

# **DEVELOPMENT OF HYDRAULIC FRACTURING REGULATIONS AND UPDATE OF NAC 522**

**August 28, 2014**

**COMMISSION ON MINERAL RESOURCES  
HEARING FOR ADOPTION**

**Richard Perry, Administrator, Nevada Division of Minerals**



# FOUR AGENCIES CAN BE INVOLVED WITH DRILLING AN OIL WELL IN NEVADA

- BLM – drilling on Federal lands, leasing process, NEPA process
- NDEP – Air permits for surface area disturbance, UIC permits if water is to be re-injected, water pollution control permits if water is to be discharged outside of containment.
- NDOM – Permits to drill on private/state lands, coordinates w/ BLM for drill permits on Federal lands
- NDWR – For any water used in drilling, dust control or hydraulic fracturing

# DEVELOPMENT OF REGULATIONS

- 1. Reviewed regulations of 32 current oil-producing states**
- 2. Reviewed BLM proposed rule on hydraulic fracturing**
- 3. Utilized Interstate Oil and Gas Compact Commission (IOGCC) resources on HF**
- 4. Staff discussed what works and what does not with regulators in Arkansas, California, Colorado, Kansas, North Dakota, Ohio, Pennsylvania, Texas and Utah.**
- 5. Borrowed portions of “rule 609” from Colorado’s recent update: water well sampling.**
- 6. Benchmarked regulatory elements with other States**
- 7. Comments from public workshops in March in CC, Elko, LV**

# **APPLICATION FOR WELL WHERE OPERATOR INTENDS TO USE HYDRAULIC FRACTURING:**

- Application to include Area of Review (AOR): land ownership, wells, groundwater levels, geology.**
- Groundwater baseline sampling and monitoring of up to 4 existing water sources by operator before and after HF process.**
- Water analysis for inorganic and organics compounds and dissolved gases. Post-HF samples have limits requiring notifications if hydrocarbons present.**
- Approved permits with conditions of approvals posted: <http://minerals.nv.gov/>**

# **DRILLING OF WELL WHERE OPERATOR INTENDS TO USE HYDRAULIC FRACTURING:**

- Intermediate casing that is cemented 500 feet from bottom so there are two layers of protection in the zone of groundwater, and is pressure tested.**
- Pressure testing of production casing to 3000 psi for 30 minutes.**
- Production casing cemented to 500' above uppermost zone of hydrocarbons**

# **HYDRAULIC FRACTURING STIMULATION** **TREATMENT**

- 14 day notification to nearby landowners/lessees before commencing HF.**
- Nearby water well water sampling after HF**
- Sundry notice describing HF plan at least 14 days prior**
- Division can deny use of any chemical it deems is detrimental to the protection of fresh water.**
- Monitor and record HF pressures during process.**
- Contain all flow-back liquids in steel tanks or containment per NAC 445A.**
- HF flow back disposal plan must be approved prior to transport from well pad (in permits if no UIC wells).**

# WATER USE FOR HF IN NEVADA

- 3 wells stimulated with HF IN 2014:
  - Noble M2C: 0.76 acre-feet (250,057 gallons)
  - Noble M10C: 1.06 acre-feet (345,660 gallons)
    - 25% was from recycled water
  - Grant Canyon Blackburn 16: 0.64 acre-feet (209,000 gallons)
- For comparison, a domestic well is 2 acre-feet/yr. in Nevada, typical irrigation pivot is 400-600 acre-feet/yr.
- Water must be appropriated through NDWR, same as any other water user.

# **AFTER COMPLETION OF A WELL WHERE HYDRAULIC FRACTURING IS USED:**

- **Operators post HF chemicals and amounts used on Fracfocus.org within 60 days:**

**<http://www.fracfocusdata.org/>**

- **Re-sample water wells 60-72 months after HF treatment, submission to Division**
- **Notification to Division if certain levels of methane or petroleum hydrocarbons are detected in a sampled well**



# OTHER PROPOSED CHANGES TO NAC 522

- **Conductor casing cemented to surface**
- **500 feet minimum cemented surface casing**
- **500 feet of cemented intermediate or production casing from bottom of shoe or highest hydrocarbon producing zone**
- **Casing specification minimum A.P.I. 5CT**
- **Casing cement specification minimum A.P.I. 10A**
- **Cement and pressure test report submission to NDOM**
- **Administrator can require a cement bond log if cement/pressure reports are inconclusive**
- **B.O.P.E. rating 3000 p.s.i. Division to witness or approve**

# HOW DO THESE PROPOSED REGULATIONS COMPARE WITH OTHER STATES ?

- Center of Energy Economics and Policy  
“The State of State Shale Gas Regulation”
- Of the 20 regulatory elements evaluated in the benchmark study, Nevada’s proposed regulations will address 20:
  - 16 command-and-control regulations
  - 3 case-by-case permitting
  - 1 performance standard

[http://www.rff.org/centers/energy\\_economics\\_and\\_policy/Pages/Shale\\_Maps.aspx](http://www.rff.org/centers/energy_economics_and_policy/Pages/Shale_Maps.aspx)

# SCHEDULE

- Development of draft regulations by NDOM and NDEP staff – August to November, 2013
- Stakeholder meeting – Nov 21, 2013
- Draft changes to NAC 522 – Dec. 2013
- Public meeting Jan 16, 2014. CMR approved draft
- LCB pre-adoption review January, 2014.
- Public Workshops – March 17-21 in CC, Elko, LV
- Public comment ended 5 PM March 28th
- Edits based on public and industry comments April-June, 2014
- LCB Pre-adoption review of edits – July, 2014
- CMR to consider adoption of regulations ~ 8/28, 10 a.m. to 12 p.m., County Commission chambers, Elko

# SB 390 NAC 522.119

- **NRS 522.119 Development of program; regulations.**
- **The Division of Minerals and the Division of Environmental Protection shall, jointly, develop a hydraulic fracturing program to:**

# HOW PROGRAM AND REGULATIONS ADDRESS SB390

- (a) Assess the effects of hydraulic fracturing on the waters of the State of Nevada
  - Permit application to include 1-mile radius Area of Review (AOR)
  - Groundwater baseline sampling and monitoring of available water sources within one mile of proposed well by operator before and after HF
  - Source-control monitoring of well bore
  - DRI study “Aquifer quality assessment program”, funded by Noble Energy.

# HOW PROGRAM AND REGULATIONS ADDRESS SB390

- (b) Require a person who engages in hydraulic fracturing to disclose each chemical used to engage in hydraulic fracturing;
  - Division has approved list of HF chemicals on web site
  - 30-day approval process for additions to list
  - Division can deny use of any chemical proposed if deemed unsafe
  - Operator to post information and chemicals used on a publically-available chemical disclosure registry <http://fracfocus.org>

# HOW PROGRAM AND REGULATIONS ADDRESS SB390

- (c) Provide for notice to members of the general public concerning activities relating to hydraulic fracturing in this state
  - Approved Applications for Permit to Drill (APD's) and Conditions of Approval (COA's) on Division web site
  - 14-day notification to land owners, county commission and Division prior to HF by operator
  - Recent presentations and peer-reviewed papers located on recently-updated NDOM web site.

# NRS 522.119 (SB390)

- Program to be developed by July 1, 2014
- Regulations to implement the program to be adopted by January 1, 2015



# Recommended edits to regulations

- P.8. 12. *An operator shall not commence hydraulic fracturing at a well until the operator has complied with Subsections 1,2,3a,4,5,6,7,8,9,10 and 11 of this section.*
  - *(3b and 3c are subsequent samples after the HF treatment)*
- P. 4 Sec. 9 1 (e) *If an operator, under the provisions of NRS § 534.050, constructs a temporary water source well within the area of review to support the drilling and completion operations for the oil or gas well, the water well must be used as one of the sampling locations.*
- P. 9 Sec. 10.2 *....the operator reasonably believes to be relevant (eliminate a cause for concern).*