

**TOWN OF BERTHOUD ORDINANCE  
NUMBER 1336  
(SERIES 2024)**

**AN ORDINANCE AMENDING THE TOWN OF BERTHOUD'S OIL AND GAS  
REGULATIONS, MUNICIPAL CODE CHAPTER 30, SECTION 11**

**WHEREAS**, the Town of Berthoud is a municipal corporation possessing all powers granted to a statutory town by Title 31 of the Colorado Revised Statutes; and

**WHEREAS**, the Board of Trustees possesses the authority to adopt this Ordinance pursuant to: the Local Government Land Use Control Enabling Act, Section 29-20-101 *et seq.*, C.R.S.; municipal zoning powers under Section 31-23-301 *et seq.*, C.R.S.; areas and activities of state interest under Section 24-65.1-101 *et seq.*; municipal police powers under Sections 31-15-103, 31-15-401, and 31-15-501, C.R.S.; and local government control over oil and gas operations pursuant to Sections 34-60-103, 34-60-106 and 34-60-131, C.R.S. Applicable legal authority confers considerable discretion to local governments to protect against adverse impacts of oil and gas development, and enact regulations that avoid, minimize, or mitigate adverse impacts of oil and development if that development is approved by the local government.

**WHEREAS**, the impacts of oil and gas development on public health, safety, welfare, the environment and wildlife can be significant. Categories of negative impacts include, but are not necessarily limited to, air quality, water quality, water supply, noise, vibrations, odors, visual impacts, transportation and infrastructure impacts, waste management, land use restrictions, wildlife degradation, and incidents causing bodily injury or death;

**WHEREAS**, the Town of Berthoud is located in the Denver Metro / North Front Range Ozone Non-Attainment Area and the Town's ground-level ozone levels exceed healthy limits during intermittent periods of time between May and September of each year. Oil and gas development is a significant contributor of ozone precursor chemicals in the Denver Metro / North Front Range Ozone Non-Attainment Area;

**WHEREAS**, the Board has consulted recently revised regulations from the state and other local jurisdictions in its effort to promulgate its own regulations that are sufficiently protective of public health, safety, welfare, the environment and wildlife resources while also allowing for the consideration of new oil and gas development and adequately regulating existing development. In particular, the Board studied regulations and justifications for those regulations from the Colorado Energy and Carbon Management Commission, Larimer County, the Towns of Erie and Superior, and the City and County of Broomfield. The Board additionally consulted oil and gas related ordinances from the Counties of Adams, Arapahoe, Boulder, and Weld as those counties are similarly situated in location and circumstances as the Town of Berthoud. As part of its deliberations, the Board considered and hereby incorporates by reference written feedback from stakeholders and constituents; informational memoranda from September 21, 2022, November 1, 2022, March 23, 2023, March 6, 2024, and May 20, 2024; and presentations and public comments at Board meetings on June 28, 2022, September 27, 2022,

January 24, 2023, March 28, 2023, July 11, 2023, January 9, 2024, March 12, 2024, and May 28, 2024;

**WHEREAS**, the Board intends for its revised oil and gas regulations to apply to pre-existing oil and gas facilities within the Town and have incorporated a compliance date for pre-existing facilities. Retroactive application of oil and gas regulations is consistent with state law and practice in other local jurisdictions. Highly regulated industries like the oil and gas industry are aware of the possibility of further regulations when related to improving public health, safety, and welfare protections. *See e.g., Colorado Dep't of Pub. Health and Env't v. Bethell*, 60 P.3d 779, 785 (Colo. App. 2002). The Board determines it is necessary to apply updated regulations to existing oil and gas facilities to adequately protect public health, safety, welfare, the environment and wildlife resources within the Town;

**WHEREAS**, the Board believes the adoption of the revised oil and gas regulations in Exhibit A is necessary and reasonable for the protection of public health, safety, welfare, the environment, and wildlife resources within the Town; and

**WHEREAS**, the adoption of revised Section 11 to Chapter 30 of the Berthoud Municipal Code meets state and federal requirements, and will improve safety for persons and property in the Town.

**NOW, THEREFORE, BE IT ORDAINED BY THE TOWN BOARD OF TRUSTEES OF THE TOWN OF BERTHOUD, COLORADO:**

Section 1. The attached Section 11 to Chapter 30 shall be effective immediately and included in the Town Municipal Code.

Section 2. Interpretation: This Resolution shall be so interpreted and construed to effectuate its general purpose.

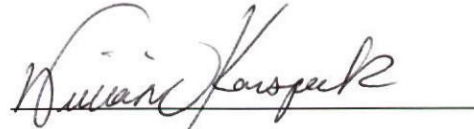
Section 3. Effective Date: The provisions of this Resolution shall take effect immediately and shall apply to all development and construction permitted after such date.

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INTRODUCED, READ, ADOPTED, AND APPROVED on this 9<sup>th</sup> day of July, 2024.

**TOWN OF BERTHOUD**

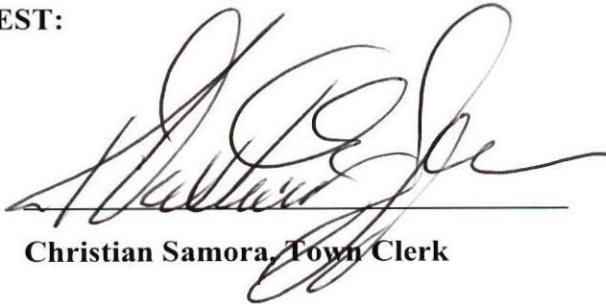
By



**William Karspeck, Mayor**

**ATTEST:**

By:



**Christian Samora, Town Clerk**



Repeal and replace B.M.C. § 30-11-101 *et seq.* as follows:

**§ 30-11-101: Purpose, authorities, and application to existing facilities**

- A. **Intent.** The intent of this section of the Berthoud Municipal Code is to protect public health, safety, welfare, the environment, and wildlife resources within the Town of Berthoud by establishing a regulatory framework for new and existing oil and gas operations that are located in the Town. The Town hereby declares the adoption of the regulations in this section to be necessary and reasonable for the protection of public health, safety, welfare, the environment, and wildlife resources.
- B. **Criteria for approval or denial.** The Town will approve oil and gas operations only in locations and in a manner that does not adversely impact the health, safety and welfare of the Town's residents in their workplaces, their homes, their schools, and public places in order to protect the public's health, safety, and welfare, and to safeguard the environment and wildlife resources. The Town will deny applications where the proposed oil and gas operations cannot be conducted in a manner that protects and minimizes adverse impacts to public health, safety, and welfare, and the environment and wildlife.
- C. **Authority.** These regulations are 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.
- D. **Severability.** If any section, clause, provision, or portion of these regulations should be found to be unconstitutional or otherwise invalid by a court of competent jurisdiction, the remainder of the regulations in this section shall not be affected thereby and the continued adoption of the remainder of the regulations is hereby declared to be necessary for the public health, safety, and welfare, and for the protection of the environment and wildlife resources.
- E. **Preexisting facilities.** Oil and gas operations that were approved prior to the effective date of this Section may continue operating at their established locations but will be subject to the public health, safety, welfare, and environmental requirements as specified in this section within one year of the effective date of this section.
  - 1. **Modifications of existing facilities.** Any modification of oil and gas operations or facilities that the Town determines to be substantial requires a separate Use by Special Review permit pursuant to Section 30-3-106 and approval criteria as outlined in Section 30-11-101.B. A substantial modification is any physical change not required by law that substantially increases the site footprint, air emissions, traffic, noise, or risk of spills, or will significantly change the operations of the oil and gas facility. Use of a drilling rig or hydraulic fracturing equipment to re-enter, deepen, or

recomplete an existing well into a new geologic formation is a substantial modification. Maintenance activities, the replacement of existing equipment, installation of emission control equipment, and the addition of equipment to fulfill mandated regulatory requirements are not substantial modifications.

2. **Annual Operator Registration.** Operators with existing oil and gas operations in the Town prior to the effective date of this section will submit the Annual Operator Registration submittal requirements within 90 days after the effective date of this section; or, if not already operating wells in the Town, within 60 days after assuming responsibility for operating existing oil and gas facilities. Operator registration must be updated and renewed annually by January 15. Annual Operator Registration submittal requirements shall include:
  - a. An updated Emergency Response Plans as required by Section 30-11-105(E)(4);
  - b. An updated Leak Detection and Repair Plan as required by Section 30-11-105(E)(10);
  - c. A list of all wells and production information within the Town within the past three years;
  - d. A list of any reportable safety events at the Operator's facilities within the Town over the past three years as defined by ECMC Rule 602(g) or successor rules. The 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;
  - e. A list of any spills or releases at the Operator's facilities within the Town over the previous three years; and
  - f. A list of any notices of alleged violations issued by the ECMC or CDPHE related to the Operator's facilities within the Town over the previous three years.

### **§ 30-11-102: Definitions**

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

Applicant: an Operator submitting an application for a new oil and gas operation pursuant to Use by Special Review processes.

APCD: the Air Pollution Control Division within the Colorado Department of Public Health and Environment.

AQCC: the Air Quality Control Commission within the Colorado Department of Public Health and Environment.

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

CDPHE: the Colorado Department of Public Health and Environment.

Child care center: a child care center as defined in § 26-6-903(5), C.R.S. A child care center will include any associated outdoor play areas adjacent to or directly accessible from the center and is fenced or has natural barriers, such as hedges or stationary walls, at least four (4) feet high demarcating its boundary.

Class II water disposal wells: wells that inject fluids which are brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.

Completions or completion phase: the period of hydraulic fracturing, coiling, re-fracturing, installation of tubing, and flowback of one or more wells.

Crude oil transfer line: a piping system that is not regulated or subject to regulation by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) pursuant to 49 C.F.R. § 195 Subpart A, and that transfers crude oil, crude oil emulsion or condensate from more than one well site or production facility to a production facility with permanent storage capacity greater than 25,000 barrels of crude oil or condensate or a PHMSA gathering system.

Cumulative impacts: the effects on public health and the environment, including the impacts to air quality, water quality, climate, noise, odor, wildlife, and biological resources, caused by the incremental impacts that a proposed new or amended operation would have when added to the impacts from other past, present, and reasonably foreseeable future development of any type on the impact area..

Development Agreement has the same definition as Berthoud Municipal Code Section 30-1-116(103).

Drilling or drilling phase: the period in which a drilling rig is utilized to penetrate the surface of the earth with a drill bit and the installation of well casing and cement at one or more wells.

Dwelling Unit has the same definition as Berthoud Municipal Code Section 30-1-116(118).

ECMC: the Colorado Energy and Carbon Management Commission (formerly the Colorado Oil and Gas Conservation Commission).

EPA: the United States Environmental Protection Agency.

Flaring: the combustion of natural gas during upstream oil and gas operations, excluding gas that is intentionally used for onsite processes.

Flowback: the process of allowing fluids and entrained solids to flow from a well following stimulation, either in preparation for a subsequent phase of treatment or in preparation for cleanup and placing the well into production. The term Flowback also means the fluids and entrained solids that emerge from a well during the Flowback process.

Flowline: a segment 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. This definition of flowline does not include a gathering line or crude oil transfer line but does include on-location flowlines such as wellhead lines, production piping, peripheral piping, produced water flowlines and off-location flowlines as defined by the Colorado Energy and Carbon Management Commission, 2 C.C.R. 404-1, 100 Series Definitions and successor regulations.

Gathering line: a gathering pipeline or system as defined by the Colorado Public Utilities Commission in the Colorado Code of Regulations or a pipeline regulated by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration pursuant to 49 C.F.R. §§ 195.2 or 192.8 and successor regulations.

Groundwater: subsurface waters in a zone of saturation.

Historical or Cultural Resources has the same definition as Berthoud Municipal Code Section 30-1-116(186).

Oil and gas location: a definable area where an Operator has disturbed or intends to disturb the land surface to locate an oil and gas facility.

Oil and gas facility: equipment, buildings, structures, or improvements associated with or required for the operation of oil and gas operations.

Oil and gas operations: exploration for oil and gas and the drilling of test bores; the siting, drilling, redrilling, deepening, completion, recompletion, reworking, fracturing, refracturing, temporary abandonment, shutting-in, or abandonment of a well; production operations related to any such well including the installation of pipelines; the generation, transportation, storage and treatment of oil and gas, and exploration and production wastes; any construction, site preparation, maintenance, repair, or reclamation activities associated with such operations; and any oil and gas facility, oil and gas well site or location, production site or other facility, site or location upon or within which any of the foregoing are conducted, operated, installed, constructed, generated, treated or located within Town limits.



Open Space has the same definition as Berthoud Municipal Code Sections 30-1-116(290) – (292).

Operator: Any individual, company, trust, foundation, or entity who exercises the right to control the conduct of oil and gas operations.

Park has the same definition as Berthoud Municipal Code Section 30-1-116(301).

Permit: Town of Berthoud Oil and Gas Use by Special Review Permit issued pursuant to the provisions of this Section.

Pipeline: a flowline, crude oil transfer line, gathering line or any type of water or wastewater transfer line used for oil and gas operations.

Production or production phase means the operational phase of a well transporting hydrocarbons and other liquids or materials from the subsurface to the surface.

Root cause analysis means an analysis of the prime reasons, such as failures of management systems, faulty design, inadequate training, negligence, or improper changes, which led to an unsafe act or condition and resulted in an incident. If root causes were removed, the particular incident would not have occurred.

Plugging: oil and gas well plugging activities consistent with ECMC Rule 434 or any successor rules.

Reclamation: the process of returning or restoring the surface of disturbed land to its condition prior to the commencement of oil and gas operations.

Safety Data Sheets: documentation required by the United States Occupational Safety and Health Administration that includes information such as the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical.

School: any operating Public School as defined in § 22-7-703(4), C.R.S., including any Charter School as defined in § 22-30.5-103(2), C.R.S., or § 22-30.5-502(6), C.R.S., or Private School as defined in § 22-30.5-103(6.5), C.R.S.

School facility: any discrete facility or area, whether indoor or outdoor, associated with a school, that students commonly use as part of their curriculum or extracurricular activities. A school facility is either adjacent to or owned by the school or school governing body, and the school or school governing body has the legal right to use the school facility at its discretion.

Seismic operation: all activities associated with acquisition of seismic data including but not limited to surveying, shothole drilling, recording, vibroseis, shothole plugging and reclamation.



Surface owner: any person owning all or part of the surface of land upon which oil and gas operations are conducted, as shown by the tax records of the county in which the tract of land is situated, or any person with such rights under a recorded contract to purchase.

Town: the Town of Berthoud, Colorado.

Town Administrator: the Town Administrator or designee of the Town of Berthoud, Colorado.

Venting: allowing natural gas to escape into the atmosphere but does not include:

- a. The emission of gas from devices, such as pneumatic devices and pneumatic pumps, that are designed to emit as part of normal operations if such emissions are not prohibited by AQCC Regulation No. 7;
- b. Unintentional leaks that are not the result of inadequate equipment design; and
- c. Natural gas escaping from, or downstream of, a tank unless: (1) there is no separation occurring at equipment upstream of the tank; (2) the separation equipment is not sufficiently sized to capture the entrained gas; or (3) the natural gas is sent to the Tank during circumstances when the gas cannot be sent to the gathering line or the combustion equipment used to flare the gas is not operating.

Water source: 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 operations.

Well / 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.

Wetlands has the same definition as Berthoud Municipal Code Section 30-1-116(433).

Wildlife resources: fish, wildlife, and their aquatic and terrestrial habitats used for all life stages, including reproduction, rearing of young and foraging, and the migration corridors and seasonal ranges necessary to sustain robust wildlife populations.

### **§ 30-11-103: Location restrictions for new facilities**

A. Oil and gas operations will be located to avoid or sufficiently minimize and mitigate adverse impacts, including cumulative impacts, to surrounding land uses and to protect public health, safety, and welfare, the environment, and wildlife resources. The Town may deny a Use by Special Review permit if it determines the proposed location is not consistent

with the protection of public health, safety, welfare, the environment, and wildlife resources as referenced in the criteria for approval in Section 30-11-101.B even if the Applicant meets other requirements as set forth in Sections 30-11-105 through 30-11-107.

- B. Oil and gas operations are allowed only in the following zoning districts as set forth in Berthoud Municipal Code Section 30-3-101 *et al.*: Agricultural District (AG), Light Industrial (M1), and Industrial (M2).
- C. Within zoning districts where oil and gas operations are allowed, oil and gas locations must be located 2,000 (two thousand) feet from the property line of a parcel containing any of the following uses: an existing or platted Dwelling Unit; a School, School Facility, or licensed Child Care Center; athletic fields, auditoriums, amphitheaters, hospitals, event centers, recreational facilities, nursing homes and life care institutions; parks, trails, and open spaces as defined by Berthoud Municipal Code Section 30-2-109; trails and trailheads open to the public; and workplaces located in the Agricultural, Light Industrial, and Industrial zoning districts.
  - 1. Owners of Dwelling Units and workplaces with property lines located less than 2,000 (two thousand) feet from a proposed oil and gas location may give written informed consent for oil and gas operations to occur no closer than 1,000 (one thousand) feet of the property line of the Dwelling Unit or workplace.
- D. Within zoning districts where oil and gas operations are allowed, oil and gas locations must be located 2,000 (two thousand) feet from public water supply wells and the center line of water sources including wetlands, rivers, streams, and reservoirs. A new oil and gas location may be within 1,000 (one thousand) feet of a public water supply well and the center line of water sources upon a showing by the Applicant that such a location would pose no likelihood of contamination to the public water supply well or water source.
- E. Within zoning districts where oil and gas operations are allowed, flowlines and crude oil transfer lines shall be sited to avoid areas containing existing or proposed residential, commercial, and industrial buildings; places of public assembly; water sources; and Town open space and parks.
  - 1. Flowlines and crude oil transfer lines shall be located a minimum of 150 (one hundred and fifty) feet from residential, commercial, and industrial buildings and the high-water mark of any water source. This distance shall be measured from the nearest edge of the flowline or crude oil transfer line.
- F. Locating oil and gas facilities within a Federal Emergency Management Agency (FEMA) designated flood zone shall not be allowed.
- G. For the purposes of this section, the setback measurement shall occur from the boundary of the oil and gas location.

H. Class II Water Disposal Wells shall only be allowed in Industrial (M2) zones and are subject to the permit application processes and provisions as outlined in this section.

**§ 30-11-104: Location restrictions for existing facilities**

A. For permitted or existing oil and gas operations where all permitted wells have not entered completions, no new residential, commercial, or mixed-use building units shall be constructed within 2,000 (two thousand) feet of such oil and gas location.

B. No new residential, commercial, or mixed-use building units shall be allowed to be constructed within 2,000 (two thousand) feet of a permitted or existing oil and gas location for one year after the final well permitted for the location has been put into production.

C. For permitted oil and gas operations where all permitted wells have been in production for more than one year, or the permit has otherwise lapsed, been revoked, or forfeited, and is not subject to renewal or reissuance, no new residential, commercial, or mixed-use building units may be constructed within 500 (five hundred) feet of the oil and gas location.

1. The setbacks in subsection (C) shall not apply to the following occurring prior to the effective date of this section:

- a. Constructed residential units;
- b. Platted residential lots;
- c. Residential lots / units planned within a site development plan such as a Neighborhood Master Plan; or
- d. Any development on or within land zoned a planned unit development (PUD) on the effective date of this section.

2. For oil and gas facilities that have been plugged, and locations that have been abandoned or reclaimed, no residential, commercial, or mixed-use building unit may be placed within 250 (two hundred and fifty) feet of the oil and gas facility.

3. The setback from any existing pipelines shall be a minimum of 150 (one hundred and fifty) feet from the edge of the pipeline easement closest to the flowline or gathering line. Pipelines removed prior to the construction of a residential, commercial, or mixed-use building unit as part of the oil and gas location's plugging, abandonment, and reclamation shall be excepted from this requirement.

4. For the purposes of this section, the setback measurement shall occur from the boundary of the oil and gas location.

**§ 30-11-105: New oil and gas operation applications and Use by Special Review permit**

- A. An Application for a Use by Special Review permit shall be submitted pursuant to the processes and requirements of Section 30-3-106 and subject to the criteria for approval outlined in Section 30-11-101.B. In addition to the standard application materials required for a Use by Special Review application, the additional materials and procedures outlined in this section are required to be submitted or followed for any application for a new oil and gas operation.
- B. It shall be unlawful for any Operator to conduct oil and gas operations that has not been previously permitted under this Section unless a Use by Special Review permit has first been granted by the Town in accordance with the procedures defined in this Section.
- C. **ECMC Oil and Gas Development Plan.** Applicant shall submit a copy of any and all materials submitted to the ECMC in support of its Oil and Gas Development Plan (OGDP), if the OGDP has been or was concurrently submitted to the ECMC at the time of the Applicant's application to the Town. ECMC OGDP materials shall be labeled distinctly and separately from those materials submitted pursuant to the Town's Use by Special Review Permit application.
- D. The Applicant will follow the procedural steps for the Town's consideration of the application outlined in the Use by Special Review process in Section 30-3-106. In addition to the procedural steps for the application outlined in Section 30-3-106, the Applicant shall request a pre-application meeting with the Town and conduct that meeting before submitting its application. The purpose of the pre-application meeting is for the Applicant to discuss how its application will meet the provisions of this Section and to assist the Town in comprehensive planning. Prior to the pre-application meeting, the Applicant shall submit to the Town a summary of its application, a map of the proposed oil and gas location and surrounding area, preferred transportation routes to and from the proposed oil and gas location, the surface owner's name, address, contact information, and date of the signed surface use agreement, if available.
- E. The following reports shall accompany any application for a Use by Special Review Permit for a new Oil and Gas Operation. The reports and plans shall indicate how the Applicant / Operator plans to comply with the Town's regulations and protect health, safety, welfare, the environment, and wildlife resources. The reports will include measures outlined in the Town's regulations. An approved application may require additional industry recognized Best Management Practices, or compliance with state or federal rules, whichever is most protective of public health, safety, welfare, the environment and wildlife resources.

1. **Alternative Location Analysis.** Applicant shall submit with its application an analysis of no fewer than two (2) alternative locations from which relevant minerals can be accessed. The analysis shall include information related to the following:

- a. A single map listing the alternative sites and the preferred site;
- b. Zoning of the alternative sites and preferred site;
- c. The proposed area of mineral development;
- d. Natural and manmade features of each site;
- e. All proximate existing and permitted oil and gas operations within one mile (5,280 feet);
- f. Distance of the alternative sites and preferred site to the following within 1 mile (5,280 feet): residences, occupied buildings, parks, trails and open space areas; water bodies; irrigation infrastructure; flood overlay districts including floodways and floodplains; and roadways;
- g. Justification(s) for the preferred site; and
- h. Reason(s) why a site is not proposed as a viable alternative.

2. **Air Quality.** Operator shall comply with the Air Quality Protection Plan and Well Liquids Unloading Plan as outlined in this Section and all applicable state and federal laws. In addition:

- a. A third-party consultant approved by the Town shall conduct baseline monitoring for thirty days at the Operator's cost. Baseline monitoring shall be conducted no closer than 500 feet of a proposed oil and gas facility at select location(s) up to a distance of 1 kilometer (3,280 feet) of the oil and gas operation as deemed appropriate by the Town. Baseline monitoring shall track levels and changes in monitored air pollutant concentrations during that time period.
- b. Reduced Emission (Green) Completions, as defined in ECMC Rule 903.c.(1), or a successor rule, shall be used for all completions.
- c. *Venting and flaring.* Venting and flaring shall be eliminated other than during emergencies, upset conditions, leak repair, or maintenance activities. Operator shall report all venting and flaring to the Town and the reason(s) for its necessity within 24 hours. To the extent used, all flares, thermal oxidizers, or combustion devices shall be designed and operated as follows:

i. Any flaring or combustion shall utilize a flare that has a manufacturer specification of 98% destruction removal efficiency or better;

ii. The flare and/or combustor shall be designed and operated in a manner that will ensure no visible emissions during normal operation. Visible emissions means observations of smoke for any period or periods of duration greater than or equal to one minute in any fifteen-minute period during normal operation, pursuant to EPA Method 22. Visible emissions do not include radiant energy or water vapor;

iii. The flare and or combustor shall be operated with a flame present at all times when emissions are vented to it;

iv. All combustion devices shall be equipped with an operating auto-igniter;

v. If using a pilot flame ignition system, the presence of a pilot flame shall be monitored using a thermocouple or other equivalent device to detect the presence of a flame. A pilot flame shall be maintained in the flare's pilot light burner at all times when emissions are routed to the flare. A surveillance system shall be in place to monitor the pilot flame and shall activate a visible and audible alarm in the case that the pilot goes out;

vi. If using an electric arc ignition system, the arcing of the electric arc ignition system shall pulse continually and a device shall be installed and used to continuously monitor the electric arc ignition system; and

vii. Any flare, auto ignition system, recorder, vapor recovery device or other equipment used to meet the hydrocarbon destruction or control efficiency requirement shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

d. *Electrification.* All facilities shall be equipped with electric-powered engines for motors, compressors, drilling and production equipment, and pumping systems during pre-production and production activities unless no adequate electricity source is available during the necessary operation periods, or confirmation from the electrical utility cannot be obtained by the application hearing. Natural gas-powered drill rigs shall be used if an

adequate electricity source cannot be secured for electric-powered drilling equipment.

e. *Air Quality Action Advisory Days*. Facilities may be subject to timing restrictions to reduce emissions on Air Quality Action Advisory Days as designated by the CDPHE in the Denver Metro / North Front Range Ozone Non-Attainment Area. Operators shall include provisions in Air Quality Plans to avoid operations during Air Quality Action Advisory Days, or, if technically infeasible or will create a safety concern, incorporate the following measures to minimize pollution on those days:

- i. Minimizing vehicle traffic and engine idling;
- ii. Reducing truck and worker traffic;
- iii. Delaying vehicle refueling;
- iv. Suspending or delaying use of fossil fuel powered equipment, if any is used on the oil and gas location;
- v. Postponing construction and maintenance activities unless repairing identified leaks or releases;
- vi. Postponing well maintenance and liquid unloading that would result in emission releases to the atmosphere; and
- vii. Postponing or reducing operations with high potential to emit Volatile Organic Compounds (VOCs) and/or Oxides of Nitrogen (NO<sub>x</sub>).

f. *Air Quality Protection Plan*. An Air Quality Protection Plan shall be submitted with all applications to demonstrate how the development and operation of the facility will avoid, or minimize and mitigate adverse impacts to air quality if those adverse effects cannot be avoided, and will demonstrate compliance with and implementation of standards this section. Unless more protective measures are required by the EPA and/or CDPHE, the Air Quality Protection Plan shall include, but not necessarily be limited to, the following:

- i. A section on air quality monitoring that describes how the Operator will conduct baseline monitoring prior to construction of the facility and continuous monitoring during all phases of the operation.



A. The Plan shall describe how the Operator will conduct continuous monitoring and collect periodic canister samples (or equivalent method capable of collecting samples that can be speciated for individual air pollutants) during the drilling, completion, and production phases of development.

B. In the event a sample is triggered that is sent to the lab for speciation, the Plan shall describe the Town and CDPHE notification processes. Depending on the circumstances, expedited lab analyses may be required by the Town at the expense of the operator.

C. The Plan shall include provisions for continuous monitoring of the location with the ability to notify the operator of increases in air contaminant concentrations. The Plan shall include monitoring for all potential emissions, including but not necessarily limited to Volatile Organic Compounds (VOCs), Hazardous Air Pollutants (HAPs), Benzene, Toluene, Ethylbenzene, and Xylene (BTEX), Hydrogen Sulfide, Oxides of Nitrogen (NO<sub>x</sub>), Particulate Matter (PM), Fine Particulate Matter (PM 2.5), Carbon Monoxide (CO) and methane (CH<sub>4</sub>), carbon dioxide (CO<sub>2</sub>).

D. The Plan shall include provisions for continuous emissions monitoring at frequencies of no less than once per hour during drilling and completion activities. Each monitor shall include a sampling device to automatically collect a sample that can be speciated for individual air pollutants when the continuous emissions monitor reaches a threshold concentration level defined by the third-party consultant or in response to a request by the Town. Meteorological monitoring is also required during the time period that air quality monitoring is conducted. Continuous monitoring of production operations will continue until three years have passed from the date the last well at the location goes into production, unless the Town Administrator directs otherwise in response to the detection of repeated emissions at threshold concentrations or repeated odor violations.

E. The Plan shall meet the minimum requirements of AQCC Regulation 7, part B, section VI.C., and any successor sections, and receive approval from the Air Pollution Control Division (APCD) prior to beginning air

quality monitoring at the permitted site of the location. When submitting the air quality monitoring plan to APCD, the Operator shall submit at least 90 days in advance of the pre-drilling monitoring to account for the Town's 30-days of pre-drilling air quality monitoring requirement.

F. In addition to all federal and state laws, rules and regulations, applications for new oil and gas operations shall demonstrate how exploration, construction, and standard operations of the facilities will comply with the rules and regulations of the AQCC. Information to be provided shall include all appropriate applications of notifications and permits for sources of emissions.

G. The Plan must evaluate the cumulative impacts to existing air quality including ambient air quality standards for ground-level ozone, meeting oil and gas sector greenhouse gas reduction targets, and the cumulative impacts of all approved and existing oil and gas operations and any other significant emissions sources within the Town.

H. The following Best Management Practices shall be required and included in the Plan unless a more protective system exists and is required by the EPA and/or the AQCC:

I. Emission controls of 98% or better for glycol dehydrators;

II. Pressure-suitable separator and vapor recovery units;

III. Reduction or elimination of emissions from flowline maintenance activities such as pigging, including routing emissions to a vapor collection system, with at least 98% control of emissions from pigging operations.

I. The Town retains the discretion to require more protective Best Management Practices as a condition of the Town's Development Agreement if technologically feasible.

ii. A section describing the Applicant's proposed use of tanks during all phases of its operations and its planned practices to

avoid, minimize, or mitigate emissions from those tanks. Operator shall conduct tankless operations unless technically infeasible and shall not store produced water or hydrocarbon liquids in tanks on-site unless for well unloading or maintenance activities.

g. *Well Liquids Unloading Plan.* The Applicant shall submit a plan for well liquids unloading, if applicable. The Plan shall include Best Management Practices, including artificial lift, automated plunger lifts and at least 98% emission reductions when utilizing combustion to control venting shall be employed unless technically infeasible. The Plan shall also include a provision to avoid well liquids unloading during CDPHE ozone alert days unless required for safety reasons.

### **3. Chemical and Hazardous Materials Use, Disclosure, and Handling.**

a. Applicant shall submit a Chemical and Hazardous Materials Plan to demonstrate how the Applicant will comply with reporting and handling requirements outlined in this section and applicable state and federal laws. The plan shall disclose all the hazardous and non-hazardous materials and chemicals that will be used on the site of the proposed facility, including chemicals to be used in fracking fluid, and how of the chemicals used on the facility will be handled to prevent spills.

b. Operator shall disclose its expected use of all chemicals during all phases of the oil and gas operation.

c. The Town may limit or prohibit toxic chemicals in hydraulic fracturing fluids. To prevent harm to human health and prevent odors, Operators shall be prohibited from using any toxic chemical additives in hydraulic fracturing fluids including but not limited to, the following:

i. All chemicals listed in ECMC Table 437-1 or any successor regulation;

ii. Polysorbate 80; and

iii. Perfluoroalkyl and polyfluoroalkyl substances or "PFAS chemicals," defined as a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom.

d. Drilling and completion chemicals shall be removed from the site within sixty (60) days of the drilling completion.

**4. Emergency Response.** Applicant shall submit and comply with an Emergency Response Plan. In its preparation of the Emergency Response Plan,

the Applicant shall engage with emergency responders whose jurisdiction includes the Town and prepare a plan that includes, but not necessarily be limited to documentation of the communications and coordination with the Town and plans for the evacuation of buildings and any person within a 1 kilometer (3,280 feet) radius from the oil and gas operation. The Emergency Response Plan must detail all criteria for persons to be notified in the event of an emergency and training and necessary equipment for first responders. The Emergency Response Plan shall also include:

- a. The names, addresses and phone numbers, including 24-hour numbers for at least two persons responsible for field operations, at least one of which can be on the site of any emergency within 15 minutes, as well as the contact information for any subcontractor of the Applicant engaged for well-control emergencies, which shall be updated with the Town if the names of responsible personnel change;
- b. A process by which the Operator will notify neighboring residents and businesses within 1 kilometer (3,280 feet) to inform them about the on-site operations and emergencies and to provide sufficient contact information for surrounding neighbors to communicate with the Applicant;
- c. An emergency evacuation plan for the oil and gas facility and a plan to evacuate any person up to 1 kilometer (3,280 feet) of the oil and gas location;
- d. Emergency shutdown protocols and procedures to promptly notify the Town Administrator of any shutdowns that would have an impact to any area beyond the confines of the oil and gas location;
- e. A process by which the Applicant will notify the Town Administrator and the Berthoud Fire Protection District as soon as practicable but no later than 24 hours after the incident;
- f. Detailed information addressing each category of emergency that has a reasonable potential to occur at the operation and to be severe enough to present an immediate danger to public health, safety or welfare, including but not necessarily limited to: explosions; fires; gas; oil or water pipeline leaks or ruptures; well integrity issues, hydrogen sulfide or other toxic gas emissions; hazardous material vehicle accidents or spills; vandalism, and natural disasters. Examples of the most likely and worst-case scenarios should be provided, including information on the potential response scenarios;
- g. A provision that any spill outside of the containment area that has the potential to leave the facility or to threaten waters of the state, or as

required by the Town-approved plan, shall be reported to the local dispatch and the ECMC Director in accordance with ECMC regulations;

h. Detailed information identifying emergency access, transportation routes to and from oil and gas locations for emergency response, and health care facilities anticipated to be used if necessary;

i. A project-specific plan for any project that involves drilling or penetrating through known zones of hydrogen sulfide gas;

j. A provision obligating the Operator to reimburse the appropriate agencies for their expenses incurred in connection to any emergency response in connection to an oil and gas operation;

k. A statement and detailed information indicating that the Operator has adequate personnel, supplies, and training to implement the plan immediately at all times during construction and operations;

l. A process by which the community can submit concerns and complaints and be assured of timely responses;

m. Details regarding coordination methods and training between the Applicant and the first responders within or outside of the Town; and

n. Provisions for cooperation with first-responder agencies in training, drills, exercises, and development of after-action reports.

o. *Emergency Response Updates.* Applicant shall include provisions in its Emergency Response Plan for periodic review and updates. The provisions shall include, at a minimum:

- i. An annual review of the plan and filing of any updates with the Town Administrator and the applicable fire district. If no updates to the plan are made then the Operator shall provide notice of "No Change" in the filing required under this subsection;
- ii. Within 60 days of the start of production, Operator will provide an as-built facilities map in a format suitable for input into the Town's GIS system depicting the locations and type of above and below ground facilities, including sizes and depths below grade of all oil and gas flow lines and associated equipment, isolation valves, surface operations and their functions. The information concerning flowlines and isolation valves shall be marked and treated as confidential and shall only be disclosed in the event of an emergency or to emergency responders or for the training of emergency responders; and

- iii. The Operator shall have current Safety Data Sheets (SDS) for all chemicals used or stored on an oil and gas location. The SDS sheets shall be provided immediately upon request to Town officials, a public safety officer, or a health professional as required by ECMC Rules.

**5. Flood Mitigation.** The site shall remain in compliance with the approved permit for disturbance in the flood hazard overlay zone in conformance with Section 12, Chapter 30 of the Berthoud Municipal Code.

**6. Pipelines.** Operator must comply with the Pipeline Plan as outlined in this section and all applicable state and federal laws. All flowlines and crude oil transfer lines shall be sited to avoid areas containing existing or proposed residential, commercial, and industrial buildings; places of public assembly; water sources; and designated open spaces. All pipelines shall require crossing agreements, as needed. All pipelines shall be documented with the Use by Special Review Permit application. Any newly constructed or substantially modified flowlines or crude oil transfer lines shall meet the following requirements:

- a. The use of pipelines to transport liquid production wastes and product is required unless technically infeasible;
- b. All flowlines and crude oil transfer lines transporting process materials, production wastes, product, and any other items used or generated by an oil and gas facility shall be located to avoid existing or proposed residential, commercial, and industrial buildings, places of assembly, water source and designated open spaces. Buried flowlines and crude oil transfer lines shall be a minimum of four (4)-feet deep and shall be of detectable material which could include the addition of tracer wire to ensure detection during buried utility locating;
- c. All flowlines and crude oil transfer lines shall be sited at a minimum of 150 (one hundred fifty) feet away from residential and other occupied buildings, as well as the highwater mark of any water source. This distance shall be measured from the nearest edge of the line. Increased flowline and crude oil transfer line setbacks may be required by the Town on a case-by-case basis taking into account the size, pressure, and type of line being proposed;
- d. Flowlines and crude oil transfer lines shall be aligned with established roads to minimize surface impacts and reduce habitat fragmentation and disturbance unless technically infeasible;

e. Operators shall share existing pipeline rights-of-way and consolidate new corridors for pipeline rights-of-way to minimize surface impacts unless technically infeasible;

f. Operators shall use boring technology when crossing streams, rivers, irrigation ditches or wetlands with a pipeline to minimize negative impacts to the channel, bank, and riparian areas, except that open cuts may be used across irrigation ditches if the affected ditch company approves the technique;

g. As-built reporting, including the location (with GPS coordinates), materials and operating pressures of all pipelines and depicting the locations of other subsurface features or improvements crossed by such lines shall be provided to the Town in a format suitable to the Town and subject to the Town's public safety disclosure guidelines; and

h. Temporary water lines, or other means rather than truck, will be used to transport water to the site for hydraulic fracturing and other purposes unless technically infeasible. Temporary water lines shall be buried at all existing driveway and road crossings, or utilize existing culverts, if available.

j. *Pipeline plan.* Applicant shall submit a Pipeline Plan with its application detailing how it will comply with the pipeline safety provisions in this section. The Pipeline Plan must include:

i. A map that shows the location and route of each pipeline necessary for the oil and gas operations, through the lifetime of the oil and gas operations, and their approximate distances from: existing or proposed residential, commercial, or industrial buildings; places of public assembly; water sources; geologic hazards, agricultural lands; trails and open space; and public or private roads;

ii. A general description of the size of the pipelines and the materials the pipelines will carry;

iii. Whether pipelines will be co-located with proposed or existing lines;

iv. Identification of all pipeline segments that will be constructed by boring and the location of the boring operation;

v. Description of how the Applicant intends to adhere to the integrity management procedures for flowlines and crude oil



transfer lines listed in ECMC Rule 1104.c-f, or any successor rules;

vi. A copy of the leak protection and monitoring plan for flowlines and crude oil transfer lines required by ECMC Rule 1104.g, or any successor rules; and

vii. Description of the measures planned to minimize land disturbance and impacts to vegetation.

**7. Fugitive Dust.** The Operator must comply with its Fugitive Dust Control Plan as outlined in this section and all applicable state and federal laws. All fugitive dust shall be contained to the maximum extent practicable and Operators must prevent dust from leaving their property. In addition:

a. No produced water or other process fluids shall be used for dust suppression. Safety Data Sheets (SDS) for any chemical-based dust suppressant shall be submitted to the Town prior to use.

b. The Operator will avoid creating dust or dust suppression activities within 300 feet of the ordinary high-water mark of any water body, unless the dust suppressant is water.

c. Sand, silica and similar materials must be properly stored to prevent fugitive particulates. Measures shall be used to control particulates, including proof of compliance with State-required dust control measures and imposition of an opacity requirement as tested using EPA Method 9.

d. Operations shall be conducted in such a manner that dust does not constitute a nuisance pursuant to Chapter 17, Section 21 of the Berthoud Municipal Code or hazard to public health, safety, welfare the environment, or wildlife resources.

i. If there is a complaint of dust by a nearby resident, business, or agricultural operation that is made directly to the Operator, to the ECMC, or the Town, the Operator shall determine whether the dust was caused by Operator's operations. Operator will provide a complete description to the Town of all activities occurring at the oil and location at the time of the complaint. Operator shall report its conclusions, including the factual basis for the conclusions, to the Town and the complainant within 48 hours of the complaint. If the Operator or Town determines that the dust is caused by the Operator's actions, Operator shall resolve the dust concern to the maximum extent practicable within 24 hours.

e. *Fugitive Dust Control Plan.* A Fugitive Dust Control Plan submitted with the application shall disclose techniques and methods to be utilized at the proposed location to prevent or mitigate fugitive dust generated by the construction and operations of the proposed facility and the traffic associated therewith. The plan shall demonstrate compliance with and implementation of standards in this section.

**8. Historical and Cultural Resources.** Operator shall assess historical and cultural resources in and around the proposed oil and gas location and share such information and proposed mitigation measures with the Town for advance approval prior to start of site construction. If a significant surface or sub-surface archeological site is discovered during construction, the operator shall be responsible for immediately contacting the Town to report the discovery. If any disturbance of a site deemed by the State Historic Preservation Office to be a historical or cultural resource occurs, the operator shall be responsible for mitigating the disturbance to the cultural or historical property through a data recovery plan in consultation with the Town's Historic Preservation Commission and the State Historic Preservation Office.

**9. Incident and Accident Reporting.** In addition to following the emergency response provisions outlined in Section 30-11-105(E)(3), the Operator shall take all reasonable and necessary steps to avoid adverse incidents or accidents. In addition:

a. *Emergency reporting.* If public health, safety, welfare, the environment, or wildlife resources are threatened, the Operator responsible for the operation causing such threat will immediately notify the appropriate emergency responders, the Town, the ECMC, and the surface owner orally.

b. *Safety Event reporting.* Within 24 hours of the cessation of any reportable safety event, as defined by the ECMC in Rule 602(g), or any successor rules, or any accident or natural event involving a fire, explosion or detonation requiring emergency services or completion of a ECMC Form 22, Operator shall submit a report to the Town Administrator that includes at least the following information, to the extent available: fuel source, location, proximity to residences and other occupied buildings, cause, duration, intensity, volume, specifics and degree of damage to properties, if any beyond the oil and gas location, injuries to persons, emergency response, and remedial and preventative measures to be taken within a specified amount of time.

c. The Town may require the Operator to conduct a root cause analysis of any reportable safety events or Grade 1 gas leaks, each as defined by the ECMC. The root cause analysis shall be prepared and submitted to the Town no later than 30 days of the request.

d. Any spill or release of unrefined and refined petroleum products, hazardous substances, fracking fluids, E&P waste, or produced fluids of greater than 25 gallons outside of secondary containment areas on a facility, including those thresholds reportable to the ECMC and CDPHE, shall upon discovery, be immediately reported to the National Response Center, ECMC, CDPHE, the Larimer County Sheriff, Larimer County Department of Health and Environment, and the Berthoud Fire Protection District.

**10. Leak Detection and Repair.** Operator shall conduct leak detection and repair inspections at every facility monthly or at greater frequencies if required by the APCD for any emission source using best available leak detection technologies and equipment, such as infrared cameras and hydrocarbon analyzers.

a. If an infrared camera is used, Operator shall retain an infrared image or video of all leaking components before and after repair. Records and results of those inspections, including all corrective actions taken, shall be maintained for three years and shall be made available to the Town upon request. Operator shall also retain a copy of all reports submitted to the APCD, including monthly downtime reports and semi-annual control equipment status reports for production facilities, and make those reports available to the Town upon request.

b. Operator shall report to the Town Administrator any leaks discovered by the Operator, including any leaks that are reported to the Operator by a member of the public, within 12 (twelve) hours of the discovery and / or report.

c. Repair of leaks shall occur within 48 hours of detection if feasible. If it is anticipated that a repair will take longer than 48 hours, the Operator shall provide a written explanation to the Town as to why more time is required and how the leak will be contained.

d. If the Town determines that the leak presents an imminent threat to public health, safety, welfare, the environment or wildlife resources, the Operator shall notify residents within 1 kilometer (3,280 feet) of the leak and may not operate the affected facility, component, equipment or flowline segment until the Operator has corrected the problem and the Town agrees that the affected component, equipment or flowline segment no longer poses a hazard to public health, safety, welfare, the environment or wildlife resources.

e. *Leak Detection and Repair Plan.* A Leak Detection and Repair Plan shall disclose techniques, methods and protocols that will be utilized at the proposed oil and gas facility to identify, prevent, contain, document,

repair, and report leaks, and shall demonstrate how it will comply with and implement the standards in this section.

**11. Lighting and Visual Impacts.** The Operator's lighting and visual impacts mitigation measures must comply with the Town's Outdoor Lighting and Dark Sky Standards found in Chapter 30 of the Berthoud Municipal Code, the Visual Impacts Plan as outlined in this section, and all applicable state and federal laws. In addition:

- a. Oil and gas operations will avoid or sufficiently minimize and mitigate adverse impacts associated with lighting on public health, safety, and welfare, the environment and wildlife resources. Lighting associated with oil and gas operations will be designed to protect surrounding properties, roadways, livestock, and wildlife resources from light pollution and glare. All permanent lighting or lighting higher than a perimeter wall must be downward facing.
- b. Lighting at a facility must include:
  - i. the use of timers or motion sensing lighting;
  - ii. the use of full cut-off lighting; and
  - iii. the use of reduced light intensity colors and low-glare or no-glare lighting.
- c. The location of all outdoor lighting shall be designed to minimize off-site light spillage and glare using best practices recognized by the International Dark-Sky Association.
- d. For all phases of the development of the site, the application shall demonstrate compliance with the visual and aesthetic rules of ECMC and the Berthoud Municipal Code for landscaping, fencing, and lighting.
- e. All facilities shall be painted with colors that are matched to or slightly darker than the surrounding landscape, and shall utilize paint with uniform, non-contrasting, nonreflective color tones based upon the Munsell Soil Color Coding System.
- f. For all phases of site development, fencing shall be installed for security and visual aesthetics of the use.
- g. Oil and gas operations shall minimize removal of trees and vegetation on the site.

h. Landscaping and/or fencing for screening and visual quality as viewed from public rights-of-way and neighboring residential areas shall be required within 6 months from the time of well completion and in accordance with requirements for the zoning district.

i. Facility applications shall demonstrate compliance with weed control requirements of Chapter 16 of the Berthoud Municipal Code and Forestry Department, including for access roads serving the facility.

j. *Lighting and Visual Impacts Plan.* The Applicant shall complete a plan in its application that includes 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 also 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 approved by the Town 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.

## **12. Noise and Vibrations.**

a. Operator shall comply with the Noise and Vibration Mitigation Plan as outlined in this section and all applicable state and federal laws. Noise and vibration mitigation measures shall include the following:

i. Oil and gas operations may not exceed the ambient noise level by more than five decibels during daytime hours (7:00 a.m. through 7:00 p.m.) and more than three decibels during nighttime hours (7:00 p.m. through 7:00 a.m.);

ii. Oil and gas operations may not exceed the ambient noise level by more than ten decibels over the daytime average ambient noise level during fracturing operations during daytime hours. No fracturing shall be allowed during nighttime hours except for flowback operations related to fracturing as provided in subsection (iii).

iii. Oil and gas operations may not exceed the ambient noise level by more than three decibels during flowback operations during nighttime hours;

iv. Adjustments to the noise standards as set forth above in subsections (1), (2), and (3) of this section may be permitted intermittently in accordance with the following:

Table 1

<b>Permitted Increase (dBA)</b>	<b>Duration of Increase (minutes)*</b>
10	5
15	1
20	Less than 1
* Cumulative minutes during any one hour	

v. The point of compliance for noise shall be the property line of the protected use or no less than 25 feet from the exterior wall of any protected use structure closest to the oil and gas facility.

vi. In no instance may an oil and gas operation produce dBA or dBC noise exceeding limits set by the ECMC Rule 423 or any successor rule.

vii. During construction, drilling, and completion activities, the Operator must conduct continuous noise monitoring by a third-party consultant approved by the Town for all oil and gas facilities located within 1 kilometer (3,280 feet) of any residential or occupied building.

viii. To reasonably ensure the Operator controls noise to the allowable levels set forth above, one or more of the following may be required by the Town based on the location, nature, and size of the facility and technical feasibility:

A. Quiet design mufflers (i.e., hospital grade or dual dissipative) or equal to or better than noise mitigation technologies shall be utilized for non-electrically operated equipment;

B. Motors, generators, and engines shall be enclosed in acoustically insulated housings or covers;

C. Obtain all power from utility line power or renewable sources;

D. Utilize best management practices to minimize noise impact during drilling, completions, and all phases of operation including the use of "quiet fleet" noise mitigation measures for completions;

E. Acoustical blankets, sound walls, mufflers, or other alternative methods around well drilling and completion activities to mitigate noise impacts;

F. Restrictions on workover operations and/or the unloading of pipe or other tubular goods between 7:00 p.m. and 7:00 a.m.;

G. The use of electric drill rigs; and

H. The use of 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.

ix. If the Operator is in compliance with the approved noise mitigation and monitoring plan and a violation still occurs, the operator shall be notified of noncompliance and given 24 hours to correct the violation. Additional extensions of the 24-hour period may be granted in the event that the source of the violation cannot be identified after reasonable diligence by the Operator.

x. In response to a noise complaint, the Town may at any time require additional continuous noise monitoring, conducted by an approved third-party consultant, until noise concerns are abated.

xi. *Vibrations.*

A. No vibration shall be transmitted through the ground that is discernible without the aid of instruments measured at 500 feet from the abutting residential or commercial development.

B. No vibration shall exceed 0.002g peak at up to 50 cps frequency measured at 500 feet from the abutting residential or commercial development. Vibrations recurring at higher than 50 cps frequency or a periodic vibrator shall not induce accelerations exceeding 0.001g.



C. Single impulse period vibrations occurring at an average interval greater than five minutes shall not induce accelerations exceeding .01g.

D. Operator shall conduct continuous seismic monitoring during fracking operations.

E. Seismic events greater than 2.0 on Richter scale shall be reported to the Town Administrator and to ECMC.

F. If a seismic event occurs, the Town may order the cessation of operations immediately and operator can only resume work once the town is satisfied with the actions taken to reduce the likelihood of further seismicity.

G. 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 town is satisfied with the actions taken to reduce the likelihood of further seismicity.

b. *Noise and Vibration Mitigation Plan.* A Noise and Vibration Mitigation Plan shall be submitted with the application to demonstrate how the facility will mitigate noise and vibration impacts to comply with the noise standards contained in this section. The plan shall include the following:

i. A minimum one-week (168 consecutive hours) baseline ambient noise analysis. The baseline analysis must include wind speed, direction, rainfall data, season conducted, and any other relevant conditions;

ii. *Noise Modeling.* Using industry-recognized noise modeling software, modeling of expected dBA and dBC noise levels from the proposed oil and gas facilities and oil and gas 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 oil and gas 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, and a scaled map showing predicted noise levels;

iii. Modeled maximum A- and C-weighted decibel levels for all phases of development shall be presented using contour maps

from the facility (combining noise sources) at 350 feet, 500 feet, 1,000 feet, 2,000 feet, and to the property line of the adjacent properties. Contour maps shall be provided that demonstrate both unmitigated and mitigated decibel levels; and

iv. A plan of proposed mitigation measures to be implemented by the facility during each phase of development shall be provided to ensure compliance with the maximum permissible noise levels as listed in this section.

**13. Odor.** The Operator's odor mitigation measures must comply with the Odor Mitigation Plan as outlined in this section and all applicable state and federal laws. In addition, the Operator shall implement the following measures:

a. Oil and gas facilities must not emit odor detectable after dilution with one or more volumes of odor free air to four volumes of clean air at any dwelling unit;

b. If a resident within 1 kilometer (3,280 feet) of a facility complains of odor (either directly to the Operator, to the ECMC, or to the Town) the Operator shall determine whether the odor is caused by Operator's actions, by, at a minimum, conducting two odor measurements within a period of one hour – these measurements being separated by at least fifteen (15) minutes and taken 25 feet from the exterior wall of the residence. Operator will also provide a complete description of all activities occurring at the oil and gas location at the time of the complaint to the Town. Operator shall report its conclusions, including the factual basis for the conclusions, to the Town and the complainant within 48 hours of the complaint. If the Operator or Town determines that the odor is caused by Operator's operations, the Operator shall resolve the odor concern within 24 hours of receiving the complaint;

c. If it is determined that the operator caused odors in violation of the odor requirements outlined in this Code, the operator may be required to cease or change operations, notify affected residents, and/or temporarily relocate residents until the facility is no longer causing a violation;

d. If odor persists after an Operator complies with this Code, and there are reasonable grounds to believe the location continues to cause the odor, the Town may require the Operator to conduct additional investigation, which may include audio, visual, and olfactory inspections or instrument-based leak inspections, and take appropriate corrective action based on the results of investigation and the severity of the odor; and

e. In response to odor complaints the Town may require an Operator to collect and analyze a speciated air sample to measure for volatile organic

compounds or hazardous air pollutants known to cause potential health risks and have acute health guideline values identified by the Agency for Toxic Substances and Disease Registry and/or CDPHE to further evaluate the risk of the odor. Speciated air sample collection shall be done utilizing a third-party vendor approved by the Town;

f. *Odor Mitigation Plan.* The Applicant shall submit an Odor Mitigation Plan with its application indicating how its operations will prevent odors from adversely impacting the public and wildlife resources and further demonstrating compliance with the standards in this section. The Odor Mitigation Plan shall include investigation and control strategies which shall be implemented upon receipt of odor complaint(s), the determination that the facility is causing the odor, or as required by the Town. These odor control strategies shall include at least the following:

- i. Odorants, that are not a masking agent, shall be added to chillers and/or mud systems;
- ii. Additives to minimize odors from drilling and fracturing fluids except that Operators shall not mask odors by using masking fragrances;
- iii. The utilization of filtration systems and/or additives to minimize, not mask, odors from drilling and fracturing fluids in the drilling and flowback processes;
- iv. Increasing additive concentration during peak hours provided additive does not create a separate odor. Additives must be used per the manufacturer's recommended level;
- v. The utilization of enclosed shale shakers to contain fumes from exposed mud where safe and feasible;
- vi. Drilling activities shall utilize minimum low odor Category IV or better drilling fluid or non-diesel-based drilling muds that do not contain benzene, toluene, ethylbenzene, or xylene (BTEX). Operator will employ the use of drilling fluid with low to negligible aromatic content during drilling operations after surface casing is set;
- vii. Removing drilling mud from drill pipe each time it is removed from the well and wiping down drill pipes as they exit the well bore each time;
- viii. Drill cuttings shall be covered to prevent odor while being transported by truck; and

ix. A prohibition of the use of D-822 drilling mud unless its use is required by ECMC.

**14. Reclamation.** Reclamation of the oil and gas operation must comply with the Reclamation Plans as outlined in this section and all applicable state and federal laws.

a. *Interim Reclamation.* In addition to following the ECMC rules related to interim reclamation, the Operator shall comply with the following provisions:

i. There shall be no permanent storage of equipment (i.e., vehicles, trailers, commercial products, chemicals, drums, totes, containers, materials, and all supplies not necessary for uses on an oil and gas location) on the site of an oil and gas location.

i. When not in use, or if no longer needed for on-site operations, all equipment not being used on the site shall be removed from the site within thirty (30) days of completion of the work, weather conditions permitting.

b. *Final Reclamation.* In addition to following the ECMC rules related to final reclamation, the Operator shall:

i. Give notice to the Town Administrator of the commencement and completion of final reclamation activity;

ii. Provide coordinates for the location of the decommissioned well(s), and any associated pipelines in a format suitable for input into the Town's GIS system; and

iii. Permanently mark the plugged and abandoned well with a brass plaque set in concrete similar to a permanent bench-mark to monument its existence and location. Such plaque shall contain all information required on a dry hole marker by the ECMC. The exact location will be recorded with the Larimer County clerk and recorder.

c. Plugging and Abandonment notice is required to ensure adequate public notice and traffic management, and review of final reclamation plans. At least 72 hours prior to commencing plugging and abandonment operations, Operator will provide to the Town:

i. A timeline for work to be accomplished;

ii. Notice that has been submitted to the surface owner and all residents within 1 kilometer (3,280 feet);

iii. The Form 4 Sundry Notice supplied to the ECMC to notify state of the plugging and abandonment; and

iv. A Final Reclamation Plan in accordance this section and approved by the surface owner.

d. *Reclamation Plans.* The Applicant shall submit an Interim Reclamation Plan and a Final Reclamation Plan with its application. Both plans shall outline how the Applicant will comply with Berthoud Municipal Code and ECMC rules related to site reclamation.

i. The Interim Reclamation Plan shall also, at a minimum, include:

A. A site plan that defines the “working pad surface” limited to those areas necessary for production;

B. A written description of existing vegetation in the area; and

C. A plan for revegetation and any landscaping outside of working pad surface, or for reclaiming to the final land use as designated by the surface owner, and how it will be watered and maintained.

ii. The Final Reclamation Plan shall also, at a minimum, include:

A. A timeline for the removal of all equipment from the location; and

B. A detailed demonstration of how the Operator will restore the site surface area to the condition it was prior to the oil and gas operation.

**15. Spill Prevention, Containment, and Reporting.** The Operator must comply with the provisions in its Spill Prevention and Containment Plan as outlined in this section and all applicable state and federal laws. In addition:

a. Unloading areas shall be designed to contain potential spills or direct spills into other secondary containment areas;

b. Containment systems constructed of steel rimmed berms, or similar impervious surfaces that are equal to or better, shall be used for all

secondary containment areas. Berms or other secondary containment devices around crude oil, condensate, and produced water storage tanks enclosing an area sufficient to contain and provide secondary containment for 150% of the largest single tank. Berms or other secondary containment devices shall be sufficiently impervious to contain any spilled or released material. Inspection of all berms and containment devices shall occur at regular intervals, but not less than monthly. Maintenance of all berms and containment devices must remain in good condition;

c. All spills or releases, whether reportable or not, shall be cleaned up immediately and to the satisfaction of the local emergency response authorities, in accordance with the Operator's Spill Prevention and Containment Plan. Any leak, release, or spill will be cleaned up according to applicable Town, county, state and federal laws. Operators will notify the Town immediately upon completion of clean-up activities.

d. 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 ECMC, or is otherwise requested by the Town must be submitted to the Town within 30 days of the leak, spill, or release.

e. *Spill Prevention and Containment Plan.* The Applicant shall submit a Spill Prevention and Containment Plan with all facility applications. The plan shall outline techniques, methods, and protocols to be utilized at the proposed facility to prevent, contain, clean up, document, and report any spills or releases, and shall demonstrate compliance with and implementation of the standards in this section.

**16. Transportation Impacts.** The Applicant will be required to enter into a long-term road maintenance and improvements agreement, and a Development Agreement with the Town. These Agreements shall be presented with the Use by Special Review application at the public hearing. Additionally, Operator shall adhere to the provisions in the Traffic Impact Analysis and Routing Plan as detailed in this section and the following the provisions:

a. All private roads used to maintain access to the tank batteries or the well site shall be improved and maintained according to the following standards:

i. *Tank battery access roads.* Access roads to any tank batteries shall be subject to review by the Town Engineer in accordance with the following minimum standards:

A. A graded gravel roadway having a prepared subgrade and an aggregate base course surface a minimum of six inches thick compacted to a minimum density of 95 percent of the maximum density determined in accordance with generally accepted engineering sampling and testing procedures. The aggregate material, at a minimum, shall meet the requirements for Class 3, Aggregate Base Course as specified for aggregate base course materials in the Colorado Department of Transportation's "Standard Specifications for Road and Bridge Construction," latest edition;

B. Graded so as to provide drainage from the roadway surface and constructed to allow for cross-drainage of waterways (such as roadside swales, gulches, rivers, creeks and the like) by means of an adequate culvert pipe. Adequacy of the pipe is subject to approval of the Town Engineer; and

C. Maintained so as to provide a passable roadway free of ruts at all times.

ii. *Location access roads.* Access roads to the oil and gas location shall be subject to review by the Town Engineer in accordance with the following minimum standards:

A. A graded, dirt roadway compacted to a minimum density of 95 percent of the maximum density determined in accordance with generally accepted engineering sampling and testing procedures and approved by the Town Engineer.

B. Graded so as to provide drainage from the roadway surface and constructed to allow for cross-drainage of waterways by means of an adequate culvert pipe. Adequacy of the pipe shall be subject to approval by the Town Engineer.

C. Maintained so as to provide a passable roadway generally free of ruts.

iii. *Public access roads.* An extra-legal vehicle or load permit shall be required for all extralegal vehicles or loads as defined in Sections 42-4-401 through 42-4-414, C.R.S., as amended, which use Town streets. Said permit, if required, shall be obtained from the Town Engineer prior to such use. The Operator shall comply with all Town and state regulations regarding weight limitations on streets within the Town, and the Operator shall minimize extralegal truck traffic on streets within the Town.

b. Every permit issued by the Town shall require the Applicant to pay a fee that is sufficient to pay the estimated cost for all impacts which the proposed operation may cause to facilities owned or operated by the Town or used by the general public, including, but not limited to:

i. Repair and maintenance of roads;

ii. Bridges and other transportation infrastructure;

iii. Improvements made or to be made by the Town to accommodate the operations and to protect public health, safety and welfare; and

iv. Costs incurred to process and analyze the application, including the reasonable expenses paid to independent experts or consultants.

c. The Town shall establish a mechanism to assess and obtain payment of such fees, subject to the right of the Town to request additional funds if the fees prove to be insufficient, or to refund surplus funds to the Operator if the fees paid exceed the true cost of the impacts.

d. The Town may further require that the Applicant post a bond in an amount to be set during the Use by Special Review, as security in the event additional damages occur to facilities owned or operated by the Town or used by the general public.

e. As a condition of issuance of the permit and on an as-needed basis, the Town may require that additional site-specific measures be undertaken by the Operator in order to protect and preserve facilities owned or operated by the Town or used by the general public.

f. *Traffic Impact Analysis and Routing Plan.* A Traffic Impact Analysis and Routing Plan shall be submitted with all applications. The plan shall disclose routing alternatives and transportation infrastructure improvements proposed for the proposed operation to mitigate projected transportation impacts and demonstrate compliance with and implementation of the standards in this section. The Traffic Impact Analysis and Routing Plan shall be prepared by a third-party vendor approved by the Town. The Traffic Impact Analysis and Routing Plan shall include:

i. The proposed haul routes to and from the site, and public and private roads that traverse or provide access to the proposed operation;



- ii. The estimated number of vehicle trips per day for each type of vehicle, estimated weights of vehicles when loaded, a description of the vehicles, including the number of wheels and axles of such vehicles and trips per day;
- iii. The identification of impacts to Town roads and bridges related to facility construction, operations, and ongoing new traffic generation;
- iv. A plan to mitigate transportation impacts that will typically include, but not be limited to, a plan for traffic control, ongoing roadway maintenance, and improving or reconstructing Town roads;
- v. Detail of access locations for each well site including sight distance, turning radius of vehicles and a template indicating this is feasible, sight distance, turning volumes in and out of each site for an average day and what to expect during the peak hours;
- vi. A truck routing map and truck turning radius templates with a listing of required improvements are necessary at intersections along the route;
- vii. Restriction of non-essential traffic and prohibition of any class 7 vehicles and above to and from any oil and gas location to periods outside of peak morning and afternoon traffic periods during weekdays (7:00-8:00 a.m. and 3:00-6:00 p.m.); and
- vii. Identification of need for any additional traffic lanes, which would be subject to the final approval of the Town.

**17. Water quality protection.** Water quality protection and sampling shall comply with the Water Quality Control Plan as outlined in this section and all applicable state and federal laws. To avoid or minimize adverse impacts to surface and sub-surface water bodies from oil and gas facilities, the following measures will be required:

- a. *Water source sampling and testing.* Using records of the Colorado Division of Water Resources, the Applicant shall identify and offer to sample all available water sources located within one-half mile of the projected track of the borehole of a proposed well and within one-half mile of the radius of the proposed location. All sampling must be conducted by a third-party consultant approved by the Town. The Applicant / Operator shall provide all water source test results to the Town and maintain records of such results. Sampling requirements include:

i. Initial baseline samples and subsequent monitoring samples shall be collected from all available water sources within one-half mile of the projected track of the borehole of a proposed well and one-half mile radius of the oil and gas location;

ii. Initial collection and testing of baseline samples from available water sources shall occur within twelve months prior to the commencement of drilling a well, or within twelve months prior to the re-stimulation of an existing well for which no samples were collected and tested during the previous twelve months;

iii. Post-stimulation samples of available water sources shall be collected and tested pursuant to the following time frame:

A. One sample within six months after completion;

B. One sample between twelve and eighteen months after completion; and

C. One sample between sixty and seventy-two months after completion.

b. For multi-well pads, collection shall occur annually during active drilling and completions.

c. Operator shall collect a sample from at least one up-gradient and two down-gradient water sources within a one-half mile radius of the oil and gas location. If no such water sources are available, operator shall collect samples from additional water sources within a radius of up to one mile from the location until samples from a total of at least one up-gradient and two down-gradient water sources are collected. Operators should give priority to the selection of water sources closest to the location.

d. An Operator may rely on existing groundwater sampling data collected from any water source within the radii described above, provided the data was collected within the twelve months preceding the commencement of drilling the well, the data includes measurement of all the constituents measured in Table 2, and there has been no significant oil and gas activity within a one-mile radius in the time period between the original sampling and the commencement of drilling the well.

e. Operator shall make reasonable efforts to obtain the consent of the owner of the water source to be sampled. If the Operator is unable to locate and obtain permission from the surface owner of the water source, the Operator shall advise the Town Administrator that the Operator could not obtain access to the water source from the surface owner.

f. Operator shall test for the analytes listed in Table 2, and subsequent testing as necessary or appropriate as determined by the Town.

g. Operator shall follow standard industry procedures in collecting samples, consistent with the ECMC model Sampling and Analysis Plan.

h. Operator shall report the location of the water source using a GPS with sub-meter resolution.

i. Operator shall report on damaged or unsanitary well conditions, adjacent potential pollution sources, odor, water color, sediment, bubbles, and effervescence.

j. Operator shall provide copies of all test results described above to the Town Administrator, the ECMC, and the water source owners within three months after collecting the samples.

k. *Subsequent sampling.* If sampling shows water contamination, the Town may require additional measures, including but not limited to the following:

i. 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);

ii. If the test results indicate thermogenic or a mixture of thermogenic and biogenic gas, an action plan to determine the source of the gas;

iii. Immediate notification to the Town Administrator, the ECMC, and the owner of the water source if the methane concentration increases by more than five mg/l between sampling periods, or increases to more than ten mg/l;

iv. Immediate notification to the Town Administrator, the ECMC 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;

v. Further water source sampling in response to complaints from water source owners; and

vi. Timely production and distribution of test results, well location, and analytical data in electronic deliverable format to the Town Administrator, the ECMC and the water source owners.

l. All water source testing shall be conducted by a qualified independent professional consultant approved by the Town at the Operator's expense.

Table 2. Water Quality Analytes	
GENERAL WATER QUALITY	Alkalinity Conductivity & TDS Ph Dissolved Organic Carbon (or Total Organic Carbon)Bacteria Hydrogen Sulfide
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 Ethane Propane BTEX as Benzene, Toluene, Ethylbenzene, Xylenes Total Petroleum Hydrocarbons (TPH)
OTHER	Water Level Stable isotopes of water (Oxygen, Hydrogen, Carbon) Phosphorus

m. *Water Quality Control Plan.* Applicant shall submit a Water Quality Control Plan that details practices that will avoid impacts to water quality, comply with this section, and comply with all applicable state and federal water quality rules. The Plan shall include, but not necessarily be limited to plans for water quality testing, the prevention of illicit or inadvertent discharges and containment of pollutants in case of a discharge, and stormwater discharge management.

**18. Water supply.** The Applicant / Operator's acquisition and use of water must comply with Berthoud Municipal Code Section 30-2-120, the Water Supply Plan as outlined in this section, and all applicable state and federal laws. In addition:

a. The water supply used must be the least detrimental to the environment among the available sources and adequate to meet the needs of the oil and gas operation;

b. The water supply shall be legally and physically available, dependable, and sustainable. Operator will implement reuse and recycling to the greatest extent practicable;

c. The operation shall not use water from the Town's municipal water supply unless approved by the Board of Trustees; and

d. Any necessary water agreements must be secured prior to any oil and gas operations commencing.

e. *Water Supply Plan.* Applicant shall submit a Water Supply Plan prepared by a certified professional engineer approved by the Town that demonstrates compliance with the applicable standards in this section and includes:

i. A description of the physical source of the water that the Operator proposes to use to serve each phase of the operation;

ii. A list of all available physical sources of water other than the Town's municipal water for the operation, and if multiple sources are available, an analysis to determine which source is least detrimental to the environment;

iii. The amount of water needed for each phase of the operation;

iv. Proof that the source of water supply is physically and legally available and dependable for each phase of the operation;

v. A description of how water will be delivered to the site for each phase of the operation;

vi. A description of water efficiency methods;

vii. The amount of produced water expected to be recycled or reused; and

viii. The amount of wastewater produced, and disposal plans for wastewater.

**19. Waste Management.** Applicant must submit a Waste Management Plan for the disposal of all waste generated by the oil and gas facilities or oil and gas operations, including use of truck or pipeline transport with details of anticipated truck trips. The Plan shall include provisions for the recycling of drilling, completion, and flowback fluids unless technically infeasible. 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, natural resources, wildlife 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. The Plan must also include a description of any sources of technically enhanced naturally occurring radioactive material used in or generated by the oil and gas operations and how those materials will be disposed. The Operator shall adhere to its Plan and all applicable state and federal laws related to waste management during its operations.

**20. Wildlife.** Operators must comply with Berthoud Municipal Code Section 30-2-119, all applicable state and federal laws related to wildlife resources and the Applicant's Wildlife Conservation Plan as outlined in this section.

a. *Wildlife Conservation Plan.* The Applicant shall submit a Wildlife Conservation Plan that contains a map of ecologically important areas including critical wildlife habitat areas, riparian areas, rivers, water bodies, wetlands, potential conservation areas as identified by the Colorado Natural Heritage Program Species of Concern listing, Tier 1 and Tier 2 species as identified by the Colorado Parks and Wildlife, and of federally-designated threatened or endangered species, as mapped by other applicable federal and state 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. It shall also include, at a minimum, the following information:

- i. A description of the ownership, location, type, size, and other attributes of the wildlife habitat on the site;
- ii. A description of the populations of wildlife species that inhabit or use the site including a qualitative description of their spatial distribution and abundance;
- iii. An analysis of the potential adverse impacts of the proposed development on wildlife and wildlife habitat on or off-site;
- iv. A list of proposed mitigation measures and an analysis of the probability of success of such measures;

- v. A plan for implementation, maintenance, and monitoring of mitigation measures;
- vi. A plan for any relevant enhancement or restoration measures; and
- vii. A demonstration of fiscal, administrative, and technical competence of the applicant or other relevant entity to successfully execute the plan.

#### **§ 30-11-106: Application Outcome and Development Standards**

- A. **Application Outcome.** An application for a Use by Special Review will either be approved, approved with conditions, or denied. Denial shall occur 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 resources. Applications approved will be subject to any conditions placed on approval to ensure compliance with the standards listed in this Section 30-11-106 and Section 30-3-106. An approved application will incorporate the plans submitted by the Applicant pursuant to Section 30-11-105, unless the Town requires additional industry recognized Best Management Practices or compliance with ECMC, CDPHE, and / or EPA rules, whichever is most protective of public health, safety, welfare, the environment and wildlife resources.
- B. **Development Standards.** The following Development Standards establish minimum standards of operation at sites in the Town:
  - 1. Air quality standards, the Air Quality Protection Plan, and the Well Liquids Unloading Plan as outlined in Section 30-11-105(E)(2);
  - 2. Chemical and Hazardous Materials Use, Disclosure, and Handling provisions and the Chemical and Hazardous Materials Plan as outlined in Section 30-11-105(E)(3);
  - 3. Emergency Response standards and the Emergency Response Plan as outlined in Section 30-11-105(E)(4);
  - 4. Flood mitigation measures as outlined in Section 30-11-105(E)(5);
  - 5. Flowlines and crude oil transfer lines provisions and the Pipelines Plan as outlined in Section 30-11-105(E)(6);
  - 6. Fugitive Dust standards and the Fugitive Dust Control Plan as outlined in Section 30-11-105(E)(7);

7. Historic and Cultural Resources protections as outlined in Section 30-11-105(E)(8);
  8. Incident and Accident Reporting provisions as outlined in Section 30-11-105(E)(9);
  9. Leak Detection and Repair provisions and the Leak Detection and Repair Plan as outlined in Section 30-11-105(E)(10);
  10. Lighting and visual impacts provisions and the Lighting and Visual Impacts Plan as outlined in Section 30-11-105(E)(11);
  11. Noise and vibration provisions and the Noise and Vibration Mitigation Plan as outlined in Section 30-11-105(E)(12);
  12. Odor mitigation provisions and the Odor Mitigation Plan as outlined in Section 30-11-105(E)(13);
  13. Reclamation provisions and the Reclamation Plans as outlined in Section 30-11-105(E)(14);
  14. Spill prevention, containment, and reporting and the Spill Prevention and Containment Plan as outlined in Section 30-11-105(E)(15);
  15. Transportation impacts and the Traffic Impact Analysis and Routing Plan as outlined in Section 30-11-105(E)(16);
  16. Water quality protection and the Water Quality Control Plan as outlined in Section 30-11-105(E)(17);
  17. Water supply provisions and the Water Supply Plan as outlined in Section 30-11-105(E)(18);
  18. Waste Management provisions as outlined in Section 30-11-105(E)(19); and
  19. Wildlife protection and the Wildlife Conservation Plan as outlined in Section 30-11-105(E)(20).
- C. **Variances.** Any request for a variance from the Development Standards outlined in this section shall indicate how the proposed variance would be similarly protective of public health, safety, welfare, the environment, and wildlife resources and follow the variance procedures outlined in Berthoud Municipal Code Section 30-3-108.
- D. **Annual Operator Registration.** Operators of any new oil and gas facilities approved after the effective date of this section shall submit an Annual Operator Registration to the Town within 60 days of approval of any new facility. Operator registration must be



updated and renewed annually by July 1. Annual Operator Registration submittal requirements shall include:

1. A list of all wells and production within the Town during the previous three years;
2. List of any reportable safety events from its facilities within the Town during the previous three years as defined by ECMC Rule 602(g) or successor rules. 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;
3. List of any spills or releases from its facilities within the Town during the previous three years; and
4. List of any notices of alleged violations issued by the ECMC or CDPHE related to its facilities during the previous three years.

E. **Memorandum of Understanding.** A condition of approval for any new oil and gas operation application is a signed Memorandum of Understanding (MOU) between the Applicant / Operator and the Town. The MOU shall include, but not necessarily be limited to, the following conditions:

1. The Operator agrees to abide by all Town, state, and federal regulations applicable to the oil and gas operation, and the imposition of penalties for noncompliance pursuant to Berthoud Municipal Code Section 30-11-108;
2. The Operator agrees to cover any costs to repair the Town's transportation infrastructure necessitated by a proposed new oil and gas operation; and
3. The Operator shall reimburse the Town for all inspection costs necessary to inspect facilities approved under this section to determine compliance with this section and any permits issued by the Town. Such fees shall include actual costs incurred by the Town, including but not limited to employee or contractor time, employee or contractor supervision, legal and consulting fees, necessary equipment rental, mileage, and overhead. Costs may also include necessary personnel and time to analyze operator-submitted inspection and spill reports.

F. **Application fee.** An application for approval of a new oil and gas facility shall be accompanied by an application fee set by the Town. The Applicant is also responsible for all costs of reviewing and processing the permit application, including but not limited to the costs of legal, consultant, and referral agency review of the permit application, the pre-application conference, completeness determination, and all hearings and meetings on the permit application. All additional costs must be paid in

full prior to final action by the Town on the permit application. A Memorandum of Understanding regarding payment of fees is an application requirement.

### **§ 30-11-107: Insurance and financial assurances**

**A. Risk Management Plan.** The Applicant shall submit a Risk Management Plan with its application. The plan shall include risk identification, frequency, responsibilities, assessment, response, planning mitigation, and methods of risk avoidance and control that implement techniques to prevent the accident/loss and reduce the impact after an accident/loss occurs. It shall also include a summary of how the Applicant will comply with the insurance and financial assurance requirements in this section. Operators shall periodically update and revise the plan, but at least every three years and after any incident listed in Section 30-11-105(E)(9).

**B. Insurance.** Operator shall maintain or cause to be maintained, with insurers authorized by the state of Colorado and carrying a financial strength rating from A.M. Best of no less than A-VII (or a similar rating from an equivalent recognized ratings agency), at a minimum, the following types of insurance with limits no less than the amounts indicated:

1. Commercial general liability insurance on an occurrence form including coverage for bodily injury and property damage for operations and products and completed operations with limits of not less than \$1,000,000 for each occurrence, \$2,000,000 General Aggregate and \$2,000,000 Products/Completed Operations Aggregate. The Town requires the Products/Completed Operations coverage to be provided three years after completion of construction. An endorsement must be included with the certificate;
2. Automobile liability insurance with limits of not less than \$1,000,000 each accident covering owned, hired and non-owned vehicles;
3. Workers' compensation and Employer's Liability insurance must be maintained for all employees, providing statutory coverage and Employer's Liability insurance with minimum limits of \$100,000 each accident, \$100,000.00 disease-each employee and \$500,000 disease policy limit;
4. Control of well/operators extra expense insurance with limits of not less than \$25,000,000 covering the cost of controlling a well that is out of control or experiences a blowout. Coverage shall include re-drilling or restoration expenses, legal liability for pollution-related bodily injury or property damage resulting from an out of control well event, loss of equipment and evacuation expense;
5. Umbrella/excess liability insurance in excess of general liability, employer's liability, and automobile liability with limits no less than \$25,000,000 per occurrence; provided, however, that for so long as all pre-production phases are

ongoing at the oil and gas location, Operator will maintain such insurance with limits no less than \$100,000,000 per occurrence; and

6. Environmental liability/pollution legal liability insurance for gradual pollution events, providing coverage for bodily injury, property damage or environmental damage with limits no less than with limits of not less than \$25,000,000 per pollution incident. Coverage shall include claims arising during transportation and at non-owned waste disposal sites. Should this insurance be on a claims-made basis the retroactive date must precede the date field activities were initiated.

7. *Contractors.* Operator shall require adequate insurance of its contractors and subcontractors. Operator agrees that it shall be responsible for any damage or loss suffered as a result of negligence by Operator or any subcontractor with these requirements.

8. Operator shall waive and cause its insurers to waive for the benefit of the Town any right of recovery or subrogation which the insurer may have or acquire against the Town or any of its affiliates, or its or their employees, officers or directors for payments made or to be made under such policies.

9. Operator is required to add the Town and its elected and appointed officials and employees as additional insureds under general liability (including operations and completed operations), auto liability, Environmental/Pollution Liability and umbrella liability policies.

10. Operator shall ensure that each of the policies are endorsed to provide that they are primary without right of contribution from the Town or any insurance or self-insurance otherwise maintained by the Town, and not in excess of any insurance issued to the Town.

11. Operator shall ensure that each of the policies above (excluding workers' compensation and control of well/operator's extra expense) are endorsed to state that the inclusion of more than one insured under such insurance policy shall not operate to impair the rights of one insured against another insured and that the coverage afforded by each insurance policy shall apply as though a separate policy had been issued to each insured.

12. All policies shall be endorsed such that they cannot be canceled or non-renewed without at least thirty days' advanced written notice to the Operator and the Town, evidenced by return receipt via United States mail, except when such policy is being canceled for nonpayment of premium, in which case ten days advance written notice is required. Language relating to cancellation requirements stating that the insurer's notice obligations are limited to "endeavor to" are not acceptable.

13. Operator shall, prior to permit issuance, and at least annually, deliver certificates of insurance reasonably acceptable to the Town confirming all required minimum insurance is in full force and effect.

14. Deductibles or retentions shall be the responsibility of Operator. Deductibles or retentions must be listed on the certificate of insurance required herein and are subject to the reasonable approval of the Town.

15. Operator shall require any of its subcontractors to carry the types of coverage and in the minimum amounts in accordance with the requirements this section. Operator agrees that it shall be responsible for any damage or loss suffered by the Town as a result of non-compliance by Operator or any subcontractor with these requirements.

16. If Operator's coverage lapses, is cancelled or otherwise not in force, the Town reserves the right to obtain insurance required herein and charge all costs and associated expenses to Operator, which shall become due and payable immediately.

**C. Financial Assurance.** A surety bond or other financial assurance deemed acceptable by the Town is required from the Operator to ensure performance of all obligations of the Operator in compliance with all rules, regulations, and laws imposed by the Town, including the obligation to properly plug, abandon and reclaim all wells, well sites and pipelines. Upon the commencement of any work on the oil and gas operation, the Operator shall procure and deposit with the Town a surety bond issued by an insurer authorized by the state of Colorado and carrying a financial strength rating from A. M. Best of no less than A- VII. The amount of financial assurance required is \$100,000 for an oil and gas location, but if the location includes more than one well, the assurance must include \$100,000 for each additional well. The applicable bond amount shall be released when all oil and gas wells subject to the Application approval have been plugged and abandoned, and the site reclaimed, as determined by the Town.

### **§ 30-11-108: Inspections, enforcement, and fines**

**A. Operator Inspections.** Operators are required to inspect their oil and gas facilities to ensure compliance with all federal, state, county, and Town rules.

1. *Applicability.* This section applies to Operators of pre-existing oil and gas operations on property previously annexed by the Town or annexed subsequent to the effective date of this section, and to Operators who have obtained a Use by Special Review permit after the effective date of this section.

2. *Operator Inspections.* All Operators must inspect all oil and gas facilities, including shut-in and temporarily abandoned facilities, and all oil and gas operations as follows:

- a. Conduct soil sampling for contamination within the boundaries of an oil and gas location and along pipeline routes annually;

- b. Use equipment-assisted inspection for emissions or releases, including use of best available technology (such as infrared cameras), at least every 90 days; and
- c. Conduct visual inspections for liquid leaks within the boundaries of an oil and gas location and along pipeline routes at least every 90 days.

3. *Inspection Reporting.* Operators will report the date, methodology, subject, and results of all inspections to the Town no later than the last day of each month.

4. *Spills, Leaks and Releases.* 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, other fugitive emissions, and exploration and production waste, shall be reported to the Town immediately upon discovery and no later than 8 hours thereafter. When leaks, spills, or releases are discovered by Town, Operator, or any other type of inspection, the enforcement mechanisms and penalty provisions in this section apply.

5. *Reporting.* For spills or other releases meeting the Colorado reporting requirements pursuant to Section 25-8-601(2), C.R.S. or ECMC Rule 912, or any successor statute or rule, Operators will adhere to all state reporting requirements.

6. *Clean-up.* Any leak, release, or spill shall be stopped and cleaned up according to applicable Town, county, state and federal laws, including Colorado Water Quality Control Commission regulations, the Colorado Oil and Gas Act, the federal Clean Air Act, and the federal Clean Water Act. Operators will notify the Town immediately upon completion of clean-up activities.

7. *Root Cause Analysis.* A root cause analysis of any spill, leak, or release of any substance other than fresh water that resulted in bodily injury or fatality, serious environmental harm, was a Grade 1 gas leak as defined by the ECMC, or is otherwise requested by the Town shall be submitted to the Town within 30 days of the leak, spill, or release.

**B. Town Inspections.** To monitor compliance with permit conditions or if the Town has reasonable cause to believe that a violation of the provisions of this section has occurred, the Town may inspect oil and gas facilities and commence enforcement if necessary to ensure compliance with the provisions of this section.

1. *Right to Enter.* Any oil and gas facility may be inspected by the Town, or the Town's designee, at any time to ensure compliance with the requirements of Town permits or the provisions of this section. Unless urgent circumstances exist, the Town will use best efforts to ensure that 1 hour of prior notice is given to the Operator's contact person at the telephone number on file. Town 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.

2. *Records.* Operators will disclose any and all information regarding operations or activities of the oil and gas operation to the Town. This includes, but is not necessarily limited to, daily drilling logs, air quality monitoring data, noise monitoring data or logs, water analysis reports, environmental assessments, daily activity logs or reports, and records or reports required by the CDPHE, the ECMC, the Colorado Public Utilities Commission, the Occupational Safety and Health Administration, and the Pipeline and Hazardous Materials Safety Administration. Operators shall submit all reports required by this rule to the Town electronically.

3. *Inspection fees.* The Town may require the Operator to pay reasonable inspection fees for inspections conducted by the Town or a third party approved by the Town as detailed in a Development Agreement.

**C. Violations.** Violations of any condition of approval or any provisions of this section may be subject fines, penalties, and other corrective actions.

1. *Process initiation.* If the Town Administrator has reasonable cause to believe that a violation has occurred, the Town Administrator 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 a violation occurred will be considered a separate infraction. The Notice of Violation shall include:

- a. Provisions of this Code or conditions imposed on a permit that were violated;
- b. A short and plain statement of the facts alleged to constitute each violation;
- c. A statement of the fines the Operator will be subject to as specified in this section; and
- d. A demand that the violation be remedied and fines paid.

2. *Operator Response.* The Operator will have the time specified by the Town Administrator in the notice to respond to the notice of violation, unless an extension is requested in writing and granted by the Town Administrator. 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 Penalty.* Based on the Operator's response, if any is provided, and any other competent evidence, the Town Administrator 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 Town Administrator.

4. *Penalty Calculation.* The Town Administrator may assess a civil penalty up to \$15,000 per violation per day, depending on the nature and severity of the violation, statutory authority, and application of the additional factors listed below.

a. To evaluate the severity of the violation, the Town Administrator will consider the following:

- i. The degree of threatened or actual impact to public health, safety, welfare, the environment or wildlife;
- ii. The existence, size, and proximity of potentially impacted livestock, wildlife, fish, soil, crops, water, and all other environmental resources;
- iii. The degree of threatened or actual damage to agricultural lands, public lands, private property, freshwater sources, public drinking water, natural resources, environmental features, or wildlife;
- iv. The size of any leak, release, or spill;
- v. Whether the violation resulted in a significant waste of oil and gas resources;
- vi. The toxicity of a leak, release, or spill;
- vii. Whether the violation led to death or injury of persons or wildlife; and
- vii. The duration of the violation.

b. In addition to considering the severity of the violation, the Town Administrator will consider the following:

- i. Whether the same or similar violations have occurred at the location;
- ii. Whether other violations have occurred at the location in the previous 24 months;
- iii. The Operator's history of violations of any applicable rules, of similar or different types, at the location or others;

- iv. The timeliness and adequacy of the Operator's corrective actions;
- v. The degree the violation was outside of the Operator's reasonable control and responsibility;
- vi. Whether the Operator acted with gross negligence, or knowing and willful misconduct;
- vii. Whether the Operator self-reported; and
- viii. Whether the Operator was cooperative with all agencies and jurisdictions involved in working to mitigate the impacts of the violation.

c. The Town may impose a penalty for violations of its Code and / or Conditions of Approval. The Town may impose its own penalty if the ECMC finds a violation of a similar requirement in its rules and imposes its own penalty; however, the Town Administrator shall consider the amount of the penalty imposed by the ECMC for its similar violation when calculating the Town's penalty.

5. *Suit to Enjoin ECMC Rule Violation.* If the Town 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 Town will notify the ECMC in writing. If the ECMC fails to file a Notice of Alleged Violation against the Operator in a timely manner, the Town Attorney may file an action on behalf of the Town seeking injunctive relief.
6. *Other Penalties.* In addition to or in lieu of civil fines, the Town may exercise remedies for Operator violations including the following:
  - a. Increased Operator or Town inspection frequency at the Operator's expense;
  - b. Mandatory equipment upgrades;
  - c. A requirement to conduct an audit of the systems or equipment involved in the violation(s); and / or
  - d. A requirement for increased reporting to the Town.
7. **Written Order Suspending the Approval.** As a result of either (i) emergency conditions, or (ii) 3 or more fines imposed for violations within 12 months, the Town may issue a written order to the Operator. Upon receipt, the Operator shall cease all activities and operations immediately until the violation is remedied or appeal the order suspending approval to the Board of Trustees within 14 days.

8. **Other Enforcement Remedies.** In addition to the foregoing enforcement measures, the Town has the right to any and all other enforcement measures and



remedies provided by law, including but not limited to injunctive or other relief through the courts to enforce any conditions of the Development Agreement or to stop or abate any oil and gas operations occurring or about to occur without the requisite special use, required permits, or other Town approvals. Nothing in this section shall limit the remedies available to the Town for a violation of this section.

### **§ 30-11-109: Seismic Operations**

- A. An Operator seeking to conduct any seismic operations within the Town must obtain a Seismic Operations Permit. As part of the Town's Seismic Operations Permit, the Operator shall submit an application fee and development review deposit as specified in the Town's Fee Schedule. Additionally, the Operator shall submit the following information to the Town as part of the Seismic Operations Permit:
1. A timeline for the seismic operation;
  2. A map of any existing mines underlying the project area, and within 1-kilometer (3,280 feet) of the seismic operation boundary;
  3. A map of any water sources within 1-kilometer (3,280 feet) of the seismic operation boundary;
  4. A map of any occupied buildings and / or dwelling units within 1-kilometer (3,280 feet) of the seismic operation;
  5. A list of equipment to be used during the seismic operation;
  6. Plans to monitor and control the seismic operation to prevent any damage to any infrastructure;
  7. A public notification plan for buildings along any vibration truck routes;
  8. An assessment by a certified engineer demonstrating the roads to be used in the project are able to endure the vibrations generated by the seismic operation;
  9. Proof of adequate insurance for any potential damage caused by the seismic operation;
  10. Copies of written permission from any landowner whose land will be utilized for the seismic operation;
  11. The company or companies responsible for performing the seismic operation and contact information of those companies;
  12. A traffic control plan; and
  13. Any other information the Town deems reasonable and necessary to protect public health, safety, welfare, the environment and wildlife.
- B. The Town will approve, deny, or place conditions of approval on Seismic Operations Permit in accordance with the criteria outlined in Section 30-11-101.B.
- C. The Operator shall notify building occupants and property owners as outlined in its Seismic Operations Permit within thirty (30) days after approval of the Permit or within fourteen (14) days of conducting the operation, whichever is closer to the Seismic Operation.

## **§ 30-11-110: Judicial Review**

- A. Decisions by the Board of Trustees shall be subject to judicial review as applicable pursuant to C.R.C.P. 106(a)(4).

## **MODIFICATIONS TO EXISTING TOWN ORDINANCES**

### **Section 30-2-118**

#### **D. *Applicability.***

1. The lighting standards of this Chapter shall be applicable to all exterior lighting within the Town. All exterior lighting installed after the effective date of this ordinance codified herein shall conform to the standards established by this Chapter. [All exterior lighting for oil and gas operations installed after \[EFFECTIVE DATE OF 30-11-101 ET SEQ\] shall conform to the standards established by this Chapter.](#)

### **Section 30-3-106.B.**

#### **B. *Conditional Use review process.***

1. *Optional pre-application conference.* The applicant may attend a pre-application conference with a representative from the Town. The purpose of the meeting is to discuss the conditional use submittal requirements and review process.
2. *Conditional Use application submittal.* The applicant shall submit the complete conditional use application package to the Town and shall request that the application be reviewed by the Planning Commission and Board. Conditional use requests shall include:
  - a. Land use application form.
  - b. Title commitment. The title commitment must be current and dated no more than 30 days from the date of conditional use application submittal.
  - c. Written statement and any graphics necessary to describe the precise nature of the proposed use and its operating characteristics and to illustrate how all conditional use review criteria have been satisfied.
  - d. A map showing the proposed development of the site, including topography, building locations, parking, traffic circulation, usable open space, landscaped area and utilities and drainage features.
  - e. Preliminary building plans and elevations sufficient to indicate the dimensions, general appearance and scale of all buildings.

- f. Such additional material as the Town may prescribe or the applicant may submit pertinent to the application.
- g. Surrounding and interested property ownership report — Provide the Town with a current set of mailing labels (not more than 30 days old) of the names and addresses of the surrounding property owners (within 300 feet of the property), mineral interest owners and mineral and oil and gas lessees of record for the property, and appropriate ditch companies. The applicant shall certify that the report is complete and accurate.
- h. [For an oil and gas operations application, the applicant shall follow the application requirements of Section 30-11-101 et seq.](#)

### **Section 30-3-106.C.**

*Conditional Use review criteria.* The Town may approve a conditional use application if it finds that each of the following criteria are satisfied:

1. The conditional use will satisfy all applicable provisions of the zoning code and subdivision regulations unless a variance is being requested.
2. The conditional use will conform with or further the goals, policies and strategies set forth in the Town of Berthoud Comprehensive Plan.
3. The conditional use will be adequately served with public utilities, services, and facilities (i.e. water, sewer, electric, schools, street system, fire protection, public transit, storm drainage, refuse collection, parks system, etc.) and not impose an undue burden above and beyond those of the permitted uses of the district.
4. The conditional use will not substantially alter the basic character of the district in which it is in or impair the development or redevelopment potential of the district.
5. The conditional use will result in efficient on- and off-site traffic circulation which will not have a significant adverse impact on the adjacent uses or result in hazardous conditions for pedestrians or vehicles in or adjacent to the site.
6. Potential negative impacts of the conditional use on the rest of the neighborhood or of the neighborhood on the conditional use have been mitigated through setbacks, architecture, screen walls, landscaping, site arrangement or other methods. The applicant shall, at a minimum, satisfactorily address impacts including: traffic; activity levels; light; noise; odor; building type, style and scale; hours of operation; dust; and erosion control.
7. The applicant has submitted evidence that all applicable local, state and federal permits have been or will be obtained.
8. [For an oil and gas operation application, the conditional use will not adversely impact the health, safety and welfare of the Town's residents in their workplaces, their homes, their schools, and public places in order to protect the public's health, safety, and welfare, and to safeguard the environment and wildlife resources.](#)