

Wayland, Joshua

From: Brenda Johnson <brendajohnson@utah.gov>
Sent: Monday, June 17, 2019 10:40 AM
To: Wayland, Joshua
Cc: James Harris; Elise Hinman; Christine Osborne
Subject: Seven County infrastructure Coalition Proposal Comments
Attachments: DWQ-2019-006475.pdf

Good morning Mr. Wayland,

Attached please find a letter regarding the above-referenced information.

Regards,

Brenda

**Brenda L. Johnson**

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DIVISION OF WATER QUALITY
Erica Brown Gaddis, PhD
Director

June 14, 2019

Joshua Wayland
Surface Transportation Board
c/o ICF
9300 Lee Highway
Fairfax, VA 22031
VIA EMAIL

Dear Mr. Wayland,

Thank you for the opportunity to submit preliminary comments on the Seven County Infrastructure Coalition proposal to build an 80-mile rail line to transport commodities and products in and out of the Uinta Basin.

The Utah Department of Environmental Quality's Division of Water Quality (DWQ) is tasked with protecting, maintaining, and enhancing the quality of Utah's surface and underground waters for their designated beneficial uses. Beneficial uses include drinking water, recreation, protection of aquatic life, and agriculture. To protect these beneficial uses, the state develops numeric and narrative water quality standards for surface waters in Utah. DWQ collects water-quality data, monitors the health of the state's waterways, issues permits for surface water discharges, evaluates the condition of watersheds, and coordinates with partners on water-quality issues associated with specific public health concerns.

DWQ's scoping comments address common impacts to water quality from railways in general as well as conditions that are specific to the local area covered by the three proposed routes.

General Comments

Soil erosion and product spills pose the greatest water-quality impacts from rail line construction and operations. According to Priscila Silva Lucas, et.al, railway disturbances can often result in significant impacts to the environment:¹

"The abrupt change of soil required to establish the railway embankment leads to vegetation loss, compresses the soil, and compromises water drainage (Ferrell and Lautala [2010](#)). Thus, soil becomes exposed and subject to an increasing runoff that promotes its erosion (Chen et al. [2015](#)). The erosion of rail embankments can result in a washing out of sediments (Jin et al. [2008](#)) that cause water pollution.

Infrastructures associated with railways (e.g., leakages of petroleum products from fuel storage tanks) contribute, together with pollutants, to aquatic ecosystems. (Schweinsberg et al. [1999](#); Vo et

¹ Lucas P.S., de Carvalho R.G., Grilo C. 2017, Railway Disturbances on Wildlife: Types, Effects, and Mitigation Measures. In: Borda-de-Água L., Barrientos R., Beja P., Pereira H. (eds), Railway Ecology. Springer, Cham.

al. [2015](#)). Levengood et al. ([2015](#)) documented high concentrations of PAHs [polycyclic aromatic hydrocarbons] and heavy metals in waterways bisected or bordered by railways. They showed that the PAH concentration was higher downstream than upstream of the railway (Levengood et al. [2015](#)). They also found that phenanthrene and dibenzo (a, h) anthracene (a PAH element) concentrations at some sites represented a risk to aquatic life.”

Water quality impacts will vary based on railway alignment, acreage disturbed, proximity to waterways, frequency of rail traffic, and products and commodities carried on the rail line.² These impacts will also vary between the construction and post-construction (operational) phases.

- Impacts during the construction phase
 - Soil erosion and subsequent impacts on water quality are greatest during construction. Removal of vegetation for initial clearing and grading activities expose soil and make it more susceptible to erosion. Rail line alignment, location of construction staging, and erosion control measures could ameliorate some of these impacts.
 - Heavy-machinery traffic may increase erosion depending on the type of roadways used (paved versus gravel or dirt roads).
 - Heavy-machinery emissions and deposition may also be an issue depending on proximity to waterways. (See comments below on impacts from emissions).
- Impacts during the operational phase (post-construction)
 - There is high potential for an increase in runoff and erosion due to elevated railways. The extent of the impacts depends on the rail alignment and proximity to waterways.
 - Soils in the area are subject to freeze-thaw cycles that could increase the potential for erosion, particularly during spring runoff and storm events.
 - Exhaust emissions of carbon monoxide (CO), oxides of nitrogen (NO_x), volatile organic compounds (VOCs), sulfur dioxide (SO₂), particulate matter, particulate matter (PM), carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and ammonium (NH₄) from train traffic are expected. The impact to water quality from dry and wet deposition of these chemicals into nearby waterways is unclear.³ Emissions of creosote, polycyclic aromatic hydrocarbons (PAHs), and phenols from railroad ties treated with creosote are also a source of concern.⁴
 - Spills of waxy crude, fracturing sand, coal, soda ash, Gilsonite, phosphorus, and diesel fuel leaks or discharges into waterways could cause significant water-quality impacts, depending on the extent and location of the spill. Effective spill prevention and response protocol will be critical to protecting water resources along the route.
 - Soils in proximity to rail lines have higher levels of PAHs from fuel and creosote leaching from railway ties.⁵ There could be potential impacts to aquatic life from PAHs depending on

² Environmental Protection Agency. 1996. Indicators of the Environmental Impacts of Transportation: Highway, Rail, Aviation, and Maritime Transport. EPA 230-R-96-009

³ *Ibid.*

⁴ Martin Kohler*, Tina Künniger, Peter Schmid, Erika Gujer, Rowena Crockett, and Max Wolfensberger. 2000. Inventory and emission factors of creosote, polycyclic aromatic hydrocarbons (PAH) and phenols from railroad ties treated with creosote. *Environmental Science & Technology* 34 (22), 4766-4772 DOI: 10.1021/es000103h

⁵ Wiłkomirski B, Sudnik-Wójcikowska B, Galera H, Wierzbicka M, Malawska M. 2011. Railway transportation as a serious source of organic and inorganic pollution. *Water Air Soil Pollution*. 218(1-4):333–345. DOI:10.1007/s11270-010-0645-0

the hydrocarbon load that reaches the waterway from runoff or erosion. Utah does not currently have water-quality criteria for PAHs as they are still considered an emerging contaminant. National criteria could be referenced to compare concentrations in affected waters.

- Livestock transport along the rail line could result in increased fecal matter entering nearby waterways from either direct deposition or runoff, depending on the frequency of livestock transport and proximity of the rail line to waterways.
- Herbicides along the rail route could be an additional source of water pollution.⁶ “... Schweinsberg et al. (1999) discovered that in Germany before the 1990s, a much higher total amount of these compounds [herbicides] were applied on railway tracks than in agriculture. Recently, Vo et al. (2015) showed that many herbicides applied during the operation of the railway are at concentrations that are lethal to most of the aquatic fauna, particularly fish populations; they indicate that compounds such as Imazapyr or Diuron concentrations can take 6 and 48 months, respectively, to drop below 50 (percent) of their original levels.”

Comments Specific to the Affected Area

Erosion will be one of the primary issues for all routes since the geology/soils in the region are significant natural sources of soluble salts. Geologic features are dominated by the slightly-to-moderately saline Uinta and Duchesne River formations and the highly saline Mancos Shale formation. Total dissolved solids (TDS), selenium (Se), arsenic (As), and boron (B) water-quality impairments in the area are generally due to the composition of the bedrock coupled with erosion-causing activities such as oil and gas operations, irrigation, grazing, and road construction. The proposed setback distance from surface waters and wetlands will play a large role in the severity of erosion-related impacts.

Watershed planning is an important tool for protecting vital water resources. The [Duchesne River Watershed Restoration Plan](#) covers portions of the proposed routes and is intended to help local communities, watershed organizations, and agencies operating within the Duchesne River watershed develop and implement plans to meet water-quality standards, protect water resources and provide a cohesive strategy for implementing needed water-quality improvements in the Duchesne River and tributaries.⁷ One of the goals of the plan is to “improve water quality in the watershed by decreasing total dissolved solids (TDS) and sediment loads.” Railroad construction is contradictory to this goal, since the project will likely increase erosion and related water quality impacts. The Duchesne Plan, however, is not intended to prevent projects that increase erosion. Rather, it focuses on responsible erosion-control practices to reduce erosion from anthropogenic activities in the watershed.

All three proposed routes cross impaired water segments, designated geographically as water-quality assessment units (AUs). An AU is deemed impaired when it fails to meet the water-quality standards associated with its beneficial uses. Following [Section 303\(d\)](#) of the [Clean Water Act](#), DWQ identifies and prioritizes impaired waters that require restoration to meet water-quality standards. As part of the restoration process, total maximum daily loads (TMDLs) are written to mandate the maximum allowable

⁶ *Op. cit.*, Railway Disturbances on Wildlife.

⁷ Uinta Basin Watershed Council. 2015. Duchesne River Watershed Restoration Plan. <https://deq.utah.gov/legacy/programs/water-quality/watersheds/docs/2015/08Aug/Duchesne.pdf>

discharge of a pollutant from both point and non-point sources to a water segment while still meeting applicable water-quality standards. Several of the assessment units associated with the rail lines have TMDLs in place for total dissolved solids and/or are impaired for other pollutants commonly associated with soil disturbance in these areas. DWQ has attached a table with the beneficial use(s), impairments, and TMDLs for AUs along the proposed routes as an addendum to this letter.

Conclusion

Erosion and spills present the most significant impacts to water quality along the three proposed routes. The extent of the erosion impacts will depend on the alignment of the routes and their proximity to waterways. Spills are always a concern along transportation corridors, but safety and response protocols can minimize these impacts. Increases to rail traffic beyond the frequency proposed in the scoping document would likely increase impacts from erosion and possible spills and should be taken into consideration along with other impacts that may qualify as [cumulative impacts](#) under [40 CFR § 1508.7](#).

The project as proposed will require [construction storm water permit](#) coverage since it will disturb more than one acre. The [UPDES Construction General Permit Number UTRC00000](#) permit application and requirements are available on the DWQ webpage. Projects that require a U.S. Army Corps of Engineers (USACE) Individual [Section 404 Permit](#) will require a [Section 401 Water Quality Certification](#) through DWQ. The purpose of the Section 401 Certification is to allow the state to certify whether projects/activities will violate any applicable state water-quality standards. An application for a Section 401 Water Quality Certification should be made simultaneously with an application for a Section 404 Permit through USACE.

Thank you again for the opportunity to comment on the proposed rail line in the Uinta Basin. Please feel free to contact Elise Hinman at ehinman@utah.gov or (801) 536-4346 with any questions or concerns.

Sincerely,



Erica Gaddis, PhD
Director

EBG/EH/blj

Enclosures (1): 1. Table 1: Assessment Units, Designated Beneficial Uses, and Impairments

DWQ-2019-006475

Table 1: Assessment Units, Designated Beneficial Uses, and Impairments

Water Quality Assessment Units Located in Proposed Routes			
Route	Assessment Unit	Beneficial Uses	Impairments
Craig	Green River 2 - Tribs (tributaries)	1C, 2A, 3B, 4	1C, 2A – <i>E.coli</i>
Craig	Duchesne River - 2	2B, 3B, 4	2B – <i>E.coli</i> 4 – B TMDL approved: TDS
Craig	Dry Gulch Creek	2B, 3B, 4	2B – <i>E.coli</i> TMDL approved: TDS
Craig	Uinta River - 2	2B, 3B, 4	TMDL approved: TDS
Craig	Ashley Creek Lower	2B, 3B, 4	3B – Se 4 – TDS, Se
Indian Canyon	Indian Canyon	1C, 2B, 3A, 4	1C - As 3A – Se 4 – B, TDS
Indian Canyon	Duchesne River - 3	1C, 2B, 3A, 4	No impairments
Indian Canyon	Price River - 2	2B, 3A, 4	No impairments, insufficient data
Indian Canyon	Price River -1	1C, 2B, 3A, 4	3A – DO, OE
Indian Canyon	Willow Creek – Carbon	2B, 3A, 4	No impairments, insufficient data
Indian Canyon	Antelope Creek	1C, 2B, 3A, 4	1C – As 3A – Se 4 – B, TDS

Indian Canyon	Duchesne River -2	2B, 3B, 4	2B – <i>E.coli</i> 4 – B TMDL approved: TDS
Wells Draw	Price River-2	2B, 3A, 4	No impairments, insufficient data
Wells Draw	Price River-1	1C, 2B, 3A, 4	3A – DO, OE
Wells Draw	Nine Mile	2B, 3A, 4	TMDL approved: Temperature
Wells Draw	Pariette Draw Creek	2B, 3B, 3D, 4	3B – Temperature TMDL approved: TDS, Se, B
Wells Draw	Duchesne River-2	2B, 3B, 4	2B – <i>E.coli</i> 4 – B TMDL approved: TDS

Definitions, Terms, and Acronyms

Designated beneficial uses

- Class 1C - Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.
- Class 2A - Protected for primary contact recreation such as swimming.
- Class 2B - Protected for secondary contact recreation such as boating, wading, or similar uses.
- Class 3A - Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.
- Class 3B - Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.
- Class 3C - Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.
- Class 3D - Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.
- Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.

Impairments identified in Assessment Units in the proposed routes

- *E. coli*
- Total dissolved solids (TDS)
- Selenium (Se)
- Boron (B)
- Arsenic (As)
- Dissolved oxygen (DO)
- Observed/expected (OE) bioassessment (Ratio where O is the aquatic taxa observed in the stream, and E is the expected aquatic taxa. The value of the ratio provides an indication of aquatic health).
- Temperature

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