Rec'd 7/10/13

July 10, 2013

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

RE: Comments on Wind River Reservation Pollution Discharge Permits

Dear Ms. Rathbone:

On behalf of Public Employees for Environmental Responsibility (PEER), I am submitting these comments on the following proposed permits and their statements of basis:

- Eagle Oil and Gas Company - Sheldon Dome Facility; NPDES Permit No. WY-0020338;
- Phoenix Production Company - Sheldon Dome Field; NPDES Permit No. WY-002495;
- Phoenix Production Company - Rolff Lake Unit; NPDES Permit No. WY-0024945;
- WESCO Operating, Inc. - Sheldon Dome Field; NPDES Permit. No. WY-0025607; and
- WESCO Operating, Inc. - Tensleep #1 (also known as Winkleman Dome); NPDES Permit No. WY-0025232

In summary, these proposed permits are drafted in a manner that is not compliant with U.S. Environmental Protection Agency (EPA) requirements; they are incomplete and do not address an array of effluents which will be discharged. In addition, the permits put wildlife and livestock which drink the produced water at risk. Finally, the monitoring requirements proposed in these permits are impermissibly lax.

For reasons detailed below, PEER urges that the proposed permits should be rejected.

I. Many Toxic Chemicals Not Listed in Permit.

Of the five proposed Wind River permits, four specify that produced water is discharged to surface waters[1] and one claims to no longer discharge to surface waters.[2] This produced water

[1] ENVIRONMENTAL PROTECTION AGENCY, PERMIT WY-0020338: STATEMENT OF BASIS - EAGLE OIL AND GAS COMPANY AT SHELDON DOME FIELD (2013); ENVIRONMENTAL PROTECTION AGENCY, PERMIT WY-0024953: STATEMENT OF BASIS - PHOENIX PRODUCTION COMPANY AT SHELDON DOME FIELD (2013); ENVIRONMENTAL PROTECTION AGENCY, PERMIT WY-0024945: STATEMENT OF BASIS - PHOENIX PRODUCTION COMPANY AT ROLFF LAKE UNIT (2013); ENVIRONMENTAL PROTECTION AGENCY, PERMIT WY-0025232: STATEMENT OF BASIS - WESCO OPERATING AT TENSLEEP #1 (2013). (hereinafter "EPA Permits")

contains a number of different constituents including: salt content, oil and grease, inorganic and organic chemicals, and naturally occurring radioactive material.[3] While some of these constituents are addressed in the permit, many are not, including the many chemicals and compounds found in maintenance fluids and hydraulic fracturing (fracking) fluids. None of the permits actually cite any of the maintenance or fracking chemicals used, which is extremely problematic because many of the maintenance and fracking fluids contain toxic chemicals.

The maintenance fluids used in fracking wells can be very dangerous themselves, in addition to the fracking fluids, which is why their dangerous properties need to be reflected in the permits. When maintenance fluids are put down a well they eventually resurface in the produced water.[4] Maintenance fluids, and the chemicals in them, need to be listed in every permit in order to guard against their potential hazards. One permit, the Phoenix-Sheldon Dome Permit, provides the trade names of the maintenance fluids used at the location.[5] From the product trade names it is possible to obtain the corresponding Material Safety Data Sheets (MSDS), which contain the names of the hazardous chemicals in each product and their side effects. PEER requested the MSDS forms by an email sent to the manufacturing company NALCO, which pursuant to company policy[6] supplied the requested MSDS forms within 24 hours. Each form contained chemical product and composition information, hazards identification, toxicological information, and protection measures.[7]

The six products listed contain a number of toxic chemicals, such as ethylene glycol, benzyl chloride, isopropanol, naphthalene, and xylene, among others.[8] These chemicals produce a wide range of potential side effects including permanent eye damage, nervous system depression, and a number of chemicals have carcinogenic properties.[9] Again, these are just the chemicals and potential health effects from the maintenance fluids. A full list of chemicals and side effects from the maintenance fluids can be seen in Appendix I.

Moreover, since the Phoenix-Sheldon Dome Permit already listed the trade names of the maintenance fluids used, it is dangerously inconsistent for the other Wind River permits to exclude this similar product information. As detailed below, EPA permit writers are required to look at anything and everything that could impact a permit.

It is important for the environment and for the health of the residents living in the Wind River Basin that all of the maintenance chemicals used at all permit locations are listed in the permit.

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[2] ENVIRONMENTAL PROTECTION AGENCY, PERMIT WY-0025607: STATEMENT OF BASIS - WESCO OPERATING AT SHELDON DOME FIELD (2013).

[3] *About Produced Water (Produced Water 101)*, Produced Water Treatment and Beneficial Use Information Center, *available at* http://aqwatec.mines.edu/produced_water/intro/pw/index.htm.

[4] *Wastewater*, Catskill Mountainkeeper: The Advocate for the Catskills, *available at* http://www.catskillmountainkeeper.org/our-programs/fracking/whats-wrong-with-fracking-2/wastewater/

[5] PERMIT WY-0024953, *supra* note 1, at 4-5.

[6] *Nalco MSDS and Product Bulletin Search*, NALCO (2013) *available at* http://www.nalco.com/msds.htm.

[7] NALCO, BREAXIT EC6033A, MSDS (2011); NALCO, BREAXIT EC2462A, MSDS (2011); NALCO, BREAXIT EC2007A, MSDS (2011); NALCO, EC1076A CORROSION INHIBITOR, MSDS (2010); NALCO, EC1317A CORROSION INHIBITOR, MSDS (2010); and NALCO, EC6485A, MSDS (2010). (hereinafter "MSDS").

[8] *Id.*

[9] *Id.*

Many of the chemicals listed in the MSDS are very dangerous and it is irresponsible that they are not a factor in the permitting process.

Just as the maintenance fluids contain dangerous chemicals that need to be listed in the Wind River permits, fracking fluids contain even more dangerous chemicals. Not a single permit lists any of the chemicals used during the fracking process.[10] This means that the EPA is in the process of issuing permits without addressing the toxicity of fracking chemicals that may be discharged via produced water.

While there is currently no EPA requirement for a list of fracking chemicals in discharge permits,[11] these chemicals can be extremely dangerous. These chemicals contain known carcinogens, which cause cancer in humans, contaminate water supplies, and destroy the landscape and farmland.[12] Fracking fluids and the chemicals in them are too dangerous to go undisclosed and unregulated in a permit that allows for surface water discharge.

A brief recently issued by the National Resource Defense Council (NRDC) explains the importance of comprehensive fracking disclosure, which is essential for the following reasons:

- Adequate pre-fracking disclosure allows owners and users of nearby water sources to conduct baseline testing to establish the quality of their water prior to hydraulic fracturing, including the presence or absence of identified chemical constituents of frack fluids;
- Chemical disclosure allows the public to fully assess the risks that chemical use, transport, and storage pose to their communities;
- A robust public disclosure regime is essential for scientific research that will provide a better understanding of the cumulative environmental and health effects of fracking and serve as a basis for well-informed policies to protect the public;
- A disclosure regime highlights responsible corporate actors while calling attention to practices that jeopardize the environment and public health.[13]

Because neither maintenance chemicals nor fracking chemicals are listed in the permit, the proper precautions cannot be taken, leaving the permits woefully inadequate. EPA's failure to disclose which chemicals are used in maintenance and fracking also severely compromises the promulgation of effective monitoring standards.

In addition to the hazards the permits already create by failing to list maintenance fluids and fracking fluids, the permits also violate 40 CFR 124.8 (b)(2), which requires the fact sheet to

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[10] EPA Permits, *supra* note 1.

[11] *See* EPA, *National Recommended Water Quality Criteria*, Water (2013) *available at* http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm (hereinafter "WQC") and EPA, NPDES PERMIT WRITERS' MANUAl (2010) *available at* http://cfpub.epa.gov/npdes/writermanual.cfm.

[12] *See* Elizabeth Royte, *Fracking Our Food Supply*, THE NATION, Dec. 17, 2012, *available at* http://www.thenation.com/article/171504/fracking-our-food-supply#axzz2YCTKxYzL.

[13] Matthew McFeeley, *State Hydraulic Fracturing Disclosure Rules and Enforcement: A Comparison*, National Resources Defense Council 4 (2012) *available at* http://www.nrdc.org/energy/files/Fracking-Disclosure-IB.pdf.

include, when applicable, "the type and quantity of wastes, fluids, or pollutants which are proposed to be or are being treated, stored, disposed of, injected, emitted, or discharged."[14]

In the case of the Wind River permits listing the type and quantity of maintenance fluids and fracking fluids is mandatory because the fluids have the potential to cause severe human and environmental harm.

According to 40 CFR 124.8 (a): "the fact sheet shall briefly set forth the principal facts and the significant factual, legal, methodological and policy questions considered in preparing the draft permit." Implicit in this definition is the responsibility of the EPA and the permit writers to act as an oversight agency, but the Wind River permits show no indication of this. Instead the permits show a disregard for the significant facts and policy questions necessary to craft a strong and effective permit.

This crippling weakness in the proposed permits brings into question the EPA's trust responsibility to the Wind River Reservation and the tribes that reside there. Executive Order 13175 requires the EPA to consult and coordinate with Indian Tribal governments,[15] which did occur but it is unclear that EPA was more forthcoming in its consultations with the tribes than it is in the permits.

Since the Wind River Reservation cannot create and enforce its own environmental standards at this time, it relies on the EPA. In his 2012 State of the Union address, President Obama pledged to require "all companies that drill for gas on public lands to disclose the chemicals they use" and to "develop this resource without putting the health and safety of our citizens at risk." If the EPA did not disclose any more information about the fracking chemicals to the tribes than it did to the general public, then the EPA did not really participate in effective engagement with the Indian tribes or comply with President Obama's pledge. Without effective engagement the Wind River tribes are not receiving appropriate public health or water quality protection.

II. Permits Lack Limits for Discharge of Toxic Chemicals

Not only do the permits fail to disclose the chemicals in maintenance fluids and fracking fluids, they also utterly fail to set limits for the discharge of toxic chemicals found in the fluids.[16] A number of the permits also fail to mention when or if fracking events or other stimulation events occur,[17] which makes it impossible to accurately assess discharge limits and testing requirements. The permits need to include fuller disclosures of fracking practices occurring at the facilities to better characterize discharge. The permits also need to be far more complete by including the quantities of chemicals in fracking fluids as well as discharge limits for the many toxic chemicals that are present in fracking fluids.

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[14] 40 CFR 124.8 (b)(2).

[15] EPA, *EPA's Tribal Strategy*, Region 10: the Pacific Northwest (2013) *available at* http://yosemite.epa.gov/R10/TRIBAL.NSF/Programs/EPA%27s+Tribal+Strategy.

[16] EPA Permits, *supra* note 1 and Permit WY-0025607, *supra* note 2.

[17] PERMIT WY-0020338, *supra* note 1; PERMIT WY-0025232, *supra* note 1; and PERMIT WY-0025607, *supra* note 2.

Currently, the permits only reflect the National Recommended Water Quality Criteria. These criteria, while a good base criteria, do not include many of the dangerous chemicals used in fracking[18] so they should not be the only water quality criteria relied upon in the permit.

There is growing recognition that fracking chemicals pose a significant threat to water supplies, which is why there is now a push for more comprehensive water criteria. For example, both the NRDC and the Water Environment Federation have published reports that demonstrate the need for updated water quality criteria that reflect the many chemicals found in fracking produced water.[19] The NRDC has also stressed that fracking disclosure rules should contain "chemical identification of all substances used in Fracking, including the Chemical Abstract Service numbers and actual concentrations."[20]

The permits need to reflect a stronger set of criteria that limit a wider range of toxic chemicals, especially since produced water in the West is allowed for wildlife and livestock consumption.

III. Effects on Wildlife and Livestock Undisclosed

The EPA has imposed a zero-discharge requirement for all produced waters in the onshore subcategory of the federal regulation,[21] except for oil and gas wells located west of the 98th meridian, which is roughly the western half of the United States.[22] This means that oil and gas wells can discharge produced water as long as the produced water is used in agriculture or wildlife propagation when discharged into navigable waters[23] and the produced water discharges must not exceed an oil and grease daily maximum limitation of 35 mg/L.[24] The EPA defined the term "use in agricultural or wildlife propagation" by stating "the produced water is of good enough quality to be used for wildlife or livestock watering or other agricultural uses, and the produced water is actually put to such use during periods of discharge."[25] While the permits have demonstrated that rancher's livestock depends on the water for drinking and other beneficial uses,[26] the issue is whether the produced water is of good enough quality to for livestock watering and wild animal use.

The chemicals in maintenance fluids and fracking fluids pose a great threat to animals, which is why the permits must properly regulate and monitor them. Animals are attracted to the salty taste of fracking fluids and waste water.[27] Drinking the fluid can result in death or loss of normal

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[18] *See* WQC, *supra* note 11.

[19] Rebecca Hammer and Jeanne VanBriesen, *In Fracking's Wake: New Rules are Needed to Protect Our Health and Environment from Contaminated Wastewater*, National Resource Defense Council 8 (2012); Adrienne Beckman, Archis Ambulkar and Art Umble, *Considerations for Accepting Fracking Wastewater at Water Resource Recovery Facilities*, Water Environment Federation 3 (2012).

[20] McFeeley, *supra* note 13, at 14.

[21] 40 CFR § 435.32.

[22] 40 CFR § 435.50.

[23] *Id.*

[24] 40 CFR § 435.52(b).

[25] 40 CFR § 435.51(c).

[26] PERMIT WY-0020338, *supra* note 1, at 3; PERMIT WY-0024953, *supra* note 1, at 8; PERMIT WY-0024945, *supra* note 1, at 7; and PERMIT WY-0025232, *supra* note 1, at 5.

[27] FACTSHEET, FRACKING AND FARMLAND: WHAT FARMERS AND LANDOWNERS NEED TO KNOW ABOUT THE RISKS TO AIR, WATER, AND LAND, THE OHIO ECOLOGICAL FOOD AND FARM ASSOCIATION (2011) *available at* http://oeffa.org/documents/frackingfactsheetv2.pdf.

reproductive function, still births, birth defects, and other health problems.[28] A recent study was conducted by Robert Oswald and Michelle Bamberger that examined 24 cases where animals were likely affected by exposure to fracking operations.[29] The study found:

> Seventeen cows died after an hour's exposure to spilled fracking fluid [in Louisiana]. (Most likely cause of death: respiratory failure.) In north central Pennsylvania, 140 cattle were exposed to fracking wastewater when an impoundment was breached. Approximately seventy cows died; the remainder produced eleven calves, of which only three survived. In western Pennsylvania, an overflowing waste pit sent fracking chemicals into a pond and a pasture where pregnant cows grazed: half their calves were born dead. The following year's animal births were sexually skewed, with ten females and two males, instead of the usual 50-50 or 60-40 split.[30]

The safety of animals consuming produced water is unsettled, in large part because studies have found as many as 632 chemicals used in natural-gas production.[31] One researcher found that more "than 75% of them could affect sensory organs and the respiratory and gastrointestinal systems; 40-50% have potential impacts on kidneys and on the nervous, immune and cardiovascular systems; 37% act on the hormone system; and 25% are linked with cancer or mutations."[32]

EPA regulations stipulate that produced water must be of good enough quality to be used for livestock watering. It is unclear how EPA can meet this standard when produced water is laced with so many chemicals in unspecified quantities. The Wind River permits do not even identify what many of these chemicals are let alone regulate them or monitor their affects on livestock.

The only reference the permits make to livestock watering is that the sulfate limit from the previous permit may not be adequately protective.[33] This curious finding is not linked to a corrective action, however.

The Wind River permits lack of regard for produced water consumption by wildlife and livestock could not only lead to severe health hazards in the livestock but in people as well. The MSDS list a range of health risks from chemicals in the maintenance fluids.[34] Disturbingly, the chemicals used in fracking pose a great health risk to animals and humans alike.

What is largely unknown is the effect of consuming livestock or wildlife that has ingested waters contaminated by fracking fluid. Since the effects of consuming contaminated livestock are unknown, the permits should employ the strictest water quality standards and monitoring standards to prevent contamination of any kind. That is not the case.

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[28] *Id.*
[29] Royte, *supra* note 12.
[30] *Id.*
[31] *Id.*
[32] *Id.*
[33] PERMIT WY-0020338, *supra* note 1, at 4; PERMIT WY-0024953, *supra* note 1, at 9; PERMIT WY-0024945, *supra* note 1, at 8; PERMIT WY-0025232, *supra* note 1, at 6; and PERMIT WY-0025607, *supra* note 2, at 6.
[34] MSDS, *supra* note 7.

IV. Permits Lack Adequate Monitoring Standards

In addition to the permits failure to disclose the chemicals in maintenance and fracking fluids or to impose discharge limits for these chemicals, the permits lack adequate monitoring standards. EPA requirements state that "limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."[35] The permits do not fulfill these requirements because they do not test for many of the chemicals in the water, they rely on self-reporting and have woefully deficient monitoring requirements.

As stated previously, many of the chemicals used in fracking and maintenance are not listed in the WQC so they are not tested for.[36] This means that many of the chemicals in the produced water are not tested for or monitored and, thus, could be contaminating surface water on the Wind River Reservation.

Further, the chemicals that are monitored are not monitored enough, especially the toxic chemicals. Under Permit Part 1.3.4, Toxic Pollutants Screen, monitoring is only required three times over the life of the five year permit: once within the first year of the permit, once in the third year of the permit, and once to renew the permit.[37] Testing so few samples hinders gauging an accurate representation of the quantities of chemicals in the water.

Most detrimental to the permits is the total absence of any correlation between fracking events and monitoring samples. Neither the Toxic Pollutant Screen nor the Whole Effluent Toxicity (WET) under Permit Part 1.3.5 requires sampling after maintenance events or fracking events. This is problematic because fracking events only occur every two years.[38]

The WET test will not monitor accurate toxicity samples if quarterly monitoring does not occur during a fracking year. Under WET, quarterly monitoring for acute toxicity is only required until four consecutive quarterly acute toxicity tests demonstrate that there is no acute toxicity present,[39] which means quarterly monitoring may only occur for the first year of the permit. Once the permittee has demonstrated that there is no acute toxicity present only yearly monitoring is required.[40] Yearly monitoring does not provide the best protection against toxic chemicals and does not reflect the nuances in toxic chemical levels that may occur.

Since neither test is performed after maintenance or fracking events there is potential for chemicals to be in the water that are not being tested. The most dangerous chemicals would appear after maintenance and fracking events, which is why monitoring would be idea after these events.

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[35] 40 CFR 122.44 (d)(1)(i).
[36] WQC, *supra* note 11.
[37] PERMIT WY-0020338, *supra* note 1, at 16; PERMIT WY-0024953, *supra* note 1, at 21; PERMIT WY-0024945, *supra* note 1, at 21; PERMIT WY-0025232, *supra* note 1, at 19; and PERMIT WY-0025607, *supra* note 2, at 19.
[38] PERMIT WY-0024953, *supra* note 1, at 7 and PERMIT WY-0024945, *supra* note 1, at 3.
[39] PERMIT WY-0020338, *supra* note 1, at 11; PERMIT WY-0024953, *supra* note 1, at 16; PERMIT WY-0024945, *supra* note 1, at 17; PERMIT WY-0025232, *supra* note 1, at 15; and PERMIT WY-0025607, *supra* note 2, at 14.
[40] *Id.*

Finally, the permits rely on self-monitoring, meaning the EPA has access only to whatever data the permitting gas and oil companies send them. The monitoring data submitted may not be accurate because there is no oversight and, thus, no incentive to comply with the monitoring requirements. The current permits provide for monitoring when it is most convenient for the producer, not when it would provide the most protection for the Wind River Reservation.

V. Permits Do Not Meet EPA Standards

After examining all of the information that the permits lack it is clear that the permits do not meet minimum EPA standards. When permits are drafted the permit writers have a duty to include certain requirements and follow specific steps that were not completed with these permits. The NPDES Permit Writer's Manual dictates specific steps for characterizing the effluent and receiving water:

1. Identify pollutants of concern in the effluent
2. Determine whether water quality standards provide for consideration of a dilution allowance or mixing zone
3. Select an approach to model effluent and receiving water interactions
4. Identify effluent and receiving water critical conditions
5. Establish an appropriate dilution allowance or mixing zone[41]

The permits have not identified the pollutants of concern since most do not list the maintenance or fracking chemicals used. Because the first step was not completed, the remaining steps only reflect the information that was provided, which led to the creation of sub-standard discharge limits – resulting in a regulatory "garbage-in-garbage-out" effect.

The permit writer also failed to adequately protect against Pollutants Otherwise Expected to be Present in the Discharge:

> A final category of pollutants of concern includes those pollutants that are not in one of the other categories but are otherwise expected to be present in the discharge. There might be pollutants for which neither the discharger nor the permitting authority have monitoring data but, because of the raw materials stored or used, products or by-products of the facility operation, or available data and information on similar facilities, the permit writer has a strong basis for expecting that the pollutant could be present in the discharge. Because there are no analytical data to verify the concentrations of these pollutants in the effluent, the permit writer must either postpone a quantitative analysis of the need for WQBELs and generate, or require the discharger to generate, effluent monitoring data, or base a determination of the need for WQBELs on other information, such as the effluent characteristics of a similar discharge.[42]

The permits did not even attempt to account for pollutants otherwise expected to be present in the discharge even though many fracking fluids contain similar combinations of chemicals.

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[41] EPA, NPDES PERMIT WRITERS' MANUAL: CHAPTER 6 WATER QUALITY-BASED EFFLUENT LIMITATIONS 13 (2010) *available at* http://www.epa.gov/npdes/pubs/pwm_chapt_06.pdf .
[42] *Id.* at 15.

Also, the monitoring requirements in the permits are not strict enough to collect the necessary data on the other pollutants in the fracking discharge, both from fracking events and maintenance events, to determine other pollutants in the discharge.

When establishing monitoring conditions a permit writer is supposed to considered several factors to avoid inappropriate or incomplete monitoring requirements.[43] The factors include:

- Applicability of effluent limitations guidelines and standards (effluent guidelines).
- Wastestream and process variability.
- Access to sample locations.
- Pollutants discharged.
- Effluent limitations.
- Discharge frequencies (e.g., continuous versus intermittent).
- Effect of flow or pollutant load or both on the receiving water.
- Characteristics of the pollutants discharged.
- Permittee's compliance history.[44]

The Wind River permits show no indication that even half of these factors were considered in the permit process. Some of the most important factors were not considered at all: pollutants discharged, effluent limitations, discharge frequencies, and the characteristics of the pollutants discharged.

Including the chemicals found in maintenance and fracking fluids would have made a significant difference because it would have forced the other factors to be considered as well, but they were not. The toxic chemicals in the fracking and maintenance fluids were not listed, neither effluent limitations nor discharge frequencies for the toxic chemicals were set, and the permits say nothing about the characteristics of the toxic pollutants discharged.

Similarly, the permits do not meet EPA monitoring conditions; they do not meet monitoring frequency conditions either: "The permit writer should establish monitoring frequencies sufficient to characterize the effluent quality and to detect events of noncompliance, considering the need for data and, as appropriate, the potential cost to the permittee."[45] The most important part of this requirement is "establish monitoring frequencies sufficient to characterize the effluent quality," which the Wind River permits do not establish because they do not take into account fracking events or maintenance procedures. Monitoring frequencies will not be sufficient unless they occur after a fracking or maintenance events to obtain samples that reflect all chemicals released. It is impossible to determine effluent water quality if many of the chemicals in the water only appear once every two years after a fracking event.

Overall, the permits do not reflect the EPA standards that were put in place to ensure high water quality standards.

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[43] EPA, NPDES PERMIT WRITERS' MANUAL: CHAPTER 8 MONITORING AND REPORTING CONDITIONS 1 (2010) *available at* http://www.epa.gov/npdes/pubs/pwm_chapt_08.pdf.
[44] *Id.*
[45] *Id.* at 5.

VI. EPA Permits Less Stringent than Wyoming Standards

These glaring weaknesses of the EPA permits stand in contrast to the fracking laws of Wyoming because the state has some of the most comprehensive fracking laws in the country. In some important respects, Wyoming appears to have more stringent requirements than the EPA.

First and foremost, Wyoming requires operators to provide a full list of chemicals they propose to use in fracturing.[46] The state also requires operators to disclose the chemical abstract service (CAS) numbers[47] for all additives used along with the concentrations of those additives.[48] Both of these requirements would make the Wind River Permits stronger. Wyoming also requires operators to identify nearby water wells, report the maximum pressure and annulus pressure used during fracturing, report the base fluid volume used in fracturing, and report the volume of flowback.[49]

Despite the strength of these regulations, there are holes in the Wyoming rules especially in regards to the chemical disclosure requirements. Wyoming does allow a "trade secret" exemption to the disclosure requirement, Wyoming's Oil and Gas Conservation Commission makes decision to allow or deny exemption, and more exemptions have been approved than denied.[50] Companies must submit factual justification to substantiate a claim that information should be kept confidential[51] but that does not change the fact that more exemptions have been approved than denied.

It is ironic that the residents of the Wind River Basin may be less protected because the U.S. EPA rather than the State of Wyoming has primary water discharge jurisdiction on the tribal lands.

Regardless of who has primary jurisdiction, the regulatory authority should be exercised for maximum disclosure and environmental protection.

VII. Conclusion and Recommendations

In their current state, the Wind River permits should be rejected because they are incomplete, un-protective, and fail to meet important EPA permit standards. The permits do not serve their intended purpose of protecting water quality and human and animal health.

A number of changes are needed to make these permits minimally passable:

1. The permits should require the disclosure of all chemical programs occurring at the facility, including well maintenance, acid stimulation, and fracking. These disclosures should include the products and chemicals used during the stated events, how the chemicals are managed, and how they will affect the character and nature of the discharge.

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[46] McFeeley, *supra* note 13, at 8.
[47] These numbers can be found on requested MSDS.
[48] McFeeley, *supra* note 13, at 10.
[49] *Id.* at 9-11.
[50] *Groups appeal fracking chemical case to Wyoming Supreme Court*, WyoFile (Apr. 17, 2012) *available at* http://wyofile.com/wyofile-2/groups-appeal-fracking-chemical-case-to-wyoming-supreme-court/.
[51] McFeeley, *supra* note 13, at 12.

2. The permits should mandate the testing of chemicals not listed in WQS but are listed in MSDS that could cause animal and human health risks. The permits need to be reflective of the dangerous chemicals used in fracking and not just rely on currents standards to protect water quality.

3. The permits need to strengthen the monitoring requirements. The permits should require that monitoring samples be collected after bi-monthly well maintenance and fracking events. Monitoring requirements should be tied to chemical events happening at the facility and not whenever the facility wants to sample. The permits should also require that Toxics Pollutant Screen monitoring to occur more than every two years and WET monitoring to occur more than yearly.

Unless these Wind River permits can become more encompassing and achieve their intended goals as NPDES permits, they should be rejected. The EPA has been charged with protecting both water quality and public health, but has ignored that charge with these permits.

Respectfully submitted,

Jeff Ruch
PEER Executive Director

Appendix I

Chemical	Hazardous Pollutants Listed	Exposure Effects	Health Hazard
NALCO EC6485: Scale Inhibitor	Ethylene Glycol	Prolonged exposure may cause central nervous system, kidney, and liver effects	Slight to moderate with potential for chronic health hazard
NALCO EC1317: Corrosion Inhibitor	Methanol; Tall Oil, DETA Imidazoline Acetates; Benzy-Dimethyl-Dodecyl-Ammonium Chloride; Thioglycolic Acid	Can cause permanent eye damage; toxic in contact with skin; toxic if swallowed; sublethal doses may cause central nervous system effects	High with potential for chronic health hazard
NALCO EC1076: Corrosion Inhibitor	1-Benzyl-1-(2-Hydroxythyl)-2-Tall Oil-2-Imidazolinum Chloride; Methanol; N-Benzyl-Alkylpyridinium Chloride; Ethoxylated Tallow Alkyl Amine; Benzyl Chloride; Organic Sulfonic Acid	Can cause permanent eye damage; toxic in contact with skin; sublethal doses may cause central nervous system effects; toxic by inhalation; Benzyl Chloride is a probable carcinogen.	High with potential for chronic health hazard
BREAXIT EC6033 Water Clarifier	Zinc Chloride Isopropanol	Will cause eye burns and permanent damage; causes burns to gastro-intestinal tract.	High
BREAXIT EC2462 Emulsion Breaker	Heavy Aromatic Distillate; Organic sulfonic acid salt; Isopropanol; Xylene; Aliphatic alcohol; Propylene Glycol; Ethylbenzene; Napthalene; 1,2,4 - Trimethylbenzene	Can cause nervous system depression; Ethylbenzene is a possible carcinogen; and Napthalene is a possible carcinogen.	Moderate with potential for chronic health hazard
BREAXIT EC2007 Demulsifier	Heavy Aromatic Naphtha; Heavy Catalytic Reformed Naptha; Cumene; Methanol; Ethylbenzene; Trimethylbenzene; Naphthalene	May cause central nervous system effects and blindness; may cayse central nervous system depression; Ethylbenzene is a possible carcinogen; and Napthalene is a possible carcinogen.	Moderate with potential for chronic health hazard