



August 15, 2019

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

RE: COMPLAINT AND REQUEST FOR INVESTIGATION (WYO. STAT. § 35-11-701)

Dear Mr. Parfitt:

On behalf of the Wyoming Outdoor Council and the Powder River Basin Resource Council we write to bring to your attention multiple apparent violations of the Clean Water Act, the Wyoming Environmental Quality Act and their implementing regulations. As discussed below, untreated and/or partially treated produced water discharged from Aethon Energy Company's Moneta Divide Oil and Natural Gas Field (hereinafter "facility") may not be of good enough quality for wildlife or livestock use, contrary to the requirements set forth in 40 C.F.R. Part 435, Subpart E and state water quality regulations contained in Chapter 2 and Chapter 2 Appendix H. In addition, the discharge of approximately one million gallons per day of produced water from this facility has caused and continues to cause violations of Wyoming surface water quality standards in Alkali and Badwater creeks contrary to the requirements of the federal Clean Water Act, the Wyoming Environmental Quality Act and their respective implementing regulations.

Background

The discharge of produced water into Alkali and Badwater creeks from the Moneta Divide oil and natural gas field is authorized under WYPDES Permit No. WY0002062, issued on October 21, 2013. The permit expired on December 31, 2017, and has been administratively extended pending renewal.¹

Among other things, permits authorizing the discharge of produced water must comply with Chapter 1 and Chapter 2 of the Department of Environmental Quality's water quality rules and regulations, and must also meet "Additional Requirements Applicable to Produced Water Discharges from Oil and Gas Production Facilities" contained in Chapter 2, Appendix H.

¹ Numerous parties, including WOC and PRBRC, have filed objections to the renewal of WY0002062 due to the potential for significant and unacceptable environmental impacts and impacts to downstream water users.

Alleged Violations of Federal and State Law, Regulations, Permits and Standards

I. The produced water is not of good enough quality to be used for wildlife or livestock watering and is not actually being put to such use.

Federal and state regulations require that the “produced water shall be of good enough quality to be used for wildlife or livestock watering or other agricultural uses and actually be put to such use during periods of discharge.” See 40 C.F.R. Part 435 Subpart E., Ch. 2, Appendix H(a). Unlike the effluent limits contained in Appendix H for chloride, TDS and other constituents, these requirements cannot be waived or modified.² Accordingly, if the produced water is not of good enough quality for livestock or wildlife watering, or if it is not actually put to such use, the wastewater may not be lawfully discharged to the surface. As explained below, the existing discharge permit fails to demonstrate that these two requirements are being met, and we therefore request, pursuant to W.S. § 35-11-701(a), that a “prompt investigation be made” to determine whether the threshold legal requirements are being satisfied.

The produced water is not of good enough quality. Chapter 2 Appendix H provides that the effluent limitations for chlorides (2,000 mg/L), sulfates (3,000 mg/L), total dissolved solids (5,000 mg/L), specific conductance (7,500 umhos/cm), and pH (6.5-9.0) “are protective for stock and wildlife consumption.” Ch. 2 App. H(b)(vii).³ The existing permit, however, fails to contain any limits (for outfalls 001-012) for those constituents other than a “salt load limit” of 908 tons/month which is based on a “pre-2009 TDS concentration of 7456 mg/L” — 2,456 mg/L greater than the maximum concentration deemed safe in Appendix H for livestock and wildlife.

Aethon’s existing permit contains no evidence that TDS concentrations exceeding the maximum concentration limits specified in Appendix H are safe for livestock and wildlife. On the other hand, a review of the pertinent literature - funded by the Wyoming DEQ - indicates that TDS concentrations in excess of 5,000 mg/L may be harmful to livestock and wildlife. The review further cautions that concentrations well below 5,000 mg/L are a cause for concern:

Total dissolved solids in drinking water serve as a very poor predictor of animal health. ... We do not recommend relying upon TDS to evaluate water quality for livestock and wildlife; however, if no other information is available, TDS concentrations less than 500 mg/L should ensure safety from almost all inorganic constituents. Above 500 mg/L, the individual constituents contributing to TDS should be identified, quantified, and evaluated.

² See Ch. 2 App. H(c)(i). This provision allows the DEQ to modify or waive effluent limitations contained in App. H(b)(vii)(A-D) for chlorides, sulfates, total dissolved solids, specific conductance and pH under certain circumstances and only if all other requirements are met including limitation on toxic chemicals and compliance with applicable water quality standards.

³ Appendix H does not reference or identify any scientific studies or literature supporting the assertion that the effluent concentration limits specified therein for chloride, sulfates, TDS, specific conductance or pH are protective for stock and wildlife consumption.

See Water Quality for Wyoming Livestock & Wildlife, A Review of the Literature Pertaining to Health Effects of Inorganic Contaminants, at 50. Available at: <http://www.wyomingextension.org/agpubs/pubs/B1183.pdf>

Although the existing permit contains a *monthly load limit* of 908 tons for TDS (sum of all outfalls), it contains *no effluent concentration limitation for TDS whatsoever*. As a result, actual TDS concentrations at the outfall(s) could reach -and likely have reached- levels that are harmful to livestock and wildlife.⁴ A monthly load limit alone does not ensure that TDS concentrations are kept below levels needed to protect wildlife and livestock. Accordingly, we request a prompt investigation into whether TDS levels at each of the outfalls are below concentrations believed to be harmful to livestock and wildlife.

Toxicity of Produced Water. Attachment B of Aethon's application for renewal of permit WY0002062 contains a "List of Chemicals and associated Safety Data Sheets" used in the Moneta Divide oil and gas field to reduce oil and grease and prevent solids from forming in water. All of the products identified in Attachment B are considered hazardous by the OSHA. No reference is made to these products in the existing permit, but for purposes of this request, we will assume that these, or similar products, are in use in the field and therefore have the potential to enter into the environment, including entering produced water that may be ingested by livestock and/or wildlife.

In addition, as reported by EPA, Frac Focus, and Appendix J of the BLM's Moneta Divide Natural Gas and Oil Development DEIS, a wide range of chemicals, including hazardous substances, will be used, or produced, during the life of the field.⁵ Although some of these chemicals may be present in flowback and produced waters, the existing permit does not identify, or establish effluent limits, for any of them. Further, despite the presence and use of a wide assortment of toxic substances at the facility, the existing permit fails to include any requirement for whole effluent toxicity (WET) testing. Without WET testing, or some other form of scientifically-rigorous testing protocol, the DEQ is unable to determine whether the effluent is suitable for livestock and wildlife watering, and is therefore unable to ensure compliance with Appendix H's mandate that "[i]n no case shall any produced water discharge contain toxic materials in concentrations or combinations which are toxic to human, animal or aquatic life." Ch. 2. App. H(b)(i).

The produced water is not actually being put to use. The existing permit contains no evidence that the produced water discharged from the facility is actually used by livestock and/or wildlife. Indeed, odors and other undesirable constituents in the produced water may cause wildlife to avoid use of the water.⁶ Furthermore, the existence of a "signed letter of beneficial

⁴ For example, Table 2 of Aethon's application for renewal of permit number WY0002062 indicates that a TDS concentration of 5,940 mg/L is representative of the discharge, while the DEQ's draft permit sets an effluent limit of 6,400 mg/L for TDS.

⁵ See Letter from Darcy O'Connor, Director, Water Division, EPA Region 8, to Jason Thomas, WDEQ/WQD, dated June 27, 2019.

⁶ A DEQ inspection of the facility conducted on June 20, 2018 detected the presence of odors at each of the discharging outfalls: 001, 003, 006, and 009. See Letter from Eric Moore, DEQ WYPDES Inspector, to Andrea Taylor, HSE and Regulatory Manager, dated July 31, 2018. Odors were not detected at any of the non-discharging

use” from the land owner and/or a statement from the Wyoming Game and Fish Department which may have been provided to support a modification of effluent limits under Appendix H(c)(i) does not, in and of itself, demonstrate that the produced water is actually being used by livestock or wildlife. Evidence of actual use must be provided and must be specific to the discharge in question.

In conclusion, in order to comply with federal requirements contained in 40 C.F.R. Part 435 Subpart E, and the DEQ/WQD’s own rules set forth in Chapter 2, and in Chapter 2 Appendix H, the DEQ must ensure that “the produced water shall be of good enough quality to be used for wildlife or livestock watering or other agricultural uses and actually be put to such use during periods of discharge.” Ch. 2, Appendix H(a). High concentrations of total dissolved solids and/or the presence of toxic substances in the produced water may make it unsuitable for livestock or wildlife use. Because the permit lacks any evidence that these two requirements (good enough quality and actual use) are being met, we request a “prompt investigation” into this matter along with all appropriate action to address these concerns.

II. The discharge of untreated and/or partially treated produced water into Alkali and Badwater creeks has violated Wyoming surface water quality standards.

A water quality standard consists of designated uses, water quality criteria necessary to sustain those uses, and an antidegradation requirement.⁷

Alkali Creek is designated a Class 3B surface water pursuant to Wyoming water quality standards. As explained in the standards, “Class 3 waters provide support for invertebrates, amphibians, or other flora and fauna which inhabit waters of the state at some stage of their life cycles. Uses designated on Class 3 waters include aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value.” *See* Chapter 1, Section 4(c).

Badwater Creek is designated a Class 2AB surface water pursuant to Wyoming water quality standards. Under the standards, “Class 2 waters are waters, other than those designated as Class 1, that are known to support fish and/or drinking water supplies or where those uses are attainable.” *See* Chapter 1, Section 4(b) Surface Water Classes and Uses.

The BLM’s Moneta Divide Oil and Gas Project Draft Environmental Impact Statement discloses that Alkali Creek has been severely impacted by discharges of produced water from this facility. *See* Moneta Divide DEIS at 3-59.

outfalls. *Id.* Although the source, nature, and character of the odors are not described in the inspection report, we believe that the odor detected by the inspector may be caused by the presence of benzene or other chemicals (BTEX) in the effluent. Chapter 1, Wyoming Surface Water Quality Standards, Section 17, provides that: “No Class 1, 2 or 3 waters shall contain substances attributable to or influenced by the activities of man that produce taste, odor and color or that would ... (c) Produce detectable odor.” We note that the draft renewal WY0002062 adds routine monitoring requirements for BTEX at the outfalls and at a downstream monitoring point on Alkali Creek.

⁷ *See* Section 2, Concepts - Wyoming Surface Water Quality Standards, Implementation Policies for Antidegradation, Mixing Zones and Dilution Allowances, Turbidity, Use Attainability Analysis, Effective September 24, 2013.

Badwater Creek has also been severely impacted by the discharge of produced water from the Moneta Divide field. *See* Department of Environmental Quality/Water Quality Division Use Attainability Analysis, Badwater Creek, September 7, 2018 (noting instream chloride concentrations greatly exceeding the numeric criterion of 230 mg/L). The severity of the impacts prompted the Wyoming Game and Fish Department to write that “the Department is very concerned about fish and aquatic macroinvertebrate exposure to produced water in Badwater Creek and Badwater Bay. If not properly diluted, the produced water may cause short-term mortality to aquatic organisms and long-term exposure may have negative effects on growth and reproduction.”⁸


Protection of designated uses is a fundamental requirement of the Clean Water Act and the DEQ’s surface water quality standards. The DEQ has allowed the degradation of Alkali and Badwater creeks to continue unabated, despite legal requirements prohibiting discharges that violate water quality standards.⁹ Information contained in the above-referenced federal and state documents indicates that the discharge of approximately one million gallons per day of untreated and/or partially treated produced water from Aethon’s Moneta Divide oil and gas facility has caused and continues to cause violations of water quality standards in Alkali and Badwater Creeks, and associated terms and conditions of WYPDES permit WY0002062.

For the foregoing reasons, we request a prompt investigation of the alleged violations. We appreciate your attention to this matter, and look forward to your reply.

Sincerely,



Dan Heilig
Senior Conservation Advocate
Wyoming Outdoor Council



Jill Morrison
Executive Director
Powder River Basin Resource Council

cc: Mark Gordon, Governor
Beth Callaway, Policy Advisor
Brian Nesvik, WGFD Director
Kevin Frederick, DEQ/WQD Administrator

⁸ *See* Letter from Angi Bruce, Deputy Director, Wyoming Game and Fish Department, to Jason Thomas, Wyoming DEQ, dated July 3, 2019.

⁹ “No person shall cause, threaten or allow violation of a surface water quality standard contained herein.” *See* Chapter 1, Section 1. Effluent limits in WYPDES permits must “ensure that water quality standards promulgated in Wyoming Water Quality Rules and Regulations, Chapter 1 will not be violated as a result of the proposed discharge.” Chapter 2, Section 5(b)(i)(B). Chapter 2 Appendix H provides that “In no case will a modification of [effluent limits contained in this appendix] be permitted which would result in a violation of Wyoming Water Quality Rules and Regulations, Chapter 1.” *See* Ch. 2, App. H(c)(iii).