

Unconventional Gas Regulations and the Environment

State Regulatory Perspective: Pursuing a Working Regulatory Model for Shale Gas



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Colorado Oil and Gas Conservation Commission

May 2013



OIL & GAS CONSERVATION COMMISSION

AGENDA

- COGCC Background
- Oil and Gas in Colorado
- New Colorado Rules
 - Frac' fluid chemical disclosure
 - Groundwater sampling
 - Setback distances



COGCC MISSION

FOSTER THE RESPONSIBLE AND BALANCED DEVELOPMENT OF COLORADO'S OIL & GAS RESOURCES

- Conduct oil and gas production in a manner that **protects public health, safety, and welfare, including the environment & wildlife resources.**
- Ensure exploration and production of oil and gas resources are conducted efficiently.
- Protect mineral owners' rights.



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OIL AND GAS IN COLORADO: THE BIG PICTURE



- 50,372 active wells as of February 2013
- 33,000 “plugged and abandoned” wells
- Oil production in 2012 = 49 million barrels – highest level in 57 years
 - 2,192 new wells drilled in 2012
- Ten of the Nation’s 100 largest natural gas fields and three of its 100 largest oil fields are found in Colorado
- Ranked 9th in U.S. oil production and 5th in natural gas production in 2012



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COMPREHESIVE REGULATIONS

- 100 Definitions
- 200 General
- 300 Drilling, Development, Procedure, and Abandonment
- 400 Units, Enhanced Recovery, and Storage
- 500 Hearings
- 600 Safety
- 700 Financial Assurance
- 800 Aesthetic and Noise
- 900 Waste Management
- 1000 Reclamation
- 1100 Pipelines
- 1200 Wildlife



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Rules Evolve to Keep Pace

- Three Major New COGCC Rules in past 14 months
 - ❖ Frac' fluid chemical disclosure
 - ❖ Groundwater Sampling
 - ❖ Increased setback distances and best management practices



Frac' Fluid Disclosure Rule

- Hydraulic Fracture Fluid Chemical Disclosure
 - Requires public disclosure of HF chemicals using public database called FracFocus.org
 - 48 hour advance notice to COGCC of frac treatment
- Trade Secret Protection
 - File with COGCC
 - Justify Trade Secret Status
- Copied by OH, PA, TN





Groundwater Sampling Rules



Oil and Gas operations occur in multiple areas throughout the State where citizens obtain their water supply from groundwater sourced by water wells or springs.

COGCC receives on average, two requests to sample a water well every week.

Several local governments have proposed or adopted rules/policies regarding groundwater sampling near oil and gas wells and facilities.



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Groundwater Sampling Rules

- Groundwater sampling will augment existing COGCC groundwater protection rules.
- Establish pre-drilling condition of groundwater in the area of proposed oil and gas operations.
- Conduct adequate follow-up sampling to aid in determining whether drilling and completion operations have resulted in impacts to groundwater.



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Groundwater Sampling Rules

- Supplement to Existing Rules
- Surface Casing – Rule 317.d., e., f., g., 317A.a., b.
- Well Cementing – Rule 317.h., i.
- Bradenhead Testing – Rule 317.j, 341
- MIT Testing – Rule 326
- Pit Lining – Rule 904
- Lining Production Facilities – proposed Rule 604.c.2.G.
- Form 2A Process for Siting and Constructing Surface Facilities – Rule 303.d.



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PROTECTING WATER

- **Ensure surface casing in all wells is set at least 50 feet below the depth of the deepest water well or aquifers.**
- **Review of surrounding water wells, area hydrology and surface waters.**
- **Baseline water sampling; post-drilling sampling.**
- **Protective zones around public drinking water sources**



Groundwater Sampling Rules

- Effective May 1, 2013
- Applies to Oil and Gas Wells, Multi-Well Sites, Dedicated Injection Wells.
 - Production Facilities at Director's discretion, consistent with other Commission Rules.
- Requires samples from all Available Water Sources (max of 4) within a ½ mile radius.
 - If more than 4 water sources, set of six criteria for determining which locations to select



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Groundwater Sampling Rules

- An initial baseline and 2 subsequent samples are required.
 - Pre-drilling sample w/in 12 months prior to spud
 - 1st subsequent sample 6-12 months after completion
 - 2nd subsequent sample 60-72 months after completion



Groundwater Sampling Rules

- Full analytical suite for baseline samples; oil and gas specific indicator constituents post-drilling.
- Sampling and Analysis Plan: COGCC will develop Model SAP, based on COGA SAP. Model SAP will be routinely updated, posted to web site, and will be presumptive SAP.



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Groundwater Sampling Rules

- All analytical results provided to COGCC; posted to web site; provided to local government upon request
- Notifications: Operator must notify COGCC and well owner if:
 - Thermogenic gas is detected, or methane is detected above 10 mg/l or increases by more than 5 mg/l.
 - Operator must notify COGCC if BTEX compounds or TPH is detected



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Groundwater Sampling Rules:

- Benefits to Oil and Gas Operators:
- Establishes baseline water quality so that pre-oil and gas development conditions are understood.
- Opportunity for operators to demonstrate that sampled water wells and springs have not been impacted.
- If an oil and gas impact is discovered, remedial measures can be implemented immediately, potentially reducing the costs of mitigation.



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MITIGATION MEASURES



New Setback Rules

- Stakeholder meetings commenced January 2012
- 11 Meetings held from February – September
- Public meetings open to all
- Web pages created to track information
- Ended with staff recommendation for formal Rulemaking



New Setback Rules

- Set of Rules based on three objectives:
 - Provide more information to residents and local governments;
 - Mitigate impacts associated with O&G operations;
 - Review setback distances, with respect to competing legal interests and other available mitigation measures.



New Setback Rules

- No stakeholder consensus on:
 - Setback distance
- General agreement on:
 - Improving communications with neighbors
 - Engaging Local Governmental Designees
 - Using mitigation measures to eliminate or reduce potential impacts of drilling, completion and production activities



New Setback Rules

- 1,000 foot Buffer Zone Setback statewide
 - Any O&G Location within 1,000' of Building Unit subject to extensive mitigation measures, as well as notification to and communication with adjacent Building Unit owners and LGD.



New Setback Rules

- 1,000 foot Buffer Zone Setback statewide
 - Adjacent landowners w/in 1,000 feet receive:
 - 30-day pre-application written notice (R. 305.a.(2))
 - Written notice of comment period (R. 305.c.(2))
 - Meeting with Operator to discuss proposed operations upon request (R. 305.c.(2))



New Setback Rules

- 1,000 foot Buffer Zone Setback statewide
 - Extensive list of required mitigation measures
 - Closed-loop drilling (no pits, except freshwater)
 - Green completions (gathering lines installed; no uncontrolled venting)
 - Noise mitigation, including light industrial standards during drilling operations
 - Leak detection plans required
 - Use of multi-well pads where feasible



New Setback Rules

- 500' Exception Zone Setback statewide
 - No Oil and Gas Location within 500' of Building Unit, subject to specific, limited exceptions.
 - All Locations subject to Buffer Zone Setback mitigation measures, plus additional measures.
 - Extensive notification, informational, and meeting requirements



New Setback Rules

- 1,000 foot High Occupancy Building setback
 - Commission approval required for O&G Location within 1,000' of:
 - Schools; Nursing homes; Hospitals; Correctional facilities
 - 50-person threshold
 - Child Care facilities – capacity of five or more
 - Exception Zone Setback mitigation measures apply, unless Commission determines otherwise.



Closed-loop Drilling



Flowback to Closed Tanks



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