

Health & Safety Proposed Rules, Regulated By and Proposed Language

H&S Rule Topic	State/Federal Regulation	Current MOU Provisions	Proposed Language	Explanation/Details	What others are doing
Lightning	None, although a permit for a well in Weld County did require non-specific lighting mitigation measures.	None	Operator shall install lightning mitigation for all pads with tanks.	Lightning strikes to tanks is the primary reason for well pad fires. Not an unusual occurrence. Often adjoining tanks also catch fire. Thick toxic smoke can impact nearby residents.	Weld County put a COA on a well permit for lightning mitigation and upgrades as new technology becomes available.
Emergency Response Plans (ERPs)	COGCC guidance document and limited language relating to spills near water. Some spills below threshold levels are not "reportable".	Operator will provide ERP to address all potential emergencies and provide a copy of the plan to all emergency providers. The timing of the ERP submittal is not specified.	Operator shall provide ERP at the time of initial application.	Historically staff has not received ERPs until the facility has been in the production stage for several months. Staff proposes to provide operators with an ERP template for the initial application and then require a detailed ERP when GIS data is available for the installed pad and access roads.	Broomfield requires an ERP prior to drilling.
Coordinated Training	None	None	Operator shall conduct coordinated training exercises with local emergency responders before drilling commences.	Coordinated training will be site specific. Different sites could have difference circumstances. Several operators can participate in coordinated training at a time if their sites do not have unusual circumstances and if approved by the fire district and OEM.	No other jurisdictions require coordinated training. This measure was recommended by the County's emergency responders.
Reporting of Chemicals Used/Stored On Site	Federal regulations require reporting of all chemicals stored on site above specific thresholds. Reports need to be filed with the local emergency manager.	None	Operator shall provide the County with a list of chemicals to be used/stored on site. The list shall be updated when the inventory changes.	Emergency responders need to know which chemicals are stored/used on site before responding to an incident for their safety, as well as the safety of the operator's personnel.	Broomfield requires a list of chemicals used or stored onsite.
Incident Reporting	COGCC 300 series and COGCC Form 19	Any spill or release that is reportable to the Commission shall be simultaneously reported to the County. Operator will submit copies of any Form 19 filed with the Commission to the County LGD.	Operator shall notify the LGD, fire district and OEM of all incidents. COGCC reportable limits not applicable. County does not need a copy of the Form 19. County staff can use the COGCC database after being notified of the incident.	Not all incidents/spills have been reported to the LGD and OEM and fire district have not received any reports.	Adams County requires accident and incident reporting + incident investigation. Aurora requires incident reporting to the City. Broomfield requires incident reporting and operators to pay for equipment and supplies necessary to respond to an incident at their facilities.

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Foam and Water Storage	None	None	Operator must store water and foam for each pad at distance specified by the fire district on a case-by-case basis. Foam shall not contain PFAS.	PFAS applied to the surface are known to contaminate shallow groundwater.	Aurora requires operators to provide funding for foam and foam equipment but does not specify the storage location nor the presence of PFAS.
Setbacks	500' measured from the well to the nearest wall of the nearest residence.	None	Operator shall provide for a minimum setback of 1,000 feet measured from the edge of the well pad to the nearest residence.	On the basis of safety and response to well site incidents, fire districts recommend a minimum setback of 1,000 feet. Staff feels that the 1,000 foot setback is best measured from the edge of the pad, as impacts can be related to the presence of tanks and other pad equipment that can be closer to residents than the well(s).	Adams County requires a 1,000 foot setback and does not allow drilling in residential areas. They also specify a 500 foot setback from buried infrastructure and floodways. Broomfield requires a case-by-case quantitative risk assessment to establish setbacks.
Reverse Setback (setback for new construction from existing oil & gas wells)	None	None	New homes shall not be constructed within a 1,000' radius of an existing well.	1,000' of separation is recommended by the fire districts. Commerce City is proposing a minimum reverse setback of 350 feet for new construction near an existing well. Adams County allows a new home to be constructed within 300 feet of an existing wells if the property owners submits a waiver acknowledging the existence of the facility. Thornton is proposing a 500 foot setback from well pads to proposed main buildings.	Commerce City is proposing a minimum reverse setback of 350 feet for new construction near an existing well. Adams County allows a new home to be constructed within 300 feet of an existing wells if the property owners submits a waiver acknowledging the existence of the facility. Thornton is proposing a 500 foot setback from well pads to proposed main buildings.
Setback From P&A Wells (plugged and abandoned)	None	None	A minimum of 250'.	250' is recommended by COGCC because that separation would allow sufficient room for any oil and gas equipment to access the well.	Thornton is proposing a rule to prohibit home construction within 50 feet of a plugged and abandoned well.
Water Quality	COGCC Rule 609	Our MOU provides for anyone within a ½ mile radius can request a one-time baseline water sample. All other wording in the MOU refers to COGCC's Rule 609 provisions.	County may require sampling and analysis of subsequent samples, after the well(s) are in the production phase between 12 -18 months and between 5-6 years.	Arapahoe County has no documented cases of groundwater contamination but once an aquifer is contaminated, remediation can only improve the level of contamination to a limited extent. Knowing that contamination exists could enable the County to warn downgradient users.	Adams County and Aurora require additional analyses above COCC requirements. Boulder and Broomfield require more than 4 sample locations and a greater frequency of sampling than COGCC's requirements. Broomfield requires a Water Quality Control Plan.

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					<p>Broomfield requires soil and groundwater testing within 500' of a proposed well pad by a consultant approved by Broomfield.</p> <p>Boulder requires initial sampling and subsequent sampling from all available water sources within ½ mile of the projected track of the borehole and within ½ mile of the radius of the proposed well or multi-well site. Pre-existing sample results may be used if collected < 12 months ago. Samples may also be required after fracking. Proposed Broomfield ?</p>
Air Quality	CDPHE Air Quality Control Rules	None	<p>Operators are required to control odors at all well pads during all phases of development.</p> <p>Drilling and recompletion pits are not allowed. Operators will use closed loop drilling technology.</p> <p>County may require monitoring or sampling at well pads for contaminants of concern as part of complaint resolution.</p>	<p>Crestone is already using low-odor drilling mud.</p> <p>Most operators are already planning to participate in Project Canary. Real-time monitoring data from Project Canary will be provided to the County LGD</p>	<p>Broomfield requires baseline air quality sampling.</p> <p>Broomfield requires the use of closed loop drilling.</p> <p>Broomfield has spent \$1.6 million on air quality monitoring. They have instituted well permit fees to offset the cost of monitoring.</p> <p>Broomfield's proposed rules: Require monitoring and sampling for each phase within 500' of the pad.</p> <p>Require green completion practices.</p> <p>Requirement for low emissions diesel and natural gas engines</p>

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					<p>Electric drilling rigs</p> <p>No flaring at wellsites except during upset conditions</p> <p>More frequent leak detection inspections</p> <p>Require ambient air quality monitoring with CDC and EPA integrated risk information systems.</p> <p>More restrictive guidelines for air toxins (e.g. BTEX)</p> <p>Odor control</p> <p>Net reduction in volatile compounds that could involve plugging of older wells.</p>
Suggested Rules from Open Houses Participants					
Prohibit certain chemicals from fracking fluids	None	None	None	This is a downhole issue. Based on initial BOCC direction, the draft regulations will not address downhole issues.	Adams County prohibits certain chemicals from fracking fluids.
Conduct baseline air sampling prior to construction of the pad	Under consideration by CDPHE	None	None	Air quality sampling is not currently funded for the County nor does the County have the necessary staff.	Broomfield conducts baseline air quality sampling.
Monitor and sample air contaminants	CDPHE	None	Operator shall install real-time monitoring equipment at each Tier 2 well pad (see Tier descriptions below).	Most operators are already planning to participate in Project Canary. Real-time data will be provided to the County Environmental Manager.	Broomfield has spent \$1.6 million on air quality monitoring. They have instituted permit fees to offset the cost of monitoring.
More water sampling	COGCC Rule 609	Anyone within a ½ mile radius can request a one-time baseline water sample. All other wording in the MOU refers to COGCC's Rule 609 provisions.	County may require sampling and analysis of subsequent samples, after the well(s) are in the production phase for between 1-2 years and 5-6 years.	Arapahoe County has no documented cases of water contamination resulting from oil & gas operations. However, contaminants move slowly in groundwater and if contamination is discovered in a subsequent sampling event, more than the 4 samples required by COGCC may be helpful. Down gradient users could be notified. Historical	Adams County and Aurora require additional analyses above COCC requirements. No other jurisdiction requires more than 4 sample locations or a greater frequency of sampling than COGCC's requirements.

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				contamination in Garfield County resulted from an improperly plugged well.	
Injection wells are not safe; Quality of injection water should be tested.	COGCC and EPA	None	None	Injection wells are regulated by COGCC. Staff does not see the merit of analyzing fluids to be injected more than 8,000 feet below the surface.	No other jurisdictions in our research have this provision.
Radioactive waste is generated by fracking	COGCC	None	None	Flowback fluids do have radioactivity and these fluids are placed via injection well into deep injection horizons, at a depth over 8,000', below aquifers and the Niobrara formation.	
Emergency access routes should be available for any pads near subdivisions with one-way in, one-way out.	None	None	None	County staff and emergency responders agree but this is handled on a case-by-case basis. No future subdivisions will have one-way in, one-way out.	
Aurora Reservoir water quality should be tested.	None	None	None	This is a matter for the City of Aurora. The reservoir is not in Unincorporated Arapahoe County.	This comment will be shared with the Aurora Planning Department.
Diverse transit options to reduce the need for fossil fuels.	None	None	None	The County supports the concept of travel by bike, bus or light rail. The County participates in an annual Bike to Work Day.	N/A
Keep oil & gas in the ground and develop solar and wind.	COGCC	None	None	Mineral rights are a private property right. The County's balanced approach recognizes those property rights while mitigating the potential surface impacts.	Boulder and Broomfield both instituted a moratorium on new permits when SB 181 was enacted. Adams County enacted a short-term moratorium after SB 181 to finish drafting their new rules.
Can the fire district provide adequate response?	None	The MOU calls out a requirement for a Will Serve letter.	The MOU requirement will carry over to the new oil and gas rules.	Fire districts will evaluate proposed Oil and Gas development sites as part of the County's referral process. If a district does not have capacity to support a proposed development, that district could opt not to issue a Will Serve letter.	N/A
E-W alternative to Quincy	N/A	N/A	N/A	This is a question for the Transportation Division and will be referred to them.	N/A

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Pave Jewell west of Watkins Rd	N/A	N/A	N/A	This portion of Jewell is located in the City of Aurora.	N/A
Require additional methane leak testing	CDPHE	None	None	CDPHE may be working on this.	Broomfield requires more frequent leak detection reporting than CDPHE's annual reporting.
Emergency evacuation plans should be tested with the residents.	None	None	None at this time.	This is an operational issue for emergency services providers; if feasible, nearby residents could be included in the emergency planning process.	N/A
Measure relevant chemicals in well water and interactions between them.	COGCC Rule 609 and the COGCC Sampling & Analysis Plan	None	None	This is already required by COGCC and evaluated by COGCC.	N/A

Notes:

Tier 1: Well pads with fewer than 4 wells and/or greater than ¼ mile from the nearest home. Pads with greater than 4 wells proposed one mile or more from residential structures would also qualify as Tier 1.

Tier 2: Well pads with 4 or more wells and/or less than 1,500 feet from the nearest home.