

RESOLUTION 2020-95

A resolution approving Boulder County Community Planning & Permitting Docket DC-19-0002: proposed Land Use Code amendments addressing oil and gas development, seismic testing, and companion changes to the Land Use Code

Recitals

A. The Board of County Commissioners of Boulder County (the “Board”) is authorized to amend the text of the County’s Zoning Regulations according to the procedures in the regulations and §§ 30-28-112, -116 and -133, C.R.S.;

B. The Board is empowered under other statutory provisions to adopt regulations related to the control of land use, including but not limited to Article 65.1 of Title 24, C.R.S. (Areas and Activities of State Interest); Articles 67 and 68 of Title 24, C.R.S. (Planned Unit Developments and Vested Rights, respectively); Article 20 of Title 29, C.R.S. (Local Land Use Enabling Act); Articles 11 and 15 of Title 30, C.R.S. (County Powers and Police Power, respectively); Article 1 of Title 32, C.R.S. (Special District Control); and Article 2 of Title 43, C.R.S. (County Highways);

C. The Board is authorized under Section 34-60-131, C.R.S., to enact regulations regarding oil and gas development that may be stricter than the State of Colorado’s oil and gas regulations;

D. The Board is authorized under Sections 25-7-101 et seq., C.R.S., to adopt regulations affecting air quality;

E. The Board is entitled to abate and prevent nuisances under Colorado common law;

F. By Resolution 94-185 adopted October 18, 1994 and effective October 19, 1994, the Board approved a unified Boulder County Land Use Code (the “Code”), which the Board has amended on subsequent occasions;

G. By Resolution 2017-55, adopted April 11, 2017, and effective March 23, 2017, the Board adopted amendments to Article 12 of the Code governing oil and gas development;

H. In April 2019, the Governor of Colorado signed S.B. 19-181 “Protect Public Welfare Oil and Gas Operations,” clarifying and expanding local government authority and power to regulate oil and gas development;

I. In Docket DC-19-0002 (the “Docket”), Boulder County Community Planning & Permitting Department staff proposed comprehensive text amendments to the Land Use Code, based largely on changes made by S.B. 19-181, to the Code’s regulations relating to oil and gas operations and facilities and seismic testing (the “Proposed Amendments”), first presented to the

Boulder County Planning Commission (“Planning Commission”), as set forth in the staff report and presentation to the Planning Commission for the Docket;

J. The Planning Commission held a duly noticed public hearing on the Docket on November 9, 2020, and subsequently took official action on the Docket at a duly noticed public meeting on November 10, 2020, voting to recommend approval of the Proposed Amendments in the Docket, with edits and direction, and certifying the Docket to the Board for ensuing public hearings, consideration and action, all as reflected in the official records of the public hearing and the public meeting;

K. With consideration of Planning Commission recommendations, staff made revisions to the Proposed Amendments in the Docket and presented them to the Board for a duly noticed public hearing on December 1, 2020, at which the Board considered the revised Proposed Amendments together with documents and testimony presented by the County Community Planning & Permitting Department staff and members of the public, as reflected in the official record of the public hearing;

L. Following the December 1, 2020, public hearing and based on information and comments received, the Board held a duly noticed public meeting on December 3, 2020, at which the Board gave direction to staff for modifications to the Proposed Amendments;

M. On December 10, 2020, the Board held a duly noticed public meeting on the Docket to consider revisions to the Proposed Amendments together with documents and commentary presented by the County Community Planning & Permitting Department staff, as reflected in the official record of the public meeting;

N. The Proposed Amendments including the following: (i) amendments to Article 12 (Regulation of Oil and Gas Development, Facilities and Operations); (ii) amendment of Section 2-800(C)(2) of Article 2 (Administrative & Decision Making Bodies); (iii) amendments to Section 3-100 of Article 3 (Processes); (iv) amendment of Section 4-404 of Article 4 (Zoning); (v) amendment of Sections 4-508(B) and (C) of Article 4 (Zoning); (vi) amendment of Section 4-514(E) and (I) of Article 4 (Zoning); (vii) amendment of Section 7-904 in Article 7 (Development Standards); (ix) amendment of Section 18-124C of Article 18 (Definitions); (x) amendment of Section 18-180 of Article 18 (Definitions); and (xi) amendment of Section 18-181 of Article 18 (Definitions);

O. Based on the official record, including all staff reports and recommendations, information received at public hearings and information considered at public meetings, the Board finds that the Proposed Amendments, included in **Exhibit A** meet the criteria for text amendments contained in Article 4-516 of the Code because: the existing text is in need of amendment; the Proposed Amendments are not contrary to the intent and purpose of the Code; and the Proposed Amendments are in accordance with the Boulder County Comprehensive Plan; and

P. The Board therefore concludes that the Proposed Amendments should be approved for incorporation into the Code, to be effective as further provided in this Resolution.

Therefore, the Board resolves:

1. The Proposed Amendments in **Exhibit A** are approved effective as of the date of approval of this Resolution. The Board authorizes the County Community Planning & Permitting Department to make appropriate clerical corrections to portions of the Code not specifically amended as may be necessary to incorporate the Proposed Amendments into the Code.

2. Under § 30-28-125, C.R.S., the Board authorizes the Clerk to the Board to transmit this Resolution, with its **Exhibit A**, to the County Clerk and Recorder for filing and appropriate indexing. This transmittal should make reference to **Reception No. 2735571**, the recording of the Boulder County Land Use Code on November 4, 2005, which this Resolution amends.

A motion to approve the Proposed Amendments in Docket DC-19-0002 was made by Commissioner Matt Jones, seconded by Commissioner Elise Jones, and passed by a 3-0 vote of the Board.

ADOPTED as a final decision of the Board on this 15th day of December, 2020.

**BOARD OF COUNTY
COMMISSIONERS OF BOULDER
COUNTY:**



Deb Gardner, Chair



Matt Jones, Vice Chair



Elise Jones, Commissioner

ATTEST:



Clerk to the Board

Exhibit A
Proposed Amendments

Article 12



Regulation of Oil and Gas Development, Facilities and Operations

Article 12 • Oil and Gas Development, Facilities and Operations

12-100 Purpose

- A. The County's objective is to (1) protect 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; 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. The County will deny applications where the proposed oil and gas operations cannot be conducted in a manner that appropriately protects public health, safety, and welfare, and the environment and wildlife.
- B. This article is an exercise of the Board of County Commissioners' (the "Board's") regulatory authority over oil and gas development. Both the state and County regulate oil and gas operations independently and both

may have applicable rules.

- C. The County's review process for new oil and gas facilities and operations includes: (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 prior to any decision being made, 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, or denial if necessary. These regulations are intended to provide close scrutiny of all proposed oil and gas development, including seismic testing, in order to protect public health, safety, and welfare, and the environment and wildlife. They also allow staff, the Boulder County Planning Commission, the Parks and Open Space Advisory Committee where appropriate, and the Board 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 or oil and gas operations if review of the criteria warrants it. These regulations will help to ensure close inspection, monitoring, and enforcement of all requirements and mitigation measures imposed by this Article. Finally, the regulations allow the County to address potential impacts of pre-existing oil and gas facilities and operations.

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 2020-95).
- B. All conditions of approval for oil and gas development under this Article will survive until the Director provides notice of satisfactory completion of final reclamation of the oil and gas facilities, including plugged and abandoned wells and related pipelines. All conditions of approval will survive a change of ownership and apply to the Applicant's successors, including the requirements of Operator Registration and Financial Assurances.

12-400 Operator Registration and Renewal

- A. **Registration Required.** All Operators within the unincorporated county must have a current and valid County registration in place.
- B. **Submission and Renewal.** All Operators must submit the following Operator registration information and pay the registration or renewal fee. If an Operator or person designates any portion of a document or submission to the County as "confidential" and if the County determines that 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." All submissions under this section are subject to 12-1400(E):
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, whether owned by the Operator named in number 1 or a subsidiary or affiliate under the same management as the Operator, inside or within 2000' feet of the boundaries of unincorporated Boulder County.
 3. A certified list of all instances within the 10 years prior to the registration in which the Colorado Oil and Gas Conservation Commission ("COGCC"), Colorado Department of Public Health and Environment ("CDPHE"), other state agency, any federal agency, any city, or any county issued a notice of alleged violation or found that the Operator violated 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 or alleged violation, the entity or agency issuing the notice or 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. A list of all incidents (including but not limited to accidents, spills, releases, and injuries) within the past 10 years that occurred at facilities owned or operated by Operator or a subsidiary or affiliate under the same management as the Operator, including incidents involving contractors. Operator shall also list any root cause analyses conducted and corrective actions taken in response to the incidents, including internal changes to corporate practices or procedures.
5. Information related to the Operator's financial fitness to undertake the proposed oil and gas operations, including materials (audited, where appropriate) such as the following:
 - a. Balance sheets for the previous 5 fiscal years;
 - b. Operating cash flow statements for the previous 5 fiscal years;
 - c. List of long- and short-term debt obligations;
 - d. List of undercapitalized liabilities;
 - e. Statements necessary to calculate net profit margin, debt ratio, and instant or current solvency ratio;
 - f. Certified copies of all current financial assurances filed with the COGCC; and
 - g. Tax returns for the prior 5 years.
6. Complaint Protocol. Description of a process for the Operator's acceptance, processing, and resolution of any and all complaints submitted to state agencies or the Operator directly by members of the public stemming from any adverse impact from oil and gas facilities and operations.
- C. New Operators to Boulder County must submit registration materials that are accepted by the County at least 60 days prior to scheduling a Pre-Application conference. Operators with existing facilities are subject to 12-500(C).
- D. Operator registration must be updated and renewed annually by July 31.

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 12-1300(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. Assumption of Existing Oil and Gas Operations. Any operator assuming the ownership or operational responsibility for pre-existing oil and gas facilities or oil and gas operations is subject to the requirements of this section 12-500.
- C. 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 90 days after the effective date of this article; or, if not already operating wells in Boulder County, at least 60 days prior to assuming responsibility for operating existing Oil and Gas Facilities. Operator registration must be updated and renewed annually by July 31.
- D. 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 or releases, including use of best available technology (such as infrared cameras), at least every 30 days; and

- c. Visual inspections for liquid leaks at least every 30 days.
- 3. Operators will report the date, methodology, subject, and results of all inspections to the County monthly.
- 4. 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 Local Governmental Designee immediately upon discovery and no later than 6 hours thereafter. When leaks, spills, or releases are discovered, by County or Operator inspection or otherwise, the enforcement mechanisms and penalty provisions in 12-1400 and 12-1500 will apply.
 - a. Reporting. For spills or other releases meeting the Colorado reporting requirements pursuant to Section 25-8-601 (2), C.R.S., operators will adhere to all Colorado reporting requirements. If the County determines the spill or leak is reportable to any agency, the County may make such report.
 - b. Clean-up. Any leak, release, or spill will be cleaned up according to applicable County, state and federal laws, including Colorado Water Quality Control Commission regulations, the Oil and Pollution Act and the Clean Water Act. Operators will notify the County immediately upon completion of clean-up activities, at which time the County will inspect the site and either approve the clean-up or impose additional requirements, which may include penalties under 12-1400 and 12-1500.
 - c. Root Cause Analysis. A root cause analysis of any spill, leak, or release of any substance other than fresh water that resulted in serious bodily injury or fatality, serious environmental harm, was a Grade 1 gas leak as defined by the COGCCC, or is otherwise requested by the Director must be submitted to the County within 30 days of the leak, spill, or release.
- E. Noise. Existing oil and gas facilities must comply with the noise standards in 12-1000(O).
- F. Odor. Existing oil and gas facilities must not emit odor detectable after dilution with 2 or more volumes of odor free air.
- G. Emergency Response Plan. Each Operator with a pre-existing oil and gas operation in the County is required to submit to the Department an Emergency Response Plan consistent with this section. Operators with multiple pre-existing facilities may submit a single Emergency Response Plan that covers all pre-existing Oil and Gas Facilities. Emergency Response Plans for existing oil and gas facilities must be submitted with the registration and renewal. The emergency response plan must consist of at least the following information:
 - 1. Name, address and phone number, including 24-hour emergency numbers for at least 2 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 15 minutes.
 - 2. Protocols for notification of emergency response services and the County, including contact names and numbers for each such agency, for use in reporting any incident causing or threatening to cause personal injury or property damage. Emergency response must be notified immediately upon the imminent threat or occurrence of such incidents; the County must be notified as quickly thereafter as practicable and in no instance more than 24 hours later.
 - 3. 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.
 - 4. Transportation routes to and from oil and gas facilities for emergency response and management purposes, including at least 2 evacuation routes and health care facilities that would be used. If two evacuation routes do not exist, a plan for ensuring that necessary evacuations will be possible in the event of an accident.
 - 5. Detailed information addressing each potential emergency that may be associated with the operation. This will include events such as 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 will also include external hazards to the site such as earthquakes, lightning, floods, high winds, tornadoes, terrorism, vandalism, or wildfire.
 - 6. The threshold or triggers constituting various potential types of emergencies must be identified.
 - 7. 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 4 hours after such spill is discovered, in addition to all necessary reporting to state agencies.

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.
 9. Detailed information showing that the Operator has adequate personnel, ongoing safety training of all on-site personnel, safety supplies, and funding to implement the emergency response plan immediately at all times during 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 residents and landowners to educate them on the risks of the existing operations, explain emergency procedures, and 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 timely responses.
- H. **Revegetation and Reclamation.** When any pre-existing oil and gas facility is decommissioned, all areas disturbed will be reclaimed and revegetated to the satisfaction of the County, in consultation with the landowner. Revegetation and reclamation will include, but is not limited to, the use of native plant species when appropriate, integrated management of weed control and prevention, and full establishment of appropriate vegetation for a minimum of three consecutive growing seasons. No species on List A, B, or C in the County's Noxious Weed Management Plan may be used to meet revegetation requirements.
- I. **Stormwater Quality Control.** Adequate stormwater quality control measures must be used to comply with applicable permits and County regulations.
- J. **Weed Control.** Any weeds identified on the property must be contained and suppressed, and dispersal of their seeds must be prevented.
- K. **Fines.** Violations of this section are subject to the enforcement mechanisms in 12-1400 and 12-1500.

12-600 Well and Pipeline Abandonment or Decommissioning

- A. An Operator may not commence activities to plug, re-plug, abandon, or otherwise decommission an oil and gas well, flowline, or associated fresh, produced or wastewater pipeline until the Director has reviewed and provided written approval for entry and surface operations to the Operator.
- B. **Plugging/Re-Plugging, Abandoning or Decommissioning Wells.**
 1. **COGCC rules.** Operators will comply with all COGCC rules regarding plugging, abandoning, and decommissioning oil and gas wells.
 2. **Coordinates.** The Operator must provide the County with the surveyed coordinates of the decommissioned, plugged, or abandoned well.
 3. **Marking.** Unless otherwise requested by the surface owner, the Operator must leave onsite a permanent physical marker of the well location.
- C. **Pipeline Abandonment.** Flowlines or fresh, produced or associated wastewater pipelines proposed to be abandoned or decommissioned must be removed unless otherwise authorized in writing by the Director after consultation with the landowner. If the Director approves of abandonment in place of the line, all COGCC rules will be strictly complied with.
- D. **Conditions of Approval of Well and Flowline Abandonment.**

1. With any approval for work to go forward, the Director will provide the Operator with County requirements for surface activities for plugging and abandoning wells and pipelines. These requirements may include but are not limited to:
 - a. Timing Constraints;
 - b. With respect to pipelines abandoned in place, a tracer in any nonmetal line; and
 - c. Specific reclamation and revegetation requirements.

12-700 Geophysical Exploration for Oil and Gas ("Seismic Testing")

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

- A. Prior to conducting any seismic testing, a geophysical exploration permit issued by the Director is required under this section. If the Operator submits information that is inadequate, the Director may deny a permit.
- B. To apply for a permit, the Applicant must provide:
 1. **Vibration Monitoring and Control Plan Map.** A map of the exploration area that identifies all of the following within 800 feet of all source points in the testing area:
 - a. Water supplies for domestic, public, or agricultural use;
 - b. Domestic, commercial, and industrial structures;
 - c. Areas affected by previous mining activities or public works;
 - d. Geologic hazards;
 - e. Mapped floodplain and floodway;
 - f. Identification of wildlife resources; and
 - g. Water, sewer, oil, gas, and chemical facilities and 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. **Insurance Coverage.** A copy of the following insurance coverage, including the required Additional Insured Language:
 - a. **Commercial General Liability.** This coverage should be provided on an Occurrence Form, ISO CG001 or equivalent, with Minimum limits of \$1,000,000 Each Occurrence, \$2,000,000 General Aggregate and \$2,000,000 Products Completed Operations Aggregate.
 - b. **Automobile Liability.** Bodily Injury and Property Damage for any owned, hired, and non-owned vehicles used in the performance of the Contract. 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 Insurance.** 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 contractor warrants that any retroactive date under the policy shall precede the effective date of this Contract; and that either continuous coverage will be maintained or an extended discovery period will be exercised for a period of 2 years beginning at the time work under this Contract is completed.
 - f. **Pollution Liability.** Coverage pay for those sums the Contractor 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 Contractor's work including Completed Operations. 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 \$15,000,000 Per Occurrence/Loss and \$15,000,000 Policy Aggregate. If the coverage is written on a claims-made basis,

the Contractor warrants that any retroactive date applicable to coverage under the policy precedes the effective date of this Contract; and that continuous coverage will be maintained or an extended discovery period will be exercised for a period of 3 years beginning from the time that work under this contract is completed. County shall be named as an additional insured for ongoing operations and completed operations.

- g. 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.
- h. Contractors. Operator shall require adequate insurance of its contractors and subcontractors. Operators will be responsible for any and all damage or loss suffered by the county as a result of the work being performed by Operator or any subcontractor as described in this Article.
5. 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;
6. Copies of written permission from every landowner of property where the Operator is going to use or place equipment for geophysical exploration;
7. A Vibration Monitoring and Control Plan prepared by a Vibration Monitoring Specialist (VMS). The VMS must be an independent, registered Professional Engineer or Geologist. This Vibration Monitoring and Control Plan must include:
 - a. The name of the Firm providing the vibration monitoring services;
 - b. Specifications of the monitoring equipment to be used;
 - c. Specifications of the energy source to be utilized for the source points;
 - d. If vibroseis trucks will be utilized, the plan should discuss:
 - i. The number of vibroseis trucks;
 - ii. The distance between the vibroseis trucks;
 - iii. The drive level to be used;
 - iv. The sweep duration; and
 - v. The sweep frequency range.
 - e. Measurement locations and field procedures for setting up vibration monitors;
 - f. Procedures for data collection and analysis which include examples of vibration monitoring field sheets and vibration event analysis;
 - g. Results of on-site vibration attenuation study (walk away test) with prediction of maximum expected particle velocity at each monitoring location;
 - h. Means and methods of providing warning when the Response Values are reached;
 - i. Generalized plans of action to be implemented in the event any Response Value is reached. This plan must include positive measures by the Operator to control vibrations (e.g. reducing drive level, increasing stand-off distances, dropping source points); and
 - j. Procedures for addressing complaints and claims of damage.
- C. The following requirements will apply to all permits to conduct geophysical exploration:
 1. Implementation of a Vibration Monitoring and Control Plan approved by the Director; the Director may require modifications to the plan submitted by the Applicant.
 2. Methods involving explosive material ("shotholes") are prohibited.
 3. All geophysical activities will be strictly limited to the areas, methodologies, and routes indicated in the maps and plans approved by the permit.
 4. All geophysical activities will be strictly limited to the hours of operation noted in the approved permit. In no case will the Director permit geophysical activities between 6 p.m. and 8 a.m.;
 5. The Applicant's VMS will be on site throughout all geophysical activities to ensure County permit conditions are met and will report whether the testing complies with the approved permit.
 6. If any utility line(s) or other above or below ground features must be removed or altered during

geophysical operations, the Applicant will provide a letter from the utility owner authorizing the removal or alteration and notify the County at least 3 days prior to any such removal or modification and comply with any additional permitting requirements imposed by the County.

7. Applicant must obtain any permits for use of County roads required by the County Public Works Department.
8. No seismic testing activities will be permitted in a mapped floodway. Activities in a mapped floodplain may require a County Floodplain Development Permit.
9. Any violation of the terms of a seismic testing permit are subject to the penalties and enforcement mechanisms of Article 12-1400 and 12-1500, in addition to all remedies available at law.
10. Ground vibration monitoring will be required for any source points located within 400 feet of any structures identified in the map of the exploration area. The VMS must conduct the analysis and interpretation of the collected vibration monitoring data for comparison to appropriate vibration limits and must prepare weekly reports for submittal to the County.
11. Ground vibration amplitudes will be limited to the following Response Values:
 - a. The Response Values for ground vibration include a Threshold Value of 0.2 inches per second and a Limiting Value of 0.3 inches per second. Higher values may be acceptable based on the feature of concern, but the Applicant must submit an engineering report for review and approval by the County.
 - i. If a Threshold Value is reached, the Applicant must:
 1. Immediately notify the County;
 2. Meet with the County to discuss the need for response action(s);
 3. If directed by the County during the above meeting that a response action is needed, submit within 24 hours a detailed specific plan of action based as appropriate on the generalized plan of action submitted previously as part of the vibration-monitoring plan. Seismic testing cannot resume until the detailed specific plan of action is approved by the County; and
 4. If directed by the County, implement response action(s) within 24 hours of submitting a detailed plan of action.
 - ii. If a Limiting Value is reached, the Applicant must:
 1. Immediately notify the County and suspend vibration producing activities in the affected area, except for those actions necessary to avoid exceeding the Limiting Value;
 2. Meet with the County to discuss the need for response action(s); and
 3. If directed by the County during the above meeting that a response action is needed, submit within 24 hours a detailed specific plan of action based as appropriate on the generalized plan of action submitted previously as part of the vibration-monitoring plan. Seismic testing cannot resume until the detailed specific plan of action is approved by the County.
 4. If directed by the County, implement response action(s) within 24 hours of submitting a detailed specific plan of action, so that the Limiting Value is not exceeded.
12. Ten days prior to vibration monitoring pursuant to the Vibration Monitoring and Control Plan, the Applicant will submit a certificate of calibration for any vibration monitoring equipment that will be used on site. The certificate must certify that the instruments are calibrated and maintained in accordance with the equipment manufacturer's calibration requirements and that calibrations are traceable to the U.S. National Institute of Standards and Technology. All instrumentation must have been calibrated by the manufacturer or a certified calibration laboratory within 1 year of their use on site.
13. During the exploration activity, the Applicant must provide weekly reports summarizing any vibration monitoring data collected. The reports must be prepared and signed by the VMS. The County reserves the right to request a different reporting schedule where appropriate.
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 800 feet of any source point as depicted in the approved Vibration Monitoring and Control Plan Map at least 10 days before the testing is to occur.
 - a. The notice will include:
 - i. A description of the project including the duration, physical effects, precautions Applicant is taking, and precautions the property owner should take;
 - ii. Complaint procedures for property owners and residents;
 - iii. 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 3 days prior to seismic testing. Results of such testing will be provided to the property owner and maintained by Applicant for at least 3 years. All baseline condition testing must be completed by a qualified technician who will report: the date of inspection, name of property owner, address of property owner, property owner contact information, description of the property, age of structure(s), material of structure(s) and foundation(s). High resolution photographs and video must be taken documenting the present state of all structures on the property, including roads, bridges, and sidewalks. The technician should note any chemical and physical weathering or any other structural defects. All water well samples must be collected by a qualified technician and include the date and time of sample, property owner name, address, contact information and water type and conditions, well type, depth, age, casing type and length, drilling contractor, whether it is conditioned or filtered, sample point type, and any other useful information; and
 - iv. 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 3 years.

- E. Appeals. The Applicant may appeal the Director's decision to deny a permit or place particular conditions on the permit to the Board of County Commissioners within 30 days of the Director's decision.

12-800 Application Process

- 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 new oil and gas operations in the unincorporated county, an Applicant must submit an application which must receive approval according to this Article. Special Review approval is required prior to the issuance of County permits necessary for the oil and gas facility and operation.
- B. Community Engagement. Boulder County requires Applicants 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 facility and 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 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. 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 facility and 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. **Pre-Application 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 6 months after the pre-application conference.
 4. **Site Visit.** At the discretion of the Director, a site visit of the parcels involved in the Application may be required 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 landowner(s) to conduct the site visit.
- F. **Application Submission.** The Application must include documentation listed in Section 12-900. The Applicant must submit the Application, the application fee, and supporting documentation in electronic format with a minimum of two 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 County 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 12 months, the Application will expire, and the Applicant may submit a new Application and fee as specified in Section (F) above. The twelve-month timeframe may be extended by the Director according to the standards in 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 County Commissioners within 30 days of the Director's decision. During any Board of County Commissioners 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. Upon receipt of an application and before conducting its completeness review, the Director will publicize receipt, including the name of the Applicant, the location and size of the proposed Oil and Gas Facilities or Operations, and a summary of the review procedures.
 2. The Applicant must deliver notice to surface owners, to surrounding land owners and lessees, the Local Governmental Designees (LGDs) of any local government within one mile of the proposed oil and gas facilities, and to water source owners as identified in this section no more than 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 identifiable lessees of the parcels of land within one mile 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 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 owners of wells registered with the Colorado Division of Water Resources, owners of municipal/public water bodies, and owners/managers of irrigation ditches and reservoirs within one mile of the parcel on which the oil and gas operation is proposed to be located and within one-half mile of either side of the full length 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 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 sites.
3. 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 applicable 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."; and
 - 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.
4. **Notice Review.** Prior to sending the notice, 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.
5. **Posting of Application Materials.** Upon a determination that an application is deemed complete, all application materials not deemed confidential will be made available to the public in electronic form on the Department's website.
- I. **Posting Public Notice Signage Onsite.** Within 5 days after the Director has deemed an Application complete, the Applicant must post a public notice sign or signs on the subject parcels, including parcels where flowlines or other pipelines will be constructed, 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]"; and
 - c. "Information regarding this Application may be obtained from Boulder County Community Planning & Permitting at [phone number / email]".
 3. Within 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 to post a sign or signs complying with this Article.
 4. The sign or signs must be posted on the sites until the Special Review process is complete. The Applicant must repair or replace signs that are damaged or defaced within 5 days of learning of damage or defacement.
- J. **Neighborhood Meeting.** The Applicant must conduct a neighborhood meeting with adjacent and surrounding landowner(s) and other interested parties at a convenient date, time, and public location. The meeting must occur at least 20 days after the notice is sent and the signs are posted pursuant to Section 12-800(H) and (I). The neighborhood meeting must be noticed to the County and to all individuals entitled to notice pursuant to Section 12-800(H)(1) at least 14 days prior to the meeting. In addition to those parties entitled to notice under 12-800(H)(1), the meeting will be made open to all the public. The meeting must be held at an accessible and adequate location. If requested by members of the public or the Director determines remote attendance is necessary for public health reasons, accommodation must be made for remote attendance. 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 20 days after the meeting.
- K. **Referral Requirements and Agency Review.** Following the determination that an Application is complete, the Director 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 must be returned to the Director within 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 12-800(H)(1). The notice will include information on where to access Application materials on the County's website. The complete Application referral packet will be available for public review online and in hard copy at the Department during business hours. Referral responses must be received by the Director within 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 ("POSAC") for a public hearing. After the public hearing, the POSAC may forward

recommendations for assuring the protection of environmental, ecological, wildlife, recreational, 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. Any errors made by the Applicant in the preparation of referral packets may result in a delay in processing of the Application.
- 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, and the Applicant 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 Special Review process, 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 evaluate the Application and the site-specific circumstances on and near the parcel and surrounding parcels on which the facility and operations are located. The Department may coordinate a site visit with other County departments and governmental agencies.
- O. Staff Recommendation. After its review of the Application, staff will make a recommendation for approval with conditions or denial of the Application, based on its analysis of the Special Review Standards, the referral comments and the Applicant's responses to the referral comments, and all public comment including comments submitted at the Applicant's neighborhood meeting. When the staff recommendation is complete, the Application will be scheduled for a public hearing in front of the Planning Commission. The staff recommendation will be made available to the public once it is complete.
- P. Notice of Planning Commission Hearing. Not less than 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 12-800(H)(1) of the time and place of the Planning Commission's public hearing.
- Q. Planning Commission Hearing and Recommendation. 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, which will be forwarded to the Board of County Commissioners.
- R. Notice of Board of County Commissioners' Hearing. Not less than 14 days prior to the Board's 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 12-800(H)(1).
- S. Board of County Commissioners Hearing and Decision. The Board will hold a public hearing on the Application. Any action taken by the Board 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, including but not limited to: recordings or transcripts of public hearings; all written comments of referral agencies; the review and recommendations of the Department, POSAC if applicable, and Planning Commission; 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 standards for approval have been met. Based on the evidence received at such public hearing(s), the Board will make its determination to 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 Sections 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.

12-900 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 facilities and 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 12-1400(E).

A. General Information

1. Application Form.
2. Operator Registration. Operator registration materials submitted under 12-400 are incorporated into the Application materials. The Director, POSAC, 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 Rights and Surface Access Rights. Proof of ownership of, or lease rights to, the mineral rights and accompanying 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 lands where the proposed oil and gas facilities will be located. 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 facilities or operations. A copy of any signed or proposed agreements with landowner(s) 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 gas, oil or water (fresh, produced, or waste) pipelines that are necessary for the proposed oil and gas operations. A copy of any signed or proposed agreements with landowner(s) 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, 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, re-drill 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. **Waiver of Subrogation.** Operator will waive and cause its insurers to waive for the benefit of the County any right of recovery or subrogation which the insurer may have or acquire against the County or any of its affiliates, or its or their employees, officers or directors for payments made or to be made under such policies.
 - i. **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.
 - j. **Contractors.** Operator shall require adequate insurance of its contractors and subcontractors. Operators will be responsible for any and all damage or loss suffered by the county as a result of the work being performed by Operator or any subcontractor as described in this Article.
6. **Financial Fitness and Assurances.** Applicant will be required to provide adequate financial assurances to guarantee performance of all conditions of approval attached to any Special Review approval for the lifetime of the oil and gas facility until final reclamation obligations are completed to the County's satisfaction. 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 provided will be determined by the County with any Special Review approval.

B. Site and Area Information. Applicant must include maps that meet the following criteria:

1. All maps must be at a scale which best conveys the conceptual aspects of the plan, include written scale, graphic scale, and north arrow (designated as true north), and allow for effective public presentation. All maps and plans must include the date of preparation and revision box.
2. 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.
3. Existing Dwellings and Structures. A map of the location of all existing Dwellings and other structures and improvements within one mile from the parcel(s) on which the proposed oil and gas facility will be located. Dwellings must be specifically identified. This map must depict any minimum setbacks required by this Article.
4. Existing Roads. A map depicting all existing roads (designating public and private roads) near and surrounding the proposed oil and gas facilities.
5. Existing or Pending 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, on or within one mile of the parcel(s) where the proposed oil and gas facilities will be located and within one mile of either side of the full length of each proposed wellbore.
 - b. A map of existing oil, gas, and water pipelines on or within one mile of the parcel(s) where the proposed oil and gas facilities will be located, 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.
6. Water Wells. A map of any domestic or commercial water wells or irrigation wells within one mile of the parcel or parcels on which the proposed oil and gas facilities will be located and within one mile of either side of the full length of each proposed wellbore.
7. Surrounding Land Use Patterns. Identification of all existing activities and uses on surrounding lands (e.g., agricultural activities, residential, recreational, commercial or businesses) within one mile, or as otherwise determined, of the parcel(s) where the oil and gas facilities are proposed to be located.
8. Educational Facilities and Child Care Centers. A map of educational facilities and licensed Child Care Centers within one mile of the parcel(s) on which the proposed oil and gas facilities will be located. This map must include the distances between the proposed oil and gas facility and the Educational Facilities and licensed Child Care Centers. This map must depict any setbacks required by this Article.
9. Agricultural Lands. A map of the agricultural lands on and within one mile of the parcel(s) on which the oil and gas facilities are proposed to be located, including but not limited to agricultural lands of national, statewide, or local importance as identified in the Boulder County Comprehensive Plan; identification of the specific agricultural uses on the parcel(s) and their status; and the existence of irrigation and other agricultural infrastructure.
10. Water Bodies; Riparian Areas; Wetlands; Ditches. A map depicting all surface water bodies including, but not limited to, lakes, streams, wetlands or aquatic habitat, riparian areas, and riparian corridors identified in the Boulder County Comprehensive Plan or otherwise found on or within one mile of the parcel(s) on which the proposed oil and gas facilities will be located, and within one mile of either side of the full length of each proposed wellbore. The map must also depict irrigation ditches and reservoirs as identified and mapped on the Boulder County's Ditch and Reservoir Directory and the St. Vrain and Left Hand Water Conservation District Ditch and Reservoir Directory.
11. Natural Resources. A map of all significant natural ecosystems or environmental features, significant natural communities, rare plant areas, high biodiversity areas, natural landmarks, and natural areas, as identified in the Boulder County Comprehensive Plan, found from other sources, or otherwise identified on or, within one mile of the parcel(s) on which the oil and gas facilities are proposed to be located.
12. Existing vegetation. An inventory of the vegetation (including its quality) at the site of the proposed oil

and gas facilities.

13. **Wildlife.** A map of critical wildlife habitat and wildlife migration corridors or routes as identified by the Boulder County Comprehensive Plan and the presence of: species listed in the Boulder County Wildlife Species of Concern listing; Tier 1 and Tier 2 species as identified by the Colorado Parks and Wildlife ("CPW"); and of federally-designated threatened or endangered species, as mapped by governmental agencies or discovered upon inspection, on and within one mile of the parcel(s) on which the oil and gas facilities are proposed to be located.
 14. **Natural and Geologic Hazards.** A map of all natural and geologic hazard and constraint areas as identified in the Boulder County Comprehensive Plan or using the best available information on or within one mile of the parcel(s) on which the proposed oil and gas facilities will be located and within one mile of either side of the full length of each proposed wellbore. Natural hazards may include, without limitation, expansive soils or claystone, subsiding soils, soil creep areas, or questionable soils where the safe-sustaining power of the soils is in doubt; landslides, mudslides, mudfalls, debris fans, unstable slopes, and rockfalls.
 15. **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, on or within one mile of the parcel(s) on which the proposed oil and gas facilities will be located.
 16. **Recreational Activity; Trails; Bikeways.** A map and 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 mile of the parcel(s) where the oil and gas facilities are proposed to be located.
 17. **Open Space.** A map of public open space or lands with conservation easements on or within one mile of the parcel(s) on which the proposed oil and gas facilities will be located.
 18. **Site Selection Rationale.** Maps and a narrative explaining the reasons the Applicant chose the proposed site(s) for the oil and gas facilities or operations with respect to other possible locations.
 19. **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 2015 National Ambient Air Quality Standards of 70 parts per billion or any newer standard under the Clean Air Act were exceeded. The report should include all data for the preceding three-year period.
- 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.** A map and dimensions of the proposed oil and gas facilities, indicating both temporary and permanent disturbance areas, in square feet and acres.
 4. **Roads and Road Improvements.** A map of proposed new roads and improvements to existing roads that will be necessary for the proposed oil and gas facilities, as well as identification of the road surface planned for each road or road improvement.
 5. **Pipeline Plan.**
 - a. The specific location and route of each flowline, and fresh, produced, or waste water pipeline and any other transport pipeline necessary for the oil and gas facilities and operations, through the lifetime of the oil and gas facilities and operations, and their distances from: existing or proposed residential, commercial, or industrial buildings; places of public assembly; surface water bodies; natural resources identified under 12-900(B)(11); geologic hazards, agricultural lands; 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 and information showing location and typical cross-section of all existing and proposed earthwork on the parcel(s) on which the oil and gas facilities are proposed to be located, including earthwork calculations, historic drainage patterns and flow rates, mitigation measures to compensate for anticipated drainage impacts, and geotechnical soil reports. The best available information should be used to identify and evaluate drainage impacts, including without limitation the Boulder County Storm Drainage Criteria Manual. The plan must be certified by a Colorado registered professional engineer.
7. Landscaping and Screening Plan. A plan denoting the intended landscaping and visual screening on the parcel(s) on which the oil and gas facilities are proposed to be located; an irrigation plan may be required where visual buffering is proposed to be accomplished with vegetation.
8. Weed Control Plan. A Weed Control Plan identifying what County listed noxious weeds are known to be on the parcel(s) on which the oil and gas facilities are proposed to be located, their location, and the proposed method of weed control. This plan must include an integrated management strategy to prevent and manage the growth of noxious weeds during oil and gas operations and reclamation.
9. Dust Suppression Plan. A plan detailing how the Applicant will prevent excessive dust escaping from the oil and gas facility site(s) and all associated roads; a plan for preventing fugitive dust, sand, or silica materials escaping from any oil and gas operation.
10. Lighting Plan and Photometric Study. A plan indicating the location of all outdoor lighting on the site and structures, including cut sheets (manufacturer's specifications with picture or diagram) of all proposed fixtures. The plan should include the location and type of any emergency lighting and description of situations in which it will be used. A photometric study conducted by an independent consultant to measure the lumens emitted by the oil and gas facilities or operations and evaluate lighting impact on surrounding properties must also be included as part of the plan.
11. 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 decommissioning.
12. Electrification Plan. A plan identifying 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.
13. Revegetation and Reclamation Plan. A plan illustrating how all disturbed as will be revegetated and reclaimed, including areas disturbed during flowline abandonment. The plan will include timing, methods, materials to be used, including any proposed soil amendments, and procedures for ensuring successful revegetation, including an on-going maintenance plan that ensures successful establishment of vegetation and weed control. Revegetation and reclamation will include, but is not limited to, the use of native plant species when appropriate, integrated management of weed control and prevention, and full establishment of appropriate vegetation for a minimum of three consecutive growing seasons. No species on List A, B, or C in the County's Noxious Weed Management Plan may be used to meet revegetation requirements.
14. Worker Training and Records. Written procedures detailing employee training requirements and training records.
- D. Assessments, Studies, and Plans by Outside Experts. Independent experts, engineers or consultants referenced in this section will be retained by the Applicant and be subject to approval by Boulder County.
 1. Air Quality.
 - a. Existing emissions. An independent expert's inventory of methane, VOCs, NO_x, CO₂, and particulate emissions for all oil and gas facilities and operations in Boulder County owned or operated by the Applicant for the calendar year prior to registration or renewal. Operators must submit all Air Pollution Emission Notices for hazardous air pollutants submitted to the Air Pollution Control Division to the independent expert for review.
 - b. Air Quality Modeling. A qualified, independent modeling study that considers all relevant environmental and atmospheric conditions, and:

- i. Assesses the existing air quality at the proposed site;
 - ii. Predicts the anticipated emissions (including hazardous air pollutants, methane, VOCs, NO_x, CO₂, and particulate emissions) from the proposed oil and gas facilities and operations, 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 and operations over their lifetime, until final reclamation obligations are completed to the County's satisfaction, including the compounding effects of climate change on ozone and particulate pollution in the county and 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.** An independent expert'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 characteristics of the soil, 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 Multimodal Transportation Standards, covering all areas affected by the proposed oil and gas facilities or operations and prepared 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, for the lifetime of the oil and gas facilities and operations until final reclamation obligations are completed to the County's satisfaction.
 - 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. **Agriculture.** An independent expert's report identifying the anticipated impacts of the proposed oil and gas facilities or operations on the current agricultural uses and the existing productivity of the lands where the oil and gas facilities and operations are proposed.
5. **Wildlife.** An independent expert's report (i) identifying the presence and population numbers of: species listed in the Boulder County Wildlife Species of Concern listing; Tier 1 and Tier 2 species as identified by CPW; and federally-designated threatened or endangered species, (ii) identifying the anticipated impacts of the proposed oil and gas facilities and operations on wildlife and wildlife habitat, and (iii) recommending measures for avoiding or minimizing such impacts.
6. **Natural Resources.** An independent expert's report identifying the anticipated impacts of the proposed oil and gas facilities and operations on the resources identified under 12-900(B)(11) and recommendations for avoiding or minimizing such impacts.
7. **Water Quantity, Source and Use.**
 - a. An estimate of the amount of water needed for all phases of the oil and gas operation.

- b. The source of water intended for use by the proposed oil and gas facility or operation.
 - i. 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.
 - c. Impacts of Water Use. An independent expert's assessment of the impacts of the proposed use of water described in subsections (a) and (b) above. Impacts to, at a minimum, downstream users, groundwater users, agricultural lands and users, terrestrial and aquatic wildlife, plant communities, and recreation must be considered.
 - d. Water Management Plan. An independent expert's recommendation of measures that will avoid or minimize the impacts identified in subsection (c) above and address the water use standards in Section 12-1000.
 - e. Produced Water. An estimate of the amount of produced water and other wastewater that will be generated by the proposed oil and gas operations, including 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.
 - i. Plans for recycling or reusing water used or produced by the oil and gas operations.
8. Water Quality.
- a. 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 mile of the parcel or parcels on which the oil and gas facilities are proposed to be located and within one-half mile of either side of the full length of each proposed wellbore. For all water wells and water sources for which the Applicant 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. Analysis. All sampling shall be performed by the Applicant according to the specified methods in 40 C.F.R. Part 136, including sample containers, preservation methods, and holding time limits, for the analytes listed in Table 1 below; and
 - 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 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 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 monitoring 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 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; or

3. Additional reporting to Boulder County Public Health.
- b. **Modeling of Impacts.** An independent expert's modeling of the water quality impacts on any water bodies and groundwater within one mile, or as otherwise determined, of the oil and gas facilities and operations.
- c. **Stormwater Quality Control.** A plan for establishing compliance with the stormwater management provisions of 12-1000(EE), Boulder County's Illicit Stormwater Discharge Ordinance, the Stormwater Quality Control provisions of 7-904 of the Code, and with all water quality or stormwater quality control permits obtained from the County or any other agency. With reference to such standards, the plan must include:
 - i. Containment of pollutants;
 - ii. A list of the control measures that will be employed to prevent illicit or inadvertent discharges of contaminated stormwater, which may include containment impoundments, energy dissipators, sediment traps, check dams, culverts, and level spreaders or similar devices;
 - iii. Spill notification and response plans;
 - iv. 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; and
 - v. 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 COGCC rules and associated forms.
9. **Emergency Preparedness Plan.** 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 2 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 15 minutes.
 - b. Protocols for notification of emergency response services and the County, including contact names and numbers for each such agency, for use in reporting any incident causing or threatening to cause personal injury or property damage. Emergency response must be notified immediately upon the imminent threat or occurrence of such incidents; the County must be notified as quickly thereafter as practicable and in no instance more than 24 hours later.
 - c. 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 30 days of the ready-for-service date.
 - d. Transportation routes to and from oil and gas facilities for emergency response and management purposes, including at least 2 evacuation routes and health care facilities that would be used.
 - e. Detailed information addressing each potential emergency that may be associated with the operation. This will include events such as 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 will also include external hazards to the site such as earthquakes, lightning, floods, high winds, tornadoes, terrorism, vandalism, or wildfire.
 - f. The threshold or triggers constituting an emergency must be identified.
 - g. 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 4 hours after such spill is discovered, in addition to all necessary reporting to state agencies.
 - h. Project-specific emergency preparedness plans are required for any project that involves drilling or penetrating through known zones of hydrogen sulfide gas.

- i. 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.
 - j. Detailed information on safety management showing that the Operator has adequate personnel, ongoing safety training of all on-site personnel, safety supplies, and funding to implement the emergency response plan immediately at all times during construction and operations.
 - k. 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.
 - l. The plan must include a provision establishing a process by which the Operator periodically engages with the surrounding residents and landowners 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.
 - m. The plan must include a process by which the community can submit concerns and complaints and be assured of responses.
10. Noise Plan.
- a. Monitoring Plan. An independent expert's plan for the creation of the Baseline Report and noise modeling, including the proposed receptor locations, proposed test periods, and proposed times of year for monitoring and the software and methodology for modeling. This plan must be approved by the County prior to the creation of a Baseline Report or Noise Modeling. This plan must demonstrate that the Baseline Reports and Noise Modeling will comply with the current version of American National Standards Institute S 1.4: Specifications for Sound Level Meters.
 - b. Baseline Report. Report of dBA and dBC ambient noise levels over 24-hour test periods for at least 3 consecutive weekdays and 3 consecutive weekend periods at the site in different weather conditions, according to the Monitoring Plan. Baseline Reports must include wind speed, direction, rainfall data, season conducted, and any other relevant conditions.
 - c. Noise Modeling. Using an industry-recognized noise modeling software, modeling of expected dBA and dBC noise levels from the proposed oil and gas facilities and operations during all phases of development and operation, assuming use of and identifying all noise-mitigating equipment and measures intended for use at the proposed oil and gas facilities or operations. All Noise Modeling must include a list of all noise sources, reference noise data used in the model for each source, noise attenuation specifications for any proposed noise walls, a scaled map showing predicted noise levels.
 - d. Complaint procedure. A plan for responding to noise complaints and communicating the results to the complainant and to the County in a timely manner.
11. Odor Plan. A list of all odor reduction measures that will be used to address the predicted odors from the proposed oil and gas facilities and operations and meet the standards in 12-1000(P). Identification of all natural features (e.g., topography, prevailing wind patterns, vegetation) that will aggravate or mitigate odor impacts on the areas within 2000 feet of the parcel(s) where the oil and gas facilities are proposed to be located. A plan for timely responding to odor complaints and communicating the results to the complainant and to the County.
12. Cultural and Historical Resources Survey. A cultural, historical, and archeological survey of the parcel(s) where the oil and gas facilities or operations are proposed to be located done in consultation with and as required by History Colorado.

13. Flood Protection and Mitigation Plan. If the proposed oil and gas facilities or operations are within a floodplain, an independent engineer's plan that describes how flood protection measures and flood response actions, such as remote shut-in procedures and, anchoring will be implemented.
14. Waste.
 - a. Projected waste. An independent expert's assessment projecting 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 facilities or operations throughout their lifetimes, until final reclamation obligations are completed to the County's satisfaction.. The assessment will include description of any sources of technically enhanced naturally occurring radioactive material used in or generated by the oil and gas operations and facilities.
 - b. Waste Management Plan. Plan for disposal of all waste generated by the oil and gas facilities or 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.
15. Existing Mines Risk Study. An independent engineer's study and assessment of the degree and type of risks posed by interaction of the proposed oil and gas facilities or operations 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 within one mile of either side of the full length of each proposed wellbore.

12-1000 Special Review Standards

All Special Review Applications for new oil and gas development 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 will determine whether the proposed oil and gas facility or operation, individually and in light of cumulative impacts, complies with these Special Review 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 altogether or, through imposition of conditions of approval, sufficiently minimize, and mitigate adverse impacts. The Board will deny the Application if the proposed oil and gas facilities or operations cannot be conducted in a manner that protects public health, safety, and welfare, the environment and wildlife.

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. The Applicant bears the burden of proving that the proposed oil and gas facilities and oil and gas operations will meet the standards. 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.

- A. Air Quality. Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate adverse 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 ("EPA"). Oil and gas facilities and operations will not contribute particulate matter to the air in a manner that fails to protect public health.
 2. Methane. Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate emissions or release of methane.
 3. The most protective health-based guidelines for hazardous air pollutants set by CDPHE.

- B. **Water Use.** Use of the proposed water from the proposed supply will avoid or sufficiently minimize and mitigate adverse impacts on water users, groundwater users, water delivery systems, agricultural lands and operations, recreation water body health, terrestrial and aquatic wildlife, and viability, plant communities, wetlands, and wildlife.
- C. **Agricultural Land.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate loss of and adverse impacts to: agricultural land, including farm or ranch lands and soils identified in the Comprehensive Plan or through the Special Review process; agricultural operations, including crop and livestock production; irrigation systems and schedules; and improvements including fencing.
- D. **Cultural and Historic Resources.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate adverse impacts to or loss of cultural or historic or archaeological resources identified in the Comprehensive Plan or through the Special Review process, resources eligible for County landmarking, and sites included in the National Historic Register.
- E. **Emergency Prevention and Response.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate risks of and appropriately prepare for 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. In the event of an emergency, adequate practices and procedures must be in place to protect public health and safety and repair damage caused by emergencies.
- F. **Financial Fitness and Assurance.** Oil and gas operations will avoid or sufficiently minimize and mitigate adverse impacts to public, health, safety, and welfare resulting from financial instability of the operator. Applicants must demonstrate sufficient financial stability to operate the proposed oil and gas operations for the lifetime of the oil and gas operations until final reclamation obligations are completed to the County's satisfaction. 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 until final reclamation obligations are completed to the County's satisfaction., which may include environmental surety bonds.
- G. **Floodplains and Floodways.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate the risk of adverse impacts to public health, safety, and welfare, the environment and wildlife from floods. Flood mapping may be identified in the adopted maps referenced in the Land Use Code or through the Special Review process using the best available information. Above-ground oil and gas facilities are prohibited in floodways. Above-ground oil and gas facilities must be located outside a floodplain unless the Applicant proves that no other sites can be reasonably used, or if reasonably necessary to avoid or sufficiently minimize and mitigate adverse impacts to public health, safety, and welfare, the environment and wildlife.
- H. **Drainage.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate adverse impacts to historic drainage patterns and/or flow rates. The best available information should be used to evaluate these impacts, including the Boulder County Storm Drainage Criteria Manual, hydrologic evaluations to determine peak flows, floodplain mapping studies, updated topographic data, Colorado Geologic Survey landslide, earth/debris flow data, and creek planning studies, as applicable.
- I. **Dust.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate impacts from dust. Operators must prevent dust from leaving their property. No produced water or other process fluids shall be used for dust suppression.
- J. **Geologic and Natural Hazards.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate risks from geologic or natural hazard areas as identified in the Boulder County Comprehensive Plan or through the Special Review process using the best available information. Oil and gas facilities will not be located in such areas, unless there is no way to avoid the hazard area, no other sites can be reasonably used, or if reasonably necessary to avoid or sufficiently minimize and mitigate adverse impacts to public health, safety, and welfare, the environment and wildlife.
- K. **Land Disturbance.** Oil and gas facilities and operations must avoid or sufficiently minimize and mitigate adverse impacts to the surface lands under and immediately surrounding all oil and gas operations and facilities. Considerations in applying this standard include, but are not limited to, alteration of the natural topography and existing vegetation, the scope of the proposed oil and gas facilities or operations, the

amount of cut and fill, and run-off and erosion potential, and soil stability.

- L. **Lighting.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate adverse impacts associated with lighting on public health, safety, and welfare, the environment and wildlife. Lighting associated with oil and gas facilities or operations will be designed to protect surrounding properties, roadways, livestock, and wildlife from light pollution and glare.
- M. **Water Bodies; Riparian Areas; Wetlands.** Oil and gas facilities or operations will avoid or sufficiently minimize and mitigate adverse impacts to all surface water bodies including, but not limited to, irrigation ditches and reservoirs in Boulder County's Ditch and Reservoir Directory and the St. Vrain and Left Hand Water Conservation District Ditch and Reservoir Directory, as well as wetlands or aquatic habitat, riparian areas, and riparian corridors mapped or identified through the Special Review process using the best available information.
- N. **Natural Resources.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate adverse impacts to significant natural ecosystems or environmental features, significant natural communities, rare plant areas, high biodiversity areas, natural landmarks, and natural areas, as identified in the Boulder County Comprehensive Plan, other sources, or through the Special Review process using the best available information.
- O. **Noise.**
 - 1. Oil and gas operations will avoid or sufficiently minimize and mitigate adverse impacts to public health, safety, and welfare, the environment and wildlife from noise. No oil and gas operations will create noise that unreasonably exceeds the existing ambient noise levels. Specific noise limitations will be assessed and imposed for each proposed oil and gas facility or operation. Maximum noise levels will be lower during nighttime hours than during the day.
 - 2. In no instance may an oil and gas operation produce dBA noise exceeding limits set by the COGCC.
 - 3. In no instance may an oil and gas operation produce noise exceeding 60 dBC.
- P. **Odor.** Oil and gas operations will avoid or sufficiently minimize and mitigate adverse impacts on public health, safety, and welfare, the environment and wildlife from odor. No odor from the proposed oil and gas facility or oil and gas operations shall be detectable after dilution with 2 or more volumes of odor free air as measured at the property line of the oil and gas location.
- Q. **Electrification.** Oil and gas operations will avoid or sufficiently minimize and mitigate adverse impacts from the use of generators and fossil fuel combustion. Operations will be electrified to the highest degree possible. Renewable energy sources will be required unless the Applicant proves that they are not feasible in which case off-site renewable offsets may be substituted.
- R. **Pipelines.** All flowlines and fresh, produced, or wastewater pipelines will be routed and constructed to avoid or sufficiently minimize and 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. Pipelines crossing streams, ditches, or other water bodies must be bored underneath the water body, consistent with the Boulder County Stormwater Discharge Control Manual.
- S. **Recreational Activity, Trails, Bikeways.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate adverse impacts to the quality and quantity of both active and passive recreational activities, trails, and bikeways maintained by the County or any municipality or that are mapped or identified through the Special Review process using the best available information.
- T. **Revegetation, Reclamation, and Weed Control.** Oil and gas operations will avoid or sufficiently minimize and mitigate adverse impacts to affected lands resulting from land disturbance, vegetation clearing and weed incursion. The Operator must fully reclaim all areas of disturbance and revegetate if necessary. Vegetation must be fully established pursuant to approved revegetation and reclamation plans. No species on List A, B, or C in the County's Noxious Weed Management Plan may be used.
- U. **Safety.** Oil and gas operations must be conducted in a manner that avoids or sufficiently minimizes and mitigates risks of personal injury and property damage.

- V. **Scenic Attributes and Rural Character.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate adverse impacts to the scenic attributes and rural character of the surrounding area. Temporary structures, such as sound walls, or buildings constructed to mitigate impacts of oil and gas development may be approved at heights greater than the maximum building heights for each zoning district.
- W. **Setbacks, Location, and Surrounding Land Uses.** Oil and gas facilities will be located to avoid or sufficiently minimize and mitigate adverse impacts to surrounding land uses and protect public health, safety, and welfare, the environment and wildlife. The Board will consider separation between proposed oil and gas operations and existing land use as a primary means of avoiding adverse impacts. Under 12-1100(A), the Board may relocate proposed oil and gas facilities in order to meet the standards under this Section, which would generally require Well Pads to be located 2,500 feet or more from an existing Dwelling and related residential uses; an Educational Facility or licensed Child Care Center; and public trails and trailheads owned and maintained by the County or any municipality; and workplaces located in the LI, GI, C, B, and T zoning districts. In all cases, a Well Pad at an oil and gas facility must be located a minimum of 2,000 feet from: an existing Dwelling and related residential uses; an Educational Facility or licensed Child Care Center; and public trails and trailheads owned and maintained by the County or any municipality; and workplaces located in the LI, GI, C, B, and T zoning districts.
- X. **Soil.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate adverse impacts to baseline soil conditions.
- Y. **Transportation, Roads, and Access.** Oil and gas facilities and operations must be designed and implemented to avoid or sufficiently minimize and mitigate adverse impacts to public health, safety, and welfare, the environment and wildlife and the County transportation system while supporting a multimodal transportation system, avoiding traffic hazards and minimizing use of County-owned gravel roads.
- Z. **Vibration.** Oil and gas facilities and operations must avoid or sufficiently minimize and mitigate adverse impacts to the public health, safety, and welfare, the environment and wildlife from vibrations. Oil and gas facilities and operations must not create vibrations significant enough or long enough in duration to cause adverse impacts to the health, safety, welfare, environment, and wildlife, or quality of life of surrounding residents and occupants or damage to existing structures.
- AA. **Waste.** Oil and gas operations and facilities will avoid or sufficiently minimize and mitigate adverse impacts to public health, safety, and welfare, the environment, and wildlife from waste materials. All waste generated by oil and gas facilities and operations will be stored, transported and disposed of safely. Injection wells and disposal wells are prohibited.
- BB. **Water Quality.** Oil and gas facilities and operations must avoid or sufficiently minimize and mitigate adverse impacts to the availability and quality of surface water bodies and groundwater within Boulder County.
- CC. **Worker Training.** Oil and gas facilities will be operated in a manner that avoids or sufficiently minimizes and mitigates adverse impacts to public health, safety, and welfare, the environment and wildlife that could be caused by human error or negligence. All workers at oil and gas facilities and involved with oil and gas operations shall have any applicable nationally recognized certifications and training for the work they are performing. This includes, but is not limited to, Hazard Communications Training, Hazardous Waste Operations Certifications, heavy equipment operator training, occupational safety and health training, etc.
- DD. **Stormwater Quality Control.** All stormwater runoff occurring at an oil and gas facility must be controlled to avoid or sufficiently minimize and mitigate adverse impacts to surrounding natural resources, including wetlands and water bodies.
- EE. **Wildlife.** Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate adverse impacts to wildlife habitat and migration corridors as defined in the Boulder County Comprehensive Plan and wildlife, including species listed in the Boulder County Wildlife Species of Concern listing; Tier 1 and Tier 2 species as identified by CPW; and federally-designated threatened or endangered species, as mapped by those agencies, or identified on the site.

12-1100 Conditions of Approval

After Special Review, the Board will deny the Application if the proposed oil and gas facilities or 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 12-1000 and protection of public health, safety, and welfare, the environment and wildlife. Conditions may include but are not limited to the following:

A. Location.

1. Adjustments to the locations of any or all proposed oil and gas facilities or operations, 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; or
4. Limitations on times of day and night in which operations are conducted.

D. Air Quality.

To protect air quality and public health, emissions control measures may be required, including, but not limited to, one or more of the following:

1. Compliance with the current, most protective air quality regulations and health-based standards, which may include regulations and standards set by the EPA, CDPHE, COGCC, Centers for Disease Control, or other relevant authorities.
2. Continuous monitoring during all phases from pre-production through the end of production, which may monitor air quality at the oil and gas facilities, nearby properties, and other areas of concern.
3. A leak detection and repair program that may include:
 - a. Use of best available technology leak detection, such as infra-red cameras and hydrocarbon analyzers;
 - b. Regular on-site inspections at a frequency determined by the Director;
 - c. Immediate leak repair;
 - d. Reporting of monitoring and inspection results to the Director, who may make such reports available to the public;
 - e. Operator maintenance of all images and data obtained from leak detection devices for 10 years, to be made available to the Director upon request; and
 - f. Immediate reporting of all leaks detected to the Director;
4. Completion of wells using reduced emission completion practices.
5. Require closed loop pitless systems for containment and/or recycling of all drilling, completion, flowback and produced fluids.
6. Routine flaring is prohibited. 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.
 - a. Routine flaring is the flaring of natural gas during the normal course of oil and gas production for reasons other than safety and emergencies and other conditions outside of the control of the operator.

- b. For any permitted flaring, 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
- 7. Venting is prohibited during all phases unless approved by the Director or required in situations where there is an immediate threat to public health, safety, and welfare, the environment, and wildlife.
- 8. Require all pneumatics to be non-emitting pneumatic controllers.
- 9. Zero-emission desiccant dehydrators or 98% control of hydrocarbon emissions from glycol dehydrators.
- 10. Operator participation in Natural Gas STAR or other voluntary programs to encourage innovation in pollution control.
- 11. Emission reduction measures in immediate response to posting of air quality action day advisories by CDPHE for the County area, including minimizing vehicle and engine idling, reducing truck and employee traffic, delaying vehicle refueling, suspending or delaying use of gas-powered ancillary equipment, postponing well maintenance and storage tank hydrocarbon liquid loadout, postponing construction and maintenance activities.
- 12. Consolidation and centralization of product treatment and storage equipment and compression equipment.
- 13. Use of a pressure-suitable separator and vapor recovery unit.
- 14. Hydrocarbon control of 98% or better for crude oil, condensate, and produced water tanks.
- 15. Require dry seals on centrifugal compressors.
- 16. Routing of emissions from rod-packing and other components on reciprocating compressors to vapor collection systems.
- 17. Control emissions by 98% during storage tank hydrocarbon liquids loadout (i.e. loading out liquids from storage tanks to trucks).
- 18. Prohibit manual venting during well liquids unloading activities, use best management practices during liquids unloading activities, including the installation of artificial lift, and automated plunger lifts or other forms of artificial lift (98% or better hydrocarbon flare only).
- 19. Reduction or elimination of emissions from flowline maintenance activities such as pigging, including routing emissions to a vapor collection 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.
 - 4. Restrictions on field maintenance of vehicles involving hazardous materials
 - 5. Requirement that vehicles are only refueled on impervious surfaces and never during storm events.
- F. Inspections.
 - 1. Operators will inspect all their oil and gas facilities, including their 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 or releases, including use of best available technology (such as infrared cameras), at least every 30 days; and
 - c. Visual inspections for liquid leaks at least every 30 days.
 - 2. Operators will report the date, methodology, subject, and results of all inspections to the County monthly.
 - 3. 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 Local Governmental Designee immediately upon discovery and no later than 6 hours thereafter. When leaks, spills, or releases are discovered, by County or Operator inspection, the enforcement mechanisms and penalty provisions in 12-1400 and 12-1500 will apply.

4. Reporting. For spills or other releases meeting the Colorado reporting requirements pursuant to Section 25-8-601 (2), C.R.S., operators will adhere to all Colorado reporting requirements. If the County determines the spill or leak is reportable to any agency, the County may make such report.
 5. Clean-up. Any leak, release, or spill will be cleaned up according to applicable County, state and federal laws, including Colorado Water Quality Control Commission regulations, the Oil and Pollution Act and the Clean Water Act. Operators will notify the County immediately upon completion of clean-up activities, at which time the County will inspect the site and either approve the clean-up or impose additional requirements, which may include penalties under 12-1400 and 12-1500.
 6. Root Cause Analysis. A root cause analysis of any spill, leak, or release of any substance other than fresh water that resulted in serious bodily injury or fatality, serious environmental harm, was a Grade 1 gas leak as defined by the COGCC, or is otherwise requested by the Director must be submitted to the County within 30 days of the leak, spill, or release.
- G. Water Supply.
1. Conditions necessary to avoid, minimize, and mitigate the impacts of the proposed water use, including recycling; and
 2. Any necessary water agreements must be secured prior to any oil and gas operations commencing.
- H. Waste. Compliance with the County-approved waste management plan, including routine testing of all applicable waste for technically enhanced naturally occurring radioactive material.
- I. Water Quality and Stormwater Quality 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 mile of the parcel or parcels on which the oil and gas facilities are proposed to be located and within one-half mile of either side of the full length of each proposed wellbore. Sampling requirements may include:
 - a. Testing for the analytes listed in Table 1.
 - b. Post-completions and periodic on-going monitoring samples collected from one up-gradient and one down-gradient source and tested pursuant to the following time frame:
 - i. One sample within 6 months after completion;
 - ii. One sample between 12 and 18 months after completion; and
 - iii. One sample between 60 and 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. In any case, the Director may require the Applicant to drill a water monitoring well on the Well Pad to ensure that groundwater samples are collected from the aquifer(s) through which the well will penetrate.
 - e. All sampling shall be performed by the Applicant according to the specified methods in 40 C.F.R. Part 136, including sample containers, preservation methods, and holding time limits.
 - f. The location of each tested water source will be noted using a GPS with sub-meter resolution.
 - g. Reporting on damaged or unsanitary water well conditions, adjacent potential pollution sources, odor, water color, sediment, bubbles, and effervescence.
 - h. The Operator will submit a monitoring 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 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 5 mg/l between sampling periods, or increases to more than 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; or
 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 or waters within the County.
 4. Compliance with the Boulder County Illicit Stormwater Discharge Ordinance, and all water quality or stormwater quality permits from the County and other agencies.
 5. Confirmation from CDPHE that the oil and gas facilities and operations are 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 Radionuclides Tracing materials associated with Operator's fracking fluid as identified in the Water Quality Plan pursuant to 12-

J. Contamination Prevention.

1. For each existing abandoned oil and gas facilities identified under 12-900(B)(5), prior to any hydraulic fracturing, and at periods following hydraulic fracturing, the Operator must perform assessment and monitoring that may include:
 - a. Risk assessment of leaking gas or water into the ground surface or subsurface water resources;
 - b. Soil gas surveys from various depths and at various distances depending on results of risk assessment;
 - c. Same surveys 90 days after completion and every year after production has commenced if initial survey results suggest increased risk;
 - d. follow-up soil gas survey and leak tests may be required every 3 years after production has commenced; and
 - e. Periodic or specific bradenhead testing.

K. Spills, Leaks, and Releases.

1. Containment. Secondary or Tertiary containment for oil and gas facilities and operations may be required.
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, gas leaks, and E & P waste, must be reported to emergency response as required and 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 County, state and federal laws, including Colorado Water Quality Control Commission regulations, the Oil and Pollution Act and the Clean Water Act. Operators will notify the County immediately upon completion of clean-up activities, at which time the County will inspect the site and either approve the clean-up or impose additional requirements, which may include penalties under 12-1400 and 12-1500.
4. Root Cause Analysis. Submission to the County of a root cause analysis of any spill, leak, or release of any substance other than fresh water that resulted in serious bodily injury or fatality, serious environmental harm, was a Grade 1 gas leak as defined by the COGCCC, or is otherwise requested by the Director within 30 days of the leak, spill, or release.

L. Revegetation and Reclamation.

1. Specific revegetation and reclamation measures for all areas disturbed by any oil and gas facilities or operations, including pipelines, in accordance with the Revegetation and Reclamation Plan approved by the County.
 2. Revegetation and reclamation will include, but is not limited to, the use of native plant species when appropriate, integrated management of weed control and prevention, and full establishment of appropriate vegetation for a minimum of three consecutive growing seasons. No species on List A, B, or C in the County's Noxious Weed Management Plan may be used to meet revegetation requirements.
 3. Requirement that revegetation and reclamation, both preliminary and final, begin as soon as possible after decommissioning of any oil and gas facility or completion of construction and in no case later than 60 days thereafter.
 4. Requirement that initial reclamation and revegetation procedures be completed as soon as possible after decommissioning of any oil and gas facility or completion of construction and in no case later than 120 days thereafter. Full establishment of revegetation and completion occurs only after a minimum of 3 growing seasons demonstrating establishment of desirable plant species.
- M. Site Management.
1. Trash. Prohibition on burning of trash in association with an oil and gas operation per Section 25-7-128(5), C.R.S.
 2. Removal of Non-permanent Equipment. Time limits for non-permanent equipment remaining on site.
 3. Access Roads. Conditions to prevent run-off, erosion and other negative impacts to access roads and abutting lands.
 4. On-site Inspector. Inspection, at Operator's expense, to monitor adherence to all provisions of this Article and conditions of permits and approvals.
- N. Weed Control. Oil and gas facilities must be kept free of weeds and must comply with the approved Weed Control Plan. The approved Weed Control plan should identify what county listed noxious weeds are known to be on the property, their location, and the proposed method of weed control.
- O. Drought-Tolerant Landscaping. All landscaping for screening and, reclamation, or other purposes will include drought tolerant species that are native and suitable for the climate and soil conditions of the area.
- P. Soils. Post-completion analysis and on-going monitoring for soil contamination. Pre-reclamation analysis of soil profiles.
- Q. Compliance with Emergency Response Plan. Following Special Review, adherence to a County approved Emergency Response Plan is an on-going condition of approval.
- R. Site Security. Oil and gas facilities must be kept secure from trespassers and risk of vandalism.
- S. 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.
- T. Seismicity. Operator shall conduct continuous seismic monitoring during fracking operations.
1. Seismic events greater than 2.0 on Richter scale shall be reported to LGD and to COGCC.
 2. If a seismic event occurs, the County may require cessation of operations immediately and Operator can only resume work once the County is satisfied with the actions taken to reduce the likelihood of further seismicity.
 3. Operations shall be immediately suspended for any seismic event measuring 4.0 or above on the Richter scale. Operator may only resume work once the County is satisfied with the actions taken to reduce the likelihood of further seismicity.
- U. Noise.
1. Compliance with Section 12-1000(O) is required at all oil and gas operations and oil and gas facilities. Based on results of ambient noise testing and other site-specific conditions, noise limits and necessary conditions will be assessed on a case-by-case basis.
 2. Continuous noise monitoring of any oil and gas facilities and operations 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 on-site renewable energy sources or through the purchase of an adequate share in a community facility within or contiguous to Boulder County, at the discretion of the Director.
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 electric drill rigs.
8. Tier 4 or better diesel engines, diesel and natural gas co-fired Tier 2 or Tier 3 engines, natural gas fired spark ignition engines, or electric line power for hydraulic fracturing pumps.
9. The use of liquefied natural gas dual fuel hydraulic fracturing pumps.
10. Use of acoustically insulated housing or covers to enclose motors or engines.
11. No pipe unloading or workover operations will occur between 7 p.m. and the following 7 a.m.

V. Odor.

1. Compliance with Section 12-1000(P); on-going monitoring for compliance.
2. Odor reduction requirements may include:
 - a. Using minimum low odor Category IV or better 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. Additional or enhanced measures during peak odor-producing phases or times such as increasing additive concentration;
 - d. Wipe down drill pipe each time drilling operation "trips" out;
 - e. Adding chillers to the mud systems;
 - f. Using filtration systems or additives to minimize odors from drilling and fracturing fluids except that the Applicant shall not mask odors;
 - g. Enclosing shale shakers to contain fumes from exposed mud where safe and feasible;
 - h. Removing drilling mud from drill pipe as it is removed from the well;
 - i. Prohibition on exposed drilling mud; or
 - j. Limitation or prohibition on use of diesel generators.

W. Lighting. Limitations on the location and specifications on type of lighting.

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

Y. 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.

Z. Traffic. 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.

AA. County Transportation Infrastructure.

1. Maintenance practices to protect transportation infrastructure, and compliance with the Boulder County Multimodal Transportation Standards
2. 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, at Applicant's cost.
3. Standards and specifications for construction and maintenance of access roads required for the proposed oil and gas facilities or operations.
4. Measures to protect existing transportation infrastructure, such as weight restrictions, prevention of mud and sediment tracking and prohibition on the use of tire chains.

BB. Pipeline Conditions.

1. Requirements for pipelines to be in place or imminently available prior to completion of any new well.
2. Specific setbacks from features of concern.
3. Conditions on depth of cover and clearance distances from subsurface features or improvements.
4. Conditions for protection of trenches during construction.
5. Construction conditions related to protection of streams, rivers, irrigation ditches and wetlands.
6. As-built reporting, including the location (with GPS coordinates), materials and operating pressures of all flowlines and fresh, produced or wastewater pipelines and depicting the locations of other subsurface features or improvements crossed by such lines.
7. Leak detection system.
8. Inspection protocol, in addition to County inspections.
9. A risk-based engineering study by an independent engineer retained by the Applicant and subject to approval by the County prior to placement and construction of proposed pipelines.
10. Without compromising pipeline integrity and safety, Applicant may be required to share existing pipeline rights-of-way and consolidate new corridors for pipeline rights-of-way to minimize impact.

CC. 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 or operations.

DD. 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 Floodplain Development Permits, Grading Permits, Building or Construction Permits, Oversize/Overweight Permits, Stormwater Control Permits.

EE. Certification and Reporting. 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 30 days of their submission to the original recipient.

FF. 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. These may include environmental surety bonds.
2. Additional assurances may be required if circumstances during the lifetime of the oil and gas operations through the time final reclamation are completed to the County's satisfaction, require.
3. Copies of all financial assurance and insurance renewals promptly supplied to the Department.
4. Upon transfer, Financial Assurances will only be returned or cancelled once they are replaced by equivalent Financial Assurances secured by the new owner/Operator.

GG. Notice of Financial or Legal Status Change. Operators will provide notice to the County within 10 days of any significant change in status related to the operator's financial condition or legal status, including but not limited to insolvency, filing for bankruptcy protections, change of entity type, merger with or acquisition by another entity, and receipt of cease and desist or stop work orders issued by any applicable agency or entity.

HH. 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.

II. 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.

12-1200 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).

12-1300 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 oil and gas facility and operation provided the County contacts the Operator with 4 hours prior notice of such inspection.”

- B. **Effect of the Approved Special Review.** After approval of a Special Review Application by the Board and subject to compliance with any applicable conditions of approval, the Department will issue a permit for the proposed oil and gas operation.
 - 1. Following receipt of the permit, the Applicant must obtain any necessary building, grading, access, stormwater control, 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.
 - 2. 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. An approved Special Review Application will remain effective for a period of 2 calendar years following the date of the Board’s approval resolution, unless otherwise extended by the Director.
 - 2. Expiration of approval to operate after 10 years. Unless renewed in a subsequent Special Review approval, all Special Review approvals under this Article 12 will expire 10 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 approval, 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. At the Director’s discretion, a modification that otherwise could be considered substantial may not be deemed as such 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 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.

12-1400 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 12-400, 12-500, 12-600, 12-700, and 12-1100, the Director may 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 ensure that 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. Inspections in response to odor complaints, will occur as soon as feasible upon receipt of the complaint.

- B. Records. Operators will make available to the County at its request all records or reports required by the CDPHE, the COGCC, the Colorado Public Utilities Commission, the Occupational Safety and Health Administration, and the Pipeline and Hazardous Materials Safety Administration.
- C. Violations. Violations of any condition of approval, any provisions of 12-400, 12-500, 12-600, 12-700, will be subject to Section 12-1500.
- D. 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.
- E. 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.
- F. Other Penalties. In addition to or in lieu of civil fines, the County may exercise remedies for Operator violations including the following:
 - 1. Increased operator or county inspection frequency at Operator's expense;
 - 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 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 or appeal the order suspending approval to the Board of County Commissioners within 14 days.
- G. 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.

2-1500 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 12-400, 12-500, 12-600, or 12-700 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. Each day that a violation remains 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 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 12-1500(D) must be made within 14 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 per violation per day, depending on the nature and severity of the violation, statutory authority, and application of the additional factors listed in subsection (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, crops, 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 Operator's history of violations of any applicable rules, of similar or different types, at the location or others;
 - d. The timeliness and adequacy of the Operator's corrective actions;
 - e. The degree the violation was outside of the violator's reasonable control and responsibility;
 - f. Whether the violator acted with gross negligence, or knowing and willful misconduct;
 - g. Whether the violator self-reported; and
 - h. 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 written appeal with the Board of County Commissioners of the Director's determination within 10 days of receipt of the 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 adjust 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. The Board's determination is subject to judicial review as specified in Section 12-1200.

12-1600 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 Sections 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 facilities or 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.

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.

Dwelling. See Article 18-137.

Educational Facility. See Article 4-504(E).

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 lines within a well pad and those that are outside a well pad, and includes flowlines connecting to gas compressors or gas plants.

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.

Groundwater. Subsurface waters in a zone of saturation.

NO_x. Nitrogen oxides. Ozone precursor pollutants.

Oil and Gas Facilities. The equipment and improvements used for the exploration, 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; 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 6 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.

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, including treatment fluids.

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, or gas well.