

Colorado Oil and Gas Conservation Commission Rules and Regulations

**BLM Colorado
Resource Advisory Councils**
March 7, 2012

Bob Randall
Colorado Department of Natural Resources



OIL & GAS CONSERVATION COMMISSION

TOPICS

- **Agency and Industry Overview**
- **Well Permitting**
- **Water Issues**
- **Compliance**
- **Questions & Discussion**



COGCC MISSION

PROMOTE RESPONSIBLE AND BALANCED DEVELOPMENT WHILE ENSURING THAT:

- Exploration and production of oil and gas resources are conducted efficiently.
- Mineral owners' rights are protected.
- Oil and gas production is conducted in a manner consistent with protection of public health, safety, and welfare, including the environment & wildlife resources.



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COGCC HISTORY

1862 - First oil well drilled in Colorado - and only second in the country - in Florence, near Canon City.

1985 - New state laws outline protection of the public and environment during oil and gas operations.

2007 - Legislature calls for enhanced rules to protect public health, the environment and wildlife resources in response to increasing oil and gas development. Rules developed become a national model.

1862 1930 1950 1970 1980 1985 1990 1995 2000 2005 2010 2015

1951 - Legislature establishes the Colorado Oil and Gas Conservation Commission to protect mineral rights owners and prevent waste of oil and gas resources.

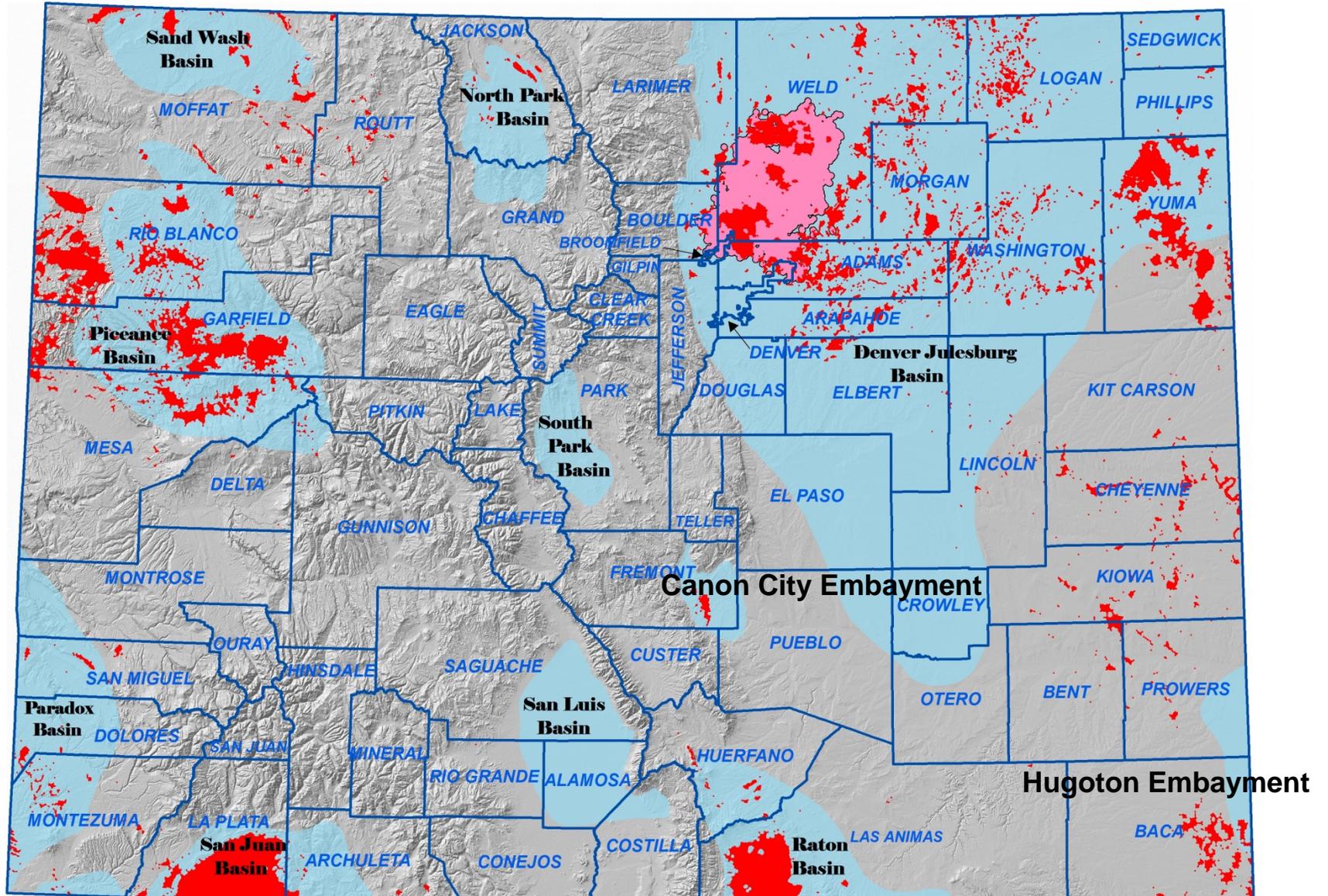
1990 - Legislature creates Environmental Response Fund that uses industry dollars to assist in addressing environmental impacts.

2011 - COGCC approves country's most stringent rules for public disclosure of hydraulic fracturing chemicals.

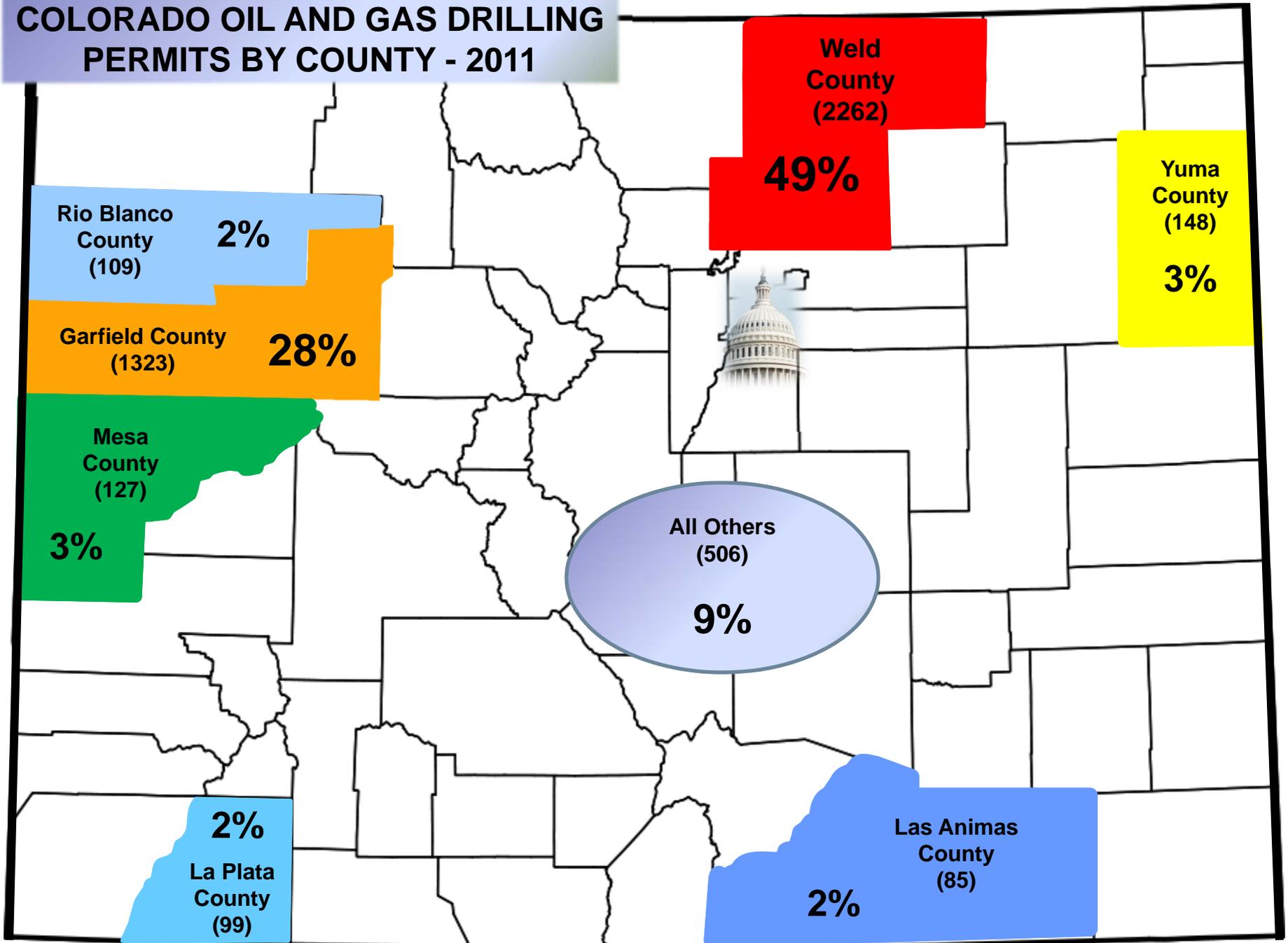


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OIL AND GAS FIELDS IN COLORADO



COLORADO OIL AND GAS DRILLING PERMITS BY COUNTY - 2011



OIL AND GAS IN COLORADO

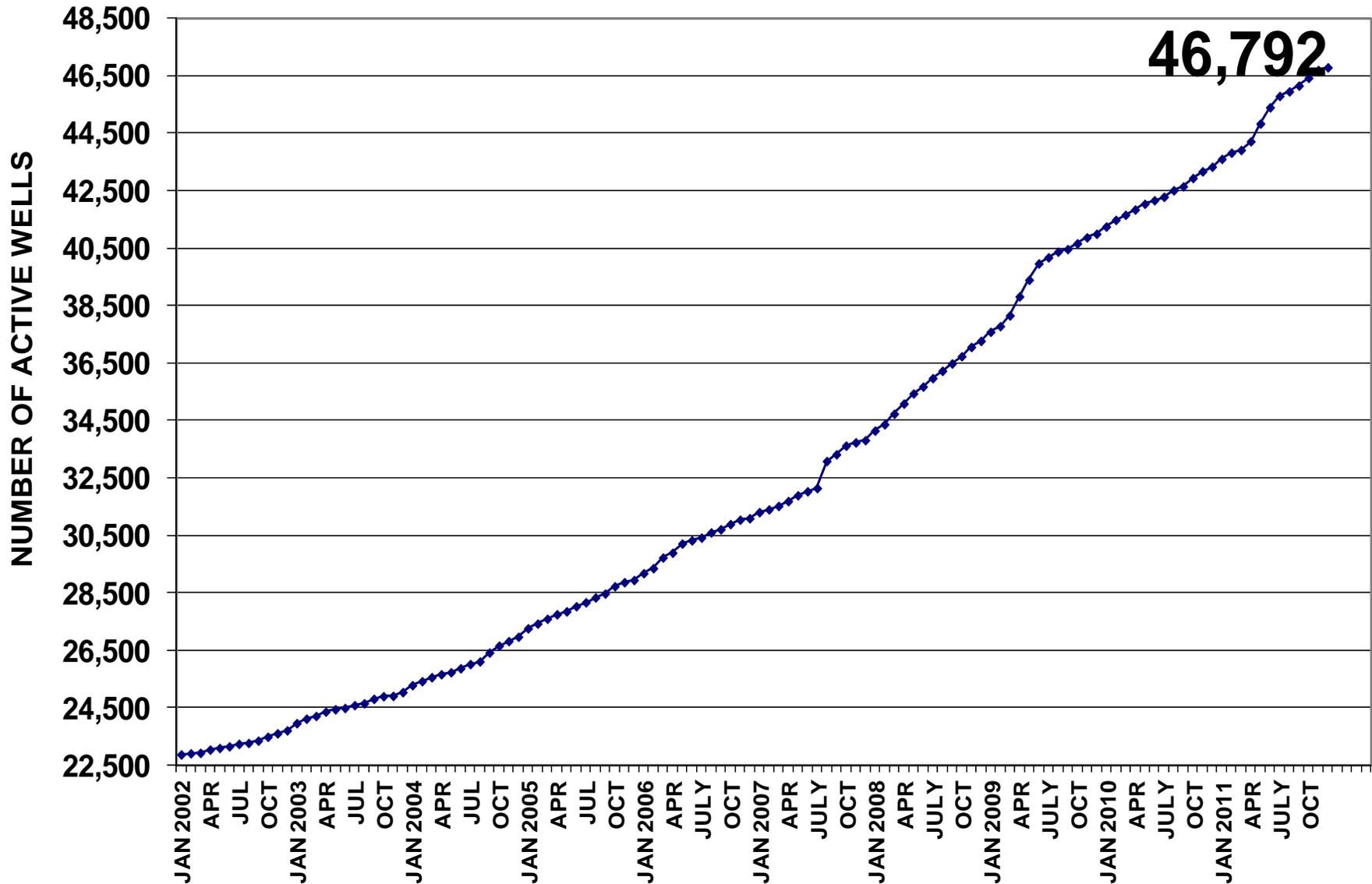
- 46,792 active wells as of January 2012
 - 2,708 new wells drilled in 2011
 - 33,000 “plugged and abandoned” wells
- Wells drilled in 32 of the state’s 64 counties in 2011
- Roughly 5% of all producing wells are within the boundary of a city or town
- Nearly 80% of wells are drilled with surface use agreements in place with landowners



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COLORADO MONTHLY ACTIVE WELL COUNT

01-09-12



A MAJOR COLORADO INDUSTRY

- The oil and gas industry directly employs 50,000 people and supports more than 190,000 jobs – about 6% of statewide employment.
- Colorado is ranked 5th in natural gas production and 10th in oil production in 2010.
- The industry paid \$131 million in severance taxes in FY 10-11.
- Combined with royalty payments, leases on public lands, and property/sales/income taxes, industry directly infused about \$800 million into state coffers.



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UPDATED REGULATIONS

- Colorado's are one of the most comprehensive and protective sets of oil and gas regulations in the nation.
- In 2007, the Commission was overhauled to give greater representation to environmental and health/viewpoints and reduce seats for industry.
- In 2008, COGCC overhauled its regulations to:
 - toughen protections for communities, the environment, and wildlife, and
 - provide far greater opportunities for public and local government participation.



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EXPERIENCE AND EXPERTISE

Staff has an average of 20 years experience working with oil and gas development.



COGCC is a science-driven organization, with investigations conducted by highly trained, experienced and educated personnel.

Half of COGCC employees have graduate degrees in areas of scientific expertise including geochemistry, hydrology and geology.

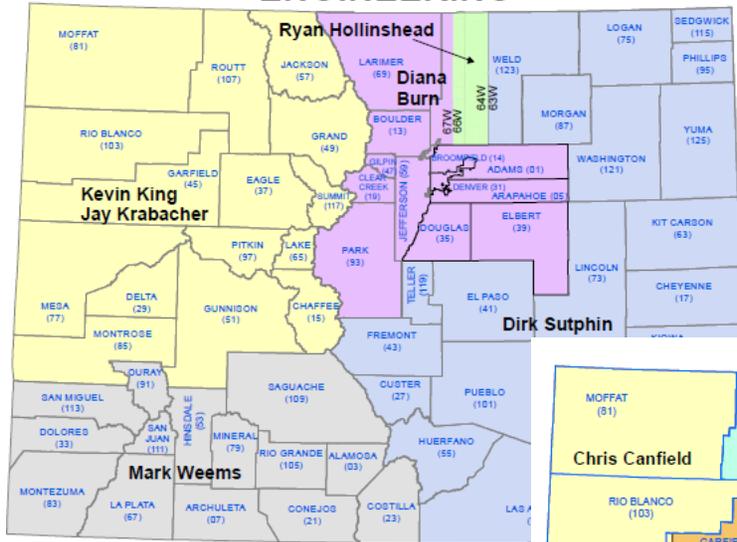


Staff includes 34 specialists who inspect oil and gas sites and enforce regulations. The environmental unit alone has 18 specialists.

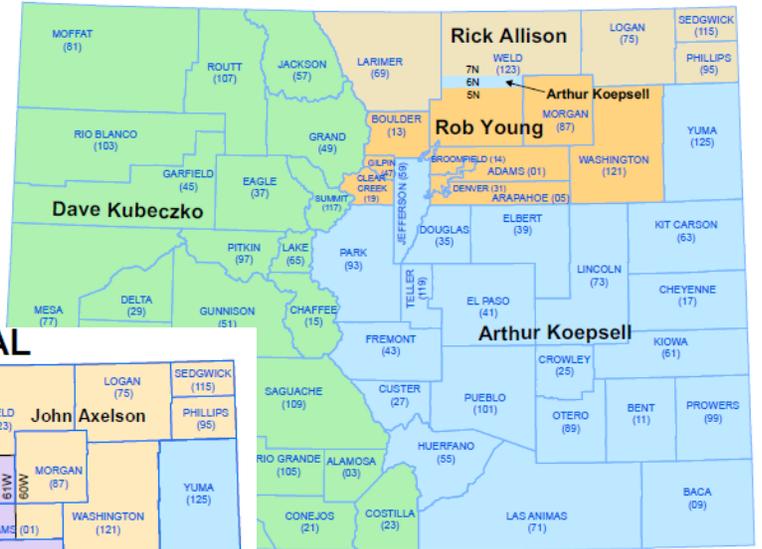


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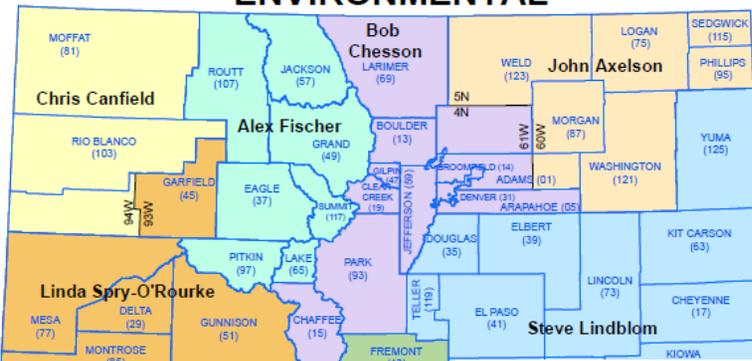
ENGINEERING



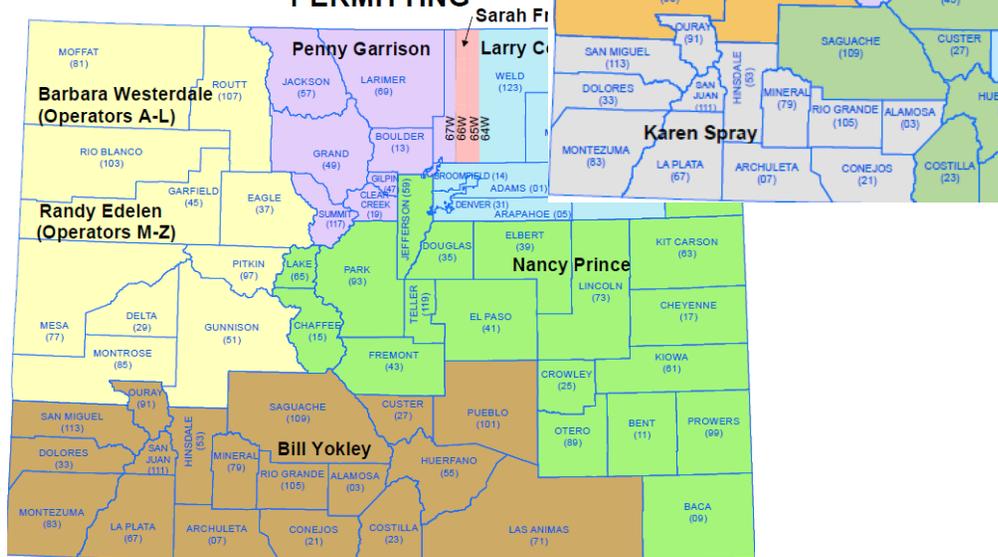
OIL & GAS LOCATION ASSESSMENT



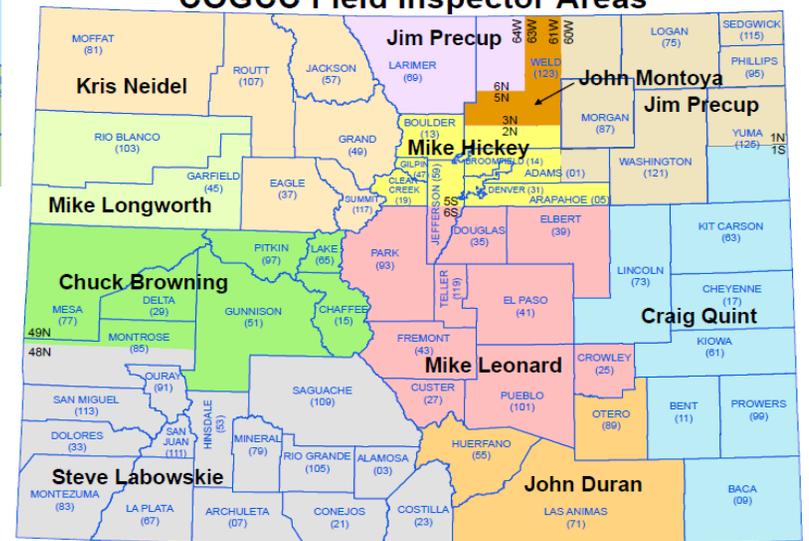
ENVIRONMENTAL



PERMITTING



COGCC Field Inspector Areas



LIFESPAN OF A WELL

#1 SITE LEASING

Leases for oil and gas drilling usually run 3-10 years. It can be several years after land is leased before any drilling starts.



Can be several years



#2 WELL IS DRILLED

Depending on depth and type of well, drilling can take from 2 to 30 days.



Can take from 2 to 30 days

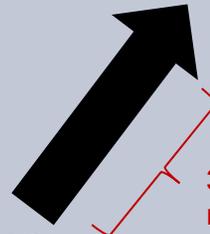


#3 HYDRAULIC FRACTURING/COMPLETION

Usually immediately follows drilling and casing of a well. Fracturing takes most of a day for each stage, so time will depend on stages. A 20-stage frac could take three weeks.



3 to 6 months

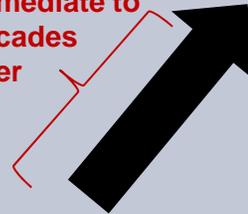


#4 INTERIM RECLAMATION

This reduces the size of the well pad. It is to occur within six months after well completion, or within three months if the land is used for crops.



Immediate to decades later

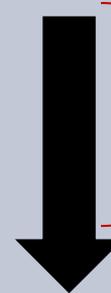


#5 FINAL RECLAMATION

When a well is plugged, which may occur immediately after drilling or decades later, final reclamation must be completed within one year; three months if the land is used for crops.



May take several years



#6 RELEASE FROM BOND

The COGCC will release the financial assurance liability from a well when the vegetation has recovered to eighty percent (80%) of the predisturbance coverage. This revegetation may take several years depending on the areas soil type, and the annual precipitation.



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WELL PERMITTING



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State of Colorado
Oil and Gas Conservation Commission
1001 Amphibious Drive, Denver, Colorado 80202 Phone: (303) 842-3100 Fax: (303) 824-3100

APPLICATION FOR PERMIT TO:
 Re-enter
 Recombine and Change
 Refill
 Slatetrack
 4. COGCC Operator Number: 40275

Document Number: 40268941
Pivoting Board Street
20250134

FORM 2A
Rev. 2/4/01

State of Colorado
Oil and Gas Conservation Commission
1001 Amphibious Drive, Denver, Colorado 80202 Phone: (303) 842-3100 Fax: (303) 824-3100

New Location
 Amend Existing Location

Location#:

Submit original plus one copy. This form is to be submitted to the COGCC prior to any ground disturbance activity associated with oil and gas development operations. This Assessment may be approved as a stand alone application or submitted as an informational report accompanying an application for Permit To Drill, Form 2. Approval of this Assessment will allow for the construction of the below specified location. However, it does not supersede any laws, rules, or regulations applied by the local land use authority. This form may serve as notice to land owners and other interested parties, please see the COGCC web site at <http://colorado.gov/coGCC> for all accompanying information pertaining to the Oil and Gas Location Assessment.

This location assessment is included as part of a permit application.

1. CONSULTATION
 This location is included in a Comprehensive District Plan.
 This location is in a sensitive wildlife habitat.
 This location is in a wildlife refuge.

2. OPERATIONS

Document Number: 400068157
Location ID: 417

14. GPS Data
Date of Measurement: 1/27/2011
15. If well is Directional
Footage at Top of Prod. Zone: 128
16. Is location in a high density area? (Rule 80)
17. Distance to the nearest building, public road, or other structure:
18. Distance to nearest property line:
19. Other (Comments):
20. Operator (Comments):
21. Other (Comments):

Date Run: 1/27/2011 Doc: [400068157] Loc Name: Lake 34-29

Well Name:

Date of Measurement: 05/01/2010
FEL - from East or West section line.

Point of measurement in the well shall be a well location.

1.7

2. Type of oil and gas facility planned on location:

Drilling Pits:	1	Wells:	1	Production Pits:		Dehydrator Units:	
Water Tanks:		Separators:		Electric Motors:		Multi-Well Pits:	
Cavity Pumps:		LAOT Unit:		Pump Jacks:	1	Piping Station:	
Gas Pipeline:		Oil Pipeline:		Water Pipeline:		Flare:	
Other:		VOC Combustor:		Oil Tanks:	1	Fuel Tanks:	

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HOW WELLS ARE PERMITTED

- Detailed technical evaluations of well plans.
 - Engineers review plans for casing and cementing wells to protect groundwater and ensure safety.
 - Environmental specialists review location to ensure protection of water, wildlife and land.
- Reviews also take into account setbacks from buildings, waste disposal and agreements with surface owners.



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DRILLING PERMIT NOTIFICATION

- Operators must notify certain parties before applying for a drilling permit:
 - Surface owner of the proposed location.
 - Landowners within 500 feet of the proposed location.
 - Local government designee, who can then notify others



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PUBLIC PARTICIPATION

- 20-day comment period on all permit applications.
 - Can be extended to 30 days. upon request.
- Local governments, CPW, CDPHE can participate.
- Phone call, e-mail, letter, website submittal.
- COGCC accepts and review all comments.
- Local governments (LGD) can accept, review and forward comments to COGCC



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LOCAL GOVERNMENT

- COGCC rules provide for significant input from, and collaboration with, local governments.
- Many cities and counties have a specific “local government designee,” to act as liaison between the state and community.
- Local governments can ask state health regulators to review specific permits and provide guidance.
- Local governments can request a hearing before the COGCC on permitting decisions.



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SETBACKS FROM STRUCTURES

- Oil and gas wells may be no closer than 150 feet from buildings and 350 feet in high-density areas.
 - Outside of Weld County, more than 80 percent of well sites are greater than 1,000 feet from structures.
 - In many cases, the structures are outbuildings of some kind, not residences. Wells often pre-date structures.
- About 5% of active wells are inside municipal boundaries and in many communities the practice is well-established.



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SPECIAL CONDITIONS

- COGCC often attaches special “conditions of approval” to address site-specific concerns, such as:
 - Lined drilling pits, pit restrictions, or closed-loop (pit-less) drilling systems
 - Special protections for wildlife, such as restrictions on operational timing.
 - Spill control practices to further protect land, groundwater and streams.
 - Additional water sampling and analysis.



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SPECIAL CONDITIONS - HOMES

- Special conditions near neighborhoods including:
 - Limitations on traffic, speed and points of access.
 - Special arrangements for notice to surrounding community of schedule and activities for the site.
 - Requirements to limit air emissions, including flaring and controls that typically apply to larger facilities.
 - Additional steps to reduce noise, dust and lighting; use of aesthetic controls to reduce visual impacts.
 - Development of emergency response plan in coordination with local responders.



WATER ISSUES



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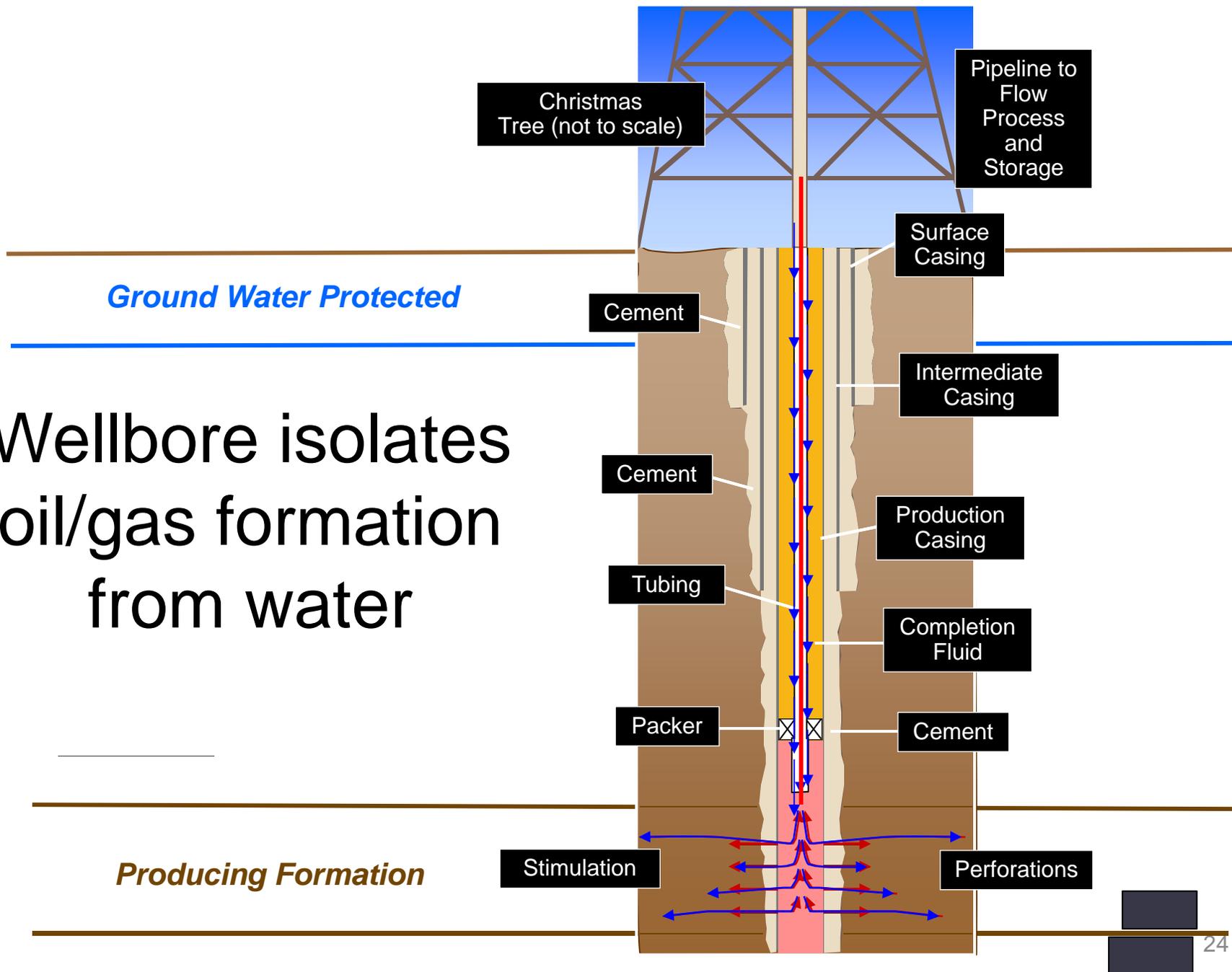
PROTECTING WATER

- Technical reviews of casing and cementing plans ensure that:
 - Surface casing in all wells is set at least 50 feet below the depth of the deepest water well or aquifers.
 - Production casing and cementing isolates all production zones and creates a seal protecting aquifers.
- Pressures monitored and recorded during hydraulic fracturing operations.



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Wellbore isolates oil/gas formation from water



SETBACKS FROM WATERWAYS

- COGCC rules include setback rules for streams providing public water supplies.
 - No drilling within 300 feet of a stream providing a municipal source of drinking water for 5 miles upstream of intake.
 - Baseline water sampling, pitless drilling and other operational measures required out to ½ mile from such stream segments.
- Limited drilling and other protections within 300 feet of gold-medal fishery or cutthroat trout habitat.



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HYDRAULIC FRACTURING

- Colorado wells have been fractured since 1972.
- Today, more than 90% of oil and gas wells are hydraulically fractured.
- Starting April 1, 2012 operators must disclose all fracturing ingredients and concentrations to FracFocus.org.
- Operators must file paperwork to certify proprietary claims.
- Rules require cement bond logs and pressure monitoring to ensure integrity of well and cement work.



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GROUNDWATER SAMPLING

- Operators take two nearby water samples before drilling and two after to ensure no drilling impact.
- Two groundwater sources, such as water wells or springs, within ½ mile of pad will be sampled.
- Samples are collected and analyzed by a third-party and results are provided to the COGCC.
- Data will be public through COGCC website.



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WATER DEMAND AND SOURCES

- Water used in hydraulic fracturing depends on well type, formation depth, and geologic composition.
- Hydraulic Fracturing could require about 16,000 acre-feet in 2012, rising to 18,700 acre-feet in 2015.
- This accounts for about 1/10 of 1% of Colorado's annual water use.
- Operators can procure water from various sources but must adhere to state water law when obtaining & using it.



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OVERSIGHT



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COMPLIANCE & ENFORCEMENT

COGCC employs several tools to ensure operators are in compliance with rules:

- Training operators on state regulations.
- Providing feedback through inspection reports.
- Notification of violations and corrective action orders.
- Enforcement orders and monetary penalties.
- Withholding of future permits.



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INSPECTIONS

COGCC conducted 12,239 field inspections in 2011. Inspections can include:

- Pre-drilling site review
- Cementing of well casing
- Mechanical integrity testing
- Hydraulic fracturing operations
- Producing well
- Reclamation of well pad
- Inspection of waste injection wells
- Inspection of public complaint



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COMPLAINTS

- COGCC responds to complaints within 48 hours; usually within 24 hours.
- Complaints often concern dust, lighting, noise, odor and water well issues.
- Where complaint involves issue that is a violation of COGCC rules, COGCC issues Notice of Alleged Violation and requires action to correct.



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COMPLAINT RESPONSE - WATER

- Collect water/gas samples from water well or soil.
- Compare water analyses to regional water quality.
- Evaluate gas analysis to determine thermogenic/biogenic.
- Collect gas samples from nearby oil and gas wells.
- Compare stable isotopic signatures to determine source.
- If complaint verified, operator must mitigate impacts and remediate soil and water to meet standards.



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QUESTIONS?

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Thom Kerr

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<http://cogcc.state.co.us>



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