

Gallatin City-County Health Department

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Gallatin City-County Board of Health Environmental Health Subcommittee

MINUTES

Thursday, February 23, 2017
Health Department Education Room
7:00am

BOH Representatives Present: Joe Skinner, Steve Custer, Buck Taylor, Seth Walk, Chris Mehl

Staff Representatives Present: Lori Christenson, Matt Kelley, Toni Lucker

Others Present: Mari Eggers, Christine Miller, Tammy Swinney

Staff Present: Brittney Krahn, Tom Moore

Steve Custer, Chair, called the meeting called to order 7:02am

Call to Order

- **Public Comment** – no public comment

Regular Agenda

- **Presentation and Discussion of Local Water Quality District Report on Arsenic and Drinking Water**

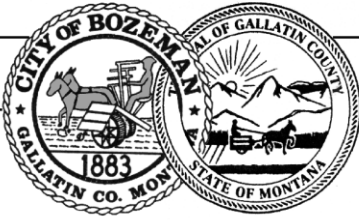
Christine Miller, Water Quality Specialist/Hydrogeologist, presented on Gallatin Local Water Quality District (GLWQD) 2016 Arsenic Distribution Project

<https://glwqd.files.wordpress.com/2016/02/arsenic-project-2016-report-final.pdf>

<https://glwqd.files.wordpress.com/2015/12/2016-as-project-summary.pdf>

Questions by the subcommittee:

- ◇ What is the number of people and wells? Not many due to much of the area is farmland, so filling in data gaps was difficult.
- ◇ Remember GLWQD does not cover the entire county (comment by Steve Custer)
- ◇ Is there a formal monitoring project around West Yellowstone? Well Educated Program testers do most monitoring.
- ◇ Where is the outlier located? Far west side of Madison Plateau. It is a stock well with unique chemistry properties. Exposed travertine also in the area.
- ◇ How deep is the well? 800 feet and the deepest well sampled and it is warm ~70°



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- ◇ Is there another quality district in that area? No, however, a conservation district helps folks test wells. Local Water Quality Districts are located in Gallatin, Helena, and Missoula

Christine presented available treatment options that the homeowner selects once results of water testing received. Then a determination of what system fits best for the situation. Treatment systems are affordable.

Steve Custer added that the Well Educated Program does not provide treatment systems. They do provide information on options, which include treatment at the water entry into the house (expensive due to volume of water) and treatment at tap(s) (less expensive due to lower volume). An even less expensive approach is bottled water for drinking and brushing of teeth. The arsenic is not harmful, if the water contacts the skin such as in the shower or washing hands, at the levels seen in the Gallatin.

Chart available for point of use systems & point of entry systems (chronic ingestion)

Arsenic Fact Sheets summarize problems; provide potential solutions and list other resources

GLWQD held a workshop in Churchill with 30 attendees and the press. Sixty well test kits were handed out in a two-week period including those distributed at the workshop and Christine expects more data to fill in the gaps once data is received from the Well Educated Program.

Future work could include denser testing in smaller areas, but in these agricultural areas, well density is low.

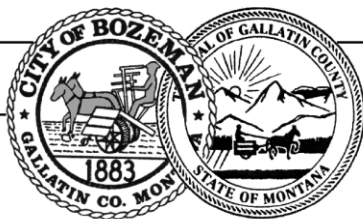
GLWQD is recommending homeowners living west of West Gallatin River to screen water for arsenic as well as those in Big Sky, West Yellowstone and Three Forks). If Arsenic is detected, then retest to confirm results and proceed with installing an appropriate treatment system if desired.

More Questions:

The Western Gallatin Valley Arsenic Distribution Project took place April through May 2016. Board and staff discussed the recharge time and temporal fluctuations of aquifers in the study area. Also discussed the impact of irrigation and mountain runoff (from Madison Range) on aquifers. Further discussion on risk assessment and the time of year that aquifers have the lowest Arsenic concentration.

Is there money to test the theory in the fall? The majority of the sampling performed in April 2016 and not much snow. Madison Range is not connected to the sampling area by streams – however may be recharging to aquifers

Steve Custer noted the high Arsenic pollution in thermal water from Yellowstone National Park; first reported in late 80's - early 90's. He continued that Arsenic in the Madison River is no joke - what is going on? Discussion about possible Arsenic sources in the Madison River included



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tertiary sediments, change in redox, and a large agriculture area, as well as application of pesticides with arsenic.

Multiple things may be going on: Do pesticides used on potatoes, for example, contain Arsenic and if so, is this Arsenic showing up in deep wells; Phosphate fertilizers release Arsenic; volcanic ash beds have high Arsenic levels; and Arsenic in sediments.

Zones with volcanic ash could leach into groundwater levels

Seth Walk noted that microorganisms drive redox and suggested performing temporal sampling in a small subset of wells during different seasons - fall sampling, middle of irrigation, etc.

Steve Custer read a quote from an article by Nimick in 1998 regarding the source of the Arsenic: "The high arsenic concentrations in ground water have several causes: direct aquifer recharge by Madison River water having arsenic concentrations as high as 100 µg/L, leaching of arsenic from Tertiary volcano-clastic sediment, and release of sorbed arsenic where redox conditions in ground water are reduced."

Mari Eggers asked if Christine matched results with well logs from GWIC. Christine noted that well drillers described and listed formations in terms not very clear or descriptive for geologists to use.

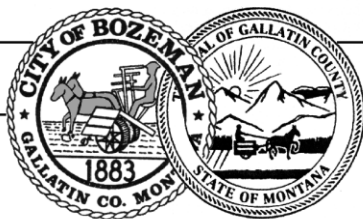
Buck Taylor expressed interest in providing Arsenic education to health care practitioners in a regional way - Bozeman Health group in Belgrade, for instance. Buck asked Christine to send fact sheets to him so he can distribute to West Yellowstone and Big Sky. Arsenic risk is not a discussion by healthcare providers. *Christine will send Buck the Arsenic Fact Sheet for summary and more information*

Chris Mehl asked about private wells and how confident is Christine that well owners know of this issue? Hard to say.

Chris asked if GLWQD contacted all owners in the area - and asked should we. Christine believes it is a tight knit community so word of mouth would get around. She also noted the large geographic area so there are quite a few folks to contact via mail (more than 100).

Steve noted discussions he had with Matt about the role the BOH should/could play with this topic. Matt thinks septic reviews performed in the area will initiate this conversation and ensure applicants are getting the information. Tammy also mentions high Arsenic areas to homeowners during her work. Collaborative discussion with GLWQD and health department would provide more information for the Healthy Gallatin website.

Matt Kelley asked how municipal water systems deal with this. They treat! Are there any municipal water systems with Arsenic in them? Yes, in Amsterdam/Churchill. A newly installed public water supply well at the Amsterdam School shows Arsenic but at a level not as high as the old public water supply well. Testing done periodically - every 3 years. (Christine noted it



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appears that they have tested for arsenic yearly since 2008). Other municipalities also deal with this problem.

Temporal variability should be examined.

Chris asked if the recommendation for private well treatment is every five years. More often is necessary for increased temporal variability information.

If concentration is below the Maximum Concentration Level (MCL), wait to test 3-5 years; if close to or at MCL, testing more often could provide insight into variability. Three to five year testing frequency recommendation used by other organizations for public health outreach.

Is there a nexus between health issue and high Arsenic in that area? Not that we know of.

Seth expressed his concern that we are not educating the public about Arsenic very well. There is a connection between Arsenic and diabetes and developmental issues through chronic Arsenic intake.

Lori Christenson asked Christine if she sensed a concern for mitigation affordability for treatment at the workshop. Not said aloud from workshop participants.

Steve talked about the absorptive media: ion exchange columns for hardness reduction – and asked if this was sufficient to reduce Arsenic to appropriate levels.

Seth suggested a special media works.

Mari noted that the state of Maine has a good website as an information model; also, Salt Lake City has a good model for mitigation of Arsenic. Another option for families who cannot afford mitigation is a \$150 water cooler stand that can be refilled as appropriate for drinking and cooking – her experience working on the Crow Reservation Water Quality project.

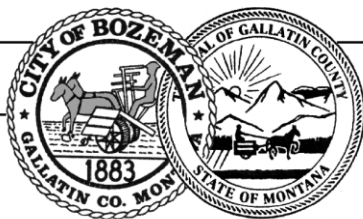
Mari also asked if GLWQD offers education to realtors. Tammy Swinney (GLWQD) noted she and Brittney Krahn (health department) have scheduled a continuing education course for presentation to realtors. Tammy will add an Arsenic slide.

Seth wonders if folks in the next district over are at greater risk and asked who would work with them.

Steve discussed the GLWQD boundaries that do not include many of the high concentration areas. For this reason, he suggested that there may be a role for Board of Health.

Christine added that Madison County Conservation District plans to do an Arsenic project or outreach of some kind in the future but the details of this are uncertain.

Mari suggested that some outreach areas, such as CHP, etc. could have a stock of the test kits available.



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Tammy noted two reasons she prefers to provide the test kits:

- 1) Sign a release to use their data for research purposes; and
- 2) GLWQD provides education at time of request and is a resource for homeowners to return to for answers to their questions.

Matt asked for a list of mitigation contractors - reputable contractors.

Not available at this time. Christine mentioned work on a water-treatment fact sheet that could include a list of reputable contractors.

NSF.org (National Sanitation Foundation) breaks down all of the mitigation systems.

Non-profit booklet available from MSU Extension with water treatment information

The Arsenic Fact Sheet contains some mitigation information and bottled water was not on that list – so will add.

Seth mentioned the USGS data sets he uses and he sees no information available for many counties. Seth acknowledged this proactive work by GLWQD that provides real service.

Tammy expressed her concern that the area with high Arsenic concentrations would one day be filled with subdivisions.

Seth suggested explaining the MCL as zero and Steve mentioned NURE data (National Uranium Evaluation Program data)

Seth suggested that if an opportunity to test more wells appears, to put together a 10-question questionnaire - do you treat your water; have you ever thought about treating your water; etc. to help evaluate the risk more accurately.

Mari added a question to that survey: how to get this information to your community and neighbors. Post at community buildings: post office, etc.

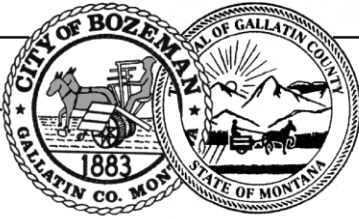
Tammy stated that a different project would bring together a collaborative opportunity with the health department. Matt likes community meetings to build that word of mouth and use of local newspapers for communities like Willow Creek, etc.

Steve suggested West Yellowstone and Ennis be included in the campaign.

Seth asked if there were any grant resources for health disparities in rural settings.

Total budget on this GLWQD arsenic project was \$5,000 that covered sampling costs and the workshop. GLWQD paid for mailing and staff time.

Seth suggested having a larger research partner with GLWQD and the health department would get back to the community 'here's your risk'. He mentioned health disparities for funding.



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Tammy mentioned Arsenic and people's health and to use the best available data to prove a problem.

Steve informed the subcommittee that GLWQD has a link on their webpage titled Reports, where you can find information on Pharmaceuticals, State of the Waters (nitrate hits) and other reports. <https://glwqd.org/completed-projects-reports/>

Tammy mentioned regarding pharmaceuticals that there are no solutions. Awareness to stop putting them down toilet. Take to the drug take-back location. Many pharmaceuticals are actually excreted in urine so that this problem is not just related to people flushing the pharmaceuticals down the toilet.

Matt invited GLWQD to present an outreach session at the Board and he would ensure media coverage.

Thank you, Christine!

Meeting closed at 8:20am

Secretary

Date

Chair

Date