



Jack Burton &lt;jack.burton@wyo.gov&gt;

---

**Selenium questions.**

8 messages

---

**Jack Burton** <jack.burton@wyo.gov>  
To: Jennifer Zygumunt <jennifer.zygumunt@wyo.gov>

Thu, Sep 2, 2021 at 9:54 AM

Good morning Jennifer, Nancy told me to reach out to you with the comment we received on the Lone Tree Creek Quarry regarding selenium in a water supply. Any help you can provide would be greatly appreciated. The comment is *"And our concern is the material effect of the valley above Lone Tree Creek accelerates this force of the wind plus the lifting that he's speaking of, but our main concern is that this site is a selenium toxic site. And I go back to journals from the University of Nebraska starting in the 1940s, later ones in the 1980s that use seven seleniferous plants to identify the toxic areas in Nebraska. They are never wrong, and you can follow this down through those decades. Those seven plants being in the area absolutely indicate a toxic area. The seven plants, by the State, were sprayed for, all seven, at this site. Plus a botanist went into the site, and that's in the county commissioners' records over where the fairgrounds are. They have a copy. And all the journals listed -- and those seven plants were identified by a botanist at this site. So we have selenium toxicity that has not been considered. And in that dust, just a little ways from Harriman Road, there's a sinkhole on Lone Tree Creek that goes directly into the Casper Aquifer. That's our backup water supply for Laramie. It's the only water Laramie had in 2002. It's our backup water for Cheyenne. Now, that dust is going to be going down the -- and it's only a few hundred feet down. I have a study here, and maybe we could include a consideration for this. It shows where that sink hole. It is very close to Harriman Road. So this dust is going to be going into Lone Tree Creek and going directly into a sink hole. There's also a sink hole documented by the LPU on Goose Creek. So if they go south, the dust too will go right from the -- from what we -- we've been talking about can go into these sinkholes directly into -- the problem with selenium, you can't get it out of the water. The best available technology couldn't get it down to 50 microns per liter. And now they've lowered the safe amount down to 10 micrograms per liter. And for new permits it's .45. So we're talking our only backup water supply and possibly putting selenium right into it from this mine. And that is very, very concerning to us."*

--  
**Jack Burton**  
307-777-8577

---

**Jennifer Zygumunt** <jennifer.zygumunt@wyo.gov>  
To: Jack Burton <jack.burton@wyo.gov>

Thu, Sep 2, 2021 at 9:59 AM

Thanks, Jack. I will consult with WQD staff and see what information we can provide. Do you have a map of the Lone Tree Quarry area handy that I could provide?

Jennifer

[Quoted text hidden]

[Quoted text hidden]

E-Mail to and from me, in connection with the transaction of public business, is subject to the Wyoming Public Records Act and may be disclosed to third parties.

--  
Jennifer Zygumunt  
Administrator  
Water Quality Division  
Wyoming Department of Environmental Quality  
200 W. 17th St., 4th Floor  
Cheyenne, WY 82002  
307-777-5985

<b>Exhibit DEQ 08</b>
-----------------------

E-Mail to and from me, in connection with the transaction of public business, is subject to the Wyoming Public Records Act and may be disclosed to third parties.

---

**Jack Burton** <jack.burton@wyo.gov>  
To: Jennifer Zygmunt <jennifer.zygmunt@wyo.gov>

Thu, Sep 2, 2021 at 10:04 AM

Yes, I do. Here it is.

[Quoted text hidden]

--

**Jack Burton**  
307-777-8577

---

 **193784.pdf**  
183K

---

**Jennifer Zygmunt** <jennifer.zygmunt@wyo.gov> Thu, Sep 2, 2021 at 12:53 PM  
To: Eric Hargett <eric.hargett@wyo.gov>, Lindsay Patterson <lindsay.patterson@wyo.gov>, Nicole Twing <nicole.twing@wyo.gov>, Jason Thomas <jason.thomas@wyo.gov>  
Cc: Jack Burton <jack.burton@wyo.gov>

I'm casting a broad net with this one to see who might be able to help with this inquiry. AQD is looking for help with addressing a water quality-related comment on the Lone Tree Creek Quarry south of I-80 between Cheyenne and Laramie (see attached map).

Is anyone aware if the geology/soils in this area would be naturally high in selenium? Are we aware of any selenium water quality impacts in the area or any monitoring for selenium in either groundwater or surface water?

Please reply back to this group, which includes Jack Burton from AQD. Please forward on to other WQD staff who might have knowledge on this subject or the proposed quarry.

Thanks,

Jennifer

[Quoted text hidden]


E-Mail to and from me, in connection with the transaction of public business, is subject to the Wyoming Public Records Act and may be disclosed to third parties.

--

Jennifer Zygmunt  
Administrator  
Water Quality Division  
Wyoming Department of Environmental Quality  
200 W. 17th St., 4th Floor  
Cheyenne, WY 82002  
307-777-5985

[Quoted text hidden]

---

 **193784.pdf**  
183K

---

**Nicole Twing** <nicole.twing@wyo.gov>

Thu, Sep 2, 2021 at 1:30 PM

To: Jennifer Zygmunt <jennifer.zygmunt@wyo.gov>

Cc: Eric Hargett <eric.hargett@wyo.gov>, Lindsay Patterson <lindsay.patterson@wyo.gov>, Jason Thomas <jason.thomas@wyo.gov>, Jack Burton <jack.burton@wyo.gov>

Link to old report regarding selenium in WY soils, there is a brief section for Albany County and selenium content in carbonaceous shales.

<https://www.wsgs.wyo.gov/products/wsgs-1946-b-36.pdf>

[Quoted text hidden]

--  
Nicole Twing, P.G.  
Groundwater Pollution Control Program  
Geology Supervisor  
Wyoming Dept of Environmental Quality  
(307) 777-8275  
[nicole.twing@wyo.gov](mailto:nicole.twing@wyo.gov)

Wyoming Department of Environmental Quality  
200 W 17th Street, Suite 400  
Cheyenne, WY 82002

[Quoted text hidden]

---

**Eric Hargett** <eric.hargett@wyo.gov>

Thu, Sep 2, 2021 at 1:32 PM

To: Jennifer Zygmunt <jennifer.zygmunt@wyo.gov>

Cc: Lindsay Patterson <lindsay.patterson@wyo.gov>, Nicole Twing <nicole.twing@wyo.gov>, Jason Thomas <jason.thomas@wyo.gov>, Jack Burton <jack.burton@wyo.gov>

Jennifer,

Using the USGS water data mapper (<https://maps.waterdata.usgs.gov/mapper/>) for groundwater samples collected since the 1980s, selenium data is limited in the area of interest. Though based on available data, selenium (total) was <1 ug/L in the vicinity of the Lone Tree Creek Quarry with concentrations as high as 3.7 ug/L several miles west near Tie Siding.

Neither WDEQ or USGS has collected selenium samples from surface water in or close to the area of interest. The nearest surface waters where WDEQ or USGS has collected selenium samples are the Laramie River, Crystal Lake and Granite Springs Reservoir. Selenium (total) concentrations at these surface waters were all <1 ug/L.

Eric

On Thu, Sep 2, 2021 at 12:53 PM Jennifer Zygmunt <jennifer.zygmunt@wyo.gov> wrote:

[Quoted text hidden]

--  
Eric Hargett  
Monitoring Program Assistant Supervisor  
Wyoming Department of Environmental Quality  
Water Quality Division  
200 W. 17th St.  
Cheyenne, Wyoming 82002  
(307) 777-6701  
[eric.hargett@wyo.gov](mailto:eric.hargett@wyo.gov)

[Quoted text hidden]

---

**Eric Hargett** <eric.hargett@wyo.gov>

Thu, Sep 2, 2021 at 1:34 PM

To: Jennifer Zygmunt <jennifer.zygmunt@wyo.gov>

Cc: Lindsay Patterson <lindsay.patterson@wyo.gov>, Nicole Twing <nicole.twing@wyo.gov>, Jason Thomas <jason.thomas@wyo.gov>, Jack Burton <jack.burton@wyo.gov>

Jennifer,

I should mention the total selenium surface water concentrations of <1 ug/L are below our most stringent surface water numeric criterion of 5 ug/L which is protective of aquatic life.

Eric

[Quoted text hidden]

---

**Jennifer Zygmunt** <jennifer.zygmunt@wyo.gov>

Thu, Sep 16, 2021 at 2:30 PM

To: Jack Burton <jack.burton@wyo.gov>

Cc: Nancy Vehr <nancy.vehr1@wyo.gov>

Jack,

please let me know if this is sufficient information to help you draft a response to that comment. I think the most we can say is that based on the limited surface water and groundwater quality data available in the area, we are not aware of any current concerns with selenium contamination. The groundwater concentrations Eric mentions are well below our groundwater standard for domestic use (50 ug/L, which is the EPA drinking water standard, or maximum contaminant level (MCL)). The surface water concentrations he mentions in the nearest waterbodies where we've sampled is below the stringent 5 ug/L standard for aquatic life protection. But again, we recognize this dataset is very limited.

I'm not aware of any situations where dust from a quarry has resulted in a selenium water quality exceedance. Most selenium surface water quality exceedances we see in the state are due to selenium being leached from soils from either irrigated agriculture or natural rain/snowmelt. This only happens in specific areas with seleniferous soils or certain geology.

Feel free to give me a call if you'd like to discuss further or if we can provide additional help.

[Quoted text hidden]

[Quoted text hidden]