



ARAPAHOE COUNTY
COLORADO'S FIRST

BOARD SUMMARY REPORT

Date: February 10, 2020

To: Board of County Commissioners

Through: Bryan Weimer, Director of Public Works and Development

Through: Jan Yeckes, Division Manager - Planning

Through: Jason Reynolds, Current Planning Manager

From: Diane Kocis, Energy Specialist

Subject: **2020 Oil and Gas Regulation Update, Study Session on Health and Safety**

Request for Direction and Staff Recommendation

The purpose of this Board Summary Report (BSR) and Study Session is to provide a status update to BoCC regarding the on-going process to develop new oil and gas land use/siting regulations in accordance with SB19-181. This update will discuss public feedback and staff input, as well as fire district input regarding health and safety issues and mitigations of those issues related to oil and gas facilities. Staff will also offer recommendations for mitigating those impacts.

Background

Public Works and Development staff are continuing to work on proposed regulations governing the siting and surface impacts of new oil and gas development in unincorporated Arapahoe County consistent with a county's authority under SB19-182. Staff has been directed to adopt a balanced approach for new oil and gas rules that considers the interests of both operators and citizens in accordance with the County's authority under SB19-181 via previous study sessions in 2019.

Based on staff recommendations from eight years of stakeholder comments and concerns, plus initial stakeholder outreach in Fall 2019 that included meetings with concerned citizens, mineral rights owners, State officials and regulators, other Front Range local government representatives, industry representatives, homebuilders and developers, emergency responders, utilities representatives and pipeline company representatives, staff identified three primary areas for consideration: Quality of Life, Health and Safety, and Process Improvement.

As a continuation of the stakeholder involvement process, staff conducted two open houses in January and posted an online survey. Sixty five percent of the 796 respondents to the oil and gas online survey identified Health and Safety as their primary area of concern for oil and gas development.

Links to Align Arapahoe

These matters link to the Align Arapahoe goal for Safe Communities and Quality of Life for Arapahoe County citizens who will be impacted by neighboring large-scale oil and gas facilities and to the goal of Fiscal Responsibility for a balanced approach that will allow the industry to operate successfully in Arapahoe County.

Discussion

In response to SB19-181, Staff is proposing to amend the Land Development Code for oil and gas land use applications and is in the process of seeking input and suggestions from citizen and industry stakeholders. Staff is also continuing to review other jurisdictions' oil and gas rules or Operator Agreements. Staff has identified nine topics to potentially mitigate Health and Safety impacts for those living near oil and gas operations. Those mitigations are:

- Lightning mitigation
- Storage of firefighting water and foam near the sites
- Emergency Response Plans submitted with the initial applications
- Coordinated operator training with emergency responders
- Reporting of chemicals use/stored on site
- Complete reporting of incidents and spills
- Setbacks (new wells to existing structures)
- Reverse setbacks (new structures next to existing wells)
- Setbacks from plugged and abandoned wells

Staff has attached a table summarizing the above nine health and safety topics and how they are currently regulated or not currently regulated by the state, current County MOU, other jurisdictions, etc.. The attached table also summarizes some of the citizen stakeholder input received before, during and after the stakeholder open houses on the topic of Health & Safety.

A discussion of the proposed mitigations follows.

Lightning:

Lightning strikes to tanks are the most common cause of oil and gas facility fires. A tank fire can cause surrounding tanks to catch fire. The burning of tank hydrocarbons present in both the crude oil tanks and the produced water tanks results in a thick, toxic smoke, often near ground level, that can impact nearby residents. Bennett-Watkins Fire Rescue (BWFR) responds to tank fires at a frequency of every other year in the fire district's 323 square-mile service area, which includes both Arapahoe County and Adams County.

Storage of Firefighting Foam and Water Near Sites:

In addition to requiring lightning mitigation, BWFR and Sable-Altura Fire District request support from operators related to the provision and storage of water and foam near multi-well pads so that they can effectively respond to fires more rapidly with the proper supplies nearby.

Emergency Response Plans (ERPs):

Many historical oil and gas applications have not included ERPs at the time of application. Some operators have provided ERPs after a facility has been in production for months and the plans are not always site-specific. Our emergency responders (fire districts and Sheriff Office) recommend that an initial ERP be submitted at the time of application and an enhanced, more detailed ERP be provided after GIS data is available from the newly constructed pads and roads.

Coordinated Training:

Currently, the County has no requirement for coordinated training with operators and emergency responders. Coordinated training has become more important with multi-well pads. Our fire districts and OEM have recommended that coordinated training commence before the drilling phase begins and then reoccur semi-annually. Coordinated training can potentially include more than one operator at a time. It's also important to note that FEMA training is a requirement for County staff Operators' staff do not always have FEMA training.

Reporting of all chemicals stored on site:

Under SARA (the Superfund Amendments Reauthorization Act) Title III, certain hazardous materials stored at sites above a regulatory threshold quantity must be reported to the local jurisdiction's emergency manager. For reporting simplification and for the protection of our emergency responders, the County should require operators to provide a list of all chemicals used on site during all phases of development and then update the list as inventories change.

Incident Reporting:

Staff recommends reporting of all oil and gas incidents, to include but not limited to releases of any kind or quantity of fluids or chemicals, as well as fires, explosions, lightning strikes, electrocution, falls, fatal accidents, chemical exposures and other health-related issues. While some Arapahoe County operators report spills/releases beyond State threshold quantities and other incidents to the COGCC, these reports don't necessarily get filed with the appropriate Arapahoe County staff or the fire districts. Often incidents are not reported by operators, and the emergency responders are informed of incidents by neighboring residents. Even if incidents are deemed minor by the operator, it is important that our emergency responders be informed.

Setbacks:

Staff see setbacks as a tool to address Health/Safety and Quality of Life concerns, as such staff is recommending a setback of 1,000 feet from oil and gas pad boundaries to existing homes for safety reasons. As described above, fires and other emergencies require adequate space for emergency responders to work, and the thick, toxic smoke from a single tank fire can migrate over 1,000 feet from the pad, potentially inhibiting breathing for nearby residents. Adams County adopted a 1,000-foot setback from the edge of the parcel where the pad is located (which may exceed our recommendation of 1,000 feet from the pad boundary). The Emergency Response Guidebook used

by emergency responders nationwide also recommends a setback of 1,000 feet. Staff does not consider this proposed setback unreasonable because 97% of the Niobrara wells drilled in the last 9 years in Arapahoe County were located at least 1,000 feet from the nearest residence. Citizen stakeholder input on setbacks ranged from 1,000 feet to 2 miles on the basis of the safety of the surrounding communities, and industry feedback expressed a preference to follow the State's setback, which is 500 feet.

Reverse Setbacks and Setbacks from Plugged and Abandoned Wells:

A reverse setback is the distance between an existing oil and gas facility and new residential construction. Based on conversations with emergency services providers, Public Works & Development staff are recommending a minimum of 1,000 feet of separation between new homes and existing oil and gas equipment. The fire districts recommend a minimum reverse setback of 500, given that fires can require a greater radius for responders to work.

Setbacks from Plugged and Abandoned Wells:

The majority consensus of homebuilders and developers stakeholder input was that no setback be imposed for new home construction near oil and gas equipment, citing a potential loss of revenue for space that would not be developed. Some of this stakeholder group suggested that homebuyers of property adjacent to an oil and gas facility sign a waiver against potential future claims related to well pad safety issues.

Public Works and Development staff recommends a smaller reverse setback for new home construction from plugged and abandoned wells. Plugged and abandoned wells do not incur the same risks as active wells: there are generally no hydrocarbons present, and the well bore has been at least partially filled with concrete to prevent leakage. COGCC staff recommend a 250-foot setback that would allow sufficient room for workover equipment to reenter a well.

Here is a brief summary of how other jurisdictions are addressing these health/safety issues, as well as whether or not the issues are addressed by COGCC rules.

- **Lightning Mitigation:** Weld County provided a Condition of Approval on a COGCC permit to include lightning mitigation and upgrade as new technology becomes available. COGCC does not require lightning mitigation.
- **Storage of Firefighting Foam and Water near pads:** Aurora requires that operators provide funding for foam and foam equipment but does not specify the storage location. COGCC does not regulate emergency response matters. COGCC considers this a local government matter.
- **Emergency Response Plans:** Broomfield requires an ERP prior to drilling. COGCC considers this a local government matter.

- Disclosure of Chemicals Used/Stored: Broomfield requires a list of chemicals used or stored onsite. COGCC does not regulate chemical registries on non-Federal lands.
- Setbacks: 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. COGCC has not updated their requirement for a 500-foot setback measured from a proposed well to the nearest wall of the nearest occupied structure. That state setback can be decreased by petition.
- Reverse Setbacks: Commerce City is proposing a minimum reverse setback of 1,000 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 owner submits a waiver acknowledging the existence of the facility. Thornton is proposing a 500-foot setback from well pads to proposed main buildings. Thornton is also proposing a rule to prohibit home construction within 50 feet of a plugged and abandoned well. COGCC rules do not address reverse setbacks as they are a local jurisdiction matter; however, COGCC staff recommend a minimum setback of 250 feet from a plugged and abandoned well to new home construction to allow sufficient room for workover equipment.

Staff recommends the following Health and Safety mitigation measures be included in the new regulations based on input from emergency service providers, staff research, and what other jurisdictions are regulating.

- **Lightning:**
 - Staff recommends that Operators be required to install the latest lightning mitigation technology.
 - Staff recommends that the regulations also require Operators to upgrade Lightning mitigation measures as technology evolves and becomes available.
- **Storage of Firefighting Foam and Water Near Pad Sites:**
 - Staff recommends that Operators be required to store firefighting foam and water, of a type and quantity approved by the appropriate fire district near multi-well pads. Staff would also recommend providing for an administrative waiver of this requirement if the facilities do not have tanks and are hooked into a pipeline that receives all the facility's liquids.
- **Emergency Response Plans (ERPs):**
 - Staff recommends that Operators be required to submit a preliminary ERP at the time of application based on the County ERP template. Detailed ERPs must be submitted prior to the commencement of drilling, when GIS data is available after pad and access road construction
- **Setbacks:**
 - Staff recommends that Operators be required to maintain a 1,000-foot setback from the edge of the well pad to the nearest home. Current State regulations measure the setback to the closest well; however, the entire pad can have an impact on nearby

properties because the pad can contain storage tanks, combustors, and other appurtenances that are closer to the nearest home than the well(s).

- **Reverse Setbacks:**

- Staff recommends a minimum 1000-foot reverse setback to allow emergency responders to respond safely to a home fire with sufficient room for the 200-footlong fire hoses. The fire districts indicate that a 1,000-foot setback would be less likely to have safety issues.
- Staff recommends a minimum setback of 250 feet from a plugged and abandoned well to allow access for operators' workover rigs, should they decide to reenter the well for replugging or to recompleat, based on a COGCC recommendation. The height of the rig mast can be nearly 200 feet and the rule of thumb is to allow enough room for the mast to fall over.

It is important to note that staff will continue to use the evaluation criteria already presented at previous study sessions for any draft rules:

- Impact on the Public
- Alignment with State Rules
- Best Management Practices
- Industry Impact
- Impact to County Resources

Alternatives

Staff is requesting feedback from the Board on the information presented and specific direction on the following:

- 1) Should the County require lightning mitigation using best currently available technologies at oil and gas facilities and approved by the fire districts?
- 2) Should the County require storage of firefighting foam and water near multi-well oil and gas facilities with tanks onsite?
- 3) Should Emergency Response Plans be required at the time of initial application submittal and finalized after GIS data for the associated pad and access road is available?
- 4) Should coordinated training between operators and emergency responders be required prior to drilling?
- 5) Should operators be required to report all chemicals used and stored on oil and gas facilities to emergency responders to promote the safety of responders and workers during an emergency response?
- 6) Should operators be required to report all facility incidents to the Local Government Designee and emergency responders, to include spills, releases, fires, explosions, lightning strikes, falls, fatal accidents, chemical exposures and other health-related issues?
- 7) Should the County require a minimum setback of 1,000 feet measured from the edge of the well pad to the nearest residence?

8) Should the County require minimum reverse setbacks? Staff has prepared the table below with Pros and Cons of different reverse setbacks ranging between 40 and 1,000 feet.

Option	Description	Pros	Cons
Option 1. 40' Reverse Setback	Provide a minimum reverse setback of 40' from the pad to the new resident	<ul style="list-style-type: none"> <input type="checkbox"/> Maximizes the amount of developable property next to wells 	<ul style="list-style-type: none"> • Provides minimal setback to residents • Safety and exposure to fire/smoke
Option 2. 250' Reverse Setback	Provide a minimum reverse setback of 250' from the pad to the new resident	<ul style="list-style-type: none"> <input type="checkbox"/> Increased setback from Option #1 <input type="checkbox"/> COGCC staff recommends <input type="checkbox"/> Allows room for 200-foot fire hoses. 	<ul style="list-style-type: none"> <input type="checkbox"/> Provides minimal setback to residents <input type="checkbox"/> Safety and exposure to fire/smoke <input type="checkbox"/> Decreases the amount of potential developable land area <input type="checkbox"/> Developers/Builders/Landowners may object
Option 3. 350' Reverse Setback	Provide a minimum reverse setback of 350' from the pad to the new resident	<ul style="list-style-type: none"> <input type="checkbox"/> Increased setback from Option #1 & 2 <input type="checkbox"/> Possible Compromise <input type="checkbox"/> Allows room for 200-foot fire hoses. <input type="checkbox"/> Possibly large enough area to coordinate open space requirements 	<ul style="list-style-type: none"> <input type="checkbox"/> Provides less setback than if residential building existed prior to well <input type="checkbox"/> Developer/Builder/Landowners likely objection
Option 4. 1000' Reverse Setback	Provide a minimum reverse setback of 1,000' from the pad to the new resident	<ul style="list-style-type: none"> <input type="checkbox"/> Matches the normal setback requirements recommended for safety <input type="checkbox"/> Provides same safety provisions as normal setback 	<ul style="list-style-type: none"> <input type="checkbox"/> Likely Developer/Builder/Landowners objection

Fiscal Impact

Depending on the specific changes adopted, it is likely that some financial impact will occur for the County due to additional plan review that would be required from approved or pending land development for new well applications and for proximity to approved and existing oil and well facilities for land development applications. However, this will be explored further when the updated code is drafted.

Concurrence

PWD Staff is in support of continuing this process with additional study sessions and continued public outreach. The County Attorney's Office has reviewed this BSR and the staff evaluation.

Additional Documentation

Oil & Gas Online Survey Results Report to be sent separately after the survey closes.

Reviewed by

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