Exhibit 4

NRDC Comments

NRDC
THE EARTH'S BEST DEFENSE

NATURAL RESOURCES DEFENSE COUNCIL

July 25, 2013

Colleen Rathbone (8P-W-WW)
U.S. Environmental Protection Agency, Region 8
1595 Wynkoop Street
Denver, CO 80202-1129

Re: Comments on NPDES Permits for Discharge of Wastes from Oil and Gas Operations on the Wind River Indian Reservation: Nos. WY-0024953, WY-0024945, and WY-0025232

Dear Ms. Rathbone,

On behalf of the Natural Resources Defense Council (NRDC), we hereby submit comments related to the above-referenced permits issued for the discharge of oil and gas wastes on the Wind River Reservation.[1] Issuance of these permits would be contrary to law: the discharges do not come under the beneficial use exemption because they are not exclusively produced water; the discharges are not of good enough quality for livestock watering; the established effluent limitations fail to meet the Tribes' water quality standards or to protect the designated uses of the receiving waters; and the monitoring requirements should be tied to frack jobs or well treatment events. Therefore, NRDC urges EPA to withdraw the permits or alter them substantially so that they comply with the Clean Water Act (CWA) and EPA implementing regulations.

[1] These permits are: Phoenix Production Company - Sheldon Dome Field; NPDES Permit No. WY-0024953, Phoenix Production Company - Rolff Lake Unit; NPDES Permit No. WY-0024945, and WESCO Operating, Inc. - Tensleep #1 Winkleman Dome Field; NPDES Permit No. WY-0025232.

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I. The proposed discharges do not qualify for the beneficial use exemption because they are not composed exclusively of produced water.

Fracking flowback and other well treatment fluids contain pollutants that may not be discharged under the "beneficial use" exemption, as discussed below. Because the proposed permits allow for discharges containing non-exempt pollutants, they are not in compliance with law.

Onshore oil and gas extraction facilities are generally prohibited from discharging waste into navigable waters.[2] This prohibition applies to any discharge of pollutants associated with "production, field exploration, drilling, well completion, or well treatment."[3] A narrow exception to this rule exists, termed the "beneficial use subcategory" for facilities west of the 98th meridian, which may discharge produced water that has a use in agriculture or wildlife propagation.[4] However, the above-referenced permits appear to allow not only the discharge of produced water, but also of other waste streams, such as fracking flowback and used workover fluids.[5] Because used well treatment and hydraulic fracturing fluids are not produced water, they do not qualify for the "beneficial use subcategory." The proposed permits must therefore be withdrawn or revised to prevent discharge of these waste streams.

a. EPA regulations and supporting technical documents indicate that fracking flowback and used well treatment fluids do not qualify as "produced water."

Multiple sources, including the regulatory text, the federal register notice promulgating the regulations, and the accompanying technical development document all indicate that the beneficial use exception for produced water does not include well treatment fluids like fracking flowback and used workover chemicals. EPA promulgated the effluent standards for oil and gas extraction point sources, including the prohibition on most discharges from onshore sources and

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[2] *See* 40 C.F.R. § 435.32 (2012).
[3] *Id.*
[4] *See* 40 C.F.R. § 435.50.
[5] Note that permit No. WY-0025232 provides virtually no information about the source of the oil and gas wastewater which is being discharged. No information is provided on the volume of waste to be discharged, the wells which generate the waste, nor whether well treatment chemicals or fracking flowback will be present. However, given EPA's proposed permits WY-0024953 and WY-0024945, which indicate an intention to allow these waste streams to be discharged, there is no assurance that these prohibited wastes will not be discharged under permit No. WY-0025232.

the beneficial use exception, in 1979.[6] These regulations have not been altered in any relevant respect since that time.[7]

The regulatory text itself indicates that the term "produced water" was not meant to be interpreted so broadly as to allow discharge of frack flowback and well treatment fluids. The prohibition on discharges from oil and gas sources is broad, and specifically includes well completion and treatment sources, stating that "there shall be no discharge of waste water pollutants into navigable waters from *any source associated with* production, field exploration, drilling, *well completion, or well treatment.*"[8]

The exception for beneficial use, promulgated simultaneously, draws a narrow exception stating that "[t]here shall be no discharge of waste pollutants into navigable waters from any source (other than produced water) associated with production, field exploration, drilling, well completion, or well treatment (i.e., drilling muds, drill cuttings, and produced sands)"[9] except for those "onshore facilities located in the continental United States and west of the 98th meridian for which the produced water has a use in agriculture or wildlife propagation."[10]

It is also noteworthy that EPA included separate standards for produced water and well treatment fluids when it promulgated regulations for other oil and gas extraction point sources in the Offshore and Coastal subcategories.[11] These rules setting forth different standards for "produced water" and "well treatment" wastes appeared in the same Federal Register notice as the Onshore and Beneficial Use subcategories and clearly indicate that EPA did not consider well treatment fluids to be a constituent of produced water, but a separate waste stream.[12]

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[6] *See* 44 Fed. Reg. 22,069 (Apr.13, 1979) (promulgating regulations found at 43 C.F.R. Part 435, Oil and Gas Extraction Point Source Category).

[7] *See id.* at 22,076; 40 C.F.R §§ 435.30 (unchanged except for additional clause relating to applicability to certain coastal wells), 435.31 (unchanged), 435.32 (prefatory language not relevant to this issue removed; language setting forth the prohibition on discharge unchanged); 435.50 (unchanged); 435.51 (unchanged); 435.52 (prefatory language not relevant to this issue altered; language setting forth the parameters of the beneficial use exception unchanged).

[8] *See* 40 C.F.R. § 435.32 (emphasis added).

[9] 40 C.F.R § 435.52. Note that it might be argued that the parenthetical phrase at the end of the regulatory text indicates EPA intended the term "produced water" to encompass well treatment fluids because well treatment fluids are not included in the parenthetical. However, the use of "i.e." when "e.g." would have been more appropriate should not be considered dispositive. There is abundant evidence, set out below, that EPA's intended interpretation of the term "produced water" did not include well treatment fluids when the regulation was promulgated. The use of "i.e." instead of "e.g." cannot outweigh the many other indications that EPA considered well treatment fluids to be a separate and distinct wastewater stream.

[10] 40 C.F.R § 435.50.

[11] *See* 44 Fed. Reg. at 22,076–77.

[12] *See id.*

The technical development document that was prepared in conjunction with development of the regulation also serves to remove any hint of ambiguity that could exist.[13] The recommendations setting forth the best practicable control technology currently available in Table I of the development document make clear that used well treatment fluids were not included in produced water. That table is reproduced here, with the key portions highlighted:[14]

TABLE 1
Oil and Gas Extraction Industry
Effluent Limitations - BPCTCA

Subcategory	Water Source	Oil & Grease - mg/l		Residual Chlorine - mg/l
		Maximum for any one day	Average of daily values for thirty consecutive days shall not exceed	
A. Near Offshore	produced water	72	48[d]	N/A
B. Far Offshore	deck drainage	72	48[d]	N/A
D. Coastal	drilling muds	a	a	N/A
	drill cuttings	a	a	N/A
	well treatment	a	a	N/A
	sanitary M10	N/A	N/A	greater than 1[b]
	M9IM[c]	N/A	N/A	N/A
	domestic[c]	N/A	N/A	N/A
	produced sand	a	a	N/A
C. Onshore	produced water	e	N/A	N/A
E. Beneficial Use	drilling muds	no discharge		
	drill cuttings	no discharge		
	well treatment	no discharge		
	produced sand	no discharge		

Notes:

a - No discharge of free oil to the surface waters.
b - Minimum of 1 mg/l and maintained as close to this concentration as possible.
c - There shall be no floating solids as a result of the discharge of these materials.
d - Not applicable to the coastal subcategory.
e - For the onshore subcategory - no discharge; for the beneficial use subcategory - 45 mg/l.

The development document clearly and explicitly sets forth the recommendation that produced water is allowed to be discharged under the beneficial use subcategory but that no discharge of well treatment wastes is allowed. The development document also later enumerates the different waste streams from each source subcategory, including "well treatment" as a

[13] *See* U.S. EPA, Development Document for Interim Final Effluent Limitations Guidelines and Proposed New Source Performance Standards for the Oil & Gas Extraction Point Source Category, EPA 440/1-76/055-a (Sept. 1976).

[14] *See id.* at 4. Note that the discrepancy between the 45 mg/L oil and grease limitation set forth in the table for produced water under the beneficial use subcategory and the current limitation of 35 mg/L does not indicate that the regulation has been changed since it's initial promulgation. The limitation was changed in the final Federal Register notice because EPA could not verify that certain data upon which the initial figure was based had been analyzed by an EPA approved method. *See* 44 Fed. Reg. at 22,070.

separate and distinct category of waste, in addition to "produced water" under both the onshore and beneficial use subcategories.[15]

The definition of "produced water" set forth in the development document makes clear that "[p]roduced water includes all waters *associated with oil and gas producing formations.* Sometimes the terms "formation water" or "brine water" are used to describe produced water."[16] This definition demonstrates that produced water is intended to encompass only water and the accompanying pollutants associated with the formation itself. The definition does note that "water injection" may cause "higher percentage water cuts," allowing for the addition of water introduced downhole without any pollutants to be included in "produced water."[17] However, it is clear that the development document's definition of produced water includes only water and the pollutants associated with the formation and does not contemplate the addition of any additional pollutants. Hydraulic fracturing and well treatment are both specifically included and discussed under the separate and distinct category, "treatment of wells", on the subsequent page.[18]

Further, the basis for the beneficial use exception is clearly not applicable where hydraulic fracturing fluids or other well treatment chemicals are present. The development document notes that the beneficial use subcategory is intended to apply only to "[t]hese facilities with low TDS content produced waters who's [*sic*] discharge serves some beneficial use."[19] The development document provided analysis of the contents of water associated with oil and gas formations produced by onshore facilities in three different states.[20] However, EPA did not consider the presence of any of the wide variety of hazardous chemicals which may be introduced by hydraulic fracturing or other well treatment activities when determining that produced water could be safely discharged in certain circumstances. This indicates that EPA did not expect those pollutants to be present in the produced water waste stream.

Moreover, the policy concerns which motivated the exemption do not apply in the case of fracking flowback and used well treatment fluids. When promulgating the exception, EPA noted that:

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[15] *See id.* at 37.
[16] *Id.* at 38 (emphasis added).
[17] *Id.*
[18] *Id.* at 38–39 ("Treatment of wells includes acidizing and hydraulic fracturing . . . . Chemical treatments of wells consist of pumping acid or other chemicals down the well to remove formation damage and increase drainage in the permeable rock formations").
[19] *Id.* at 1.
[20] *Id.* at 46–47.

> *Investigation showed that in arid portions of the western United States low salinity produced waters were often the only, or at least a significant, source of water used for [agriculture and wildlife] purposes. . . . It is intended as a relatively restrictive subcategorization based on the unique factors of prior usage in the region, arid conditions, and the existence of low salinity, portable water.*[21]

EPA could not have intended the "relatively restrictive" beneficial use exception to allow for the discharge of *any* chemical or other pollutant introduced downhole.

Unlike the flow of produced water which EPA characterized as composing the "major source"[22] of wastewater generated by oil and gas facilities, and which the agency noted is subject to "extreme fluctuation of flow volumes . . . [which] depend on natural phenomena and is not subject to process controls,"[23] the presence of flowback from fracking and other well treatment is predictable, and the limited volumes can be managed separately without jeopardizing the sole, or major source, of water in the area. EPA can easily require oil and gas facilities to monitor flowback after a frack job or other well treatment until well treatment fluids no longer make up a material portion of the waste stream. There is, therefore, no rationale for allowing discharge of fracking flowback and other well treatment fluids, and their discharge is contrary to law.

b. *Standard industry usage of the term "produced water" does not include frack flowback and used well treatment fluids.*

In addition to evidence that EPA intended the term "produced water" not to include well treatment wastewater, standard industry usage also indicates that the term should be interpreted to exclude these wastes. One standard industry source, the Schlumberger Oilfield Glossary, for instance, defines "produced water" as: "A term used to describe water produced from a wellbore *that is not a treatment fluid.* The characteristics of produced water vary and use of the term often implies an inexact or unknown composition. . . ."[24] While this definition indicates that contents of the produced water may not be fully known, it unambiguously excludes treatment fluids.

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[21] 44 Fed. Reg. at 22,072.
[22] *Id.* at 22,069.
[23] *Id.*
[24] *Produced Water Definition*, SCHLUMBERGER OILFIELD GLOSSARY, http://www.glossary.oilfield.slb.com/en/Terms.aspx?LookIn=term%20name&filter=produced+water (last visited 7/21/2013) (emphasis added).

Given the clear evidence that "produced water" as it is used in 40 C.F.R. Part 435 does not include fracking flowback and other used well treatment fluids, EPA must withdraw or amend the proposed permits to ensure that these wastes are not discharged to navigable waters.

II. These discharges also do not qualify for the beneficial use exemption because they are not of good enough quality.

Even if fracking flowback and well treatment wastes were determined to be "produced water," the proposed permits and accompanying materials do not establish that the wastewater is "of good enough quality to be used for wildlife or livestock watering."[25] The regulations require not only that the produced water is actually put to an agricultural or wildlife use, but also that it is of good enough quality to do so. No showing has been made that the fracking flowback and well treatment wastes discharged under the permit meet this criteria.

Unfortunately, none of the permits provide information concerning hydraulic fracturing fluids that may be used and permits WY-0024945, and WY-0025232 provide no information about well treatment chemicals that may be contained in the discharge. Without this information, EPA cannot reasonably make a finding that the water is of good enough quality to be used for wildlife or livestock watering.

Many hydraulic fracturing and well treatment chemicals are toxic.[26] Others, like formaldehyde, are known carcinogens.[27] EPA provides no evidence that despite the presence of well treatment and fracking chemicals, the water is still fit for consumption by livestock or wildlife. Nor does it indicate that any analysis has been undertaken to determine whether, once consumed by these animals, these substances may make their way into the human food supply.

The information provided in permit No. WY-0024953 indicates that these concerns should be taken seriously.[28] NRDC requested and received the Material Safety Data Sheets

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[25] 40 C.F.R § 435.51.

[26] *See* Theo Colborn et al., *Natural Gas Operations from a Public Health Perspective*, 17 HUM. & ECOLOGICAL RISK ASSESSMENT: AN INT'L J. 1039,1040, 1045–46.

[27] *See id.* at 1050, tbl.2; International Agency for Research on Cancer, List of Classifications by CAS Number Registry, *available at* http://monographs.iarc.fr/ENG/Classification/index.php.

[28] *See* EPA Region 8, Statement of Basis: Phoenix Production Company - Sheldon Dome Field NPDES Permit No. WY-0024953 at 4–6.

(MSDSs) for the Nalco products disclosed in Permit WY-0024953.[29] Numerous toxic and hazardous chemicals are contained in these products, including benzene, ethylbenzene, methanol, naphthalene, xylene, 1,2,4-trimethylbenzene, isopropanol, zinc chloride, benzyl chloride, and ethylene glycol.[30] Benzyl chloride is listed as an "extremely hazardous substance" under EPA regulations implementing the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Emergency Planning and Community Right-to-Know Act (EPCRA).[31] Benzyl chloride is also listed as a probable human carcinogen by the International Agency for Research into Cancer.[32] And ethylbenzene and naphthalene have both been determined to be possible carcinogens.[33] A number of these substances are also on EPA's priority list of pollutants under the CWA.[34] And these are just the chemicals that are disclosed on the MSDSs. The identities of a number of chemicals are withheld on the MSDSs as "proprietary," and therefore cannot be evaluated by members of the public or EPA. Companies seeking permits that rely on a finding that the discharge is of "good enough quality to be used for wildlife or livestock watering" should be required to provide evidence that these chemicals do not make the discharges unsafe for the intended purpose.

It is also noteworthy that a number of the MSDS sheets provide explicit instructions that the products should not be introduced into the environment. "Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Prevent material from entering sewers or waterways" caution two MSDSs.[35] "Do not contaminate surface water" reads the "environmental precautions" section of another.[36] Despite these potential concerns, EPA has provided no analysis to determine whether these chemicals will harm livestock or wildlife or whether these chemicals could make their way into the human food supply at dangerous levels if they are used for livestock or wildlife watering.

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[29] *See* Nalco, Material Safety Data Sheets for products: Breaxit EC2007A, Breaxit EC2462A, Breaxit EC6033A, EC1076A Corrosion Inhibitor, EC1317A Corrosion Inhib, Nalco EC6485A (hereinafter collectively referred to as "Material Safety Data Sheets" or "MSDSs"). These Material Safety Data Sheets are attached as Appendix A.
[30] *See* Material Safety Data Sheets at section 15.
[31] *See* 40 CFR Pt. 355, App. A; MSDS for EC1076A Corrosion Inhibitor at 8 (note that the reportable quantity listed in the regulation is 100 lbs, much lower than the figure listed on the MSDS).
[32] *See* MSDS for EC1076A Corrosion Inhibitor at 2.
[33] *See* MSDSs for Breaxit EC2007A and Breaxit EC2462A at section 11.
[34] *See* 40 CFR Pt. 423, App. A (listing benzene, ethylbenzene, toluene, and naphthalene).
[35] MSDS for EC1076A Corrosion Inhibitor at 3; MSDS for Breaxit EC2462A at 3.
[36] MSDS for Nalco EC6485A at 3.

Only two of the MSDSs provide any information concerning bioaccumulation or bioconcentration of the chemicals. Of course, the public has no information to even evaluate these concerns with respect to well treatment chemicals that were not disclosed. However, if livestock will be using the discharges as a significant source of drinking water, EPA has the legal obligation to evaluate these potential hazards before it makes a finding that the water is "of good enough quality" for this purpose.

It is also clear that water quality is actually being detrimentally affected by the permitted discharges. For instance, benzene was found to be at extremely high levels in previous discharges at these facilities. For one facility, benzene was found at greater than five times the EPA Maximum Contaminant Level (MCL) for drinking water.[37] However the other two facilities discharged benzene at *more than 140 times the MCL for benzene.*[38] Despite this fact, EPA concluded it is not necessary to set an effluent limitation on benzene in the permits. Moreover, there is no indication that the testing for these contaminants was tied to any well treatment event,[39] so the reported levels of contaminants may represent the low end of the range of contaminants that exists in the discharges. It is possible that monitoring of the discharges shortly after the facility accepts waste from a frack job or other well treatment events would show much higher contaminant levels. However, despite this, EPA opted not to set an effluent limitation for benzene or other contaminants found to be close to exceeding EPA water quality standards.

Because EPA cannot reasonably conclude, based on the available evidence that discharges under the proposed permits would be of good enough quality to be used for wildlife or livestock watering, it must withdraw the proposed permits or amend them to ensure that the proposed discharges meet this requirement.

III. The established effluent limitations fail to meet the Tribes' water quality standards or to protect the designated uses of the receiving waters.

The CWA mandates that all water quality standards be established according to the designated use of the particular waterway.[40] The statute further states these standards "shall be

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[37] *See* Statement of Basis, WESCO Operating, Inc. - Tensleep #1 Winkleman Dome Field; NPDES Permit No. WY-0025232 at 14.
[38] *See* Statement of Basis, Phoenix Production Company - Sheldon Dome Field; NPDES Permit No. WY-0024953 at 13; Statement of Basis, Phoenix Production Company - Rolff Lake Unit; NPDES Permit No. WY-0024945 at 16.
[39] *See infra* Section IV.
[40] 33 U.S.C. § 1313(c)(2)(A)(2012).

such as to protect the public health or welfare [and] enhance the quality of water . . . [and] shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes . . . ."[41] The Eastern Shoshone and Northern Arapaho Tribes established water quality standards for the Reservation's waters, designating the tributaries and creeks that serve as receiving waters for the permitted facilities as Class 3B waters.[42] These waters "are known to support or have the potential to support populations of indigenous aquatic life other than fish that the Tribes have determined deserve special water quality protection measures."[43] The designated uses for these waters also include primary contact recreation and wildlife.[44]

a. The permits' effluent limitations are not stringent enough to protect water quality standards.

The water quality based effluent limitations in the permits are required to protect these designated uses. However, water quality on the Wind River Reservation is being severely degraded, often to the point where the waters are unable to support aquatic life. A 2005 study by the Wind River Environmental Quality Commission revealed portions of streams and waterbodies downstream from the oil fields were void of aquatic life and contained toxic amounts of chemicals.[45] Today, visible oil sheens and buildup of residues further contaminate the streambeds.[46] Yet, despite these clear signs of environmental degradation, the proposed permits make only one pollutant limitation more stringent than the previous permits. Each statement of basis notes "the 3,000 mg/L limit on sulfate in the previous permit may not be adequately protective" of livestock and wildlife.[47] The change of effluent limitation for sulfate is based upon a 2007 report published jointly by the University of Wyoming, Wyoming Game and

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[41] *Id.*
[42] Statement of Basis, WESCO Operating, Inc. - Tensleep #1 Winkleman Dome Field; NPDES Permit No. WY-0025232 at 4.
[43] *Id.*
[44] *Id.*
[45] Elizabeth Shogren, *Loophole Lets Toxic Oil Water Flow Over Indian Land*, NAT. PUBLIC RADIO (Nov. 15, 2012, 3:13 PM), http://www.npr.org/2012/11/15/164688735/loophole-lets-toxic-oil-water-flow-over-indian-land.
[46] *Id.*
[47] Statement of Basis, WESCO Operating, Inc. - Tensleep #1 Winkleman Dome Field; NPDES Permit No. WY-0025232 at 6; Statement of Basis, Phoenix Production Company - Sheldon Dome Field; NPDES Permit No. WY-0024953 at 9; Statement of Basis, Phoenix Production Company - Rolff Lake Unit; NPDES Permit No. WY-0024945 at 8.

Fish Department, and Wyoming Department of Environmental Quality.[48] The daily maximum effluent limitation for sulfate was lowered to 1800 mg/L.[49]

The other interim and final effluent limitations fail to protect the quality and designated uses of the tribal waters, as demonstrated by the reasonable potential evaluation. The evaluation identified several pollutants that contributed to or caused exceedances of the water quality standards criteria.[50] Sulfate was one of these identified pollutants.[51] Sulfide was also detected as one of these pollutants at all three facilities.[52] The concentrations of sulfide were astonishingly high relative to the water quality criteria.[53] The criteria limitation was established due to sulfide's toxicity to aquatic life.[54] Yet, the permits do not limit sulfide in the discharges until the final effluent limitations are required to be implemented, *three* years after the effective dates of the permits. EPA has provided no reasoning as to how the established effluent limitation for sulfide, implemented three years after the permit becomes effective, will ensure compliance with the water quality standards. Supporting aquatic life is one of the designated uses of the receiving waters, but this use cannot plausibly be protected by effluent limitations that permit a toxic pollutant to pervade the Reservation's waters. Issuing the permits as they appear in draft form would be contrary to the CWA and EPA's regulations because these effluent limitations do not protect the quality of the water or the designated uses.

b. The permits fail to establish effluent limitations for pollutants identified as causing or contributing to exceedances of the water quality standards.

Several other pollutants, including fluoride, selenium, copper, cadmium, zinc, and iron, were evaluated for their reasonable potential to cause or contribute to water quality standards exceedances. Each statement of basis asserts there is insufficient monitoring data regarding these

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[48] *Id.*
[49] *Id.*
[50] Statement of Basis, WESCO Operating, Inc. - Tensleep #1 Winkleman Dome Field; NPDES Permit No. WY-0025232 at 12; Statement of Basis, Phoenix Production Company - Sheldon Dome Field; NPDES Permit No. WY-0024953 at 14; Statement of Basis, Phoenix Production Company - Rolff Lake Unit; NPDES Permit No. WY-0024945 at 14.
[51] *Id.*
[52] *Id.*
[53] *Id.* (The Rolff Lake Facility's maximum reported sulfide effluent concentration was 85,000 times the Aquatic Life Water Quality Criteria of 0.002 mg/L at 170 mg/L. Tensleep #1's sulfide concentration is reported as 82 mg/L, while Sheldon Dome Field's is 61 mg/L.).
[54] Statement of Basis, Phoenix Production Company - Rolff Lake Unit; NPDES Permit No. WY-0024945 at 15.

pollutants' contribution to the exceedances.[55] As such, the draft permits do not establish effluent limitations for any of these pollutants; rather, each calls for more monitoring data, which will be used to establish the reasonable potential during the next permit renewal.[56]

Insufficient data should not serve as the reason no effluent limitations have been established for these pollutants. The EPA is charged with achieving the water quality standards established to protect particular uses and prevent the degradation of the nation's waters.[57] Imposing only monitoring requirements over the renewed five year lifespan of the permits is a failure by the EPA to properly follow the mandates of the CWA. The regulations require the permitting authority to establish limitations that control pollutants identified as causing impairments to water quality.[58] The data provided by the applicants to renew the permits consists of only one or two samples for most pollutants.[59] The regulations require the permitting authority to "use procedures which account for existing controls on point and nonpoint sources of pollution [and] the variability of the pollutant or pollutant parameter in the effluent" when evaluating reasonable potential.[60] One sample does not fulfill this requirement, as there is absolutely no variability of the pollutant parameter, and two samples is also inadequate in most cases.

The reasonable potential analysis is flawed because it relies upon insufficient data The required monitoring data must be included within the permit application for EPA to review before a final permit is issued.[61] The failure to acquire more data prior to issuing a draft permit does not justify a decision to allow further discharges while postponing the collection of additional necessary data during the lifespan of the permit. News accounts have demonstrated that water quality is declining on the Reservation.[62] The EPA's failure to properly assess the

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[55] Statement of Basis, WESCO Operating, Inc. - Tensleep #1 Winkleman Dome Field; NPDES Permit No. WY-0025232 at 13; Statement of Basis, Phoenix Production Company - Sheldon Dome Field; NPDES Permit No. WY-0024953 at 15; Statement of Basis, Phoenix Production Company - Rolff Lake Unit; NPDES Permit No. WY-0024945 at 15.
[56] *Id.*
[57] 40 C.F.R. § 122.44(d)(1) (2012).
[58] *Id.* § (d)(1)(i).
[59] *Id.*
[60] 40 C.F.R. § 122.44(d)(1)(ii).
[61] *See* 40 C.F.R. § 122.21(g)(7)(i) (When quantitative data is required for pollutants grab samples must be collected for pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, fecal coliform, Enterococci, and volatile organics. "For all other pollutants, a 24-hour composite sample, using a minimum of four (4) grab samples, must be used unless specified otherwise at 40 CFR Part 136.").
[62] *See* Shogren, *supra* note 45.

reasonable potential of certain pollutants frustrates the standards and purpose of the CWA and implementing regulations.[63]

The reasonable potential evaluation conducted by EPA further raises questions as to whether the effluent limitations are adequate to ensure the water is "of good enough quality to be used for wildlife or livestock watering"[64] or meets the relevant water quality standards. The effluent limitation adopted for oil and grease reflects the Wind River Indian Reservation's narrative water quality standard banning any floating and suspended solids produced by human activities from surface waters.[65] However, the reasonable potential evaluations indicate oil and grease is one of the pollutants causing or contributing to exceedances of water quality criteria.[66] Given the exceedances, the limitations established in the previous permits are obviously inadequate, and EPA's decision to keep these same effluent limitations is arbitrary and capricious.

c. The permits should set effluent limitations for the organic compounds found in measurable concentrations in the effluent.

Of even greater concern is the lack of information or constraints on the fracking chemicals used by the facilities. Only the Phoenix – Sheldon Dome permit's statement of basis provides any information on the chemicals used in the facility's chemical program, and even that permit provides no information about fracking chemicals that may be used.[67] The Rolff Lake Facility permit statement of basis states a fracture simulation is expected to occur every two years, and the location "uses an active chemical treatment program . . . . In addition to the emulsion breaking chemicals injected at the header house, scale inhibitors are used and a water clarifier is used at the header."[68] The Tensleep #1 statement of basis makes no mention of the frequency of fracture simulations, chemical programs, or specific chemicals used. There are, however, indications within the statement of basis that chemicals are being used, and given

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[63] *See* 33 U.S.C. § 1251 (2012) (The objective of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.").
[64] 40 C.F.R. § 435.51(c).
[65] Statement of Basis, Phoenix Production Company - Rolff Lake Unit; NPDES Permit No. WY-0024945 at 10.
[66] Statement of Basis, WESCO Operating, Inc. - Tensleep #1 Winkleman Dome Field; NPDES Permit No. WY-0025232 at 12; Statement of Basis, Phoenix Production Company - Sheldon Dome Field; NPDES Permit No. WY-0024953 at 14; Statement of Basis, Phoenix Production Company - Rolff Lake Unit; NPDES Permit No. WY-0024945 at 14.
[67] Statement of Basis, Phoenix Production Company - Sheldon Dome Field; NPDES Permit No. WY-0024953 at 6
[68] Statement of Basis, Phoenix Production Company - Rolff Lake Unit; NPDES Permit No. WY-0024945 at 3.

EPA's decisions to allow treatment chemicals to be discharged, no evidence exists that these chemicals will be properly monitored or managed.[69]

The permit application data for each permit "indicates the effluent contains measurable concentrations" of benzene, ethylbenzene, toluene, naphthalene, and xylene.[70] These identified organic compounds are listed as hazardous ingredients in the chemicals used at the production facilities, specifically in Breaxit EC2007A, a demulsifier, and Breaxit EC2462A, an emulsion breaker.[71] EPA again calls for additional monitoring of these organic compounds, claiming that the effluent limitations for other pollutants will concurrently reduce concentrations of these hazardous substances.[72] In so doing, EPA falls short of the mandates of CWA regulations. The NPDES permits must include effluent limitations which control all pollutants found to cause or contribute to violations of water quality standards.[73] The Tribes' water quality standards designate the receiving waters as the type supporting aquatic life. The MSDSs for the chemicals that are disclosed rank the products as posing moderate to high risks to the environment.[74] Overlooking the use of fracking chemicals at these facilities does not alleviate the effects of the practice, and EPA's lack of oversight risks the health of livestock and consumers and further degradation of the Reservation's waters. The EPA has failed to make a reasoned determination that the effluent limitations established in the permits meet the water quality standards and protect designated uses of these waters.

The established effluent limitations fail to protect the designated uses of the receiving waters and fall short of the quality required to support agricultural and wildlife propagation. EPA's decision not to limit other pollutants or account for the chemicals used at these facilities

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[69] Statement of Basis, WESCO Operating, Inc. - Tensleep #1 Winkleman Dome Field; NPDES Permit No. WY-0025232 at 1(stating that "[p]roduced oil, water, and gas are separated in tanks by gravity, heat, and emulsion breaking chemicals.").

[70] Statement of Basis, WESCO Operating, Inc. - Tensleep #1 Winkleman Dome Field; NPDES Permit No. WY-0025232 at 14; Statement of Basis, Phoenix Production Company - Sheldon Dome Field; NPDES Permit No. WY-0024953 at 15; Statement of Basis, Phoenix Production Company - Rolff Lake Unit; NPDES Permit No. WY-0024945 at 16.

[71] MSDS for Breaxit EC2007A at 1; MDSS for Breaxit EC2462A at 1.

[72] Statement of Basis, WESCO Operating, Inc. - Tensleep #1 Winkleman Dome Field; NPDES Permit No. WY-0025232 at 14; Statement of Basis, Phoenix Production Company - Sheldon Dome Field; NPDES Permit No. WY-0024953 at 16; Statement of Basis, Phoenix Production Company - Rolff Lake Unit; NPDES Permit No. WY-0024945 at 16.

[73] 40 C.F.R. § 122.44(d)(1)(i) (2012).

[74] MSDS for Breaxit EC2462A at 7; MSDS for Breaxit EC1076A Corrosion Inhibitor at 6; MSDS for Breaxit EC1317A Corrosion Inhib at 7; and MSDS for Breaxit EC6033A at 6.

runs counter to the statute and regulations and does not fulfill EPA's legal obligation to restore or maintain the quality of the waters of the Wind River Reservation.

IV. The monitoring requirements should be tied to frack jobs or well treatment events in order to ensure effluent limitations and water quality standards are actually being met.

The concerns associated with the minimal restrictions on the use of toxic chemicals at these facilities are amplified by the monitoring requirements established in the permits. The regulations mandate that permits stipulate "[r]equired monitoring including type, intervals, and frequency sufficient to yield data *which are representative of the monitored activity. . . .*"[75] As previously stated, the EPA asserted more monitoring and data was needed before effluent limitations could be set for certain pollutants and hazardous or toxic substances.[76] The monitoring requirements imposed by the permits will not provide sufficient data nor are they reflective of the activities to be monitored. Therefore, the issuance of the permits is arbitrary and capricious.

Despite the call for more data in order to evaluate the necessity of establishing effluent limitations for the hazardous substances in the chemicals, the toxic pollutants screen is to be conducted only three times during the five year lifespan of the permits.[77] The monitoring is to "be sufficiently sensitive to meet the Method Detection Limits" listed in the permits.[78] This requirement speaks only to the sophistication and procedures of the testing. It does not ensure that the effluents tested will be representative of the contaminant levels discharged after frack jobs or other well treatment events. If flowback waters are permitted to be discharged, then monitoring should be conducted within an appropriate period of time so that the true concentrations of the effluent after such events will be assessed. Providing the permittees with flexibility to select three occasions over a five year time frame to conduct a toxic pollutants screen will not ensure that the tests provide a true reflection of what has been discharged into the receiving waters. Thus, EPA has failed to ensure the screen is representative of the activities to be monitored, as required by 40 C.F.R. § 122.48(b). The permits' failure to require monitoring at

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[75] 40 C.F.R. § 122.48(b) (emphasis added).
[76] *See supra* Section III (b), (c) and notes 56 and 72.
[77] Permit No. WY-0024945 at 8; Permit No. WY-0024953 at 7; Permit No. WY-0025232 at 8.
[78] *Id.*

intervals correlative to the discharge of hazardous substances is therefore contrary to the regulatory mandate.

The requirements imposed for Whole Effluent Toxicity (WET) monitoring are also lacking. The statement of basis for each permit indicates WET testing is included in order to comply with the Tribal water quality standards.[79] The permits initially require quarterly testing for acute toxicity, but once four consecutive quarterly tests demonstrate no acute toxicity, WET testing is to be done only once a year.[80] Once again, the monitoring requirements are not reflective of the activities undertaken at these facilities. If a fracking or workover event does not occur near in time to the quarterly test, the test may not provide a true picture of the levels of pollutants in the discharge. And if, for instance, a frack job does not occur at all within the first year the permit is effective, then quarterly testing within this year may precede the most significant or potentially hazardous discharges, but will be terminated nonetheless. It is a meaningless exercise to declare an effluent has passed WET testing each quarter in a year if the monitoring does not closely coincide with the use of chemicals of concern. In order to truly adhere to and maintain the standards for the receiving waters, WET monitoring should occur in conjunction with a facility's acceptance of toxic waste streams. As such, the WET monitoring requirements are also arbitrary and capricious, as they do not ensure an adequate assessment of the toxicity of a representative sample of discharges. Instead, WET monitoring should be timed to reflect the toxicity of discharges after fracking or well treatment events.

The monitoring required by the permits is inadequate. The frequency lacks connectivity to the times when the chemicals are discharged by the facilities, as required by the regulations. Thus, there is little way of knowing if the toxic levels of the chemicals are actually absent from the effluent or if the samples taken were too removed from a fracking or well treatment event, and therefore had already been discharged into navigable waters. In order to collect the correct data and assess the pollutants actually present in the discharges, the monitoring needs to sufficiently correlate with the use of chemicals. Without the proper frequency and timing of monitoring, the EPA will continue to have deficient data with which to determine the reasonable potential of discharged pollutants to cause or contribute to an exceedance of applicable water quality standards. The actual toxicity of the waters could also be mischaracterized by infrequent

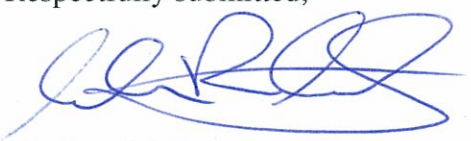
[79] Permit No. WY-0024945 at 9; Permit No. WY-0024953 at 9; Permit No. WY-0025232 at 9.
[80] *Id.*

or ill-timed monitoring. In order to fulfill EPA's mandate to protect the water quality and designated uses of the Reservation's waters, the monitoring must be tied to events in which hazardous and toxic chemicals are discharged by the facilities.

V. Conclusion

The three proposed permits impermissibly allow for discharges of frack fluids and other well treatment chemicals and therefore must be altered to comply with EPA regulations. In addition, there is no evidence to demonstrate that the discharges are of good enough quality to be used for wildlife or livestock watering. Nor are the limitations or monitoring regimes set forth in the permits protective of the waters of the Wind River Reservation. Therefore, issuance of the proposed permits without significant modifications would be contrary to the CWA and EPA's regulations. The EPA should take steps to ensure the permits protect water of a quality capable of supporting aquatic life and other designated uses, pursuant to Wind River Reservation standards and federal laws and regulations.

Respectfully submitted,



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Appendix A – Nalco Material Safety Data Sheets