately to preserve public health. The open reservoirs are barriers to contaminants getting into our drinking water distribution system; allowing toxic gases to escape harmlessly and carcinogenic chemicals to be broken down by sunlight.

Without open reservoirs to efficiently remove gases (radon, chloroform) and chemical toxins, our drinking water remains at risk.

Portland is not the green and healthy city we once thought it was. While our current toxic outdoor air crisis has brought attention to a community wide public health wake-up call, we need to address our indoor air as it relates to our drinking water.

Women and children

are especially at risk from radioactive materials. Radon and its 12 radioactive decay particles can pass through placenta and into a developing child. Chloroform gas from drinking water also crosses placenta, resulting in concentrations in fetal blood as well as maternal.

Toxic and carcinogenic chemical exposure levels established for safe drinking water are based on adult standards (USEPA). Children are not smaller adults and therefore the chemical risk is much higher. Children have a higher metabolism and increased cell activity.

Radon decays into radioactive components, such as Lead with a 22 year half-life. A toxic substance that can affect people of any age lead is especially harmful to children and pregnant women. It accumulates in the body, so even small amounts can pose an increasing health hazard over time.

Radon exposures at 4 picocuries from drinking water, showers, washing machine, and toilets throughout your home, generates 2 million radioactive particle decays per minute in 1000 sq. ft. (USGS)

Why are we drinking radioactive water? PWB says they found *Cryptosporidium* in Bull Run water. Portland has not found *Cryptosporidium* in our water for many years.

All of a sudden, *Cryptosporidium* appears in January as City of Portland budget season begins and PWB talks about building a treatment plant; a treatment plant that is clearly unnecessary and unneeded. It would cost hundreds of millions of dollars

for a public health problem that does not exist.

Built in 1895, Bull Run water system has never had a drinking water public health problem, ever. *Cryptosporidium* drinking water issues come from catastrophic sewage events that cannot apply to Portland/Bull Run drinking water. We have a pristine water source that has no agricultural, municipal, or industrial sewage exposures.

Poor upper management decisions in the PWB have lead to radioactive exposures in drinking water and indoor air ending up in our homes, schools, businesses, daycare centers, and places of work.

Radon is 7 times heavier than air (USGS) and will initially settle in lower parts of a room. That low air space is the highest health risk for children and pets.

Children have higher respiration rates than adults. Smaller airways and lungs in infants and children have lesser air capacity compared to that of adults. Their normal breaths are not as deep and therefore breathe faster. 30-40 breaths per minute in infants, 20-30 toddlers to 5 years and 12-20 later in life.

Is this what we want for current and future generations, – exposing them to high risk radioactive materials in each inhalation? Radon is a public health problem that exists. *Cryptosporidium* is not a public health problem in Bull Run drinking water, as proven for over 100 years.

Please call Portland City Council Commissioners and Mayor Wheeler at 503.823.4120 about concerns with radon, water quality, and public health.
See bullrunwaiver.org.

Flush for Flint

Take These Steps to Flush Pipes and Aid in Flint Water System Recovery

epa.gov/flint

#FlushForFlint

Flushing pipes is very important to remove loose lead particles and to coat pipes. Lead line replacement is the long-term goal.

The state will cover this cost.

Residents will receive a credit on their water bill.

Step 1

Run cold water at the highest flow in the bathtub* for 5 minutes.



No showerhead
Flow too low



*If you do not have a bathtub, run cold water at highest flow from a laundry tub or garden hose.

Step 2

Run cold water at the highest flow from the kitchen faucet for 5 minutes.



Flip lever to bypass filter or remove filter first, then reinstall filter.

Step 3

Do this every day for 14 days in May.

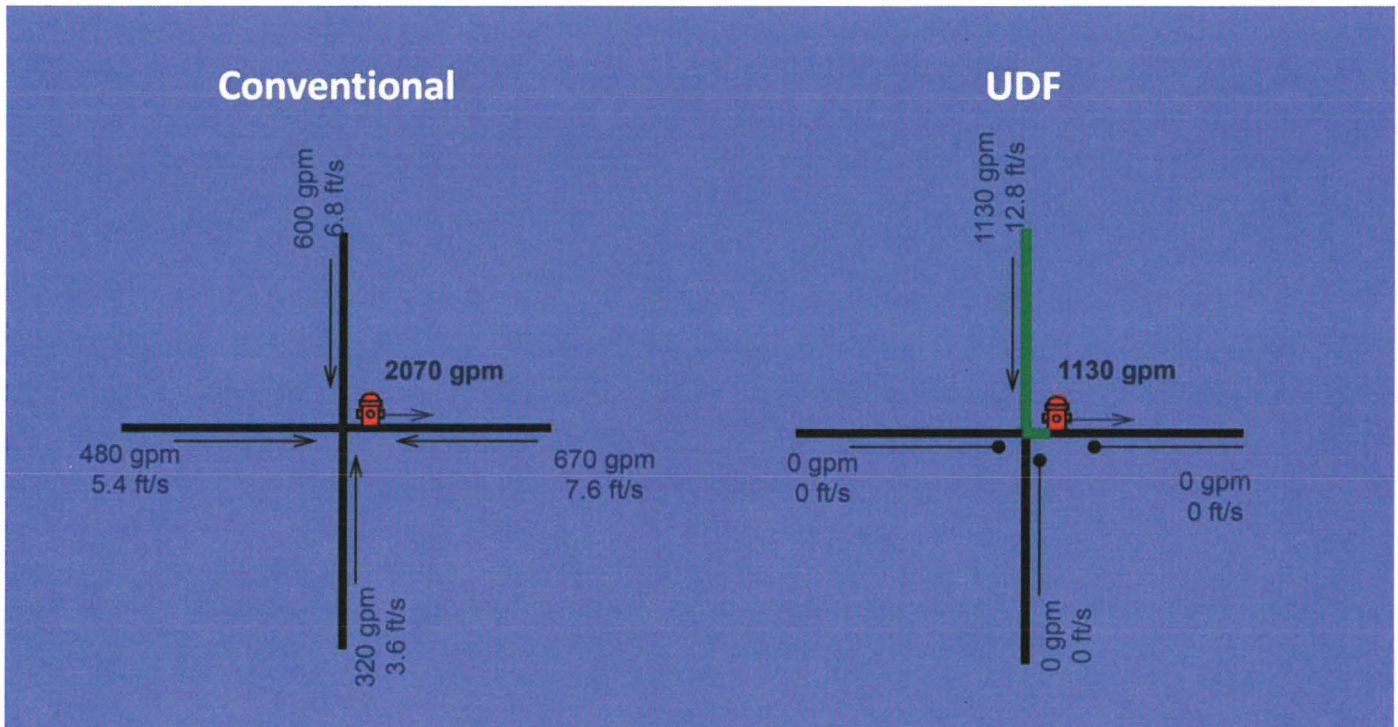


Watch the water draining to avoid overflow of sinks or tubs.



Steps for Flushing Program





Conventional Flushing vs. Unidirectional Flushing

Traditionally, distribution system flushing included opening hydrants without closing valves to isolate specific water mains for flushing. Conventional flushing procedures involve flushing mains in areas where water quality complaints have occurred - a reactionary approach. Conventional flushing procedures can also be system-wide, but no effort is made to assure that clean water is entering the pipe being flushed or that adequate velocities are being reached to scour the pipes. Conventional flushing typically does not result in enough velocity to remove biofilm or to remove all sediment from the pipes. Improvements in distribution system water quality may be marginal and short-lived.

Unidirectional flushing consists of isolating particular pipe sections, typically through closing appropriate valves and opening hydrants in an organized, sequential manner.

Unlike conventional flushing, unidirectional flushing targets individual pipe segments to maximize flushing effectiveness. By isolating individual pipe segments, it is possible to consistently achieve scouring velocities (generally recommended to be 5 feet per second (fps) or more) that can effectively remove sediments and biofilm which can accumulate in the water distribution system. In addition, a UDF plan is organized such that each target pipe segment is flushed from a "clean" source. Complete unidirectional flushing of a water system ensures that every pipe segment is effectively cleaned.

Advantages of a UDF Plan over Conventional Flushing:

- Improved flushing and scouring velocities
- Removes biofilm and sediment
- Flushes with clean water
- Overall cleaner distribution system

Introduction

A UDF plan, as opposed to routine water main flushing, is a process of closing valves and opening hydrants to direct clean water down a single water main, thus creating a velocity that can scour the pipe and remove sediments from the bottom of the pipe. A UDF process can:

- Improve water quality
- Improve carrying capacity of pipes
- Benefit the operation of the water system

A UDF plan identifies the general sequence of pipes to be flushed, the specific sequence of valve operations, and the estimated duration of each flushing sequence.



Why Flush?

- Improves water quality
 - Color
 - Turbidity
 - Taste & Odor
 - Biofilm Growth
 - Chlorine Residual
- Reduces PB & CU exposure
- Corrosion Control
- Improves C-values
- Fewer Customer Complaints

Flushing a Distribution System

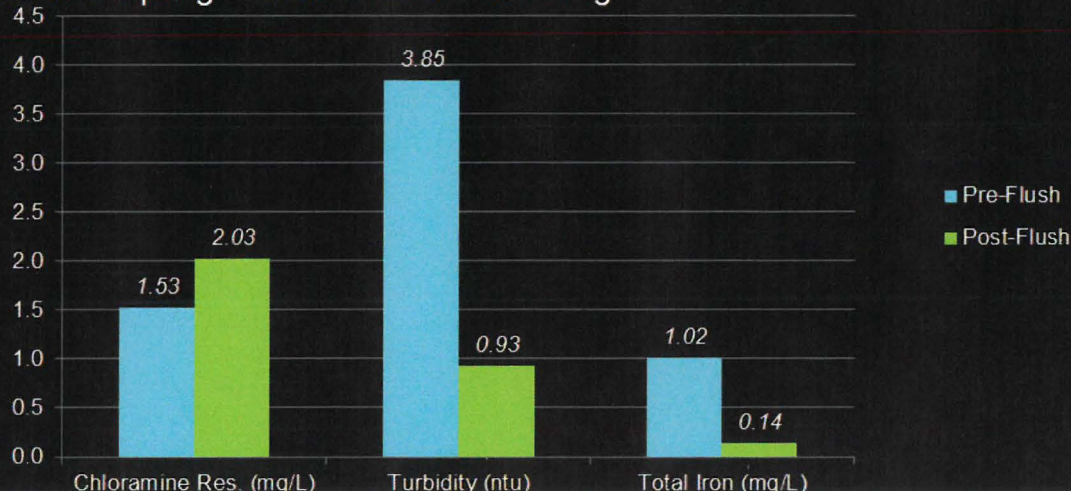
A variety of water quality problems that occur in a distribution system can be, at least partially, addressed by distribution system flushing. For example, the American Water Works Association Research Foundation (AwwaRF) maintained that once taste and odor problems are encountered, the only reasonable action is to bring better quality water into the area by extensive flushing. AwwaRF also noted the importance of records to assist in identifying problem areas, documenting effectiveness of operations, and promoting good customer relations (AwwaRF 1992).

Water main maintenance should include flushing distribution mains for many reasons, including:

- Corrosion control
- Sediment and debris removal
- Taste and odor control
- Colored water
- High turbidity
- Low disinfectant residuals
- Bacteriological growth
- Customer complaints


The general objective of flushing is to assist in preserving and/or improving water quality and service.

Water sampling—two weeks after flushing



Unidirectional Flushing (UDF) Green Bay, Wisconsin



Description: Background This decision package is integral to maintaining the health and water quality of the distribution system for all customers. Current program staffing includes a program coordinator (Engineering Tech III), Unidirectional Flushing (UDF) Field Service Mechanic (Water Operations Mechanic) and a combination of staff temporarily assigned, including a community services aide, or utility worker positions, as available. This position would permanently staff the UDF program with a Water System Specialist. Distribution system deficiencies have been attributed to more than 25 percent of waterborne disease outbreaks annually in the United States. Flushing, and in particular unidirectional flushing, is one of the most powerful tools available to a water utility for maintaining distribution system water quality. UDF staff systematically open and close pipe valves, forcing water through to scour the insides of pipes and remove sediment, biofilm, debris, and other deposits. Left in the system, sediment, biofilm, and deposits in pipelines can reduce the effectiveness of disinfection treatment and potentially foster the growth of microbes in the system. UDF is a crucial tool for an unfiltered system like Portland, where it is used for prevention of water quality issues and as a key mitigation strategy when water quality issues are observed. A UDF program also results in fewer customer complaints. UDF provides secondary benefits to the water system by identifying broken valves and/or valves in the incorrect position, assisting in hydrant maintenance, and improving hydraulic capacity. The size of a unidirectional flushing team is dependent on how much flushing a utility wants to accomplish in a given year (or a percentage of the entire system they want to flush). There is not an accepted industry guidance regarding the optimal number of miles per year to flush, because flushing frequency is very site specific. However, an industry rule of thumb is that utilities should try to flush their entire system every 5-10 years. With PWB's currently staffing, it would  take approximately 70 years to flush the entire distribution system. An individual UDF crew is typically composed of two people; in addition to the potential safety issues, individuals working alone are not efficient for flushing operations because of the distances between hydrants, valves and so forth. For reference, the UDF program at Tualatin Valley Water District is currently composed of three, two-person field teams. Request The budget request is to add one full-time position to the Water Bureau's existing Unidirectional Flushing (UDF) program.

March 22, 2017 Council Testimony Scott Fernandez

“Science and public health will determine the ultimate outcome” - EPA

- 20 years-PWB still dealing with inconsistent **lead** mitigation procedures
- Biofilm, sediments, in distribution systems lead to a number of water quality problems including high bacterial counts, coliform occurrences, bad tastes and odors, nitrification, and acceleration of corrosion. PWB errors.
- Corrosion program- many years is unacceptable, acceleration needed
- AECOM is the solution- complete, systematic, unidirectional flushing of system > using calcium carbonate CaCO₃ as buffering agent, alkaline pH
- Benefits-alkaline pH> buffering(moderate impact)> calcium into bones

- Reviewed thousands of Cryptosporidium documents/studies over years
- Cryptosporidium made into public scare tactic by PWB, like boil water open reservoirs falsehood, Crypto-catastrophic sewage event
- Cryptosporidium not public health issue here as shown over 120 years
- PWB has acknowledged **no lab certification**, resulting in no accreditation expectation/meaningful/accurate results, regardless of where results may originate. No proficiency. (\$200 million/unneeded treatment plant?)
- PWB 2017 lab results/samples inconclusive. None of EPA estimates correct

- Radon from CSSW- PWB calls it a “treasure” intentionally exposing our citizens to radioactive radon and a dozen more radioactive decay particles. Safe and healthy? 1000sq ft house – 2,000,000 decay/min
- “no safe level radon” EPA, 7 times heavier than air, condemning children to inhale radioactive material with more breaths per minute than adults
- Exposures last a life time negatively impacting their health.
- **Community Town Hall** – PWB and Scott Fernandez

5

Moore-Love, Karla

From: Scott Fernandez <scottfernandez.pdx@gmail.com> ✓
Sent: Friday, February 24, 2017 12:08 PM
To: Moore-Love, Karla; Scott Fernandez
Subject: Re: Scott Fernandez- Request for 3 minutes to speak before Portland City Council

Public safety and public health will be discussed. Thanks for all your help.

Scott

On Thu, Feb 23, 2017 at 4:17 PM, Moore-Love, Karla <Karla.Moore-Love@portlandoregon.gov> wrote:

Great, I will list you on the March 22nd agenda but, I still need your topic.

Thanks Scott,

Karla

From: Scott Fernandez [mailto:scottfernandez.pdx@gmail.com]
Sent: Thursday, February 23, 2017 4:12 PM
To: Moore-Love, Karla <Karla.Moore-Love@portlandoregon.gov>; Scott Fernandez <scottfernandez.pdx@gmail.com>
Subject: Re: Scott Fernandez- Request for 3 minutes to speak before Portland City Council

Yes, that would work well. Thank you.

Scott

On Thu, Feb 23, 2017 at 2:54 PM, Moore-Love, Karla <Karla.Moore-Love@portlandoregon.gov> wrote:

Hi Scott,

Someone just canceled for March 22nd, would this date work for you?

Karla

From: Moore-Love, Karla
Sent: Friday, February 17, 2017 3:33 PM
To: 'Scott Fernandez' <scottfernandez.pdx@gmail.com>
Subject: RE: Scott Fernandez- Request for 3 minutes to speak before Portland City Council

Hello Scott,

Sorry for the delay. The next available date to speak to Council is Wednesday, April 5th. Let me know if that date will work for you and what your topic is.

Regards,

Karla

Karla Moore-Love |Council Clerk

City of Portland |[Office of the City Auditor](#)
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Portland OR 97204-1900

email: Karla.Moore-Love@portlandoregon.gov
Testimony Email: cctestimony@portlandoregon.gov

phone: [503.823.4086](tel:503.823.4086)
Clerk's Webpage: www.portlandoregon.gov/auditor/councilclerk

From: Scott Fernandez [<mailto:scottfernandez.pdx@gmail.com>]
Sent: Friday, February 17, 2017 3:00 PM
To: Moore-Love, Karla <Karla.Moore-Love@portlandoregon.gov>; Scott Fernandez <scottfernandez.pdx@gmail.com>
Subject: Scott Fernandez- Request for 3 minutes to speak before Portland City Council

Hi Karla,

I would like to speak for 3 minutes before Council. Please let me know when the first open position is available.



Request of Scott Fernandez to address Council regarding
public safety and public health (Communication)

MAR 22 2017

PLACED ON FILE

Filed MAR 14 2017

MARY HULL CABALLERO
Auditor of the City of Portland

By *Susan Parsons*
Deputy

COMMISSIONERS VOTED AS FOLLOWS:		
	YEAS	NAYS
1. Fritz		
2. Fish		
3. Saltzman		
4. Eudaly		
Wheeler		