ARKANSAS OIL & GAS COMMISSION

Shane E. Khoury
Deputy Director / General Counsel
AOGC MISSION

The purpose of the Arkansas Oil and Gas Commission is to prevent waste, encourage conservation, and protect the correlative rights of ownership associated with the production of oil, natural gas and brine, while protecting the environment during the production process, through the regulation and enforcement of the laws of the State of Arkansas.
Commission Structure

- **9 Commissioners:**
  - Governor appointed, 6 year terms, no term limitations, member terms staggered. Promulgates regulations.

- **Director:**
  - Hired by Commissioners with approval of the Governor, serves at the pleasure of the Governor. Serves as Commission Secretary, non-voting member. Administers regulatory program.

- **Staff:**
  - Hired by Director, currently authorized 40 full-time employees & 10 “extra help” positions. Implements regulatory program.
REGULATORY FUNCTIONS

**Issue Permits to drill**
Oil, natural gas and brine production wells and other exploratory holes.

**Issue Authority to Operate and Produce** wells through approval of:
- Authorize production zone completions
- Initial production test to establish production allowable
- Commingling of separate zones of production

**Conduct compliance inspections** during drilling process and operational life of well.

**Issue authority to plug** and abandoned well, including plugging process approval and staff witness of plugging procedure to insure protection of producing and fresh water zones.
REGULATORY FUNCTIONS

- Issue Permits to conduct seismic operations for exploration of oil and natural gas.

- Issue Permits to drill and operate Class II UIC enhanced oil recovery injection wells and saltwater disposal wells under authority of US EPA.
  - ADEQ – Surface facilities and disposal of other materials, cuttings, etc.

- Issue Permits to drill and operate Class V UIC brine injection wells for the disposal of spent brine fluids following removal of bromine and other minerals.
REGULATORY FUNCTIONS

- Issue Permits to Regulate the Gathering Handling, and Transportation of Exploration and Production Fluids. Require each “transporter” using motor vehicles to transport exploration and production fluid (excludes fresh water), to be permitted.

- Issue Permits and Regulate Natural Gas Pipelines, for certain pipelines under the authority of the US DOT, and certain pipelines that are not federally regulated.
REGULATORY FUNCTIONS

 Classify Wells for Severance Tax Purposes:

 General Rule A-7 – Outlines procedure and how wells are classified.

 Three different tax categories based on different categories:

 1.5% for New conventional wells for 24 months, and new high cost wells for 36 months. High cost can be extended if well hasn’t paid out.

 5% for Conventional and High Cost after payout.

 1.25% for Marginal Conventional (less than 250 mcf per day) and Marginal High Cost (less than 100 mcf per day).
REGULATORY FUNCTIONS

- **Process royalty and working interest owners complaints**
  - non-payment, late payment, improper amount.
  - authority to audit in non-compliance situations
  - Investigate improper assessment of expenses

- **Investigate Landowner complaints**
  - enforce environmental regulations
  - facilitate discussions with operator

- **Provide information** and presentations to General Public, Legislature, state and federal government agencies, and other stakeholders.
REGULATORY FUNCTIONS

Conduct monthly Commission Hearings

- Review and approve regulations
- Create Exploratory Drilling Units
- Establish Field Rules
- Establish well setbacks and spacing
- Hear applications for Integration of interests to protect correlative rights of Mineral interests and leasehold working interests
- Declare certain wells “abandoned.”
- Impose civil penalties and/or compel compliance.
THE COMMISSION DOES NOT....

• **Interpret mineral leases** or provide legal advise concerning leases (publications on web page)

• **Interpret landowner/operator agreements** for land use or determine land damage costs resulting from drilling

• **Adjudicate** the validity of mineral leases

• **Maintain records** of mineral lease ownership
OFFICE LOCATIONS

- **Little Rock** — Directors Office
  - Administrative offices, legal staff, fiscal, personnel

- **EL Dorado** — South Arkansas Regional Office
  - Statewide permit issuance, oil and gas production reporting, field inspection/enforcement, well records

- **Fort Smith** — North Arkansas Regional Office
  - Gas production reporting, field inspection/enforcement, well records,
  - Satellite field office in Conway for Fay Shale.
Approx. 48,000 wells drilled since 1925

Fort Smith
4,000+ wells
100 Oprs.

Little Rock
4400+ wells
3 Oprs.

El Dorado
7,200 wells
200 Oprs.
Natural Gas Production Information

- **Production Information:**
  - 2006 – less 200 bcf. 2011– over 1 tcf. Approximately 88% is from the Fayetteville Shale, 12% is from the Arkoma Basin.
  - AR - consume less than 250 bcf per year.

- **# Producing Gas wells in AR:**
  - 2006: 3977
  - 2007: 4641
  - 2008: 5544
  - 2009: 6487
  - 2010: 7112
  - 2011: Over 8700

- **# of Producing Wells in FS:**
  - 2006: 165
  - 2007: 574
  - 2008: 1290
  - 2009: 2138
  - 2010: 3033
  - 2011: Over 3800
2800 Miles Of Gathering Pipeline
Drilling and “Fracking” in FS

- Average lateral length – 4517 ft*

- In terms of frac jobs, average numbers of stages is 11*
  - bbls of fluids per stage = 1,171*
  - Lbs of sand per stage = 636,372*

  * Based on 1624 wells completed between 12/14/2009 & 12/21/2011

- Average cost of a FS wells is approx. 3.5 million dollars. (Estimated)
Dry Gas Production in Arkansas

MCFG

Total

Old
Arkoma

B-44

B-43

CBM

Months/Years
Commission Response
(since 2006)

- 12 staff positions added
  (technical, legal and field)
  Requesting 4 more in next session.

- Fayetteville Shale area field office established

- 107 rule modifications
  - At least 30 obsolete rule repeals
  - 8 new rules adopted
  - 69 amendment to existing rules
    - B-43 – Amended 5 times since 2006.
Examples of Arkansas Modern Regulations


- Cross-unit Wells—General Rule B-43.


- Moratorium—Disposal Wells—Amendment to General Rule H-1.
B-17: Well Drilling Pits & Completion Pits
Requirements

- ADEQ Regulation 34 and AOGC General Rule B-17 are the same.
  - Most all forms and contact for industry is with AOGC

- Memorandum of Understanding between ADEQ & AOGC
  - Onsite – AOGC. Offsite – ADEQ (except WMA)

- Key Elements:
  - Applicability: Applies to all pits completed during drilling, completion, and testing of oil, gas, or Class II disposal wells;
  - Enforcement responsibilities shared between AOGC and ADEQ;
  - Defines pit types and manner of construction and closure requirements;
  - Allows for pit extended use when utilizing frac flowback recycling procedures;
Increased Public Awareness with Disclosure of Frac Chemicals – General Rule B-19
Exhibit 8: Volumetric Composition of a Fracture Fluid

Source: Compiled from Data collected at a Fayetteville Shale Fracture Stimulations by ALL Consulting 2008
Only applies to new wells, for which an initial drilling permit is issued on or after Jan. 15, 2011.

PH is required to indicate intent to perform hydraulic fracture treatment. If the PH didn’t indicate this at the time of drilling permit application, PH must send in required information prior to commencement of hydraulic fracture treatment.

PH must report the type of well (vertical, horizontal, directional); estimated true vertical and measured depths of production casing; and casing grade and minimum yield pressure for the production casing utilized.
PH must submit the proposed cement formulations minimum compressive strength and estimated top of cement for production casing string.

- June of 2011 - Production Casing for Fay. Shale wells is required to cemented from top of Fay. Shale to surface.

Requires surface casing to be set in accordance with applicable Commission rules, and must have sufficient internal yield pressure to withstand anticipated maximum pressures.

- June of 2011 – Fay Shale Well General Rq. = 500 ft below lowest elevation within 1 mile, with a minimum of 1000 feet of surface casing to be set and cemented back to surface.

- If PH encounters a fresh water zone (prior to the setting of surface casing), or gains knowledge that freshwater will be encountered from a deeper zone that was specified on the permit, the PH is required to set surface casing to 100 feet below the deepest encountered zone.
RULE B – 19 REQUIREMENTS FOR WELL COMPLETION UTILIZING FRACTURE STIMULATION

DISCLOSURE PROVISIONS

- Persons performing Hydraulic Frac Treatments must register with AOGC.
- Violation to use any person or company not registered with AOGC.
- If Perform Hydraulic Frac Treatments, must disclose and maintain three separate master lists,
  - All Hydraulic Frac Fluids used
  - All Additives used
  - All Chemical Constituents and associated CAS numbers utilized, (or Chemical Family Name if it qualifies for protection as a trade secret exemption under 42 U.S.C. 11042)
RULE B – 19 REQUIREMENTS FOR WELL COMPLETION UTILIZING FRACTURE STIMULATION

- After Completion of Hydraulic Frac Treatment, PH must report:
  - Max pump pressure during each stage; types and volumes of Frac Fluid and proppant used for each stage, calculated frac height and estimated TVD of top of frac;

- PH required to provide AOGC for each well all:
  - Frac Fluids actually used
  - Additives used (specified by type) & actual rate or concentration for each additive, expressed as pounds per thousand gallons or gallons per thousand gallons, and as percent by volume of the total frac fluids and additives
  - Chemical constituents and associated CAS, or chemical family name if constituent qualifies for protection as a trade secret exemption.
    - Rule requires disclosure of chemical constituents to health care professional, a doctor, or a nurse, even if it qualified for protections as a trade secret.
Commission News and Alerts

2012 Hearing Schedule

Fayetteville Shale Casing Requirements as of June 1, 2011

Online Payment Service

Permanent Disposal Well Mast Alexandra Area

2011 Hearing Schedule

Proposed Rules

Notice of Rule Change - General Rule B-1” (Well Drilling Pits & Completion Pits Requirements) Public Comment Ends January 17, 2011

General Rule B-1” Draft (Well Drilling Pits & Completion Pits Requirements) Public Comment Ends January 17, 2011

New Final Rules


Rule H-1 (Class II Disposal And Class II Commercial Disposal Well Permit Application Procedures) Effective February 2, 2012

Rule D-20 - (Noise Level Requirements for Non-Wellhead Compressor Facilities) - Effective November 1, 2011

Rule B-1” - (Drilling Pit and Completion Pit Requirements) - Effective October 3, 2011

Operator Procedural Information

General operator requirements for a permit to drill or transfer a Well

To report emergencies, incidents, spills, spud activity, file Form 2A, 11, or well bore information for north Arkansas please contact the Fort Smith Regional office via email or by calling 479-646-6611.

To report emergencies, incidents, spills, spud activity, file Form 2A, 11, or well bore information for south Arkansas please contact the El Dorado Regional office please contact via email or by calling 870-862-4965.
## Wells Permitted with Intent of Fracture Stimulation

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### Companies Performing Fracture Treatments

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- Form 2 - Permit Form Required to Perform Fracture Treatment
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- Form 37 - Request for Trade Secret Exemption
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- **Form 2** - Permit Form Required to Perform Fracture Treatment
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- **Form 37** - Request for Trade Secret Exemption
### Master Fracturing Chemical List - Arkansas

#### Basic Pools

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<tr>
<th>Fluid Name</th>
<th>Chemical Name</th>
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<tbody>
<tr>
<td>A-010</td>
<td>Brine</td>
</tr>
<tr>
<td>A-020</td>
<td>Salt Water</td>
</tr>
<tr>
<td>A-030</td>
<td>Distilled Water</td>
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#### Additives

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<tr>
<th>Type</th>
<th>Chemical Name</th>
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<tbody>
<tr>
<td>Suspension</td>
<td>Polyacrylamide</td>
</tr>
<tr>
<td>Acid</td>
<td>Hydrochloric Acid</td>
</tr>
<tr>
<td>Surfactant</td>
<td>Sodium Lauryl Sulfate</td>
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<tr>
<td>Cross-linker</td>
<td>Polyethylene Glycol</td>
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<tr>
<td>Biocide</td>
<td>Formaldehyde</td>
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#### Chemical Cross-Reference

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<tr>
<th>Chemical Name</th>
<th>Hazardous Information</th>
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<tr>
<td>A-040</td>
<td>Class 1, Group 1</td>
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<td>A-050</td>
<td>Class 2, Group 2</td>
</tr>
<tr>
<td>A-060</td>
<td>Class 3, Group 3</td>
</tr>
<tr>
<td>A-070</td>
<td>Class 4, Group 4</td>
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<td>A-080</td>
<td>Class 5, Group 5</td>
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- Form 2 - Permit Form Required to Perform Fracture Treatment
- Form 3A - Well Fracture Stimulation Report
- Form 37 - Request for Trade Secret Exemption
Claim of Entitlement to Withhold the Identity of a Chemical Constituent as a Trade Secret OR Request for Trade Secret Exemption

SECTION B

Applicant:
Schlumberger Technology Corporation

Address:
100 Schlumberger Dr., HO-27
Houston, Texas 77070

Phone:
(813) 989-9400
Fax:
(813) 989-6490

Email:
chevroninfo@slb.com

Chemical Family associated with the Chemical Constituent
Anionic Polymer

Does the Chemical Constituent, and associated CAS number, qualify for withholding as a trade secret?
Yes [ ] No [ ]

In order to claim that the Chemical Constituent and associated CAS number is entitled to protection as a trade secret, you must include specific information regarding each of the following. (Please check at least one):

1. You have not disclosed the information to any other person, other than a number of in-house employees in various capacities, an officer or employee of the United States or state or local government, an employee of each person, or a person who is bound by a confidentiality agreement, and such person has taken reasonable measures to protect the confidentiality of such information and means in order to disclose such measures.

2. The information is not required to be disclosed, either to public or any other Federal or State law.

3. Disclosure of other information is necessary to the competitive position of such person.

4. The chemical entity is not easily discoverable through reverse engineering.

CERTIFICATE

I declare under the penalties of perjury that this report has been completed to the best of my knowledge and belief and contains:

[Signature]
Chevron Technology Corporation

APPROVED

[Signature]
Director of Protection and Compliance
Date: 07/01/2023

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Click left of database field, to sort list by this field.

<table>
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<th>Value</th>
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<tr>
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<tr>
<td>Operator</td>
<td></td>
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<td>Section</td>
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<tr>
<td>Township</td>
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Fayetteville Shale Development General Rule B-43

- Defines Fayetteville Shale Producing Area
- Establishes 640 Acre Units Drilling Units, classified as either Established or Exploratory
- Establishes Well Setback and Maximum Wells Per Unit (16 wells per unit, per reservoir; 560’ setback from unit boundaries, 448’ setback between entirely in-unit wells)
- Procedure for Commission Handling of Competing Integration Applications
- No Allowable
- Authorizes shared Cross Unit Wells and Establishes Methodology for Sharing Royalty and Expenses – Minimize Footprint.
640 Acre Governmental Section
Drilling Unit In Fayetteville Shale Showing
EARLY Horizontal Well Development Plan
Hypothetical Band-aide Map with Four Affected Units

Unit "A"
0.92 Acres
0.69% of Total Acres

Unit "B"
0.50 Acres
0.37% of Total Acres

Unit "C"
72.03 Acres
54.4% of Total Acres

Unit "D"
58.97 Acres
44.54% of Total Acres

132.42 Total Acres
End-of-Game Development Picture

- Resource is prudently developed
- No Waste; surface or subsurface
- Surface disturbance is minimized
- Correlative rights are protected
- Cooperation among operators (Company A operates Shaded Units; Company B operates White Units)
- 9+ Sections Developed
- 20 Pads Required
- 75 Wells
- ~ 100% Coverage
Actual Usage in Fayetteville Shale

- In 2010, less than six years after the first horizontal Fayetteville Shale well was drilled, over 50% of all Arkansas horizontal well permits issued were for cross-unit wells.

- In 2011, estimated that over 85% of horizontal Fayetteville Shale wells were cross-unit wells.
D-20 NOISE LEVEL REQUIREMENTS FOR NON-WELLHEAD COMPRESSION FACILITIES

(Final 11/1/2011)

- Based on the proposed language of SB 870 (failed to make it out of committee during the last regular session)
  - Several members of the Senate Committee who voted against the bill either supported, or at least did not oppose, General Rule D-20 at the Rules Committee. One Senator said that although she did not support the bill, she was in favor of the rule, as rules can be amended easier than laws.

- Rule sets a maximum noise limit as 55 dB(A) Leg, as measured for the exterior of the nearest pre-existing noise sensitive areas for non-well head compressor facilities.
  - Noise sensitive areas include schools, hospitals, churches, nursing homes, and structures regularly used for overnight accommodation.

- Newly constructed facilities have a year from commencement of construction to comply, and all existing facilities subject to the provisions of this rule have until July 1, 2012 to comply.
Compressor Sites in Fayetteville Shale Play – Approximately 130
Proactive - Rule amended to provide setbacks from Faults and Other Disposal Wells.

Requirements to submit seismic and other related information indicating unknown faults in the area of proposed Disposal Wells in the Fayetteville Shale area.
Arkansas
Hydraulic Fracturing
State Review

February, 2012

Report concluded:
“regulatory program well managed and professional” with rule amendments, water well complaint protocol and AOGC web page cited as program strengths.

Primary recommendations:
• Conduct inspections during active hydraulic fracturing operations – Implemented
• Notice – Implemented – Pending Rule
• Increase staffing to provide additional field inspection capability – Requested in FY 14 Budget
QUESTIONS ?