



Sent by email

June 16, 2020

Todd Parfitt, Director  
Department of Environmental Quality  
200 West 17th St.  
Cheyenne, WY 82002

RE: COMPLAINT AND REQUEST FOR INVESTIGATION OF GROUNDWATER CONTAMINATION  
IN THE HOBACK JUNCTION AREA OF TETON COUNTY, WYOMING (WYO. STAT. § 35-  
11-701).

Dear Director Parfitt:

We are writing to request immediate action by the Department of Environmental Quality (DEQ) to determine the cause of groundwater contamination in the Hoback Junction area of Teton County and to develop and implement a remediation plan to eliminate that contamination. Specifically, we are requesting that the DEQ conduct an investigation to determine the cause or causes of dangerous concentrations of nitrates in groundwater that supplies public water systems and private wells in this area. Water quality data collected over the past two decades show that nitrate concentrations in groundwater in this area have exceeded and continue to exceed the U.S. Environmental Protection Agency's maximum contaminant level of 10 mg/L. Nitrate concentrations exceeding the EPA's MCL of 10 mg/L present a threat to the public health and safety of the residents of this area, and constitute a violation Wyoming's quality standards for groundwater. *See* WDEQ Water Quality Rules and Regulations, Chapter 8, Table 1, Quality Standards for Wyoming Groundwaters.

Commercial and residential septic systems in the area are believed to be causing and/or contributing to the nitrate exceedances, but a conclusive determination as to the precise cause or causes of the violations has not been made. In an effort to assist that effort, we have asked the Teton County Sanitarian to conduct an inspection of small wastewater facilities in the Hoback Junction area to determine compliance with the county's small wastewater facility regulations.<sup>1</sup> Although concerns about potential contamination of drinking water wells from

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<sup>1</sup> A copy of that letter is attached and is incorporated by reference herein.

residential septic systems in this area are well documented,<sup>2</sup> we are not aware of any effort by any regulatory agency to address this root cause of this problem.

### **Health Concerns Associated with Nitrates**

Health concerns associated with the ingestion of nitrates are well known. A WDEQ fact sheet on nitrates explains that:

Ingestion of water containing high levels of nitrate or nitrite can be fatal for infants, especially bottle-fed infants under 6 months of age. Bacteria in the saliva and digestive tract convert nitrate to nitrite, this can interfere with the ability of blood to carry oxygen. In serious cases, this can lead to a disorder called methemoglobinemia, or ‘blue baby syndrome.’ Symptoms include shortness of breath or a blue coloring to the skin. Water containing nitrate or nitrite should not be used in food or formula preparation for children under 6 months of age. Nitrate and nitrite are not usually a problem for people over 6 months of age, although people with certain health conditions may be more susceptible to problems from nitrate or nitrite ingestion, such as:

- Pregnant women
- People with low stomach acid
- People with gastrointestinal infections
- People lacking the methemoglobin reductase enzyme

People who consume unusually high levels of nitrates can experience decreases in blood pressure, increased heart rate, headaches, abdominal cramps, and vomiting.

The DEQ’s nitrate fact sheet is available online at:

<https://www.tetoncountywy.gov/DocumentCenter/View/8836/Nitrate-Nitrite-Fact-Sheet?bidId>

### **Wyoming DEQ Regulatory Requirements**

Chapter 8 of the DEQ’s Water Quality Rules and Regulations contains quality standards for the State’s groundwaters. A DEQ fact sheet on nitrates explains that:

Nitrate and nitrite are both regulated under the US EPA Primary Drinking Water Regulations. The US EPA has set a maximum contaminant level for nitrate at 10 milligrams per liter (mg/L), and 1 mg/L for nitrite.

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<sup>2</sup> See, e.g., Hoback Junction Water Supply Study, Level I Final Report March 2006 at page I-1 (referencing Teton County Water Supply Master Plan Level I Study February 1999 prepared for the Wyoming Water Development Commission by Jorgensen Engineering and Land Surveying, P.C. These reports are available online at: <http://library.wrds.uwyo.edu/wwdcrept/>

Wyoming Water Quality Rules and Regulations Chapter 8, Table 1 has the same standards as the EPA for Class I (domestic) water quality, and has set a nitrite level of 10 mg/L for Class III (livestock) water uses.

*Id.*

According to Chapter 8, “standards are prescribed to protect the natural quality of underground water... (iii) [f]rom pollution that may result from above-ground facilities capable of causing or contributing to pollution.” *See* Chapter 8 Section 4(a). The DEQ’s rules further provide that, “a discharge or activity that impacts an underground source of water for existing uses ... shall not make the affected water unsuitable for its intended use or uses, at any place or places of withdrawal or natural flow to the surface.” *See* Chapter 8, Section 4(c). It is clear that nitrate concentrations exceeding 10 mg/L in Hoback Junction groundwater violate Wyoming Groundwater Quality Standards by rendering the groundwater unsuitable for drinking.

### **Concentrations of Nitrates in Hoback Groundwater Exceed EPA’s MCL of 10 mg/L**

Nitrate exceedances in the Hoback Junction area have been well documented. As a result of these exceedances, the three public water systems in the area: Hoback Market, Hoback RV Park, and J-W Subdivision, must treat the water to reduce the concentrations of nitrates in order to comply with EPA’s MCL. Even with treatment, concentrations have reached levels that approach the EPA’s MCL. *See* Hoback Drinking Water Background - Hoback Drinking Water Stakeholder Group Final Recommendations, Teton County Board of County Commissioner Meeting: 06/08/2020, available online at: <https://www.tetoncountywy.gov/DocumentCenter/View/14353/0608-WKS-Hoback-Drinking-Water?bidId=>

A letter from the Teton County District Board of Health to Teton County Board of County Commissioners describes the problem as follows:

#### Presence of Nitrate in the Hoback Area

While naturally occurring, nitrate does not typically occur at concentrations above 2 mg/L in undisturbed surface or groundwater. Concentrations in excess of this are often indicative of human-caused contamination. Testing from the Hoback Junction area has often revealed concentrations significantly above the expected naturally occurring level. Concentrations at or exceeding 10 mg/L (the EPA’s maximum allowable level for public systems) have also been observed.

Records from public water systems provide the most robust data sources on this issue and indicate that nitrate contamination is a growing problem in the area. Routine monitoring from public water systems such as the J-W Subdivision demonstrate a steady increase in nitrate concentrations in some areas over several years. *Figure 1* shows nitrate concentrations in that system from 1984 to 2016. Other public water supplies in the area have already exceeded the drinking water standard for nitrate. In 2004, testing of the water

from the Hoback Market system measured nitrate at 57.4 mg/L and 59.4 mg/L. Hoback RV Park began approaching the regulatory limit as early as 1995, testing at 9.8 mg/L, and exceeded it for the first time in 1997. Such systems that would otherwise consistently exceed 10 mg/L are now required to treat the water prior to use.

Data from these systems and from the J-W system clearly demonstrate that the area immediately north of the Hoback River/Snake River confluence has a persistent and, in places, growing problem with nitrate in drinking water. Private well data from the vicinity also demonstrate a similar trend to that seen in J-W and other public systems, with several homes increasing over time or already exceeding 10 mg/L.

*See* Letter from Teton District Board of Health to Teton County Board of County Commissioners (undated), available online at:  
<http://www.tetonwyo.org/DocumentCenter/View/12794/BOH-letter-to-BCC-signed?bidId=>

A November 10, 2016, inspection of the J-W Subdivision public water system by the DEQ revealed that nitrate levels in the system have increased from about 2 mg/L to 10 mg/L during a 30-year period. The DEQ's report noted that "Possible [nitrate] sources discussed included the Hoback Junction Store, residential septic systems located on the hillside above the Hoback Junction Store and the residential septic systems within the J-W Subdivision. The report further noted: "As previously mentioned the J-W Subdivision has small lot sizes near 0.25 acres with individual septic systems. . . . Further investigation would be required to quantify better the source(s) of elevated nitrate levels in the J-W Subdivision's well water." *See* WDEQ Inspection Report for the J-W Subdivision (PWS #5600877), November 10, 2016. The Inspection Report is available online at:  
<http://www.tetoncountwy.gov/DocumentCenter/View/12793/WDEQ-Inspection-of-Hoback-J-W-Subdivision-Nitrates?bidId=>

A Level I water supply report prepared by Nelson Engineering for the Wyoming Water Development Commission indicates that groundwater in the Hoback Junction area used for drinking water contains concentrations of nitrates that exceed EPA's MCL of 10 mg/L:

Commercial users have had difficulty meeting EPA's minimum drinking water standards, particularly in the immediate vicinity of Hoback Junction, because of high nitrate concentrations. Nitrate levels in wells in this area have been measured as high as 62 mg/L and as low as 3 mg/L (EPA MCL = 10mg/L). The elevated nitrate levels appear to be a result of high septic tank density. In some instances, well water has smelled of sulfur or been found to have a high concentration of fluoride.

*See* Hoback Junction Water Supply Study, Level 1 Final Report, prepared for the Wyoming Water Development Commission by Nelson Engineering, March 2006, available online at:  
[http://www.tetonwyo.org/DocumentCenter/View/12791/Hoback\\_Junction-Water\\_Supply\\_Study\\_Level\\_I-Final\\_Report-2006?bidId=](http://www.tetonwyo.org/DocumentCenter/View/12791/Hoback_Junction-Water_Supply_Study_Level_I-Final_Report-2006?bidId=)

For the foregoing reasons, and pursuant to W.S. §35-11-701, we request a prompt investigation into the sources and causes of exceedances of EPA's MCL for nitrate in the Hoback area. We appreciate your attention to this matter and look forward to your reply.

Sincerely,



Dan Heilig  
Senior Conservation Advocate

cc: Kevin Frederick, Administrator, WDEQ/WQD  
Lily R. Barkau, WDEQ/WQD, Groundwater Section Manager  
Richard Cripe, WDEQ/WQD Water/Wastewater Section Manager  
U.S. EPA Region 8  
Teton County Board of County Commissioners  
Teton District Board of Health  
Jodie Pond  
Carlin Girard

Enclosure: Letter to Ted Van Holland, County Sanitarian, requesting an inspection of small wastewater facilities in the Hoback Junction area of Teton County, Wyoming.