

Updates to Article 12 of the Boulder County Land Use Code for Oil and Gas Operations
Docket # DC-19-0002

Summary of Proposed Changes in Staff Initial Draft
March 6, 2020

County staff's proposed revisions to Article 12 of the Land Use Code, governing all oil and gas development and operations, are attached. They are provided without showing changes from the existing regulations because the changes proposed are significant enough that showing the changes in redline form makes the document difficult to read. (For comparison, the existing Article 12 can be viewed at: <https://assets.bouldercounty.org/wp-content/uploads/2017/02/land-use-code-article-12.pdf>.) The revisions are an initial draft, which is not complete in all respects and numerous areas are still under consideration.

The proposed changes address the new authorities given to or clarified for local governments by Senate Bill 19-181, signed into law in April 2019. In addition, the changes respond to comments and suggestions from outside experts, other local governments, state government experts, and members of the public. Finally, the proposed changes encompass advances in technology and the ongoing degradation of regional air quality.

Oil and gas development is a complicated area to regulate and has the potential for significant public health and environmental impacts. As a consequence, the proposed regulations are lengthy, technical, and complex. Moreover, it may not be clear from the regulations alone the level of scrutiny and rigor by County staff, the Planning Commission, and ultimately the Board of County Commissioners. This summary provides information about how the regulations will work in practice and highlights particularly important areas of new or enhanced oversight.

I. How a proposal gets reviewed, including the public process

- **Operator Registration (Section 12-400)**
 - Operators (whether of existing wells or proposed) must supply significant information to demonstrate their financial and technical capabilities, along with their history of complying with oil and gas regulations, which is renewed annually.
 - No applications for new operations will be accepted until registration is complete.
- **Application materials submitted (Section 12-800)**
 - Applications must contain thorough information about:
 - the physical and environmental baseline conditions at and near the sites, including air quality, ambient noise, and natural resources;
 - expert modeling of the impacts of the project; and
 - plans of operations.
 - Applicants will hire outside, independent experts approved by the County to conduct modeling and assessments.
 - These materials will be used by the County as part of its analysis of the project and its impacts.

- **Public Notice and Outreach by the Operator (Section 12-600)**
 - After filing a complete application, the operator will send direct notice to nearby property owners and post signs about the pending application.
 - The operator will hold a neighborhood meeting, open to the public, to provide information and take comments from the public.
 - The operator will report on the public meeting to the County.
- **County Review**
 - Based on the complete application materials and expert reports, any supplemental information required, and all information received from the public, County staff will begin an in-depth analysis of the application.
 - Section 12-900 lists the standards and criteria against which each application will be measured. No oil and gas facility or operation will be approved if it does not meet the standards.
 - The County may hire outside experts to analyze the application materials, at the operator's expense.
 - Staff will send out requests for input (referrals) from numerous local and state agencies, surrounding property owners and residents, several County departments, and whatever other parties have necessary expertise or will be impacted. The referral responses form an important part of staff's analysis.
 - The operator may be asked to supplement the application materials if needed to assist staff's analysis.
 - After its thorough, rigorous analysis of the proposal and consideration of possible conditions to be imposed, staff will make a recommendation whether the application should be approved with stated conditions or denied. The recommendation depends on whether the proposed project, as conditioned, could meet the rigorous standards of Section 12-900.
- **Advisory Boards**
 - If the proposal is to be located on or near County-owned open space land, a public hearing before the Parks and Open Space Advisory Committee may be required.
 - For all applications for new oil and gas development, a public hearing before the Planning Commission will be required.
- **Opportunities for Public Input**
 - Starting with the required operator's neighborhood meeting, Article 12 ensures numerous opportunities for public input.
 - After the application is received, the public can submit comments on the application at any time.
 - Public testimony will be taken at any hearing before the Parks and Open Space Advisory Committee and the hearing or hearings before the Planning Commission.
 - Public testimony will also be taken when the Board holds its hearing on the application.
- **Board of County Commissioners**
 - The Board has the final say on each application after a public hearing or hearings.

- The Board takes into account the materials submitted by the operator, materials generated by staff during its analysis, staff’s recommendation, the advisory boards’ recommendations, and all public comment and testimony at public hearings.
- The Board makes its decision based on whether the applicant has met its burden of demonstrating that proposed project meets the standards in Article 12.
- Based on its application of the Article 12, the Board will either approve the application with conditions or deny it.
- **Discretion in Review**
 - Many commenters have requested specific setbacks for new oil and gas facilities from residences and a prohibition on oil and gas operations on County-owned open space. However, after careful consideration, staff is proposing regulations that provide discretion with which to analyze the proposed location of each specific oil and gas proposal based on unique, site-specific circumstances. The regulations require that this discretion is used to protect public health, safety, and welfare, the environment and wildlife, including people in their homes and open space lands.

II. Highlights: New Provisions

- **Regulation of Existing Facilities (Section 12-500).** The County will have broader inspection and enforcement authority over oil and gas facilities already in existence, including with respect to air emissions
- **Regulation of Seismic Testing (Section 12-700).** Operators will need a permit before conducting seismic testing for oil and gas in the County.
- **Noise and Odor Regulation (Section 12-900).** S.B. 19-181 gave the County further authority to address noise and odor from oil and gas operations, so standards and requirements addressing impacts on surrounding properties have been added.
- **Financial Assurances (Multiple Sections).** Under new authority, the County has increased the insurance coverage it requires of operators and will now require financial assurances (such as bonds and letters of credit) from operators to guarantee compliance with all permits, clean-up of any pollution, and complete reclamation. In addition, operators’ financial fitness will be considered during staff’s and the Board’s analyses.
- **Water Source (Multiple Sections).** S.B. 19-181 gave the County authority related to the water source used for oil and gas operations. The County will obtain and analyze water use proposals from the operator, including assessments of the impacts of the proposed water use.
- **Fines and Penalties (Section 12-1400).** With new authority, a section on fines and other penalties for violations of Article 12 standards has been added.

III. Annotated Table of Contents of Revised Article 12

- **12-100 Purpose.** The underlying purposes to be met by Article 12.

- **12-200 Authority.** A recitation of the legal authority for enacting and implementing Article 12.
- **12-300 Effective Date.**
- **12-400 Operator Registration.** Moved from former 12-500 to its own section; required submittals by all operators before applying for special use review.
- **12-500 Pre-Existing Facilities.** Standards and requirements applicable to oil and gas facilities already in existence.
- **12-600 Application Process.** Description of the steps in the process from application through public engagement and on to hearings before the appropriate boards before final determination by the Board of County Commissioners.
- **12-700 Permits for Geophysical Exploration.** A new, administrative permitting section before seismic testing can occur.
- **12-800 Application Submittal Requirements.** A list of the materials that must be submitted and deemed complete by the County before an application will be reviewed.
- **12-900 Special Review Standards.** Detailed standards that must be met for any oil and gas operation to receive approval. If a project cannot meet these standards, it will be denied.
- **12-1000 Standards for Noise and Odor from Oil and Gas Operations.** A new section providing separate legal standards for noise and odor impacts.
- **12-1100 Conditions of Approval.** A combination of former sections 12-700 and 12-701. A list of some possible conditions the County may impose before approving an oil and gas operation. This is not an exhaustive list, but illustrative.
- **12-1200 Judicial Review.** Stating that applicants may seek court review of any final determination by the Board under Article 12.
- **12-1300 Post-Approval Requirements.**
- **12-1400 Enforcement.**
- **12-1500 Fines and Penalties.** Describing fines and other penalties that the County will impose for violations of any standards set forth in Article 12.
- **12-1600 Definitions.**

Article 12



Oil and Gas Operations

Article 12 • Special Review for Oil and Gas Operations

12-100 Purpose

- A. The County's objective is to (1) avoid and minimize adverse impacts to public health, safety, and welfare and the environment and wildlife resources; and (2) regulate the surface impacts of oil and gas operations in a reasonable manner to address matters including the following: local land use impacts; the location and siting of oil and gas facilities and oil and gas locations; impacts to public facilities and services; water quality and source; noise; vibration; odor; light; dust; air emissions and air quality; land disturbance; reclamation procedures; cultural resources; emergency preparedness and coordination with first responders; security; traffic and transportation impacts; financial securities; indemnification; insurance; other effects of oil and gas development; and providing for the planned and orderly use of land and protection of the environment in a manner consistent with constitutional rights.
- B. This article is an exercise of the Board of County Commissioners' ("Board's") regulatory authority over oil and gas development. When state requirements also apply to oil and gas development, state and County requirements both apply. If a conflict arises between state and county requirements, the County's requirements shall apply unless the County determines that state requirements are more protective or strict, in which case state requirements apply. Although Colorado state agencies and the federal government also have authority to regulate certain aspects of oil and gas operations, they may not adequately review the impact that individual proposed oil and gas development operations may have on the community and resources. A responsible review of such development should include (1) the submission of all necessary information related to proposed oil and gas development and its potential impacts; (2) thorough analysis and review of such information; (3) multiple opportunities for public input, especially from those who are near the proposed development; and (4) action on the proposal, including a thorough evaluation of and determination about all necessary or warranted mitigation measures. These local regulations are intended to provide close scrutiny of all proposed oil and gas development including seismic testing, and multiple opportunities for public input prior to any decision being made. They also allow staff, the Planning Commission, and the Board of County Commissioners to consider site-specific circumstances related to oil and gas development and to customize avoidance, minimization, and mitigation measures to best address each of the site-specific circumstances, which may include modification, re-location or denial of proposed oil and gas facilities. These regulations will help to ensure close inspection, monitoring, and enforcement of all

post-approval compliance with all requirements and mitigation measures imposed by this Article. Finally, they allow the County to address potential impacts of pre-existing oil and gas facilities.

12-200 Authority of Article

This article is authorized by C.R.S. §§ 25-8-101 et seq., 29-20-101 et seq., 30-28-101 et seq., 34-60-101 et seq., 25-7-101 et seq., 30-15-401, Colorado common law related to public nuisances, and other authority as applicable.

12-300 Effective Date and Survival

- A. This Article will become effective on the date specified in the adopting resolution of the Board (Resolution _____). Except as specified below, the provisions of this Article will apply to all oil and gas operations for which a complete Application for Special Review has not been accepted by the County as of the effective date.
- B. All conditions of approval for an oil and gas facility or oil and gas operation under this Article will survive until the Director provides notice of satisfactory completion of final reclamation. All conditions of approval will survive a change of ownership and apply to the Applicant's successor, including the requirement of Operator Registration and Financial Assurances.

12-400 New Operator Registration and Renewal

- A. Registration Required. All Operators planning to operate within the unincorporated county must have a current and valid County registration in place.
- B. Submission and Renewal. An Operator's must submit the following Operator registration information and pay the registration or renewal fee. All submissions under this section are subject to 12-1300(D):
 1. Company name, address, email and mobile phone contact information for two individuals associated with the company and who will serve as 24-hour emergency contacts and who can ensure a timely and comprehensive response to any emergency.
 2. A map that shows all of the Operator's mineral rights, including lease rights, in unincorporated Boulder County.
 3. A certified list of all instances within the ten years prior to the registration where the COGCC, CDPHE, other state agency, any federal agency, any city, or any county found that the Operator has not complied with applicable state, federal, or local requirements during the course of drilling, operation, or decommissioning of a well. The list must identify the date of the violation, the entity or agency making the determination, the nature of the non-compliance, and, if applicable, the final resolution of the issue. If no such instances of non-compliance exist, the Operator must certify to that effect.
 4. Information related to the Operator's financial fitness to undertake the proposed oil and gas operations, consisting of the following or information substantially similar to the following:
 - a. balance sheets for the previous five fiscal years;
 - b. operating cash flow statements for the previous five fiscal years;
 - c. list of long- and short-term debt obligations;
 - d. list of undercapitalized liabilities; relevant tax documents; and
 - e. all statements necessary to calculate net profit margin, debt ratio, and instant or current solvency ratio.
 5. If an Operator or person designates any portion of a document or submission to the Commission as "confidential" and if the document meets the confidentiality provisions of the Colorado Open Records Act, it may be exempt from disclosure to the public, provided that any page containing such information is clearly labeled with the words "Confidential Information."
 6. Certified copies of all current financial assurances filed with the COGCC.
- C. Operators not currently operating submit registration materials that are accepted by the County at least sixty days prior to scheduling a Pre-Application conference.
- D. Operator registration must be updated and renewed annually every July.

12-500 Pre -Existing Facilities

- A. Application to Pre-Existing Facilities. Oil and gas facilities that were legally established prior to the effective date of this Article but do not conform to this Article will be allowed to continue, subject to this section. Any proposed amendment, modification, maintenance, or repair to a pre-existing oil and gas facility or operation is subject to review by the Director under 12-1200(D) and (E). Any modification of such oil and gas operations or facilities that the Director determines to be substantial requires a separate Special Review under this Article.
- B. Registration. Operators with existing oil and gas facilities in Boulder County prior to the effective date of Article 12 will submit the registration materials described in 12-400 within sixty days after the effective date of this article; or, if not already operating wells in Boulder County, at least sixty days prior to assuming responsibility for operating an existing well. Operator registration must be updated and renewed annually every July.
- C. Inspections.
 - 1. The County may inspect the items listed in this Section 12-500 at pre-existing oil and gas facilities under 12-1400.
 - 2. Operators will inspect all oil and gas facilities, including shut-in and temporarily abandoned facilities, as follows:
 - a. Soil sampling for contamination within the boundaries of existing facility pads annually;
 - b. Equipment-assisted inspection for emissions, including use of infrared cameras or comparable technology, at least every thirty days;
 - c. Visual inspections for liquid leaks at least once every thirty days.
 - 3. Operators will report the date, methodology, subject, and results of all inspections will be reported to the County monthly.
 - 4. When leaks, spills, or releases, are discovered, by County or Operator inspection, the enforcement mechanisms and penalty provisions in 12-1300 and 12-1400 will apply.
- D. Noise. Oil and gas facilities may not create noise exceeding 55 dbA from 7 a.m. to 7 p.m. and 50 dbA from 7 p.m. to 7 a.m.
- E. Odor. Oil and gas facilities may not emit odor higher than 7 ou/m³ as measured at the property line of any adjacent parcel(s).
- F. Emergency Preparedness Plan. Each Operator with a pre-existing oil and gas operation in the County is required to submit to the Department an emergency preparedness plan for each oil and gas facility consistent with this section. Emergency Preparedness Plans for existing oil and gas facilities must be submitted with registration. The emergency preparedness plan must consist of at least the following information:
 - 1. Name, address and phone number, including 24-hour emergency numbers for at least two persons located in or near Boulder County who are responsible for emergency field operations. The Operator is responsible for ensuring that at least one of these emergency contacts can be on the site of any emergency within fifteen (15) minutes.
 - 2. Upon completion of construction of new oil and gas facilities, an as-built facilities map in a format suitable for input into the County's GIS system depicting the locations and type of above and below ground facilities including sizes and depths below grade of all onsite and offsite oil and gas gathering and transmission lines and associated equipment, isolation valves, surface operations and their functions. The as-built map must be submitted within thirty (30) days of the ready-for-service date.
 - 3. Transportation routes to and from oil and gas locations for emergency response and management purposes, including at least two (2) evacuation routes.
 - 4. Detailed information addressing each potential emergency that may be associated with the operation. This may include any or all of the following: well integrity issues; explosions; fires; gas, oil or water pipeline leaks or ruptures; hydrogen sulfide or other toxic or explosive gas emissions; and hazardous material vehicle accidents or spills. This may also include external hazards to the site such as earthquakes, lightning, floods, high winds, tornadoes, terrorism, vandalism, or wildfire. For each potential emergency, threshold or trigger levels for Operator's declaration of an emergency must be identified.
 - 5. The plan must include a provision that any spill outside of the containment area or that has the potential to leave the facility or to threaten a water body or groundwater must be reported to the emergency dispatch and the Director immediately, and in no case more than four (4) hours after such spill is discovered.

6. Detailed information identifying evacuation routes and health care facilities anticipated to be used.
 7. Project-specific emergency preparedness plans are required for any project that involves drilling or penetrating through known zones of hydrogen sulfide gas.
 8. The plan must include a provision that obligates the Operator to reimburse the appropriate emergency response service providers for costs incurred in connection with any emergency. The appropriate emergency response service provider may specify alternative methods for reimbursement of its services. If requested by the emergency response agency, Operator will include a provision in the plan that addresses regular training exercises.
 9. Detailed information showing that the Operator has adequate personnel, supplies, and funding to implement the emergency response plan immediately at all times during construction and operations.
 10. As applicable, the plan must include provisions that obligate the Operator to keep onsite and make immediately available to any emergency responders the identification and corresponding Safety Data Sheets (SDS) of all products used, stored or transported to the site, including fracking fluids. Operators must timely provide SDS to the public in response to a written request. In cases of spills or other emergency events, the plan must include provisions establishing a notification process to emergency responders of potential products they may encounter, including the products used in the hydraulic fracturing fluids.
 11. The plan must include a provision establishing a process by which the Operator periodically engages with the surrounding neighbors to educate them on the risks of the onsite operations, explain emergency procedures, engage in evacuation exercises, and to establish a process for surrounding neighbors to communicate with the Operator.
 12. The plan must include a process by which the community can submit concerns and complaints and be assured of responses.
- G. Reclamation and Revegetation. When any pre-existing oil and gas facility is decommissioned, all areas disturbed will be reclaimed and revegetated to the satisfaction of the County.
 - H. Flowline Abandonment. Abandoned or decommissioned flowlines must be removed unless otherwise authorized in writing by the Director after consultation with the landowner. Any such authorization will include requirements for abandonment in place, including timing, methodology, and reclamation.
 - I. Stormwater Control. Adequate stormwater control measures must be used to comply with applicable permits and County regulations.
 - J. Fines. If Operators violate the obligations in this section, the enforcement mechanisms in 12-1300 and 12-1400 may be applied.

12-600 Special Review Standards

- A. Special Review Required. Except as provided in 12-500, all oil and gas facilities and oil and gas operations on public and private land within the unincorporated areas of Boulder County must comply with this Article. Prior to the commencement of any oil and gas operations in the unincorporated County, an Applicant must submit a Special Review Application and the Board must approve the Application according to this Article. Special Review approval is required prior to the issuance of County permits necessary for the oil and gas operation.
- B. Community Engagement. Boulder County requires Applicant to engage with local communities, residents, and other stakeholders. The purpose of this engagement is to provide sufficient opportunity for public and stakeholder comment on plans, operations, and performance, to listen to concerns of the community, and to address all reasonable concerns related to the proposed oil and gas operation.
- C. Surface Use Agreements, Rights of Way, Easements. Operators commonly enter into surface use agreements, right of way agreements, easements and other types of access agreements with landowners. To avoid inconsistency, the County recommends that access agreements with landowners related to the proposed oil and gas facility or oil and gas operation not be finalized until the Applicant has completed Special Review under this Article, at which time the impacts related to the proposed siting will be analyzed.
- D. COGCC approval. Colorado Oil and Gas Conservation Commission ("COGCC") approval of any Application does not constitute local approval, and compliance with all terms and conditions of this Article is required prior to the commencement of any new oil and gas operations in the County. Wherever the Oil and Gas Conservation Act, §§ 34-60-101 *et seq.*, C.R.S., requires local government approval prior to COGCC approval, Special Review under this Article must be completed before Applications are submitted to the COGCC.
- E. Pre-Application Conference.

1. Timing. A pre-Application conference as defined in Article 3-201 of this Code must be held prior to the Applicant submitting an Application for Special Review. An Applicant must complete registration as defined in 12-400 prior to scheduling a pre-Application conference.
 2. Conference. At the pre-Application conference, the County and the Applicant will discuss the points contained in Article 3-201 of this Code and review the County's Special Review process.
 3. Six-month Duration for filing Application. Completion of the pre-Application conference qualifies the Applicant to submit an Application for a Special Review provided the Application is filed within six (6) months after the pre-Application conference.
 4. Site Visit. At the discretion of the Director, the Director may require a site visit as part of the pre-Application conference with the Applicant. To the extent necessary, the Applicant will be responsible for securing permission or coordinating with the land owner to conduct the site visit.
- F. Application Submission. The Application must include documentation listed in Section 12-800. The Applicant must submit the Application, the Application fee, and supporting documentation in electronic format with a minimum of two (2) additional copies of the Application materials in paper format. The Director may require additional paper copies of the Application, or a portion of the Application materials, if needed for review purposes. The Application must contain a certification from the Applicant that the information in the Application, as well as in any accompanying documentation, is true and accurate. The Application must be signed by a person authorized to sign on behalf of the Applicant and identify who will be the primary contact during processing of the Application. The point of contact information in the Application must be amended to specify the new point of contact if the Applicant's point of contact changes during the Application process.
- G. Completeness Determination. Upon acceptance of the Application, the Director will determine if the Application satisfactorily meets the requirements of this Article. If County staff needs consultants or staff outside the Department to assist the Director with the completeness determination, the County may hire such assistance at the Applicant's expense. Upon review of the Application materials by the Director and any necessary outside consultants, the Director will determine whether a Special Review Application is complete.
1. Application Deemed Incomplete. If the Director finds that the Application is incomplete, the Director will inform the Applicant of the deficiencies. No further action will be taken on an incomplete Application. Should the Applicant fail to correct deficiencies within twenty-four months, the Application will expire and the Applicant may submit a new Application and fee as specified in section (F) above. The twenty-four-month time frame may be extended by the Director according to Article 4-604(D). Should the Applicant dispute the Director's completeness determination, the Applicant may appeal the Director's determination to the Boulder County Board of Adjustment. During any Board of Adjustment proceeding or subsequent appeal, the Application will not be processed.
 2. Application Deemed Complete. If the Director finds that the Application is complete, the Director will process the Application.
- H. Notice.
1. The Applicant must deliver notice to surface owners, to surrounding land owners and lessees, and to water source owners as identified in this section no more than ten (10) days after the Application is deemed complete by the Department. If approved by the Director, the Applicant may deliver the notice defined in this section using secure methods other than mail. Notice of the Application must be made as follows:
 - a. To the surface owners of the parcels of land on which the oil and gas operation is proposed to be located;
 - b. To the owners and lessees of the parcels of land within one mile (5,280 feet) of the parcel on which the oil and gas operation is proposed to be located;
 - c. To the physical address of all parcels within one mile (5,280 feet) of the parcel on which the oil and gas operation is proposed to be located if Boulder County Assessor's records indicate a mailing address for the parcel owner that is different than the physical address; and
 - d. To water source owners within one-half mile (2,640 feet) of the parcel on which the oil and gas operation is proposed to be located and within one-half mile (2,640 feet) of the planned wellbore and bottom location. The Applicant is responsible for determining the addresses of such water source owners and providing a list of such owners to the Director.
 - e. The Department will provide the list of addresses of record for property owners within one mile (5,280 feet) of the parcel on which the oil and gas operation is proposed to be located to the

Applicant at the pre- Application conference so the Applicant can provide notice as required by subsection (a), (b), and (c) of this Section.

- f. If other sites come into consideration during Application processing, the Director may require the Applicant to provide supplemental notice as described here with reference to the new site.
2. The notice must contain the following:
 - a. A message in bolded 14-point or larger font on the front page of the notice that states as follows: "Attention: An oil and gas operation consisting of up to [number of wells] and [description of other facilities] is being proposed in your area. Please read this notice carefully." Slight variations in this notice language may be approved by the Director at the Applicant's request.
 - b. A description of the proposed oil and gas facility, including the legal description; parcel number; a street address for the site, if available from the County's addressing system; the company name of the Operator; the name of an Applicant contact; the current business address, telephone number, and email address for the Applicant contact; a vicinity map; and a brief description and overview of the proposed oil and gas operation (e.g., a detailed description of the timeframe for facility construction and estimated duration of drilling and any proposed hydraulic fracturing).
 - c. Information concerning the facilities and equipment proposed at the site when operational, and proposed access roads and gathering lines.
 - d. The docket number of the Application and the date of its completeness determination.
 - e. An attachment provided by the Director explaining the Special Review process and explaining that the public may review the full Application file at Department offices and that public comments on the Application may be submitted to the Department.
 - f. A statement concerning the County's right to enter property that is the subject of the Application as follows: "For the purpose of implementing and enforcing the County's Special Review process, County staff may from time to time need to enter onto the property that is the subject of a Special Review Application."
 - g. The current mailing address, website address, email, and telephone number for both the Department and the COGCC, as well as a statement that additional information on the Application will be available from the Department.
3. Notice Review. The Applicant must submit a copy of the proposed notice for review by the Director. If the Director determines that the notice does not comply with the requirements of this Article, the Director may require the Applicant to modify the notice.
- I. Posting Public Notice Signage Onsite. Within five (5) days after the Director has deemed an Application complete, the Applicant must post a public notice sign or signs on the subject parcel that meet the following requirements:
 1. The sign must be posted in a location visible to the public (i.e., visible from a public road) and approved by the Director. If the Director determines that a single sign or signs on the subject parcel will not provide adequate public notice, multiple signs or signs in additional locations meeting the requirements of this section may be required.
 2. In lettering clearly visible from a passing car and proportionate to the size of the sign, the sign must contain the following:
 - a. "Attention: An oil and gas operation consisting of up to [number of wells] and [description of facilities] is being proposed in your area. Please read this notice carefully."
 - b. "The Applicant has applied for Special Review, [docket number]"
 - c. "Information regarding this Application may be obtained from the Boulder County Community Planning & Permitting Department at [phone number]"
 3. Within five (5) days of the posting of the sign, the Applicant must submit a photograph of the sign or signs as posted for review by the Director. If the Director determines that the sign does not comply with the requirements of this Article, the Director may require the Applicant post a sign or signs complying with this Article.
 4. The sign or signs must be posted on the site until the Special Review process is complete. The Applicant must repair or replace signs that are damaged or defaced within five (5) days of learning of damage or defacement.
- J. Applicant Neighborhood Meeting. The Applicant must conduct a neighborhood meeting with adjacent and surrounding land owners and other interested parties at a convenient date, time, and public location. The meeting must occur at least twenty (20) days after the notice is sent and the signs are posted pursuant to

Section 12-600(H)(a) The neighborhood meeting must be noticed to the County and to all individuals entitled to notice pursuant to Section 12-600(H)(a) at least fourteen (14) days prior to the meeting. In addition to those parties entitled to notice under 12-600(H)(a), the meeting will be made open to the public. The meeting must be held at an accessible and adequate location. If requested by members of the public, accommodation must be made for members of the public to attend remotely. At the neighborhood meeting, the Applicant must provide an overview of its proposed oil and gas operation, distribute a handout provided by the Director with an explanation of the Article 12 Special Review process, and allow those in attendance to provide input as to the proposed operation, including, but not limited to, facility locations, issues that arise from Application of this Article to the proposed operation, and suggested mitigation to adequately ensure compliance with this Article. The Applicant must provide a video recording of the meeting and a report of all of attendee comments and any proposals from the Applicant for addressing neighborhood concerns to the Director within twenty (20) days after the meeting.

Within 30 days following the neighborhood meeting, the Applicant will submit a recording of the meeting and a report including a summary of comments and requests made by the attendees.

- K. Referral Requirements and Agency Review. Following the determination that an Application is complete, the Department will refer the Application materials to the Boulder County Public Works and Parks and Open Space Departments, Boulder County Public Health, the appropriate fire district, the Boulder County Sheriff, the Boulder County Office of Emergency Management, the COGCC and CDPHE, and any appropriate municipality, special district, and school district for review and comment. As deemed necessary in the Director's sole discretion, the Director may also refer the Application to other government agencies or entities for review and comment. Referral comments on the proposal will be returned to the Director within seventy-five (75) days of date of referral, unless the Director determines additional time is necessary.
1. Following the determination that an Application is complete, the Director will send a referral notice to all individuals entitled to notice pursuant to Section 12-600(H)(a). The notice will include information on where to access Application materials on the County's website and provide staff contact information. The complete Application referral packet will be available for public review in hard copy at the Department during business hours. Referral responses must be received by the Director within seventy-five (75) days of transmittal to ensure that comments are considered.
 2. If the proposed oil and gas facility or oil and gas operation is on or within 1,500 feet of Boulder County Parks and Open Space property or property over which Boulder County owns a conservation easement, the Parks and Open Space Director may refer the Application to the Parks and Open Space Advisory Committee for a public hearing. After the public hearing, the Parks and Open Space Advisory Committee may forward recommendations for assuring the protection of environmental, ecological, wildlife, historical, archeological, and agricultural resources of the open space, which may include recommendations to deny the Application or to modify the location or density of the oil and gas facility.
 3. The Applicant is responsible for preparing the referral packets in the manner prescribed by the Director. An error made by the Applicant in the preparation of referral packets may result in a delay in processing of the Application so that the proper referrals can be accomplished.
- L. Consultant Review. The Director may submit all or parts of the Application for review and recommendation by consultants retained by the County with the necessary expertise to review technical or other aspects of the Application. Among other consultant reviews, third party consultant review may be required to evaluate the risks and impacts of oil and gas development. The Applicant will be notified if the Director decides to retain consultants, will escrow funds sufficient to cover the anticipated cost of the consultants' review. The Applicant will be responsible for the actual costs associated with this consultant review and will be refunded any excess escrowed funds.
- M. Supplemental Information. If, during the review period, the Director determines that additional information is required to conduct adequate review of the Application in light of the standards and criteria, the Director may suspend the Application review until the additional information is received.
- N. Site Visit. The Department will conduct a site visit to allow the Director to determine if further information is necessary to evaluate the Application. The Department may coordinate a site visit with other County departments and governmental agencies.
- O. Staff Recommendation. After the end of the referral period, the submittal of the report on the neighborhood meeting, any consultant reports, any supplemental information, and completion of the site visit, Department staff will make a recommendation for approval with conditions or denial of the Application, based on its analysis of the record on the Application, the referral comments and the Applicant's responses to the

referral comments. When the staff recommendation is complete, it will be scheduled for Planning Commission public hearing. The staff recommendation will be made available to the public once it is complete.

- P. Notice of Planning Commission Hearing. Not less than fourteen (14) days prior to the Planning Commission's public hearing on the Application, the County will publish a legal notice of the public hearing in a newspaper of general circulation in the County and mail written notice to the people and entities entitled to notice under Section 12-600(H)(4) of the time and place of the Planning Commission's public hearing.
- Q. Planning Commission Hearing and Decision. The Planning Commission will hold a public hearing on the Application and will make a recommendation of approval with conditions necessary to ensure compliance with this Article, or denial, and the recommendation will be forwarded to the Board of County Commissioners.
- R. Notice of Board of County Commissioners' Hearing. Not less than fourteen (14) days prior to the Board of County Commissioners' public hearing on the Application, the County will publish a legal notice of the public hearing in a newspaper of general circulation within the County, and written notice to the surface owner and surrounding property owners of the time and place of the Board's public hearing will be provided pursuant to Section 12-600(H)(a).
- S. Board of County Commissioners Hearing and Decision. The Board of Commissioners will conduct a noticed public hearing for review of an Application. Any action taken by the Board of County Commissioners will be based on the entire record of proceedings on the matter, as that record is maintained by the Director and/or the Clerk of the Board of County Commissioners, including but not limited to: recordings or transcripts of public hearings; all written comments of referral agencies; the review and recommendations of the Department; and all written commitments, statements, or evidence made or submitted by or in behalf of the Applicant, landowners or interest holders or their agents, and interested members of the public. The Applicant will have the burden of proof to show that the applicable criteria for approval have been met. Based on the evidence received at such public hearing(s), the Board will make its determination approve the Application with conditions necessary to ensure compliance with this Article, or deny the Application. The Board may designate its determination as final or preliminary and subject to review by a technical review board under §§ 29-20-104(3) and 34-60-104.5(3), C.R.S. The Board's action will contain appropriate findings or reasons in support of its decision. The Board will render its decision on the Application in writing following the conclusion of the public hearing.

12-700 Geophysical Exploration for Oil and Gas

To protect the public health, safety, and welfare, and the environment and wildlife, the County will permit only those geophysical mineral testing operations ("seismic testing") that comply with the following requirements.

- A. Prior to conducting any seismic testing, an approval from the Director is required under this Section.
- B. To obtain a permit, the Applicant must provide to the Department:
 - 1. A map of the exploration area that identifies all: residences; domestic water wells; occupied structures; areas affected by previous mining activities; and water, sewer, oil, gas, and chemical pipelines in the testing area.
 - 2. A map showing the proposed travel routes of all vibration-generating seismic testing equipment;
 - 3. A traffic control plan for any operations that will occur on or impede traffic on a public right-of-way;
 - 4. A copy of a policy of general liability insurance or a self-insurance program approved by the Colorado Insurance Commission, in the amount of no less than \$25,000,000.00 per occurrence, insuring the Applicant against property damage and bodily injury to third parties. Coverage may include a combination of commercial liability and umbrella policies. The policy will be written by a company authorized to do business in the State of Colorado unless the Applicant provides evidence to the Director that the Applicant is adequately self-insured;
 - 5. A nonrefundable permit fee for processing the Application.
- C. The following conditions will apply to all permits to conduct seismic testing:
 - 1. Applicant will submit financial assurances in a form and amount satisfactory to the Director sufficient to guarantee Applicant's obligation to restore all property damaged by seismic testing to its pre-testing condition.
 - 2. Copies of written permission from every landowner from whom permission is required for the geophysical operations will be provided to the County;
 - 3. Methods involving explosive material ("shotholes") are prohibited;

4. All geophysical operations will be strictly limited to the areas, methodologies, and routes indicated in the maps attached to the approved permit;
 5. All geophysical operations will be strictly limited to the hours of operation noted in the approved permit;
 6. Applicant will employ an independent, licensed engineer specializing in geophysical operations to be approved by the County who will be on site throughout all geophysical operations to ensure permit conditions are met and who will report to the County whether the testing complies with the approved permit;
 7. If any utility line(s) or other above or below ground features must be removed or altered during geophysical operations, the Applicant will notify the County at least three days prior to any such removal or modification and comply with any additional permitting requirements imposed by the County;
 8. No structure will be subject to any peak particle velocity greater than six-tenths-inch per second, which will be monitored by the engineer inspector. No residence, utility line or facility, water well, or hazardous waste storage site will be exposed to a peak particle velocity of greater than five-tenths-inch per second. If these levels are exceeded at any time, operations must cease and the Director will be notified. Only when such exceedance has been corrected to the inspector's satisfaction and the Director notified of the cure, may testing resume.
 9. All seismic testing will occur between 8:00 a.m. and 7:00 p.m. Monday through Friday as specifically defined in each approved permit.
 10. Applicant must obtain any permits required by the County Public Works Department.
 11. No seismic testing operations will be permitted in a mapped floodway. Operations in a mapped floodplain may require a Flood Development Permit from the County Public Works Department.
 12. No vibroseis (use of truck-mounted vibration equipment, or "thumper trucks") or weight drop operation may be conducted fewer than 250 feet from any building designed for human occupation.
 13. Any violation of the terms of a seismic testing permit are subject to the penalties and enforcement mechanisms of Article 12-1400, in addition to all remedies available at law.
 14. In addition to the above, the Director may impose additional conditions on the conduct of seismic testing that are necessary and reasonable to protect the public health, safety, and welfare, the environment or wildlife resources.
- D. Notice and Property Inspection
1. After a permit is issued by the Director, the Applicant will provide notice of the seismic testing to each property located within the testing area depicted in the map attached to the approved permit, of the testing routes and timing at least 10 days before the testing is to occur.
 - a. The notice will include an offer of property and water well baseline condition inspections at Applicant's expense, which, upon property owner's request, will be completed at least three days prior to seismic testing. Results of such testing will be provided to the property owner and maintained by Applicant for at least three years.
 - b. The notice will further include an offer of property and water well condition inspections at Applicant's expense after the testing is complete, the results of which will be provided to the property owner and maintained by Applicant for at least three years.

12-800 Application Submittal Requirements

Unless a submittal requirement is waived or modified by the Director after the Applicant's request, the Applicant must submit the information and documents specified in this section with the Special Review Application for oil and gas operations. If the contents or relevant information in any required submittal materially changes, the Applicant must promptly update those materials with the Department. The Director may waive or modify the submission requirements in this section if, because of the nature of the Application, the requested information is unlikely to be useful to the Board in applying the Special Review standards. Each of the following will form the basis for full and independent review by the County and all reviewing bodies. All materials submitted under this section are subject to Section 12-1300(D).

A. General Information

1. Application Form.
2. Operator Registration. Operator registration materials submitted under Section 12-400 are incorporated into the Application materials. The Director, Parks and Open Space Advisory Committee, Planning Commission, or Board, may consider such materials in reviewing any Article 12 Application.

3. Proof of Pre-Application Conference. Date the Applicant conducted the pre-Application conference with the Department.
4. Verification of Legal Rights
 - a. Mineral Ownership. Proof of ownership of, or lease rights to, the mineral rights and surface lands where oil and gas facilities are proposed, including copies of all easements, licenses or right-of-way agreements necessary to lay any pipelines associated with the Application. Identification of all persons with a real property interest in the proposed oil and gas facilities. A title report supporting the asserted mineral interests and surface access. A map of the mineral interests Applicant will produce with the proposed oil and gas operation.
 - b. Surface Use Agreements. The County strongly recommends that surface agreements not be finalized until after the Applicant has completed Special Review. Nonetheless, if the Applicant has entered any surface use agreements for any proposed oil and gas facilities subject to the Application, Applicant will provide a copy.
 - c. Roads. Information demonstrating that the Applicant has or will have the right to use or construct temporary and permanent private access roads that are necessary for the proposed oil and gas operations. A copy of any signed or proposed agreements with land owners regarding road construction, maintenance, and improvements necessitated by the proposed oil and gas operation. Any recorded or historical easements providing access to or across the parcel(s) must be provided.
 - d. Pipelines. Information demonstrating that the Applicant has or will have the right to use or construct temporary and permanent off-location pipelines that are necessary for the proposed oil and gas operations. A copy of any signed or proposed agreements with land owners regarding pipeline construction, maintenance, and improvements necessitated by the proposed oil and gas operation.
5. Insurance Coverage. A copy of the following insurance coverage, including the required Additional Insured language.
 - a. Commercial General Liability. Coverage should be provided on an Occurrence form, ISO CG0001 or equivalent. The policy shall be endorsed to include Additional Insured Owners, Lessees or Contractors endorsements CG 2038 (or equivalent), Designated Construction Project(s) General Aggregate Endorsement CG2503 (or equivalent) and Additional Insured Completed Operations for Owners, Lessees or Contractors CG 2037 (or equivalent). Minimum limits required of \$1,000,000 Each Occurrence, \$2,000,000 General Aggregate and \$2,000,000 Products/Completed Operations Aggregate. The County requires the Products/Completed Operations coverage to be provided 3 years after completion of construction. An endorsement must be included with the certificate.
 - b. Automobile Liability. Bodily Injury and Property Damage for any owned, hired, and non-owned vehicles used in the proposed oil and gas operations. Minimum limits \$1,000,000 Each Accident.
 - c. Workers' Compensation and Employer's Liability. Workers' Compensation must be maintained with the statutory limits. Employer's Liability is required for minimum limits of \$100,000 Each Accident/\$500,000 Disease-Policy Limit/\$100,000 Disease-Each Employee.
 - d. Umbrella/Excess Liability. Umbrella/Excess Liability insurance in the amount \$25,000,000.00, following form.
 - e. Professional Liability (Errors and Omissions). Professional liability coverage with minimum limits of \$10,000,000 Per Loss and \$10,000,000 Aggregate. Professional Liability provisions indemnifying for loss and expense resulting from errors, omission, mistakes or malpractice is acceptable and may be written on a claims-made basis. The Operator warrants that any retroactive date under the policy shall precede the effective date of a Special Review approval; and that continuous coverage will be maintained until final reclamation obligations are completed to the County's satisfaction.
 - f. Pollution Liability. Coverage pay for those sums the Operator becomes legally obligated to pay as damages because of Bodily Injury, Property Damage or environmental Damage arising out of a pollution incident caused by the Operator. Coverage shall include emergency response expenses, pollution liability during transportation (if applicable) and at Non-Owned Waste Disposal Site (if applicable). The Minimum limits required are \$25,000,000 Per Occurrence/Loss and \$25,000,000 Policy Aggregate. If the coverage is written on a claims-made basis, the Operator will warrant that any retroactive date applicable to coverage under the policy precedes the effective date of any Special Review Approval; and that continuous coverage will be maintained until final reclamation obligations are completed to the County's satisfaction. The County shall be named as an additional insured for ongoing operations and completed operations.

- g. Control of Well Coverage. Coverage for costs and expenses related to bringing a well back under control, pollution cleanup costs incurred due to pollution that results from a well out of control event, legal liability for pollution-related bodily injury or property damage arising from a well out of control event, redrill and other extra expense incurred to restore the well to its pre-loss condition that the Operator becomes legally obligated to pay. The Minimum limits required are \$25,000,000 Per Occurrence/Loss and \$25,000,000 Policy Aggregate. If the coverage is written on a claims-made basis, the Operator will warrant that any retroactive date applicable to coverage under the policy precedes the effective date of any Special Review approval; and that continuous coverage will be maintained until final reclamation obligations are completed to the County's satisfaction. The County shall be named as an additional insured for ongoing operations and completed operations.
- h. Additional Insured. Boulder County must be named as an additional insured for the General Liability, Umbrella/Excess Coverage and Pollution Liability policies listed above. Additional insured shall be endorsed to the policy. Additional Insured wording shall be as follows:
County of Boulder, State of Colorado, a body corporate and politic, is named as an Additional Insured.

6. Financial Assurances. Applicant will be required to provide adequate financial assurances to guarantee performance of all conditions of approval attached to any special use approval for the lifetime of the oil and gas facility. With the Application, Applicant will submit a description of the type(s) of financial assurances it expects to provide to meet those requirements. The type and amount of financial assurances to be provided will be determined by the County with any Special Review approval.

B. Site and Area Information

1. Topography. A map of the existing and proposed topography at five-foot intervals to portray the direction and slope of the parcel(s) where the oil and gas facilities are proposed to be located.
2. Existing Structures. A map of the location of all existing occupied structures and other improvements within one (1) mile from the parcel(s) on which the proposed oil and gas facility will be located. Occupied structures will be specifically identified.
3. Existing Roads. A map depicting all existing roads near and surrounding the proposed oil and gas facilities.
4. Existing Oil and Gas Facilities.
 - a. A map showing the location of all producing, shut-in, temporarily abandoned, dry and abandoned or plugged and abandoned wells, and any other oil and gas facilities and operations for which permits are pending with applicable agencies, within one mile of the parcel(s) where the oil and gas facilities will be located and to either side of the full length of all proposed wellbores.
 - b. A map of existing oil, gas, and water pipelines to or from the proposed oil and gas facilities including information on the age, location, depth, diameter, thickness, typical and maximum operating pressures, the nature of the material carried in the pipes and the estimated worst-case liquid spill volumes.
5. Water Wells. A map of any domestic or commercial water wells or irrigation wells within one (1) mile of the parcel or parcels on which the proposed oil and gas facility will be located and to either side of the full length of each proposed horizontal wellbore.
6. Surrounding Land Uses. Identification of all land uses within one mile of the parcel(s) where the oil and gas facilities are proposed to be located.
7. Schools and Child Care Centers. A map of licensed child care facilities, schools, or educational facilities within one mile of the parcel(s) on which the proposed oil and gas facility will be located.
8. Agricultural Lands. Identification of the agricultural status of all parcels within one mile of the parcel(s) on which the oil and gas facilities are proposed to be located, including their classification as agricultural lands of national, statewide, or local importance as defined in the Boulder County Comprehensive Plan maps; the specific agricultural uses on the parcel(s); and the existence of irrigation and other agricultural infrastructure.
9. Water Bodies; Riparian Areas; Wetlands. A map depicting all surface water bodies including, but not limited to, irrigation ditches and reservoirs as identified and mapped on the County's Ditch and Reservoir Directory, wetlands or aquatic habitat, riparian areas, and riparian corridors within one (1) mile of the parcel(s) on which the proposed oil and gas facility will be located, and within one mile of either side of the full length of each proposed horizontal wellbore.
10. Natural Resources. All significant natural communities, natural landmarks, natural areas, and rare plant areas, as each is defined in the Comprehensive Plan in effect as of the effective date of this Article, in addition to

inventories of the same features from other sources, within one (1) mile of the parcel(s) on which the oil and gas facilities are proposed to be located.

11. **Wildlife.** An inventory of the wildlife species and numbers on or making use of the area within one mile of the parcel(s) on which the oil and gas facilities are proposed to be located, including state or federally designated threatened or endangered species, species of special concern as defined by the Colorado Parks and Wildlife's, species of special County concern. A map of critical wildlife habitat and wildlife migration routes as identified by the County and Colorado Parks and Wildlife on and within one mile of the parcel(s) on which the oil and gas facilities are proposed to be located.
 12. **Geologic Hazards.** A map of all high hazard geologic areas as defined in the Comprehensive Plan within one (1) mile of the parcel(s) on which the proposed oil and gas facilities will be located and to either side of the full length of each proposed horizontal wellbore.
 13. **Floodplain and Floodway.** A map of all floodplains and floodways, including both the FEMA and Boulder County Floodplains as delineated by the most recent Official Boulder County Floodplain Map defined in Article 4-400.
 14. **Recreational Activity; Trails; Bikeways.** Identification of active and passive recreational activity areas, such as public trails, publicly accessible open space, bike paths, and commonly used bike travel ways within one (1) mile of the parcel(s) where the oil and gas facilities are proposed to be located.
 15. **Site Selection Rationale.** Maps and a narrative explaining the reasons the Applicant chose the proposed site for the oil and gas facilities or operations with respect to other possible locations.
 16. **Ozone Exceedance.** A report of the number of ozone exceedances as measured at any and all CDPHE monitoring stations in Boulder County and the amount by which the standards were exceeded.
- C. **Proposed Development Information**
1. **Facility Layout.** A facility layout diagram, including: construction and operations layout drawings; location construction and operations cross-section plots including location and finish grades; operations facility layout drawings; the location of equipment such as wellheads, pumping units, tanks, treaters, staging and storage areas; the location of access roads and ingress and egress to and from public roads; structures such as sound walls; location, height and materials for all fences; temporary workspaces and permanent areas of disturbance for all phases of development; fencing; and an equipment list.
 2. **Wellbore Risk analysis.** A copy of the anti-collision evaluation for all proposed wells conducted for or under the same terms as required in COGCC Rules.
 3. **Area of Disturbance.** Dimensions of the proposed oil and gas facilities, indicating both temporary and permanent disturbance areas, in square feet and acres.
 4. **Proposed Roads and Road Improvements.** A map of proposed new roads and road improvements that will be necessary for the proposed oil and gas facilities, and identification of the road surface planned for each road or road improvement.
 5. **Pipeline Plan**
 - a. The specific location and route of each flowline, off-location flowline, produced or waste water pipeline and any other transport pipeline necessary for the oil and gas operations and their distances from: existing or proposed residential, commercial, or industrial buildings; places of public assembly; surface water bodies; natural resources identified under 12-800(B)(10); and public or private roads;
 - b. The size, operating pressure, material, and locations of each line and what materials they will carry;
 - c. Whether pipelines will be co-located with proposed or existing lines; and
 - d. Identification of all pipeline segments that will be constructed by boring and the location of the boring operation.
 6. **Grading and Drainage Plan.** A plan showing location and typical cross-section of all existing and proposed earthwork at the proposed oil and gas facility, including earthwork calculations, drainage plans, and geotechnical soil reports. The Director may require that this plan be certified by a Colorado registered professional engineer.
 7. **Landscaping and Screening Plan.** A plan describing the intended landscaping at the proposed oil and gas facilities; an irrigation plan may be required where visual buffering is accomplished with vegetation.
 8. **Lighting Plan.** A plan indicating the location of all outdoor lighting on the site and any structures and including cut sheets (manufacturer's specifications with picture or diagram) of all proposed fixtures, including the location and type of emergency lighting and description of situations in which it will be used.

9. Operational Plan. A plan describing in detail the proposed oil and gas operations including the method, schedule, and duration of time for drilling, completion, production, and de-commissioning. The plan will also address the following:
 - a. Offsite Transportation Plan. Identification of transport plans (whether by pipeline or truck) for the oil and gas, fresh and produced water, all waste, and all other materials moving to and from the oil and gas facilities through the lifetime of the oil and gas operations.
 - b. Dust Suppression. A plan detailing how the Applicant will prevent excessive dust escaping from the oil and gas facility site and all associated roads; a plan for preventing fugitive dust, sand, or silica materials escaping from any oil and gas operation.
 - c. Electrification. Identification of all sources of electricity that will be brought to or used at the proposed oil and gas location during all phases, including drilling, completion, and operations
 10. Reclamation and Revegetation Plan. A plan illustrating how all disturbed areas will be revegetated and reclaimed, including areas disturbed during off-location flowline abandonment. The plan will include timing, methods, materials to be used, and procedures for ensuring successful revegetation.
- D. Assessments and Studies; Outside Expert Plans
1. Air Quality
 - a. Existing emissions. A qualified, independent, consultant's inventory of hydrocarbons, NO_x, and particulate emissions for all oil and gas facilities in Boulder County owned or operated by the Operator for the calendar year prior to registration or renewal.
 - b. Air Quality Modeling. A qualified, independent modeling study, that considers all relevant environmental and atmospheric conditions, and includes:
 - i. Assesses the existing air quality at the proposed site;
 - ii. Predicts the anticipated emissions (including hydrocarbons, NO_x, particulate, and CO₂e) from the proposed oil and gas facilities, assuming use of and identifying all emissions control equipment and processes intended for use at the oil and gas facilities; and
 - iii. Models the impacts on air quality from the proposed oil and gas facilities over its lifetime, taking into account and identifying all relevant factors including natural conditions and other air quality impacts from any existing or foreseeable source.
 2. Baseline Soil Conditions. A qualified, independent consultant's report detailing the soil conditions on the parcel(s) on which the proposed oil and gas facilities will be located. The report will address the NRCS classification of the soils, the organic and inorganic soil profiles, and any existing contamination or sensitive soil features existing on the site.
 3. Traffic and Road Use Plan
 - a. A Transportation Impact Study, as defined in the Boulder County Multi-Modal Standards, covering all areas affected by the proposed oil and gas facilities or oil and gas operations and conducted by a Colorado registered professional engineer.
 - b. A map indicating proposed trip routes for all traffic serving the oil and gas operation during all phases of well development and operations.
 - c. For each segment of proposed traffic routes in Boulder County, the types, sizes, weight, number of axles, volumes, and frequencies (daily, weekly, total) and timing (times of day) of all vehicles to be used during all phases of the proposed oil and gas operation.
 - d. The intended measures the Applicant will take to ensure safety, maintenance of road condition, and the quality of life experience of other users of the County transportation system, adjacent residents, and affected property owners, including without limitation:
 - i. operational measures to minimize impacts to the public including, but not limited to, time of day, time of week, vehicle fuel and emissions reduction technology, noise minimization, and traffic control safety measures
 - ii. maintenance practices on the proposed route, including without limitation, grading of unpaved roads, dust suppression, vehicle cleaning necessary to minimize re-entrained dust from adjacent roads, snow and ice management, sweeping of paved roads/shoulders, pothole patching, repaving, crack sealing, and chip sealing necessary to maintain an adequate surface of paved roads along the proposed route; and
 - iii. any necessary physical infrastructure improvements to ensure public safety for all modes of travel including non-motorized modes along travel routes to and from the site.

4. **Wildlife.** A qualified, independent expert's report identifying the anticipated impacts of the proposed oil and gas facilities on wildlife and wildlife habitat and recommending measures for avoiding or minimizing such impacts.
5. **Natural Resources.** A qualified, independent expert's report identifying the anticipated impacts of the proposed oil and gas facilities on the natural resources identified under 12-800(B)(10) and recommendations for avoiding or minimizing such impacts.
6. **Water Source and Use.**
 - a. **Amount; Source; Uses.**
 - i. An estimate of the amount of water needed for all phases of the oil and gas operation;
 - ii. the source intended for use by the proposed oil and gas facility or operation;
 - iii. a list of all available sources of water for the proposed oil and gas operations, and if multiple sources are available, analysis of which source is least detrimental to the environment;
 - iv. plans for recycling or reuse of all water used or produced by the oil and gas operations.
 - b. **Impacts of Water Use.** A qualified, independent expert's report assessing the impacts of the proposed use of water described in (i) above. Impacts must be considered to, at a minimum, downstream users, agricultural lands and users, terrestrial and aquatic wildlife, plant communities, and recreation.
 - c. **Water Management Plan.** A qualified, independent expert's recommendation of measures that will avoid or minimize the impacts identified in (ii) above and address the water use standards in 12-900.
7. **Water Quality and Stormwater Control**
 - a. A qualified, independent expert's estimate of the amounts of produced water and other wastewater that will be generated by the proposed oil and gas operations.
 - b. **Testing of existing conditions.** A qualified, independent expert's assessment of existing water quality conditions on and adjacent to the parcel(s) where the oil and gas facilities will be located based on testing as follows.
 - i. Identification of and offers to owners to sample all domestic water wells and water sources located within one-half (1/2) mile of the parcel or parcels on which the oil and gas facilities are proposed to be located and the projected track of each borehole. For all water wells and water sources for which Operator is given permission:
 1. Initial collection and testing of baseline samples from available water sources within 12 months prior to the commencement of drilling a well, or within 12 months prior to the re-stimulation of an existing well for which no samples were collected and tested during the previous 12 months
 2. Testing, following standard industry procedures in collecting samples, consistent with the COGCC model Sampling and Analysis Plan, for the analytes listed in Table 1 below;
 3. GPS coordinates, at sub-meter resolution, for all water wells and water sources tested;
 - ii. An Operator may rely on existing sampling data collected from water sources within the radius described above, provided the data was collected within the previous 12 months, the data includes the constituents listed in Table 1, and there has been no significant oil and gas activity within a one-mile radius in the time between the original sampling and the present.
 - iii. If the Operator is unable to locate and obtain permission from the surface owner of a water source to be tested, the Operator must advise the Director that the Operator could not obtain access to the water source from the surface owner.
 - iv. The Operator will submit a testing report to the Director with the Application, including reporting on damaged or unsanitary water well conditions; existing, adjacent potential pollution sources; water odor; water color; presence of sediment; bubbles and effervescence; and the existence and amount of any Table 1 analytes found. Copies of the report will be provided to the COGCC and the water source owners within 10 days after the Operator's receipt of the report.
 - v. If sampling shows water contamination, additional measures may be required including the following:
 1. If free gas or a dissolved methane concentration level greater than one (1) milligram per liter (mg/l) is detected in a water source, determination of the gas type using gas compositional analysis and stable isotope analysis of the methane (carbon and hydrogen).
 2. If the test results indicate thermogenic or a mixture of thermogenic and biogenic gas, an action plan to determine the source of the gas.
 3. Additional reporting to Boulder County Public Health.

- c. Modeling of Impacts. A qualified, independent expert's modeling of the water quality impacts on any water bodies within two miles of the oil and gas facilities.
 - d. Water Quality Plan. A plan for establishing compliance with the water quality and stormwater management provisions of Section 12-600, Boulder County's Illicit Stormwater Discharge Ordinance, the Stormwater Control provisions of Section 7-904, and with all water quality or stormwater control permits obtained from the county or any other agency. With reference to such standards, the plan must include:
 - i. the Applicant's plans for pre- and post-drilling and completion water quality testing (including the timing of such tests and submission of results to the Department);
 - ii. downhole construction details and installation practices, including casing and cementing design, and how they protect surface and drinking water aquifers;
 - iii. containment of pollutants;
 - iv. a list of the best management practices that will be employed to prevent illicit or inadvertent discharges of contaminated stormwater, which may include energy dissipators, sediment traps, check dams, culverts, and level spreaders or similar devices;
 - v. spill notification and response plans;
 - vi. a non-radioactive means of tracing fracking fluid migration from the oil and gas operations, such as identifying the isotopic fingerprint of the Operator's fracking flowback fluids, for use in tracing any subsequent water contamination;
 - vii. the timing and means of Applicant providing the County with the information it provides to the COGCC ensuring compliance with the water quality protection standards contained in Rule 317(B), Rule 910, and all completed Forms 5A, 7 and 26 submitted;
 - viii. a description and evaluation of potential flowback and produced water volume reduction options through recycling, reuse or other beneficial uses and the rationale for the methods to be employed.
8. Emergency Preparedness Plan. Each Operator proposing a new oil and gas operation in the County is required to submit to the Department an emergency preparedness plan for each oil and gas facility. Emergency Preparedness Plans for existing oil and gas facilities must be submitted within thirty (30) days of the effective date of this Article. The emergency preparedness plan must consist of at least the following information:
- a. Name, address and phone number, including 24-hour emergency numbers for at least two persons located in or near Boulder County who are responsible for emergency field operations. The Applicant is responsible for ensuring that at least one of these emergency contacts can be on the site of any emergency within fifteen (15) minutes.
 - b. Upon completion of construction of new oil and gas facilities, an as-built facilities map in a format suitable for input into the County's GIS system depicting the locations and type of above and below ground facilities including sizes and depths below grade of all onsite and offsite oil and gas gathering and transmission lines and associated equipment, isolation valves, surface operations and their functions. The as-built map must be submitted within thirty (30) days of the ready-for-service date.
 - c. Transportation routes to and from oil and gas locations for emergency response and management purposes, including at least two (2) evacuation routes.
 - d. Detailed information addressing each potential emergency that may be associated with the operation. This may include any or all of the following: well integrity issues; explosions; fires; gas, oil or water pipeline leaks or ruptures; hydrogen sulfide or other toxic or explosive gas emissions; and hazardous material vehicle accidents or spills. This may also include external hazards to the site such as earthquakes, lightning, floods, high winds, tornadoes, terrorism, vandalism, or wildfire. For each potential emergency, threshold or trigger levels for Applicant's declaration of an emergency must be identified.
 - e. The plan must include a provision that any spill outside of the containment area or that has the potential to leave the facility or to threaten a water body or groundwater must be reported to the emergency dispatch and the Director immediately, and in no case more than four (4) hours after such spill is discovered.
 - f. Detailed information identifying evacuation routes and health care facilities anticipated to be used.
 - g. Project-specific emergency preparedness plans are required for any project that involves drilling or penetrating through known zones of hydrogen sulfide gas.
 - h. The plan must include a provision that obligates the Applicant to reimburse the appropriate emergency response service providers for costs incurred in connection with any emergency. The appropriate emergency response service provider may specify alternative methods for reimbursement of its services.

If requested by the emergency response agency, Applicant will include a provision in the plan that addresses regular training exercises.

- i. Detailed information showing that the Applicant has adequate personnel, supplies, and funding to implement the emergency response plan immediately at all times during construction and operations.
- j. The plan must include provisions that obligate the Applicant to keep onsite and make immediately available to any emergency responders the identification and corresponding Safety Data Sheets (SDS) of all products used, stored or transported to the site. The SDS must be updated weekly and provided immediately upon request to the Director, emergency responders, a County Public Health representative, or a health professional. Operators must timely provide SDS to the public in response to a written request. In cases of spills or other emergency events, the plan must include provisions establishing a notification process to emergency responders of potential products they may encounter, including the products used in the hydraulic fracturing fluids.
- k. The plan must include a provision establishing a process by which the Applicant periodically engages with the surrounding neighbors to educate them on the risks of the onsite operations, explain emergency procedures, engage in evacuation exercises, and to establish a process for surrounding neighbors to communicate with the Applicant.
- l. The plan must include a process by which the community can submit concerns and complaints and be assured of responses.

9. **Noise**

- a. **Noise modeling.** A qualified, independent consultant's report of modeling to predict:
 - i. ambient noise levels at the site at different seasons of the year and in different weather conditions
 - ii. expected noise levels from the proposed oil and gas operations during all phases of development, assuming use of and identifying all noise-mitigating equipment and measures intended for use at the proposed oil and gas facilities or operations.
- b. **Odor Plan.** A list of all odor reduction measures that will be used to address the predicted odors from the proposed oil and gas operations and meet the standards in 12-900. Identification of all natural features (e.g., topography, prevailing wind patterns, vegetation) that will aggravate or mitigate odor impacts on the areas within 2000' of the parcel or parcels where the oil and gas facilities are proposed to be located

10. **Cultural and Historical Resources Survey.** A cultural, historical and archeological survey of the parcel(s) where the oil and gas operations are proposed to be located done in consultation with and as required by History Colorado.

11. **Flood Mitigation and Response Plan.** If the proposed oil and gas facilities are proposed within a floodplain, a qualified, independent engineer's plan describing the features that will avoid flood impacts and flood response actions, including remote shut-in procedures, during flood events

12. **Waste**

- a. **Projected waste.** A qualified, independent consultant's assessment identifying the types and amounts of waste (including construction waste, drilling mud, fracking fluids, exploration and production waste) that will be generated by the oil and gas operations throughout their lifetimes.
- b. **Waste Management plan.** Plans for disposal of all waste generated by the oil and gas operations, including use of truck or pipeline transport with details of anticipated truck trips (routes, number of trips, timing of trips). The plan will identify whether waste materials will be stored on site and, if so, how such storage will avoid adverse impacts to the oil and gas facility parcel(s), surrounding lands, water and natural resources, air quality, and public health, safety, and welfare. The plan must specify whether on-site storage of drilling mud is contemplated and, if so, how the Applicant will eliminate odors leaving the site.

13. **Existing Mines Risk Study.** An independent, qualified engineer's study and assessment of the degree and type of risks posed by interaction of the proposed oil and gas facilities with existing or former mining operations, such as subsurface features resulting from other mineral mining activities within one mile of the proposed oil and gas facilities and the full length of each proposed horizontal wellbore.

12-900 Special Review Standards

All Special Review Applications will be reviewed according to the following standards to ensure the protection of public health, safety, and welfare, the environment, and wildlife resources. The Board, considering the advice of the Director, has determined the following standards to be generally applicable based on the nature and extent of oil and gas development. When two or more of the standards listed below conflict, the Board, based upon advice of

the Director, will evaluate the applicability and importance of each of the conflicting standards under the facts of the specific Application and make a reasonable attempt to balance the conflicting standards in reaching a decision.

The Board will determine whether the proposed oil and gas facility or operation, individually and in light of the cumulative impacts of surrounding land uses, complies with these Special Review standards. The Applicant bears the burden of proving that the proposed oil and gas facilities and oil and gas operations will meet the standards. A proposal meets the standards if it will, with respect to each subject area below, either avoid adverse impacts to public health, safety, and welfare, the environment and wildlife resources or, through imposition of conditions of approval, sufficiently minimize or mitigate unavoidable impacts. In no case will the Board approve oil and gas facilities or operations with impacts that will endanger public health, safety, and welfare, the environment or wildlife.

- A. **Air Quality.** Oil and gas operations will sufficiently avoid, minimize or mitigate impacts to air quality.
 - 1. **Compliance with National Ambient Air Quality Standards.** Oil and gas facilities and operations will not compromise the attainment of ozone standards for the Denver Metro/North Front Range ozone nonattainment area as established by the US Environmental Protection Agency.
 - 2. **Methane.** Oil and gas facilities and operations will sufficiently avoid, minimize, or mitigate emissions or release of methane.
 - 3. **Particulates.** Oil and gas facilities and operations will not contribute particulate matter to the air in a manner that endangers public health or affects visibility.
- B. **Water Supply.** Use of the proposed water from the proposed supply will not injure downstream water users, water delivery systems, agricultural lands and operations, water body health and viability, plant communities, wetlands, and wildlife.
- C. **Agricultural Land.** Oil and gas facilities and operations will sufficiently avoid, minimize, or mitigate loss of and adverse impacts to: agricultural land, including farm or ranch lands and soils; agricultural operations, including crop and grazing cycles; irrigation systems and schedules; and livestock, grazing permits or leases, or grazing permittees or lessees.
- D. **Cultural and Historic Resources.** Oil and gas facilities and operations will sufficiently avoid, minimize, or mitigate injury to or loss of cultural or historic or archaeological resources, resources eligible for County landmarking, or sites included in the National Historic Register.
- E. **Emergency Prevention and Response.** Oil and gas operations will sufficiently avoid, minimize, or mitigate risks of emergency situations such as explosions, fires, gas, oil or water pipeline leaks or ruptures, hydrogen sulfide or other toxic gas or fluid emissions, and hazardous material vehicle accidents or spills. Oil and gas operations will ensure that, in the event of an emergency, adequate practices and procedures are in place to protect public health and safety and repair damage caused by emergencies.
- F. **Financial Fitness and Assurance.** Oil and gas operations must not present a significant risk that public funds will be expended to protect the public, health, safety, and welfare in light of the financial viability of the Applicant. Applicants must demonstrate sufficient financial stability to operate the proposed oil and gas operations for the lifetime of the project. Applicants must provide forms of financial assurance sufficient to guarantee performance of all conditions of approval and obligations through the lifetime of the proposed oil and gas operations.
- G. **Floodplains and Floodways.** Above-ground oil and gas facilities are prohibited in floodways. Above-ground oil and gas facilities must be located outside a floodplain unless there is no way to avoid the floodplain, no other sites can be reasonably used, or if reasonably necessary to avoid significant adverse impacts to public health, safety, welfare or the environment.
- H. **Geologic Hazard Areas Other than Floodplains and Floodways.** Oil and gas facilities will not be located in geologic hazard areas as mapped in the Comprehensive Plan unless there is no way to avoid the hazard area, no other sites can be reasonably used, or if reasonably necessary to avoid significant adverse impacts to public health, safety, welfare or the environment.
- I. **Land Disturbance.** The installation and operation of any oil and gas facilities must sufficiently avoid, minimize, or mitigate adverse impacts to the surface of all oil and gas locations and their immediate surroundings. Considerations in applying this standard include, but are not limited to, the natural topography and existing vegetation, the scope of the proposed oil and gas operations, protection of soils, and minimizing the amount of cut and fill.
- J. **Lighting.** Lighting associated with oil and gas operations will sufficiently avoid, minimize, or mitigate adverse impacts on surrounding properties, livestock, and wildlife.

- K. Natural Resources. Oil and gas operations will sufficiently avoid, minimize, or mitigate adverse impacts to significant natural areas and environmental resources, such as significant natural communities, natural landmarks and natural areas, rare plant areas, and significant riparian corridors as defined in the Comprehensive Plan or identified on the site.
- L. Noise.
 - 1. No oil and gas operation will create any noise which causes the ambient noise level when measured at the property line of the parcel(s) where the oil and gas operation is located to:
 - a. exceed the ambient noise level by more than four dBC and four dBA during daytime hours and more than three dBC and three dBA during nighttime hours for general operations;
 - b. exceed the ambient noise level by more than three decibels during flowback operations if necessary during nighttime hours;
 - c. create pure tones where one-third octave band sound-pressure level in the band with the tone exceeds the arithmetic average of the sound-pressure levels of two contiguous one-third octave bands by five dB for center frequencies of 500 Hertz and above, and by eight dB for center frequencies between 160 and 400 Hertz, and by 15 dB for center frequencies less than or equal to 125 Hertz.
 - 2. In no instance may an oil and gas operation produce noise exceeding 55 dbA from 7 a.m. to 7 p.m. and 50 dbA from 7 p.m. to 7 a.m.
- M. Odor. No odor from the proposed oil and gas facility or oil and gas operations will exceed 7 OU/m³ as measured at the property line of the oil and gas location.
- N. Pipelines. All flowlines, off-location flowlines, fresh water, produced water pipelines will be routed and constructed to sufficiently avoid, minimize, or mitigate adverse impacts to infrastructure and natural resources and to public health, safety, and welfare, the environment, and wildlife without compromising pipeline integrity and safety; any such lines constructed in County-owned right-of-way will also follow the procedures for and requirements of a utility construction permit from the Public Works Department.
- O. Recreational Activity. Oil and gas operations must avoid adverse impacts to the quality and quantity of both active and passive recreational activities in the County.
- P. Reclamation. The operator must fully reclaim and revegetate all areas of temporary disturbance when construction is complete and, after decommissioning, all areas disturbed by oil and gas facilities. Reclamation includes completed revegetation, which is deemed complete after three full years in which the desired revegetation remains successful.
- Q. Safety. Oil and gas operations must be conducted in a manner to avoid risk of personal injury and property damage.
- R. Scenic Attributes and Rural Character. Oil and gas operations will sufficiently avoid, minimize, or mitigate adverse impacts to the scenic attributes and rural character of the surrounding area. For the purposes of Article 12, temporary structures or buildings constructed to mitigate impacts of oil and gas development may be approved at heights greater than height limits set elsewhere in the Code.
- S. Surrounding Land Uses. Oil and gas operations must be sited in a manner that sufficiently avoids, minimizes, or mitigates adverse impacts to surrounding land uses. In applying this standard, separation from surrounding land uses will be considered the most effective measure to ensure compatibility between proposed oil and gas operations and existing land uses.
- T. Transportation, Roads, and Access. Oil and gas operations must be designed and implemented to: support a multimodal transportation system; avoid adverse impacts to the County transportation system; avoid traffic hazards; minimize use of County-owned gravel roads; and ensure public safety and maintain quality of life.
- U. Vibration. Oil and gas operations, including seismic testing, must not create vibrations significant enough or long enough in duration to cause adverse impacts to the health, safety, welfare, or quality of life of surrounding residents and occupants or damage to existing structures.
- V. Waste. All waste generated by oil and gas operations will be stored, transported and disposed of in a manner that avoids adverse impacts to public health, safety, and welfare, the environment, and wildlife. Injection wells will be prohibited in the County.
- W. Water Quality and Stormwater Control. Oil and gas operations must sufficiently avoid, minimize, or mitigate adverse impacts to the availability and quality of surface and ground water within Boulder County. All stormwater occurring at an oil and gas location must be controlled to prevent adverse impacts to surrounding natural resources, including wetlands and water bodies.
- X. Wildlife. Oil and gas operations will sufficiently avoid, minimize, or mitigate adverse impacts to wildlife,

wildlife habitat and migration corridors as defined in the Comprehensive Plan or identified on the site.

12-1000 Conditions of Approval Applicable to All Article 12 Special Review Approvals

After Special Review, the Board may deny the Application if the proposed oil and gas operations cannot be conducted in a manner that protects public health, safety, and welfare, the environment and wildlife. If the Application can be approved, it will be subject to conditions that ensure compliance with the standards listed in Section 12-600 and protection of public health, safety, and welfare, the environment and wildlife. Conditions may include but are not limited to the following, some of which will apply to all Special Review approvals and some of which may be applied on a site-specific basis.

A. Location.

1. Adjustments to the locations of any or all proposed oil and gas facilities, which may include but not be limited to consolidating, distributing, or re-locating facilities;
2. Sharing of existing infrastructure by multiple oil and gas operations, minimizing the installation of new facilities and avoiding additional disturbance to the environment, landowners and natural resources; or
3. Modification of proposed travel routes for some or all phases of the oil and gas operation.

B. Scope. Adjustments to the size and density of facilities that may include but not be limited to:

1. Reductions or limitations on the number of total wells;
2. Reductions or limitations on the number of wells per pad; or
3. Changes to the dimensions of the proposed facilities.

C. Timing and Phasing.

1. Separating the overall project into phases over a period of time.
2. Establishing the timeline for commencement and duration of all or some phases of oil and gas operations.
3. Establishing the times in which all or some phases of oil and gas operations are conducted with respect to weather, agricultural activities, wildlife needs and other seasonal concerns.
4. Limitations on times of day and night in which operations are conducted.

D. Air Quality.

1. To protect air quality and public health, emissions control measures may be required, including, but not limited to, one or more of the following:
 - a. Compliance with the current, most protective air quality and health-based standards, which may include standards set by the EPA, CDPHE, COGCC, CDC or other relevant authorities.
 - b. A leak detection and repair program.
 - i. Continuous monitoring that may include the oil and gas facilities, nearby properties, and other areas of concern;
 - ii. Use of up-to-date technology, such as infra-red cameras and hydrocarbon analyzers.
 - iii. Regular on-site inspections at a frequency determined by the Director;
 - iv. Immediate leak repair;
 - v. Reporting of monitoring and inspection results to the Director, who may make such reports available to the public;
 - vi. Operator maintenance of all images and data obtained from leak detection devices, to be made available to the Director upon request;
 - vii. Immediate reporting of all leaks detected to the Director;
 - c. Drilling, completion and operation of wells using reduced emission completion practices.
 - d. Require closed loop pitless systems for containment and/or recycling of all drilling, completion, flowback and produced fluids.
 - e. Routine flaring may be prohibited other than emergencies; in the event of an emergency, operators may be required to shut-in the well if the emergency lasts greater than 24 hours; routine maintenance does not constitute an emergency
 - f. Venting prohibited during all phases except for safety;
 - g. Require all pneumatics to be zero-bleed.
 - h. Manufacture test or other data demonstrating hydrocarbon destruction or control efficiency that complies with a design destruction efficiency of 98% or better Proof that any flare, auto ignition system, recorder, vapor recovery device or other equipment used to meet the hydrocarbon destruction or control efficiency requirement is installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

- Electronic surveillance monitors to detect when pilot lights on control devices are extinguished
 - i. Zero-emission desiccant dehydrators.
 - j. Hydrocarbon control of 98% or better for crude oil, condensate, and produced water tanks.
 - k. Require dry seals on centrifugal compressors.
 - l. Routing of emissions from rod-packing and other components on reciprocating compressors to vapor collection systems.
 - m. During storage tank hydrocarbon liquids loadout (i.e. maintenance activities to remove liquids from existing wells that are inhibiting production):
 - i. Prohibit manual venting
 - ii. Require limited flaring as necessary to manage emissions from automated plunger lifts or other forms of artificial lift (98% or better hydrocarbon destruction flare only).
 - n. Reduction or elimination of emissions from oil and gas pipeline maintenance activities such as pigging, including routing emissions to a vapor collection system.
 - o. Use of an automated tank gauging and monitoring system.
- E. Operations.
1. Requirement for use of pipelines to transport all gas and fluid materials, including oil, natural gas, fresh water, produced water, and waste products, to and from the oil and gas facilities.
 2. Delay of well completions until pipeline transport is in place for all hydrocarbon products and produced or wastewater.
 3. Limitations on on-site storage tanks.
- F. Water Supply. Conditions necessary to avoid, minimize, or mitigate the impacts of the proposed water use.
- G. Waste. Compliance with the County-approved waste management plan, including routine testing of all applicable waste for technically enhanced naturally occurring radioactive material.
- H. Water Quality and Stormwater Control. On-going water quality monitoring and use of protective measures such as those listed in this section.
1. Follow-up and on-going testing of all water sources and water wells within one-half mile of the parcel(s) on which the oil and gas facilities are proposed to be located and of either side of the full length of all proposed wellbores. Sampling requirements may include:
 - a. Testing for the analytes listed in Table 1.
 - b. Post-completions and periodic on-going monitoring samples collected and tested pursuant to the following time frame:
 - i. One sample within six (6) months after completion;
 - ii. One sample between twelve (12) and eighteen (18) months after completion; and
 - iii. One sample between sixty (60) and seventy-two (72) months after completion.
 - iv. For multi-well pads, collection will occur annually during active drilling and completion and on the subsequent dates listed in this section.
 - c. If the Operator is unable to locate and obtain permission from the surface owner of a water source to be tested, the Operator must advise the Director that the Applicant could not obtain access to the water source from the surface owner.
 - d. Testing must follow standard industry procedures in collecting samples, consistent with the COGCC model Sampling and Analysis Plan.
 - e. The location of each tested water source will be noted using a GPS with sub-meter resolution.
 - f. Reporting on damaged or unsanitary water well conditions, adjacent potential pollution sources, odor, water color, sediment, bubbles, and effervescence.
 - g. If the Operator is unable to locate and obtain permission from the surface owner of a water source to be tested, the Operator must advise the Director that the Operator could not obtain access to the water source from the surface owner.
 - h. The Operator will submit a testing report to the Director with the Application, including reporting on damaged or unsanitary water well conditions; existing, adjacent potential pollution sources; water odor; water color; presence of sediment; bubbles and effervescence; and the existence and amount of any Table 1 analytes found. Copies of the report will be provided to the COGCC and the water source owners within 10 days after the Operator's receipt of the report.
 - i. If sampling shows water contamination, additional measures may be required including the following:
 1. If free gas or a dissolved methane concentration level greater than one (1) milligram per liter (mg/l) is detected in a water source, determination of the gas type using gas compositional

- analysis and stable isotope analysis of the methane (carbon and hydrogen).
2. If the test results indicate thermogenic or a mixture of thermogenic and biogenic gas, an action plan to determine the source of the gas.
 3. Immediate notification to the Director, the COGCC, Boulder County Public Health, and the owner of the water source if the methane concentration increases by more than five (5) mg/l between sampling periods, or increases to more than ten (10) mg/l.
 4. Immediate notification to the Director, the COGCC, Boulder County Public Health, and the owner of the water source if BTEX and/or TPH are detected as a result of testing. Such detections may result in required subsequent sampling for additional analytes.
 5. Further water source sampling in response to complaints from water source owners.
- j. Timely production and distribution of test results, well location, and analytical data in electronic deliverable format to the Director, the COGCC, Boulder County Public Health, and the water source owners.
2. The County may limit or prohibit toxic (when inhaled or ingested) chemicals in hydraulic fracturing fluids.
 3. No produced water or other wastewater may be sprayed or otherwise dispersed on any lands within the County.
 4. Compliance with the Boulder County Illicit Stormwater Discharge Ordinance, and all water quality or stormwater control permits from the County and other agencies.
 5. Confirmation from CDPHE that the project is covered under the Colorado Discharge Permit System (CDPS) general permit for Stormwater Discharges Associated with Construction Activities (state stormwater discharge permit), when applicable.
 6. Flowback and produced water reporting including:
 - a. A complete characterization of the Operator's flowback and produced water streams, including chemical analyses, radioactivity analyses, total dissolved solid concentrations and rate of flowback and production fluid at each well;
 - b. Amount of flowback and production fluid generated by each well that is recycled or reused for oil and gas operations; and
 - c. An accounting of all flowback and produced water from the well to final disposal, including all temporary holding facilities.

Table 1. Water Quality Analytes

General Water Quality	Alkalinity Conductivity & TDS pH Dissolved Organic Carbon (or Total Organic Carbon) Bacteria Hydrogen Sulphide
Major Ions	Bromide Chloride Fluoride Magnesium Potassium Sodium Sulfate Nitrate + Nitrite as N (total)

Metals	Arsenic Barium Boron Chromium Copper Iron Lead Manganese Selenium Strontium
Dissolved Gases and Volatile Organic Compounds	Methane BTEX as Benzene, Toluene, Ethylbenzene, Xylenes Total Petroleum Hydrocarbons (TPH)
Other	Water Level Stable isotopes of water (Oxygen, Hydrogen, Carbon) Phosphorus Tracing materials associated with Operator's fracking fluid as identified in the Water Quality Plan pursuant to 12-800(D)(7)

- I. Contamination Prevention.
 - 1. For each abandoned oil and gas well identified under 12-800(B)(4), follow-up soil gas survey and leak tests may be required every three (3) years after production has commenced.
 - 2. Periodic or specific bradenhead testing.
- J. Spills, Leaks, and Releases.
 - 1. Containment. Open-ended valves of any kind must be placed within the secondary containment boundaries.
 - 2. Reporting. Spills, leaks, and releases of any substance other than fresh water, including spills of produced water, oil, condensate, natural gas liquids, all spills outside of secondary containment, gas leaks, and E & P waste, must be reported to the County immediately upon discovery and no later than 6 hours thereafter. If the County determines the spill or leak is reportable to any agency when the Operator disagrees, the County may make such report.
 - 3. Clean-up. Any leak, release, or spill will be cleaned up according to applicable state and federal laws, including the Oil and Pollution Act and the Clean Water Act.
- K. Revegetation and Reclamation. Specific revegetation and reclamation requirements for all areas disturbed by any oil and gas facilities, including off-site pipelines, completed to the sole satisfaction of the County.
- L. Site Management.
 - 1. Trash. Prohibition on burning of trash in association with an oil and gas operation per C.R.S. 25-7-128(5).
 - 2. Weed Control. Oil and gas facilities must be kept free of weeds.
 - 3. Removal of Non-permanent Equipment. Time limits for non-permanent equipment remaining on site.
 - 4. Access Roads. Conditions to prevent run-off, erosion and other negative impacts to access roads and abutting lands.
 - 5. On-site Inspector. Inspection, at Operator's expense, to monitor adherence to conditions of permits and approvals.
- M. Drought-Tolerant Landscaping. All landscaping for screening and, reclamation, or other purposes will include drought tolerant species that are native and less desirable to wildlife and suitable for the climate and soil conditions of the area.
- N. Soils. Post-completion analysis and on-going monitoring for soil contamination. Pre-reclamation analysis of soil profiles.
- O. Compliance with Emergency Response Plan. After Special Review, the County will approve an Emergency Response Plan, adherence to which is an on-going condition of approval.
- P. Site Security. Oil and gas facilities must be kept secure from trespassers and risk of vandalism.
- Q. Remote monitoring and control. Use of Supervisory Control and Data Acquisition or other remote monitoring of wells, including remote telemetry units, onsite control valves, onsite data acquisition devices, radio

network/modems, and the ability to trigger an automatic shut-down of a facility.

R. Noise

1. Compliance with Section 12-900 is required at all oil and gas operations and oil and gas facilities.
2. Continuous noise monitoring of any oil and gas facilities meeting the most recent version of the American National Standard Institute's Specification for Sound Level Meters.
3. Use of sound walls and other physical barriers to prevent noise leaving the site.
4. Electrification from the power grid or from renewable sources.
5. Use of quiet drilling and completion equipment, such as the Quiet Fleet design provided by Liberty Oilfield Services.
6. For well pads that are not electrically operated, use of quiet design mufflers (also referred to as hospital grade or dual dissipative) or equivalent.
7. Use of acoustically insulated housing or covers to enclose motors or engines. Tier IV???
8. No pipe unloading or workover operations will occur between 7 p.m and the following 7 a.m.

S. Odor

1. Compliance with section 12-900 (odor standard); on-going monitoring for compliance.
2. Odor reduction requirements may include:
 - a. Using minimum low odor Category III drilling fluid. This could include non-diesel based drilling muds including drilling muds that are low odor and do not contain benzene, toluene, ethylbenzene or xylene (BTEX)
 - b. Adding odorants that are not a masking agent;
 - c. adding chillers to the mud systems;
 - d. Using filtration systems or additives to minimize odors from drilling and fracturing fluids except that the Applicant shall not mask odors;;
 - e. Enclosing shale shakers to contain fumes from exposed mud where safe and feasible;
 - f. Removing drilling mud from drill pipe as it is removed from the well;
 - g. use of filtration systems;
 - h. prohibition on exposed drilling mud;
 - i. limitation or prohibition on use of diesel generators.

T. Lighting. Limitations on the location and type of lighting.

U. Visual Impacts. Conditions to reduce adverse visual impacts such as specifications on facility color, screening measures such as berming, visual barriers, and landscaping.

V. Dust. Limitations on or requirements for activities to control dust; storage requirements for sand, silica and similar materials to prevent fugitive particulates. Particulate control measures, including proof of compliance with State-required dust control measures and imposition of an opacity requirement as tested using EPA Method 9.

W. Traffic and Transportation. Conditions necessary to ensure public safety for all modes of travel, including but not limited to adjustment of travel routes during some or all phases of development, maintenance practices to protect transportation infrastructure, and compliance with the Boulder County Multimodal Transportation Standards.

X. County Transportation Infrastructure.

1. Required improvements to existing transportation system infrastructure to support the proposed oil and gas facilities or operations, as designed and performed by the County at Applicant's cost.
 - a. If Applicant disputes the County's statement of necessary transportation infrastructure improvements or the costs, thereof, Applicant may engage a licensed civil engineer to perform an independent study and provide the results thereof to the County for its consideration.
2. Standards and specifications for construction and maintenance of access roads required for the proposed oil and gas facilities or operations.

Measures to protect existing transportation infrastructure, such as weight restrictions, prevention of mud and sediment tracking and use of tire chains.

Y. Pipeline Conditions

1. Specific setbacks from features of concern.
2. Conditions on depth of cover and clearance distances from subsurface features or improvements.
3. Conditions for protection of trenches during construction.
4. Construction conditions related to protection of streams, rivers, irrigation ditches and wetlands.
5. As-built reporting, including the location (with GPS coordinates), materials and operating pressures of all

off-location flowlines and water lines and depicting the locations of other subsurface features or improvements crossed by such lines.

6. Leak detection system.
 7. Inspection protocol, in addition to County inspections.
 8. A risk-based engineering study by an independent engineer hired by the Department at Applicant's expense prior to placement and construction of proposed water or Off-site Flowline and produced water or wastewater pipelines.
- Z. Flood Protection. Compliance with a County-approved flood mitigation plan; any additional conditions necessary to avoid, minimize, and mitigate risks of adverse impacts from oil and gas facilities.
- AA. Abandonment and Decommissioning.
1. Unless otherwise requested by the surface owner, the Applicant must leave onsite a permanent physical marker of an abandoned well location. In any case, the GPS coordinates for all abandoned wells will be provided to the County.
 2. With respect to pipelines abandoned in place, a tracer will be placed in any nonmetal line
 3. All lands disturbed by removal of decommissioned pipelines will be reclaimed and revegetated.
- BB. Representations of Record. Any approved Special Review Application is subject to all commitments of record, including verbal representations made by the Applicant at any public hearing and written commitments in the Application file, and without limitation must encompass compliance with all approved mitigation plans.
- CC. Applications and Permits. The Applicant must obtain local, state and federal permits or approvals required for the operation and provide copies to the Director prior to any construction activities. In addition to Article 12 approval, Applicants may be required to obtain county permits including but not limited to Flood Development Permits, Grading Permits, Building or Construction Permits, Oversize/Overweight Permits, Stormwater Control Permits
- DD. Certification and Reporting
1. The Operator will submit to the Director copies of all reports related to oil and gas operations and oil and gas facilities made to any agency at the local, state or federal level within fifteen (15) days of their submission to the original recipient
- EE. Financial Assurances.
1. Financial assurances such as performance bonds, irrevocable letters of credit, irrevocable trusts, or other financial guarantees in a form satisfactory to the County.
 2. Additional assurances may be required if circumstances during the lifetime of the oil and gas operations require.
 3. Copies of all financial assurance and insurance renewals promptly supplied to the Department.
- FF. Re-assessment of Conditions. All conditions of approval may specify that the County may re-assess their effectiveness in meeting the standards of this Article after commencement of oil and gas operations.

12-1100 Judicial Review

A final decision by the Board of County Commissioners on any matters in this Article 12 is subject to judicial review in a court of competent jurisdiction under C.R.C.P. 106(a)(4).

12-1200 Procedures Following Approval of a Special Review Application

- A. Right to Enter. Each approved Special Review will contain the following statement: "Applicant consents to allow the County the right of inspection of this approved operation provided the County contacts the operator with four (4) hours prior notice of such inspection."
- B. Effect of the Approved Special Review. After approval of a Special Review Application and subject to compliance with any applicable conditions of approval, the Department will issue a construction permit for the proposed oil and gas operation. Following receipt of the permit, the Applicant must obtain any necessary building, grading, access, floodplain, or other County permits and, following the receipt of these additional permits and all necessary permits and permissions from other agencies or persons, is authorized to otherwise proceed with the proposed oil and gas operation. The approval of the Special Review Application under this Article does not result in the vesting of development rights, nor does it authorize the violation of any County or state regulations or preclude the County from refusing to issue any other permit or authorization if the plans and specifications do not comply with applicable County regulations.
- C. Duration of the Approved Special Review.

1. Commencement of operations within two years. An approved Special Review Application will remain effective for a period of two calendar years following the date of the Board's approval resolution. If the approved operation is not commenced within two calendar years, the permit will expire and the Applicant will have to reapply for Special Review prior to undertaking operations.
 2. Expiration of approval to operate after ten years. Unless renewed in a subsequent Special Review approval, all Special Review approvals under this Article 12 will expire ten years after their effective date and operations must cease and final reclamation commence.
- D. Amendments and Modifications. Prior to changing or modifying a special use approved under this Article or any other existing oil and gas operation, an Operator must submit a written request for modification as specified under Article 4-603. Upon submission of such a request, the Director will proceed as specified in Article 4-603(A) to make a determination whether the modification is substantial, except that the Director will consider the additional criteria specified in this subsection. Unless approved in the original Special Review permit, the addition of new wells on an existing pad will be considered a substantial modification. Other changes will be considered substantial if they meet the criteria in 4-603(B) or significantly alter the nature, character, or extent of the land use impacts of the Special Review approval or will result in an increase in harmful emissions or adverse impacts on public health, safety, and welfare, the environment or wildlife, including as a result of cumulative impacts from the proposed modification in combination with existing land uses. Refracking of an existing well will be considered a substantial modification. A modification may not be considered a substantial modification if it results in a net decrease in hydrocarbon emissions or other net mitigation of existing or potential environmental impacts. Should the Applicant dispute the Director's determination that a proposed modification to a pre-existing oil and gas operation or facility is a substantial modification, the Applicant may appeal the Director's determination to the Board. The County will not process the Application during any appeal.
- E. Maintenance and Repair. If an Operator anticipates undertaking routine maintenance or making a repair to any existing or new oil and gas facility, the Operator must provide written notice to the Director as soon in advance of the maintenance or repair as practicable. For emergency repairs necessary to curtail or prevent threat of property damage or personal injury, if possible the Operator must provide notice to the Director within twenty- four (24) hours before commencement of the repair and otherwise as soon thereafter as possible. The notice must include a detailed description of the maintenance or repair. In response to the notice, the Director may approve the repair or maintenance, conditionally approve the repair or maintenance, or require that the Operator apply for a substantial modification determination. The Director may maintain a list of routine maintenance activities that an Operator may undertake without County review or approval.

12-1300 Inspections; Enforcement

To monitor compliance with permit conditions or if the County determines at any time that there is a violation of the provisions of this Article 12, including 12-500 and 12-1000, the Director will be entitled to commence one or more of the following enforcement measures and remedies.

- A. Right to Enter. Any oil and gas facility may be inspected by the County at any time to ensure compliance with the requirements of County permits or the provisions of this Article 12. Unless urgent circumstances exist, the County will use best efforts to provided that four (4) hours prior notice is given to the operator's contact person at the telephone number on file. County inspections will be coordinated with the operator to ensure operator presence onsite to the extent possible and to ensure the site visit is conducted in accordance with all applicable operator safety requirements.
- B. Violations. Violations of any condition of approval, any provisions of 12-500, or any other provisions of this Article 12 will be subject to Section 12-1500.
- C. Suit to Enjoin COGCC Rule Violation. If the Director discovers a violation or threatened violation of Title 34, Article 60 of the Colorado Revised Statutes or any rule, regulation, or order made under that Article, the Director will notify the COGCC in writing. If the COGCC fails to bring suit to enjoin any actual or threatened violation, then the County Attorney may file an action on behalf of the Board seeking injunctive relief.
- D. Falsification. If the Director, in the course of administering any portion of this Article, learns that the Applicant, including any employee, officer, agent or representative of the Applicant has made a false representation of or omitted material facts the Application may be rejected or summarily denied or, if the Application has been approved, the approval may be revoked. and the Director may report such information to the District Attorney for criminal prosecution.
- E. Other Penalties. In addition to or in lieu of civil fines, the County may exercise remedies for Operator

violations including the following:

1. Increased inspection frequency;
 2. Mandatory equipment upgrades;
 3. A requirement to conduct an audit of the systems or equipment involved in the violation(s);
 4. A requirement for increased reporting to the County;
 5. Written Order Suspending the Approval. As a result of either (i) emergency conditions, or (ii) three or more fines imposed for serious violations within six (6) months, the Director may issue a written order to the Applicant (or the Applicant's owner, Operator, or agent) suspending the Special Review Approval. Upon receipt, the Applicant must cease all activities and operations immediately until the violation is remedied. The Applicant may appeal the order suspending approval to the Board of County Commissioners pursuant to Section 12-1500(D).
- F. Other Enforcement Remedies. In addition to the foregoing enforcement measures, Boulder County has the right to any and all other enforcement measures and remedies provided by law, including but not limited to seeking relief through the courts to enforce an approved Special Review, or to stop or abate any oil and gas operations occurring or about to occur without the requisite special use, required permits, or other County approvals. Nothing in this section shall limit the remedies available to the County for a violation of any provision of Article 12.

12-1400 Fines and Penalties

- A. Fines for Violations. An operator who violates any condition of approval imposed for the oil and gas facility or operation or any provision of Section 12-200, 12-500, 12-700, 12-900, or 1300 will be subject to a civil penalty assessed by the Director.
- B. Process.
1. Identification of Violation. If the Director has reasonable cause to believe that a violation has occurred, the Director will issue a Notice of Violation to the operator. Each violation of an individual condition or Code provision will be considered a separate infraction.
 - a. Contents of Notice of Violation:
 - i. Provisions of this Article or conditions imposed on a permit that are violated;
 - ii. Short and plain statement of the facts alleged to constitute each violation;
 - iii. A statement that the Operator will be subject to fines as specified in this Section; and
 - iv. A demand that the violation be remedied.
 2. Response. The Operator will have the time specified by the Director in the notice to respond to the Notice of Alleged Violation, unless an extension is requested in writing and granted by the Director. The Response must address each violation, including the cause of the violation and any corrective actions taken, and identify any other relevant facts.
 3. Assessment of Fine.
 - a. Based on the operator's response, if any is provided, and any other competent evidence, the Director will determine if a violation has occurred and, if so, the appropriate penalty to assess. Any fine imposed after consideration of the response will be measured with respect to the first date of discovery of the violation or the date the violation first occurred and continues until the violation has been remedied to the satisfaction of the Director.
 - b. If the Operator disputes the Director's determination that a violation occurred or the amount of any fine assessed, an appeal as specified in Section 12-1400(D) must be made within 30 days of the determination. Any requirement to remedy the violation will not be stayed during the appeal period.
- C. Penalty Calculation. The Director has discretion to assess a civil penalty between \$300 and \$15,000, depending on the nature and severity of the violation and Application of the additional factors listed in (b) below.
1. To evaluate the severity of the violation, the Director will consider the following:
 - a. Degree of threatened or actual impact to public health, safety, welfare, the environment or wildlife;
 - b. Existence, size, and proximity of potentially impacted livestock, wildlife, fish, soil, water, and all other environmental resources;
 - c. Degree of threatened or actual damage to agricultural lands, public lands, private property, freshwater sources, public drinking water, natural resources, environmental features, or wildlife;
 - d. The size of the leak, release, or spill;
 - e. The violation resulted in a significant waste of oil and gas resources;
 - f. Toxicity of leak or spill;

- g. Violation led to death or serious injury; and
 - h. Duration of the violation.
2. In addition to considering the severity of the violation, the Director will consider the following:
- a. Whether the same or similar violations have occurred at the location;
 - b. Whether other violations have occurred at the location in the previous 12 months;
 - c. The timeliness and adequacy of the operator's corrective actions;
 - d. The degree the violation was outside of the violator's reasonable control and responsibility;
 - e. Whether the violator acted with gross negligence, or knowing and willful misconduct;
 - f. Whether the violator self-reported;
 - g. Whether violator was cooperative with all agencies involved in working to mitigate the impacts of the violation;
- D. Appeal Hearing Before the Board of County Commissioners. If the Applicant files a timely, written appeal with the Board of County Commissioners of the Director's determination that a violation occurred or the imposition of any fine or penalty or a written order suspending special use approval, the Board will schedule a hearing on the appeal, of which the Applicant will receive reasonable prior notice. The Board, based on the evidence in the record, may reverse or confirm the Director's determination whether a violation occurred. In addition, based on the evidence in the record, the Board may reverse, confirm, or a just any remedy or penalty imposed by the Director. The Board, in its discretion, may also give the Applicant additional time to correct the violation(s), or may specify other means of correcting the violation(s) at the Applicant's expense.

12-1500 Definitions

Terms used in this Article 12 are defined below. Any terms not specifically defined for purposes of Article 12 may be defined in Article 18.

Abandonment. The permanent decommissioning of an oil and gas facility, including any single well or portion of pipeline.

Act. The Oil and Gas Conservation Act at §§ 34-60-101 et seq., C.R.S., as amended.

Adequate Water Supply. A water supply that will be sufficient for the proposed oil and gas operations, including consideration of reasonable conservation measures and water demand management measures.

Agent. One authorized to make binding representations on behalf of the Applicant.

Applicant. Person, corporation or other legal entity possessing the legal right to develop a mineral resource who has applied for a Special Review permit for an oil and gas operation.

Application. The Application filed by the Applicant for Special Review under current consideration.

Best Management Practices. Practices that are designed to prevent or reduce impacts caused by oil and gas operations to air, water, soil, or biological resources, and to minimize adverse impacts to public health, safety and welfare, including the environment and wildlife resources.

BTEX and/or TPH. Benzene, Toluene, Ethylbenzene, Xylene and Total Petroleum Hydrocarbons.

Closed Loop Drilling Process or System. A system consisting of steel tanks for mud mixing and storage and the use of solids removal equipment by some combination of shale shakers, mud cleaners and centrifuges to separate drill cutting solids from the mud stream. The solids are placed in containment provided on the site. A Closed Loop Drilling System does not include use of a Conventional Reserve Drilling Pit.

Combustion device. Any ignition device, installed horizontally or vertically, used in exploration and production operations to combust otherwise vented emissions from completions.

Completions. [To be determined]

Comprehensive Plan. The Boulder County Comprehensive Plan, available at <https://www.bouldercounty.org/property-and-land/land-use/planning/boulder-county-comprehensive-plan/>.

Department. Boulder County Community Planning & Permitting Department.

Director. The Director of the Boulder County Community Planning & Permitting Department.

Geophysical Operation. Operations that involve the transmittal of seismic waves into and through the ground to model the geophysical properties of the Earth's crust

Equipment. Machinery or structures located on an oil and gas location, including, but not limited to, wellheads, separators, dehydration units, compressors, heaters, meters, storage tanks, compressors, pumping units, internal combustion engines, and electric motors.

Flowline. Those segments of pipe transferring oil, gas, or condensate between a wellhead and processing equipment to the load point or point of delivery to a U.S. Department of Transportation Pipeline and Hazardous

Materials Safety Administration or Colorado Public Utilities Commission regulated gathering line, or a segment of pipe transferring produced water between a wellhead and the point of disposal, discharge, or loading. In this Article, flowline includes an on-location or off-location line.

Ground Water. Subsurface waters in a zone of saturation.

Occupied Structure. Any building or structure that requires a certificate of occupancy or building or structure intended for human occupancy.

Off-Site Flowline. A flowline that is not on the same oil and gas location. This definition also includes flowlines connecting to gas compressors or gas plants

Oil and Gas Facilities. The equipment and improvements used for the production, transportation, treatment, and/or storage of oil and gas and waste products, including: an individual well pad built with one or more wells and operated to produce liquid petroleum and/or natural gas, including associated equipment required for such production; an individual well pad with one or more wells for exploration of oil and gas; flowlines and ancillary equipment including but not limited to drip stations, vent stations, pigging facilities, chemical injection stations and valve boxes; and temporary storage and construction staging yards in place for less than six months.

Oil and Gas Operations. Exploring for oil and gas, including conducting seismic operations and the drilling of test bores; siting, drilling, deepening, recompleting, reworking, or abandoning a well; producing operations related to any well, including installing flowlines; the generating, transporting, storing, treating, or disposing exploration and production wastes; the construction, operation, maintenance and repair of any oil and gas facility; and any constructing, site preparing, or reclaiming activities associated with such operations. With respect to any submittal or review requirements under this Section, "oil and gas operations" will refer to the particular oil and gas operations for which the Applicant is seeking County approval.

Operator. Any person who exercises the right to control the conduct of oil and gas operations.

OU/m³ Odor Units per cubic meter, as measured using the dynamic olfactometry approach.

Owner. Person or entity who has the right to drill into and produce from a pool and to appropriate the oil or gas produced either for such owner or others, including owners of a well capable of producing oil, gas, or both.

Pit. Any natural or man-made depression in the ground used for oil or gas exploration or production purposes excluding steel, fiberglass, concrete or other similar vessels which do not release their contents to surrounding soils.

Produced Water. Water produced from a well or wellbore that is not a treatment fluid.

Recreation (active or passive). Active recreation means outdoor activities that require equipment or physical exertion or both. Passive recreation means outdoor activities such as nature observation or photography that require a minimum of facilities or development.

Reduced Emissions Completion. A well completion following fracturing or refracturing where gas flowback that is otherwise vented is captured, cleaned, and routed to the gas flow line or collection system, re-injected into the well or another well, used as an onsite fuel source, or used for other useful purpose that a purchased fuel or raw material would serve, with no direct release to the atmosphere.

TPY. Tons per year.

VOC. Volatile organic compounds.

Wastewater. Water used in oil and gas operations that is contaminated with chemicals, particulate, or other matter that makes it non-potable.

Water or Water Body. Any surface waters which are contained in or flow in or through Boulder County, excluding ephemeral streams, roadway ditches, water in sewage systems, water in treatment works of disposal systems, water in potable water distribution systems, stock ponds or irrigation ditches not discharging to live streams, and all water withdrawn for use until use and treatment have been completed.

Water Source. Water source will mean water bodies that supply domestic, agricultural or municipal uses, water wells that are registered with Colorado Division of Water Resources, including household, domestic, livestock, irrigation, municipal/public and commercial wells, permitted or adjudicated springs, and monitoring wells other than monitoring wells that are drilled for the purpose of monitoring water quality changes that are not associated with oil and gas activities.

Well or Wellhead. An oil or gas well, a hole drilled for the purpose of producing oil or gas, a well into which fluids are injected, a stratigraphic well, a gas storage well, or a well used for the purpose of monitoring or observing a reservoir.

Well Pad. Areas that are directly disturbed during the drilling and subsequent operation of, or affected by production facilities directly associated with, any oil well, gas well, or injection well.