



*Working with Communities to Protect Their Land Air and Water*

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March 21, 2014

State of Nevada  
Commission on Mineral Resources  
Division of Minerals  
400 W. King Street, Suite 106  
Carson City, Nevada 89703

State of Nevada  
Attn: Colleen Cripps  
Division of Environmental Protection  
901 South Stewart Street  
Carson City, Nevada 89701

Re: Amendment of oil and gas regulations for oil and gas wells, wells intended for hydraulic fracturing and for geothermal wells.

### **Agency Authority**

Great Basin Resource Watch (GBRW) has reviewed the proposed regulations for Chapter 522 of the NAC. In our view the Division of Minerals is best charged with authority over the technical aspects of permitting the well sites, and the Division of Environmental Protection should have authority over any potential environmental impacts due to hydraulic fracturing (HF) operations. However, the most efficient approach to regulating these operations would be to have all oversight under one division. For example, in the case of hard rock mining, The Bureau of mining Regulation and Reclamation (BMRR) reviews the technical aspects of any new (and renewing) mining proposal in preparation of permits for reclamation, and water pollution control. Other bureaus in the division then review aspects for air pollution control, etc. This seems much more effective than splitting the responsibilities for permitting under different divisions.

GBRW strongly recommends that there be air and water quality permits required for oil and gas including hydraulic fracturing issued under the Division of Environmental Protection.

### **Public Process**

The public needs to be fully alerted with sufficient time to review and comment on any HF operations. We recommend that in the case where there is no environmental review process such as an environmental impact statement or environmental assessment for the HF project, the permit process provide for similar public engagement. There should be a 60 day review period of the project where the proponent supplies the plan of operations to the state of Nevada, including the monitoring and reclamation plans.

### **Air and Water monitoring**

The same requirements should be placed on hydraulic fracturing as other extractive industries, such as hard rock mining. Regular monitoring of air and water should be included in the

permit. The current proposed regulations call for no development of groundwater monitoring other than “available water sources,” which are defined thus:

**Sec. 3. “Available water source” means a water source for which the person who owns, holds or has the right of use to the water source has consented to the sampling and testing of the water source and to making the results of the sampling and testing available to the public, including, without limitation, publication of the results on the Internet website maintained by the Division.**

and a water source is defined as:

**Sec. 6. “Water source” means a water well or spring that is regulated by the Division of Water Resources of the State Department of Conservation and Natural Resources.**

Therefore, the baseline and future monitoring is entirely dependant upon existing fresh water wells, which if they exist may not be located to unambiguously assess whether groundwater has been impacted by the HF operation. As is done for hard rock mining, there needs to be an analysis of the geohydrology for all levels of strata to be encountered by the HF, so that a reasonable potentiometric surface can be determined and groundwater movement patterns elucidated. At which point groundwater monitoring well emplacement can be determined and the groundwater baseline can also be established for up and down gradient water from the HF operation with full knowledge of the extent of any horizontal drilling.

Section 8 subsection 2 in the proposed regulations allows for an exemption from groundwater sampling. Why should there be an exemptions? In order to protect the groundwater, which is Waters of the State and a public resource, it is imperative to have a baseline prior to HF, monitoring of this water during, and years after operations have ceased. Waiting for 60 months as prescribed in the draft regulations could allow the significant advancement of groundwater contamination before any arresting action is taken. Due to the nature of HF the same practices commonly used for oil and gas extraction are insufficient to assure that groundwater contamination has not occurred and that the public health is protected.

The proponent of an HF project needs to submit a detailed plan of operations which includes the anticipated HF scheme, so that groundwater monitoring wells can be located judiciously. Monitoring wells need to be located as close as possible to the HF operation, but far enough that the wells are not damaged during HF procedures. The wells need to be screened at multiple levels to sample all potentially impacted aquifers.

Water samples should be analyzed for all of the following: pH, specific conductance, total dissolved solids (TDS), dissolved gases (methane, ethane, propane), alkalinity (total bicarbonate and carbonate as CaCO<sub>3</sub>), major anions (bromide, chloride, fluoride, sulfate, nitrate and nitrite as N, phosphorus), major cations (calcium, iron, magnesium, manganese, potassium, sodium), other elements (barium, boron, selenium and strontium), presence of bacteria (iron related, sulfate reducing, slime forming), total petroleum hydrocarbons (TPH) and BTEX compounds (benzene,

toluene, ethylbenzene and xylenes), and gross alpha and beta. Field observations such as odor, water color, sediment, bubbles, and effervescence shall also be documented.

Ongoing air monitoring at lower and upper levels is needed to assure that heavier as well as lighter fugitive air emissions are detected and nearby populations are alerted of any actions needed for protection of public health.

### **Financial Assurances**

The Colorado regulations contain a section titled “Financial Assurance and Oil and Gas Conservation and Environmental Response Fund (sections 701 through 712), which was most likely inspired by the large number of HF operations in the state. The state of Nevada should review these sections for applicability to Nevada.

Bonding amounts for drilled wells contained in NAC 522 are probably not adequate. These regulations appear to be based on traditional oil and gas extraction and are most likely insufficient to cover potential long-term environmental damage. Again, to supplement the bonding requirements for drilled wells the state of Colorado has included a number of additional financial assurance provisions that Nevada should include for HF operations:

1. *General liability insurance* – “All operators shall maintain general liability insurance coverage for property damage and bodily injury to third parties in the minimum amount of one million dollars (\$1,000,000) per occurrence. Such policies shall include the Commission as a “certificate holder” so that the Commission may receive advance notice of cancellation.” [section 708]<sup>1</sup>
2. *Oil and Gas Conservation and Environmental Response Fund* – “The Commission shall ensure that the two-year average of the unobligated portion of the Oil and Gas Conservation and Environmental Response Fund is maintained at a level of approximately, but not to exceed, four million dollars (\$4,000,000), and that there is an adequate balance in the fund to address environmental response needs” [section 710]<sup>1</sup>
3. *Financial assurances to land owners* - “Operators shall provide financial assurance to the Commission, prior to commencing any operations with heavy equipment, to protect surface owners who are not parties to a lease, surface use or other relevant agreement with the operator from unreasonable crop loss or land damage caused by such operations.” [section 703]<sup>1</sup>
4. *Centralized extraction and production (E&P) waste management facilities* – “An operator which makes application for an offsite, centralized E&P waste management facility shall, upon approval and prior to commencing construction, provide to the Commission financial assurance in an amount equal to the estimated cost necessary to ensure the proper reclamation, closure, and abandonment of such facility” [section 704]<sup>1</sup>  
N.B.: Such facilities may not be in the works for Nevada, so this provision may be added later.
5. *Seismic operations* – “Any operator submitting a Notice of Intent to Conduct Seismic Operations, Form 20, shall, prior to commencing such operations, provide financial assurance to the Commission in the amount of twenty five thousand dollars (\$25,000) - statewide blanket financial assurance to ensure the proper plugging and abandonment of any shot holes and any necessary surface reclamation.” [section 705]<sup>1</sup>
6. *Natural gas gathering, natural gas processing and underground natural gas storage facilities* – “Operators of natural gas gathering, natural gas processing, or underground natural gas storage facilities shall be required to provide statewide blanket financial assurance to ensure compliance with the 900 Series rules in the amount of fifty thousand dollars (\$50,000), or in an amount voluntarily agreed to with the Director, or in an amount to be

determined by order of the Commission. Operators of small systems gathering or processing less than five (5) MMSCFD may provide individual financial assurance in the amount of five thousand dollars (\$5,000).” [section 711]<sup>1</sup>

7. *Surface facilities and structures appurtenant to Class II commercial underground injection control wells* – “Operators of Class II commercial Underground Injection Control (UIC) wells shall be required to provide financial assurance to ensure compliance with the 900-Series Rules in the amount of fifty-thousand dollars (\$50,000) for each facility, or in an amount voluntarily agreed to with the Director, or in an amount to be determined by order of the Commission.” [section 712]<sup>1</sup>

### **Additional Elements of the draft regulations that need to be included**

In our comparison of regulations concerning HF by other states it appears as though many aspects of the Nevada regulations are incomplete and not even under consideration. The Nevada Administrative Code (NAC) Chapter 522 was clearly written largely for traditional oil and gas extraction, where only a small section specific to HF. GBRW views the HF procedure as distinctly different than traditional extraction methods and thus requires more detailed and specific regulations, of which other states have seen the need.

Regulations focusing on the following aspects should be added to the Nevada regulations. GBRW recommends that Nevada use the state of Colorado regulations for language on the following:

1. *Aesthetic and noise control* – “The rules and regulations in this section are promulgated to control aesthetics and noise impacts during the drilling, completion and operation of oil and gas wells and production facilities.” [section 801]<sup>1</sup> There is a provision in Colorado regulations that local governments can apply to the Colorado Oil and Gas Conservation Commission (COGCC) for exemption from these regulations.
2. *Visual impact mitigation* – “Production facilities, regardless of construction date, which are observable from any public highway shall be painted with uniform, non-contrasting, non-reflective color tones (similar to the Munsell Soil Color Coding System), and with colors matched to but slightly darker than the surrounding landscape.” [section 804]<sup>1</sup>
3. *Odors and dust* – “Oil and gas facilities and equipment shall be operated in such a manner that odors and dust do not constitute a nuisance or hazard to public welfare.” [section 805]<sup>1</sup>
4. *Hydrogen sulfide gas* – “When well servicing operations take place in zones known to contain at or above one hundred (100) ppm hydrogen sulfide gas, as measured in the gas stream, the operator shall file a hydrogen sulfide drilling operations plan (United States Department of the Interior, Bureau of Land Management, Onshore Order No. 6, November 23, 1990).” [section 607a]<sup>1</sup>
5. *E&P waste management* – “The rules and regulations of this series establish the permitting, construction, operating and closure requirements for pits, methods of E&P waste management, procedures for spill/release response and reporting, and sampling and analysis for remediation activities.” [section 901]
6. *Pits and closure of pits* – NAC 522 lacks detail in this aspect of HF operations and in particular there are no specifics regarding pit reclamation. GBRW again recommends reviewing the Colorado code sections 902 through 905.<sup>1</sup>
7. *Management of non-E&P waste* – “Certain wastes generated by oil and gas-related activities are non-E&P wastes and are not exempt from regulation as solid or hazardous wastes. These wastes need to be properly identified and disposed of in accordance with state and federal regulations.” [section 907A (a)]<sup>1</sup>

8. *Venting or flaring natural gas* – “The unnecessary or excessive venting or flaring of natural gas produced from a well is prohibited.” [section 912 (a)]<sup>1</sup> there are exceptions to this requirement in subsequent subsections.
9. *HF specific reclamation* – The Colorado regulations dedicates significant sections to reclamation of HF facilities in sections 1001 through 1004 that spans eight pages of regulatory detail. These sections should be reviewed for inclusion and adaptation for the Nevada regulations.
10. *Underground disposal of water* – NAC 522.380 “Procedure for underground disposal of water” is quite brief (not quite ½ page) and GBRW again advises a review of the Colorado regulations section 325 which comprise 3.5 pages detailing underground water disposal, which includes the following, “**Notice of application requirements.** The notice shall describe the proposed operation and shall state that any person who would be directly and adversely affected or aggrieved by the authorization of the underground disposal into the propose injection zone may file, within fifteen (15) days of notification, a written request for a public hearing before the Commission, provided such request meets the protest requirements specified in subparagraph m. of this rule. The notice shall also state that additional information on the operation of the proposed disposal well may be obtained at the Commission office.” [section 325 I.]<sup>1</sup> GBRW recommends more than 15 days for action, but the principle here is very important, a clear path for public redress of deleterious actions by the operator. It is not clear in the Nevada regulations that a specific notice would be publically filed with the option for appeal.
11. *Measurement of produced and injected water* – “The volume of produced water shall be computed and reported in terms of barrels on the basis of properly calibrated meter measurements or tank measurements of water-level differences, made and recorded to the nearest one-quarter (1/4) inch of one hundred (100%) percent capacity tables.” [section 330a]<sup>1</sup>
12. *Site investigation, remediation, and closure* – “This section applies to the closure and remediation of pits other than drilling pits constructed pursuant to Rule 903.a.(3); investigation, reporting and remediation of spills/releases; permitted waste management facilities including treatment facilities; plugged and abandoned wellsites; sites impacted by E&P waste management practices; or other sites as designated by the Director.” [section 909]<sup>1</sup>
13. *Protection of wildlife resources* – “Prior to the preparation of a Comprehensive Drilling Plan or the submittal of a Form 2A for a proposed new oil and gas location, an operator shall review the Sensitive Wildlife Habitat map and the Restricted Surface Occupancy map maintained by the Commission on its website and attached as Appendices VII and VIII to determine whether the proposed oil and gas location falls within Sensitive Wildlife Habitat or a Restricted Surface Occupancy area. The operator shall include this determination in the Form 2A or Comprehensive Drilling Plan.” [section 1201]<sup>1</sup>

In closing, GBRW finds the proposed amended NAC 522 regulations to be far from adequate, and ratification of these regulations should not go forward. Given the uncertainties surrounding HF and its potential impacts on the specific environments in Nevada and the incompleteness of the proposed regulations GBRW supports a moratorium on hydraulic fracturing until that time when all concerns are addressed and regulations are in place that will provide for protection of public health and the environment.

Sincerely,

A handwritten signature in black ink that reads "John Hadder". The signature is written in a cursive style with a large, looping initial "J" and a long horizontal stroke that underlines the rest of the name.

John Hadder  
Director

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<sup>1</sup> State of Colorado, *Complete Rules*, Colorado Oil and Gas Conservation Commission.