

# Article 11.0 Oil and Gas Facilities

## 11.1. Intent and Purpose

### 11.1.1. Intent

The intent of this section of the Land Use Code is to establish a regulatory framework for new **and existing** oil and gas facilities (O&GFs) **proposed or** located in the unincorporated areas of Larimer County ~~in a manner that acknowledges private property rights and to protect~~ the public health, safety, and general welfare, ~~protects the~~ environment, and wildlife resources. ~~and minimizes adverse impacts.~~

### 11.1.2. Authority

This article is authorized by C.R.S. §§ 25-8-101 et seq., 29-20-101 et seq., 30-28-101 et seq., 34-60-101 et seq., 25-7-101 et seq., 30-15-401, Colorado common law related to public nuisances, and other authority as applicable. ~~C.R.S. 29-20-104 (1) provides the County authority to regulate and review applications pertaining to the surface development of O&GFs.~~

### 11.1.3. Purpose

These regulations are necessary to:

- A. **Protect public health, safety, and welfare, and environment and wildlife resources in unincorporated Larimer County.**
- B. Ensure a comprehensive land use process and transparent public process for the development of new O&GFs, in the unincorporated areas of the County.
- ~~C. Provide for the managed development, installation, maintenance, modification, reclamation, and removal of O&GFs, while acknowledging the interests of oil and gas developers and operators, or mineral interest owners.~~
- D. **Avoid impacts to public health, safety, welfare and the environment and wildlife resources through application of reasonable siting requirement and land use regulations.**
- E. Minimize to the maximum extent possible the nuisance effects of O&GFs through the application of best available techniques and technologies.
- ~~F. Promote and protect the public health, safety, and welfare, and protect the environment and wildlife by minimizing the adverse impacts of O&GFs.~~
- G. Maximize protection of natural and cultural resources and public facilities.
- ~~H. Encourage O&GF's to strategically locate where adverse impacts from such operations can be avoided.~~
- ~~I. Minimize and mitigate the extent and severity of adverse impacts that cannot be avoided.~~
- J. Confirm the financial, indemnification and insurance capacities of the oil and gas developer/operator to ensure timely and effective construction, production, removal and reclamation of O&GFs and infrastructure.

### 11.1.4. Applicability

These regulations shall apply to all new **and greenfield** O&GFs, to be constructed on any property in all zoning districts in the unincorporated portions of Larimer County. **Regulations shall be applied to existing O&GFs where specified.**

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### 11.1.5. 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 is hereby declared to be necessary for the public health, safety, and welfare.

## 11.2. Review Procedures and Required Permits

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### 11.2.1. General Requirements

No person, firm or corporation shall establish, construct, or build a new O&GF, without first having obtained required land use approval(s) and permits as required by this Code. Applications to the County for new O&GFs, may be submitted simultaneously with the Colorado Oil and Gas Conservation Commission (COGCC) permitting process.

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### 11.2.2. County Review Process – Administrative Special Review

The following oil and gas processes and facilities will go through an Administrative Special Review application process as set forth in §6.4.3 *Administrative Special Review*, of this Code.

- A. Plugging and Abandonment Permit:** is required to ensure adequate public notice and traffic management, and review of final reclamation plans. As a part of the Administrative Special Review process, applicants will provide to the County:
1. A timeline for work to be accomplished;
  2. Notice that has been submitted to surface owner and all residents within 500 feet;
  3. The Form 4 Sundry Notice supplied to the COGCC to notify state of the plugging and abandonment;
  4. Final Reclamation Plan approved by the Surface Owner;
  5. Other information as the County deems necessary.
- B. Seismic Survey Operations Permit:** is required to ensure critical infrastructure is protected, traffic is managed, and the public is adequately notified. Seismic Survey Operations must meet all site-specific conditions deemed necessary to protect public health, safety, welfare and the environment. As a part of the Administrative Special Review process, applicants will provide to the County:
1. A timeline for work to be accomplished;
  2. A map of any existing mines underlying the project area, and within 2,000-feet of the project boundary;
  3. An assessment by a certified engineer demonstrating that the proposed vibrations will not damage any of these mines or other historic infrastructure;
  4. A map of the seismic study area showing planned source and receiving locations;
  5. A map of the seismic study area showing planned source locations and water wells;
  6. A map showing the route that vibroseis trucks will follow;
  7. A public notification plan for the homes along the vibroseis truck route;
  8. An assessment by a certified engineer demonstrating that the roads to be utilized in the project are able to endure the vibrations generated by the project;
  9. Financial assurance in a form and amount acceptable to the County;

10. A traffic control plan; and
  11. Other information as the County deems necessary.
- C. Oil and Gas Pipeline Permit:** is required for pipelines related to oil and gas development (that carry gas, oil, or produced water) to ensure residential areas are avoided, traffic is managed, and the environment is protected. Oil and gas pipelines must meet all requirements in 11.3.25 as well as site specific conditions deemed necessary to protect public health, safety, welfare and the environment. As a part of the Administrative Special Review process, applicants will provide to the County:
1. A timeline for work to be accomplished;
  2. Sketch Plan Review Application and Submittal Requirements for Oil and Gas Facilities as described above;
  3. A reclamation plan for entire pipeline route;
  4. Pipelines that enter County property or public right-of-way in the County must also obtain a public right-of-way permit and/or license from the County Engineer; and
  5. Other information as the County deems necessary.

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### 11.2.3. County Review Process – Special Review

All new O&GFs, in the unincorporated portions of Larimer County shall require approval of a Special Review application for the proposed facility as set forth in §6.4.2 *Special Review*, of this Code. Application and submittal requirements for O&GFs are specified in the following Community Development Department application handouts:

- A. Sketch Plan Review Application and Submittal Requirements for Oil and Gas Facilities.<sup>1</sup>**
1. The requirements found in 6.3.3;
  2. Preliminary Site Analysis. The applicant shall prepare and submit a Preliminary Site Analysis to the County for the Sketch Plan Review. The Preliminary Site Analysis shall include maps with the following information:
    - a. All drilling and spacing units proposed by the applicant within one (1) mile of the County's boundaries;
    - b. The proposed location or route for the oil and gas facility and all features defined below, completely contained within, or within ¼ mile of all drilling and spacing units proposed by the applicant;
    - c. Any existing residential, platted residential, or property currently entitled for residential use, not including properties zoned for agricultural use over five (5) acres in size;
    - d. Any facility classified as a high occupancy building as defined by the COGCC;
    - e. Any school, nursing facility as defined in § 25.5-4-103(14), C.R.S., hospital, life care institutions as defined in § 12-13-101, C.R.S., or correctional facility as defined in § 17-1-102(1.7), C.R.S.;
    - f. Any operating child/elderly care center or child/elderly care home as defined in the Land Use Code;

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<sup>1</sup> The requirements for a “preliminary site analysis” and “alternative location analysis” listed here are more appropriately located in the “Oil and Gas Application and Submittal Requirement handout.” They are listed here for discussion purposes.

- g.** Community Park Land, Public Parks, Regional Park Land, ~~and Trails and Trailheads~~ as defined in the Land Use Code and publicly-maintained trails and trailheads.
  - h.** Areas within the FEMA 100-Year Floodplain boundary;
  - i.** The centerline of all USGS perennial and intermittent streams and the map will indicate which surface water features are downgradient;
  - j.** Reservoirs and public and private water supply wells;
  - k.** Wetlands;
  - l.** High priority wildlife habitat; and
  - m.** Disproportionately impacted communities.
3. Alternative Location Analysis. All applicants must submit an alternative location analysis. The alternative location analysis will include, at a minimum, the following information:<sup>2</sup>
- a.** A map depicting the following elements within three (3) miles of the proposed surface location. (This requirement may be limited to one (1) mile for a proposed single vertical or directional well): ~~or pipeline route:~~
    - i.** All mineral rights held or controlled by the applicant;
    - ii.** All drilling and spacing units proposed by the applicant; and
    - iii.** The location of all features listed in the "Preliminary Site Analysis."
  - b.** Unless waived by the Community Development Director, the analysis shall evaluate a minimum of three potential locations ~~or routes~~ that can reasonably access the mineral resources within the proposed drilling and spacing unit(s), including the following information for each site ~~or pipeline route:~~
    - i.** General narrative description of each location ~~or pipeline route;~~
    - ii.** Any location restrictions that the site does not satisfy;
    - iii.** Off-site impacts that may be associated with each site ~~or route;~~
    - iv.** Proposed truck traffic routes and access roads for each location; and
    - v.** Any information pertinent to the applicable review criteria that will assist the Community Development Director in evaluating the locations ~~or routes.~~
- B.** Neighborhood Meeting Submittal Requirements and Guidelines for Oil and Gas Facilities.
  - C.** Special Review Application and Submittal Requirements for Oil and Gas Facilities.
  - D.** Registration and Submittal Requirements for Oil and Gas Facilities.

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#### 11.2.4. Oil and Gas Application Review Criteria

In reviewing a proposed special review oil and gas application, the review bodies shall consider the general approval criteria in §6.3.6: *General Review Criteria*, the *Special Review Criteria* listed in §6.4.2D, and the following Oil and Gas Review Criteria:<sup>3</sup>

- A.** The proposal will not negatively impact public health and safety.
- B.** The proposal will not have a significant adverse effect on or will adequately mitigate

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<sup>2</sup> The COGCC now requires an Alternative Location Analysis (Rule 304.b(2)) as do Adams County, Broomfield County, and numerous municipalities including Brighton, Aurora (draft), Commerce City, and Erie. Boulder County and Weld County do not require an alternative location analysis.

<sup>3</sup> These were adapted from 1041 Review Criteria in §10.9.4

- significant adverse effects on the environment, including wildlife resources.
- C. The proposal is consistent with any applicable intergovernmental agreements affecting land use and development.
  - D. The applicant has adequately considered reasonable siting and design alternatives.
  - E. The proposal conforms with adopted county standards, review criteria and mitigation requirements concerning environmental impacts, including but not limited to those contained in this Code.
  - F. The proposal will not adversely affect any sites and structures listed on the State or National Registers of Historic Places.

**Public Conservation Lands:** The County, local municipalities, and land trusts have a long history of using public funds to purchase fee title or conservation easements to protect conservation values such as natural, cultural, agricultural, or scenic values. A map of these Public Conservation Lands is available from the Natural Resource Department. Proposed oil and gas development proposed for these Public Conservation Lands must meet the following additional standards:<sup>4</sup>

- G. Larimer County and municipal-owned conserved lands will be granted a no surface occupancy status unless the applicant can demonstrate they have adequately considered reasonable siting alternatives to avoid locating OGFs on Public Conservation Lands and adequately explain why such alternatives are not available or not feasible.
- H. If surface use on the conservation property is the only viable alternative, the applicant will work with the local lead entity (County, municipality, or land trust) to perform a resource assessment planning process. The report titled “Mountains to Plains Energy by Design, Report to the Colorado State Land Board (January 2013) will be used to provide guidance for best management and compensatory mitigation requirements.
- I. The proposal, including any on-site or off-site mitigation, will result in no net loss in natural, cultural, agricultural, or scenic values as determined by the Board of County Commissioners or their designee.

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### 11.2.5. Notification

All O&GF applications shall be required to notify property owners and tenants ~~have~~ a minimum ~~APO notification boundary~~ of ½ mile (2,640 feet) from the proposed oil and gas location for all neighbor referral, neighborhood meeting and public hearing notices, as outlined §6.3 *Common Review Procedures*.

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### 11.2.6. County Permits

Prior to the commencement of any construction activity for an O&GF, all required permits for such facilities shall be approved. Required permits include, but are not limited to:

- A. Access permits,
- B. Development construction permit,
- C. Building permits for all qualifying buildings and structures,

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<sup>4</sup> These lands include publicly-purchased open space including Soapstone, Red Mountain as well as conservation easements.

- D. Electrical permits, and
- E. All federal, state, and local permits.

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### 11.2.7. Non-County Permits

County approval of an O&GF shall not relieve the landowner or applicant of the responsibility for securing other permits or approvals required by any other applicable County Departments, local fire district, municipalities, or other applicable federal, state and public agencies.

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### 11.2.8. Technical Expert Review

Applications for O&GFs or analysis of notices or reporting required by this article, may involve complex technical issues that require review and input that is beyond the expertise of County staff. If such a situation arises, the Director may commission a third-party review of the relevant subject matter and require the applicant to pay reasonable costs for the third-party review. Selection of a third-party expert(s) to review portions the proposal will be at the discretion of the County.

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### 11.2.9. Application to Existing Facilities.

O&GFs that were legally established prior to the effective date of this Article will be allowed to continue but will be subject to public health, safety, welfare, and environmental requirements as specified in this Article.

- A. Any modification of oil and gas operations or facilities that the Director determines to be substantial requires a separate Special Review Application under this Article. The replacement of existing equipment, installation of emission control equipment, and the addition of equipment to fulfill mandated regulatory requirements are exempt.
- B. Registration. Operators with existing O&GFs in Larimer County prior to the effective date of this Article will submit the Registration and Submittal Requirements for Oil and Gas Facilities materials within 90 days after the effective date of this article; or, if not already operating wells in Larimer County, at least 60 days prior to assuming responsibility for operating existing O&GFs. Operator registration must be updated and renewed annually by January 1.

## 11.3. Standards Required for Oil and Gas Facilities.

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### 11.3.1. General

- A. In addition to the standards and requirements of this section, all other relevant standards and regulations set forth in this Code shall also apply.
- B. All applications for new O&GFs, shall meet all applicable federal, state, and local standards and regulations pertaining to the development and operation of such facilities.

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### 11.3.2. Setbacks Location Restrictions:

Oil and gas locations (well sites and production facilities) shall only be located within the following zoning districts without obtaining a variance under Section 6.7.3.: NR – Natural Resources; FO – Forestry; A – Agriculture; ACE – Agricultural Commercial Enterprise; O - Open; IH – Heavy Industrial; AP – Airport; and PD-Planned Development and RPD – Rural Planned

Development where oil and gas development is a specified use.<sup>5</sup> Class II Water Disposal Wells may only be located in IH – Heavy Industrial Zones.

- A.** Oil and gas locations shall be at least two thousand (2,000) feet from the property line of any school facility, ~~or~~ child care center, or family child care home as defined by Colorado state law.
- B.** Oil and gas locations shall be at least one thousand (1,000) feet from the following unless a variance is obtained:<sup>6</sup>
  - 1. Building unit(s) that are not subject to a waiver from all building unit owner(s) and tenants explicitly agreeing with informed consent to the proposed oil and gas location;
  - 2. Publicly-maintained trails and trailheads, and Community Park Land, Public Parks, and Regional Park Land ~~and Trails and Trailheads~~ as defined in the Land Use Code; and
  - 3. Public water supply surface intakes or public water supply wells.
- C.** No oil and gas locations may be located between one thousand 1,000’ and two thousand 2,000’ of any existing or platted residential building units, unless one or more of the following conditions are satisfied:
  - 1. All existing building unit owners and tenants of any of the affected residential properties within 2,000’ of the relevant point of measurement explicitly agree with informed consent to the proposed oil and gas location;
  - 2. Any wells, tanks, separation equipment, or compressors proposed on the oil and gas location will be located more than 2,000’ from the relevant point of measurement; or
  - 3. The Board of County Commissioners finds, as part of their Special Review of an application, that the proposed oil and gas location and conditions of approval will provide substantially equivalent protections for public health, safety, welfare, the environment, and wildlife resources. The Board of County Commissioners will consider, without limitation:
    - a. The extent to which the oil and gas location design and any planned practices, preferred control technologies, and conditions of approval avoid, minimize, and mitigate adverse impacts, considering:
      - i. Geology, technology, and topography;
      - ii. The location of receptors and proximity to those receptors; and
      - iii. The anticipated size, duration, and intensity of all phases of the proposed oil and gas operations at the proposed oil and gas location.
    - b. The Operator’s alternative location analysis conducted pursuant to section 11.2.2.B;
    - c. Related oil and gas location siting and infrastructure proposed;
    - d. How O&GFs associated with the proposed oil and gas location are designed to

<sup>5</sup> Oil and gas development would be prohibited in all other zones. These changes would also be reflected in Sections 3.2.6 and 3.2.7 (Table of allowed principal uses, rural and urban).

Use of zoning to restrict oil and gas development is used in several municipalities including Commerce City, Erie, and Superior. Boulder County and Weld County do not restrict oil and gas development through zoning. Adams County restricts oil and gas facilities from residential areas but not from commercial areas.

<sup>6</sup> COGCC has a strict 500 foot setback with the ability to locate within 500-2,000 feet by demonstrating “substantially equivalent protections” (Rule 604); Boulder County has a 2,000-foot setback requirement (with a stated preference for 2,500 feet); Adams County has a 1,000 foot setback (but may revise); Commerce City has a 1,000 foot setback with a 1,500 foot setback from 10 or more homes; Erie has a 2,000 foot setback; Brighton has a 1,000 foot setback; Weld County has a 300 foot setback.

- avoid, minimize, and mitigate impacts on the affected properties; and
- e. The Operator's actual and planned engagement with nearby residents, property owners, and businesses to consult with them about the planned oil and gas operations.
4. All working pad surfaces ~~oil and gas locations~~ proposed within the County shall be at least five hundred (500) feet from the following unless a variance is obtained:
    - a. Rivers and streams;
    - b. Existing Water Storage Facilities and approved future Water Storage Facilities as defined in the Land Use Code; and
    - c. Ditches that are located downgradient and transport water used by, or to augment, a public water supply system.
  5. Locating O&GFs within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain shall not be allowed unless no other location is feasible, and all other appropriate permissions are obtained.
  6. All equipment at an oil and gas location located within a 100-year floodplain shall be anchored as necessary to prevent flotation, lateral movement or collapse or shall be surrounded by a berm with a top elevation at least one (1) foot above the level of a 100-year flood.
- D. Required Easements.** Prior to the issuance of an oil and gas permit, an operator must obtain easements that will prevent the prohibited land uses within the setbacks listed above until the location has been properly plugged and abandoned. The easements must be recorded prior to receiving an oil and gas permit.
1. ~~In addition to the requirements within Article 11, oil and gas development proposed within an area zoned within the natural resources (NR) district will also have to go through the 1041 permitting process outlined in §10.9.4 of this code.~~
    - ~~A. Setbacks for O&GFs shall be 1,000 feet from building units, including high occupancy building units, or as required by the rules of the COGCC, whichever are greater. All other setbacks from natural and manmade feature as required by the rules of the COGCC shall apply.~~
    - ~~B. To achieve the objectives of §11.1.3, the County Commissioners may, on a case by case basis, require setbacks greater than required by §0 above.~~
    - ~~C. The Board of County Commissioners may, by request, allow a reduction of the setbacks required by §0 above when it has been determined that the applicant has adequately demonstrated that the setbacks prohibit access to the mineral interests being sought, or the reduced setbacks will achieve and mitigate to the extent necessary the objectives of this code or the expectations of the County Commissioners.~~

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### 11.3.3. Air Quality

- A. An Air Quality ~~Report and Mitigation Plan~~** shall be submitted with all O&GF applications to demonstrate how the development and operation of the facility will avoid ~~causing degradation to air quality and will minimize and~~ ~~and/or~~ mitigate adverse impacts to air quality and demonstrate compliance with and implementation of standards in §§11.3.3 and 4.11 of this Code.
- B. Ambient Air Monitoring.** Operator shall create and submit an air monitoring plan describing how the Operator will conduct baseline monitoring prior to construction of the O&GF. The

plan shall also describe how the Operator will conduct ~~continuous~~ high frequency monitoring and collect periodic canister samples (or equivalent method capable of speciating air samples) during the drilling, completion and production phases of development. Air pollutants monitored ~~by canister samples~~ shall include, but are not limited to, methane, VOCs, benzene, Oxides of Nitrogen (NOx), Particulate Matter (PM), and Fine Particulate Matter (PM 2.5). At Operator's cost, a third-party consultant approved by the County shall conduct baseline and ongoing air sampling and monitoring. Such sampling and monitoring shall comply with the following requirements:

1. Baseline sampling shall be conducted within 500 feet of a proposed O&GF over a 90-day period. Baseline sampling shall track levels and changes in monitored air pollutant concentrations. Baseline sampling data shall be provided as part of the Oil and Gas permit submittal.
2. High frequency monitoring for hydrocarbons shall occur at frequencies of no less than once per hour during ~~the~~ drilling and completions phase of oil and gas development. Each hydrocarbon monitor shall include a sampling device to automatically collect an air sample when the monitor levels reach a threshold concentration level defined ~~below~~ by the third-party consultant. Monitors shall also include meteorological monitoring capabilities. ~~Continuous~~ High frequency monitoring may not cease until two ~~three~~ years have passed from the date the last well drilled on the site has entered the production phase, unless a school, child care center, hospital, or residence is within 1,000' of the edge of the well site. In such instance, ~~continuous~~ high frequency monitoring shall be required until all wells are plugged and abandoned. Continuation of high frequency monitoring may also be required at the discretion of the Director if repeated emissions at threshold concentrations are detected or as a result of repeated odor violations. ~~The release of methane, total hydrocarbons, and VOCs will be avoided or mitigated. An increase in the detection of these pollutants greater than the ambient levels determined during baseline sampling plus the anticipated change based on Operator provided impacts of modeled operations shall require the Operator to collect a further sample utilizing an 8-hour canister sample immediately after detection.~~
3. In the event a ~~canister~~-speciated sample is triggered, the County shall be notified as required by the Director. ~~within 24 hours after the occurrence of such event.~~ Depending on the circumstances, expedited lab analysis may be required.

~~The report/plan shall include baseline air quality data and demonstrate how the development and operation of the facility will avoid and/or mitigate adverse impacts to air quality and demonstrate compliance with and implementation of standards in §§11.3.3 and 4.11 of this Code.~~

- C. The Air Quality Mitigation Plan must consider the cumulative impacts to existing air quality and all planned and existing oil and gas operations within the County.
- D. In addition to all federal and state laws, rules and regulations, applications for O&GFs shall demonstrate how exploration, construction and standard operations of an O&GF will comply with the rules and regulations of the Colorado Air Quality Control Commission (AQCC). Information to be provided shall include all appropriate applications of notifications and permits for sources of emissions.
- E. Reduced Emission (Green) Completions shall be used for all completions and well workovers. Such completions shall include the use of closed loop, pitless drilling,

completion systems, without permanent on-site storage tanks, for the containment and/or recycling of all drilling, completion and flowback fluids.

- F. The Following Air Quality Best Management Practices shall be required unless an equal or better system exists:
- ~~Flaring only allowed during emergencies or upset conditions. When allowed, routing and control of all emissions to a flare or combustor shall provide at least 98% destruction or removal efficiency.~~
1. Zero emission desiccant dehydrators.
  2. Emission controls of 95% or better for glycol dehydrators.
  3. Pressure-suitable separator and vapor recovery units.
  4. No-bleed continuous and intermittent pneumatic devices.
  5. Automated tank gauging.
  6. ~~Require dry seals on centrifugal compressors.~~
  7. ~~Routing of emissions from rod-packing and other components on reciprocating compressors to vapor collection systems.~~
  8. ~~Control emissions by 98% during storage tank hydrocarbon liquids loadout (i.e. loading out liquids from storage tanks to trucks).~~
  9. ~~Reduction or elimination of emissions from flowline maintenance activities such as pigging, including routing emissions to a vapor collection system.~~
- G. ~~To the extent used, all combustion devices including flares, thermal oxidizers, or emission control units shall be designed and operated as follows:~~
1. ~~Any flaring that is done shall be done with a flare that has a manufacturer specification of 98% destruction removal efficiency or better;~~
  2. ~~The flare and/or combustor shall be fired with natural gas;~~
  3. ~~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;~~
  4. ~~The flare and or combustor shall be operated with a flame present at all times when emissions may be vented to it;~~
  5. ~~All combustion devices shall be equipped with an operating auto-igniter;~~
  6. ~~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 at all times in the flare's pilot light burner. A telemetry 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; and~~
  7. ~~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.~~
- H. ~~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.~~

- I. O&GFs shall be equipped with electric-powered engines for motors, compressors, drilling and production equipment, and pumping systems unless no adequate electricity source is available, or it is technically infeasible.
- J. **Air quality requirements for both new and existing facilities.**
  1. **New and existing O&GF applications** shall include operational provisions to reduce emissions on Air Quality Action Advisory Days posted by the Colorado Department of Public Health and Environment (CDPHE) for the Front Range area. The provisions shall include how alerts are received, outline specific emission reduction measures, and include requirements for documenting the measures implemented. Measures should include:
    - a. Minimizing vehicle traffic and engine idling,
    - b. Reducing truck and worker traffic,
    - c. Delaying vehicle refueling,
    - d. Suspending or delaying use of fossil fuel powered equipment,
    - e. Postponing construction and maintenance activities,
    - f. Postponing well maintenance and liquid unloading that would result in emission releases to the atmosphere, and
    - g. Postponing or reducing operations with high potential to emit VOCs of NOx.
  2. **Venting is prohibited except as allowed in COGCC rules. ~~during all phases of oil and gas development unless there is an immediate threat to public health, safety, and welfare, the environment, and wildlife.~~**
  3. **Flaring is prohibited except as allowed in COGCC rules. When allowed, routing and control of all emissions to a flare or combustor shall provide at least 98% destruction or removal efficiency.**

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#### 11.3.4. Leak Detection and Repair

- A. **The provisions of 11.3.4 are applicable to both new and existing O&GF.**
- B. **A Leak Detection and Repair Plan** shall be submitted with all O&GF applications **and once every three years as part of an Operator's annual registration.** The plan shall disclose techniques, methods and protocols that will be utilized at the proposed O&GF to identify, prevent, contain, document, repair, and report leaks, and shall demonstrate how it will comply with and implement the standards in this §11.3.4.
- C. Operators shall conduct leak detection and repair inspections at **every O&GF a minimum of once every year or at greater frequencies as the frequency** required by the APCD (Air Pollution Control Division) for the emission source using modern leak detection technologies (infrared cameras, etc.) and equipment. The results of said inspections, including all corrective actions taken, shall be reported to the Larimer County Department of Health and Environment (LCDHE) and County Local Government Designee (LGD) upon request.
- D. Repair of verified leaks shall occur within 72 hours of detection. If it is anticipated that a repair will take longer than 72 hours, the operator shall provide a written explanation to the LCDHE and the LGD as to why more time is required and how the leak will be contained. If a leak is not repaired within 72-hours, the O&GF shall be shut-in until the leak is repaired.

- E. Equipment leaks that pose an imminent safety risk to persons, wildlife, or the environment shall undergo emergency shut down and not be allowed to operate until the Operator has provided evidence that the leak has been repaired.
- F. At least annually, Operators shall provide a 2-week notice of a routine leak inspection to the LCDHE and LGD inviting them to attend and observe the inspection.

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### 11.3.5. Odors

- A. **An Odor Mitigation Plan** shall be required for all O&GF applications indicating how the operations will prevent odors from adversely impacting the public and wildlife and further demonstrating compliance with the standards in this §11.3.5.
- B. **New and existing oil and gas operations** shall comply with the CDPHE, AQCC, Regulation No. 2 Odor Emission, 5 CCR 1001-4, Regulation No. 3, 5 CCR 1001-5, and Regulation No. 7, 5 CCR 1001-9 Sections VII and VIII.
  - 1. **If a resident within 2000' of an O&GF complains of odor (either directly to the Operator, to the COGCC, or to the County) Operator shall determine whether the odor is caused by Operator's operations. Operator will provide a complete description of all activities occurring at the oil and facility at the time of the complaint. Operator shall report its conclusions, including the factual basis for the conclusions, to the County and the complainant. If the odor is caused by Operator's operations, Operator shall resolve the odor concern to the maximum extent practicable within 24 hours. Operators may be required to cease Proposed O&GFs shall provide protocols for immediate response to odor complaints that include options for ceasing operations, notify ication of affected residents, or temporarily and temporary relocation relocate of residents until the source of the odor is identified and resolved.**
  - 2. **For both existing and new O&GF, the Operator shall communicate the schedule/timing of well completion activities to adjacent and nearby all residents within 2,000 feet which could include an online portal by mail. As part of the a new application, Operator will provide information on-as to how notifications will be communicated to the public.**
  - 3. **The County may require an Operator to collect and analyze a speciated air sample to measure for volatile organic compounds or hazardous air pollutants in response to an odor-related complaint. Speciated air sample collection shall be done utilizing a third-party vendor approved by the County.**
- C. The Odor Mitigation Plan shall include control strategies which shall be implemented upon receipt of an odor complaint(s) or as required by the County depending on the size, location, and nature of the facility. These Odor control strategies may include the following:
  - 1. Odorants, that are not a masking agent, shall be added to chillers and/or mud systems.
  - 2. Additives to minimize odors from drilling and fracturing fluids except that Operators shall not mask odors by using masking fragrances.
  - 3. Filtration systems and/or additives to minimize, not mask, odors from drilling and fracturing fluids shall be utilized in the drilling and flowback processes.
  - 4. Increasing additive concentration during peak hours provided additive does not create a separate odor. Additives must be used per the manufacturer's recommended level.
  - 5. Enclosed shale shakers shall be utilized to contain fumes from exposed mud where safe and feasible.

- 6. Drilling activities shall utilize minimum low odor Category III **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 for the protection of fresh water aquifers.**
- 7. Wipe down drill pipe as they exit the well bore each time.

**11.3.6. Water Quality and Water Bodies**

- A. A Water Quality Report/Plan** shall be submitted with all O&GF applications. The report/plan shall demonstrate how the development and operations of the facility will avoid impacts to surface and ground waters in Larimer County, identify all private and community permitted water wells **of public record** within half-mile and demonstrate compliance with and implementation of standards in §11.3.6 of this Code and the LUC Supplemental Materials.
- B.** Baseline and subsequent water source tests, as ~~typically~~ required by and submitted to the COGCC and CDPHE, shall be provided to the LCDHE and the LGD for the life of the facility and any post-closure assessments, **unless the owner(s) of the water well object in writing. if approved by the owner(s) of the water well.**
  - 1. Operators will test for analytes listed in Table 1 in addition to the analytes tested pursuant to COGCC rules.**
  - 2. Operator shall offer baseline and subsequent water source tests free of charge to all well-owners within ½ mile (2,640 Feet) from O&GF.**
- C.** The application shall provide documentation indicating how the COGCC waterquality protection standards are being implemented.
- D.** Locating O&GFs within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain shall not be allowed unless no other location is feasible, and all other appropriate permissions are obtained.
- E.** The requirements of this §11.3.6 shall not prevent discharges reviewed and permitted by the CDPHE Water Quality Control Division, the EPA, and the Army Corps of Engineers.

**TABLE 1**

<b>GENERAL WATER QUALITY</b>
<b>Alkalinity, Conductivity &amp; TDS, pH, Dissolved Organic Carbon (or Total Organic Carbon), Bacteria, Perfluorinated Compounds (PFCs), and Hydrogen Sulfide</b>
<b>MAJOR IONS</b>
<b>Bromide, Chloride, Fluoride, Magnesium, Potassium, Sodium, Sulfate, and Nitrate + Nitrite as N</b>
<b>METALS</b>
<b>Arsenic, Barium, Boron, Chromium, Copper, Iron, Lead, Manganese, Selenium,</b>

Strontium, Mercury, Uranium, and Radium
DISSOLVED GASES and VOLATILE ORGANIC COMPOUNDS
Methane, Ethane, Propane, BTEX as Benzene, Toluene, Ethylbenzene and Xylenes, Total Petroleum, and Hydrocarbons (TPH)
OTHER
Water Level, Stable isotopes of water (Oxygen, Hydrogen, Carbon), Phosphorus.

**11.3.7. Risk Management**

**A Risk Management Plan** shall be submitted with all O&GF applications. The plan shall include risk identification, 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. Operators shall periodically update and revise the plan, but at least every three years and after any incident.

- A.** Operator shall develop a risk identification in a risk table which will identify the particular site by name, describe the risk, identify any health, safety, or environmental impact, identify any impact to Operator’s development schedule, provide a description of the risk area and associated factors, and whether it is an unmitigated or mitigated risk.
- B.** Operator shall assign persons or entities under its control or direction to have responsibility for the managing risk identified and plans support the risk mitigation. Such assignment shall not limit the Operator’s responsibility.
- C.** Operator shall identify any planned mitigation response (including emergency response, tactical response, and notifications) for certain identified risks.
- D.** Operator will implement a compliance and audit program. The Operator shall determine and document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected. If Operator utilizes a self-reporting mechanism to any respective agency, that self-reporting mechanism will be described in the Risk Management Plan. If Operator self-reports, any findings included in the self-reporting to any other respective agency will be provided to the County.
- E.** County may retain outside consultants, at Operator’s cost, to review Risk Management Plan and may require modifications to Risk Management Plan based on its review.

**11.3.8. Emergency Response**

- A. An Emergency Response Plan** shall be submitted with all O&GF applications. In preparation of the Emergency Response Plan, Operator shall engage with emergency responders and prepare a plan that includes, without limitation, documentation of the communications and coordination with the County and nearby schools related to evacuation of the nearby schools

and all persons residing within a one-half (1/2) mile radius from the ~~edge of disturbance~~ oil and gas location. The Emergency Response Plan must detail all criteria for persons to be notified in the event of an emergency and training for first responders.

1. Operator shall complete and implement all components of a detailed Emergency Response Plan subject to the approval of the County's Director of Emergency Management and the applicable fire district must approve of the Emergency Response Plan ("Plan") before the Drilling Phase commences.
2. Operator shall review the plan annually and file any updates with the County's Emergency Manager and the applicable fire district. If no updates to the Plan are made then Operator shall provide notice of "No Change."
3. The Plan shall include:
  - a. Name, address and phone number, including twenty-four-hour numbers for at least two (2) persons responsible for field operations as well as the contact information for any subcontractor of Operator engaged for well-control emergencies;
  - b. A process by which the Operator notifies surrounding neighbors to inform them about the on-site operations and emergencies and to provide sufficient contact information for surrounding neighbors to communicate with the Operator;
  - c. 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, ~~reasonable potential emergency that may be associated with the operation~~, including without limitation: explosions; fires; gas; oil or water pipeline leaks or ruptures; hydrogen sulfide or other toxic gas emissions; hazardous material vehicle accidents or spills; and natural disasters;
  - d. An emergency evacuation plan for the working pad surface and any person within one-half (1/2) mile of the working pad surface;
  - e. 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 County-approved plan shall be reported to the local dispatch and the COGCC Director in accordance with COGCC regulations;
  - f. Detailed information identifying access, and health care facilities anticipated to be used;
  - g. A project-specific plan for any project that involves drilling or penetrating through known zones of hydrogen sulfide gas;
  - h. 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 facility ~~resulting from the Operator's operations~~; and

- i. 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.
  4. Within 60 days of the start of production, Operator will provide an as-built facilities map in a format suitable for input into the County's GIS system depicting the locations and type of above and below ground facilities, including sizes and depths below grade of all 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.
  5. The Operator shall have current Safety Data Sheets (SDS) for all chemicals used or stored on a Well Site. The SDS sheets shall be provided immediately upon request to County officials, a public safety officer, or a health professional as required by COGCC Rules.
  6. All training associated with the Plan shall be coordinated with the County and the fire districts within the County.
  7. Operator shall provide the County with its emergency shutdown protocols and promptly notify the County of any shut downs that would have an impact to any area beyond the confines of the working pad surface.
- B. A Will-Serve Letter** from the applicable fire district(s) shall be submitted with all O&GF applications. The letter shall state that the Operator has agreed to provide adequate emergency response equipment, any necessary training, or fee-in-lieu satisfactory to the district, to adequately respond to potential events that may result from operations;
- C. A Resource Mobilization/Cache Plan** shall be submitted with all O&GF applications to ensure emergency responders have available the equipment necessary to respond to any emergency identified in the emergency response plan, which shall provide that the equipment be stationed in locations as to be readily available for any emergency for any O&GF covered by the plan.

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### 11.3.9. Incident and Accident Reporting

- A. Within twenty-four (24) of any reportable safety event, as defined by the COGCC in Rule 602(g), as may be amended, or any accident or natural event involving a fire, explosion or detonation requiring emergency services or completion of a COGCC Form 22, Operator shall submit a report to the County that includes the following, 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 Well Site, injuries to persons, emergency response, and remedial and preventative measures to be taken within a specified amount of time. Reporting shall be provided after the conclusion of the event, if the event lasts longer than twenty-four (24) hours.
- B. The County may require Operator to conduct a root cause analysis of any reportable safety

events or Grade 1 gas leaks, each as defined by the COGCC.

- C. 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 an O&GF, including those thresholds reportable to the COGCC, shall upon discovery, be immediately reported to the National Response Center and CDPHE as well as the following Local Emergency Response Authorities in Larimer County:
1. Larimer County Sheriff – Public Safety Answering Point (PSAP) (9-1-1)
  2. Larimer County Department of Health and Environment,
  3. Local Fire Department/District,
  4. Local Municipal Police Department if within in mile of a County or Town,
  5. Larimer County Oil and Gas LGD, and
  6. Larimer County Local Emergency Planning Committee (within 24-hours).

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### 11.3.10. Spills and Releases

- A. A Spill Prevention and Containment Plan** shall be submitted with all O&GF applications. The plan shall disclose techniques, methods, and protocols to be utilized at the proposed O&GF to prevent, contain, document, and report any spills or releases, and shall demonstrate compliance with and implementation of the standards in this §11.3.10.
- ~~B. An Emergency Response Plan shall be provided that includes evacuation plans and routes, inventory of emergency response supplies, and notification requirements. The plan shall include what training opportunities that will be provided for emergency services personnel to become familiar with the site.~~
- C. Secondary containment shall be required and shall conform to the requirements of the COGCC rules and standards.
- D. Unloading areas shall be designed to contain potential spills or direct spills into other secondary containment areas
- E. 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.
- ~~F. 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 an O&GF, including those thresholds reportable to the COGCC, shall upon discovery, be immediately reported to the National Response Center and CDPHE as well as the following Local Emergency Response Authorities in Larimer County:~~
- ~~1. Larimer County Sheriff – Public Safety Answering Point (PSAP) (9-1-1)~~
  - ~~2. Larimer County Department of Health and Environment,~~
  - ~~3. Local Fire Department/District,~~
  - ~~4. Local Municipal Police Department if within in mile of a City or Town,~~
  - ~~5. Larimer County Oil and Gas LGD, and~~
  - ~~6. Larimer County Local Emergency Planning Committee (within 24 hours).~~
- G. All spills or releases, whether reportable or not, shall be cleaned up immediately and to the satisfaction of the local emergency response authorities, listed in the Spill Prevention Control and Countermeasure Plan.

**11.3.11.Noise**

- A. A Noise Report and Mitigation Plan** shall be required for all O&GF applications. The plan shall demonstrate how the operations will mitigate noise and vibration impacts to comply with the noise standards contained in this §11.3.11. The report and plan shall include the following:
  1. A five-day (two days being the weekend day) baseline noise analysis.
  2. Modeled decibel levels for all phases of development shall be presented using contour maps from the O&GF site (combining noise sources) at 350 feet, 500 feet, 1000 feet, and to the property line of the adjacent properties. Contour maps shall be provided that demonstrate both unmitigated and mitigated decibel levels.
  3. A plan of proposed mitigation measures to be implemented by the O&GF during each phase of development shall be provided to ensure compliance with the maximum permissible noise levels as listed in 11.3.11.B below.
- B.** Noise generated from **both new and existing** O&GFs shall comply with the following maximum permissible noise levels appropriate for the Zone Area Designation of the adjacent land uses as determined by the County. Zone Area Designations are defined by C.R.S. 25-12-102 Noise Abatement and will be used as part of the County’s determination for surrounding land uses and may be different than the County’s zone districts.

<b>Table 0-1: Maximum Permissible Noise Levels</b>		
<b>Zone Area Designations</b>	<b>7:00 am to next 7:00 pm</b>	<b>7:00 pm to next 7:00 am</b>
Residential/Agricultural/Rural	55 db(A)	50 db(A)
Commercial	60 db(A)	55 db(A)
Light Industrial	70 db(A)	65 db(A)
Industrial	80 db(A)	75 db(A)
<b>All Areas</b>	<b>60db(C)</b>	<b>60 db(C)</b>

In the hours between 7:00 a.m. and the next 7:00 p.m., the noise levels permitted above may be increased by ten (10) db(A) for a single period of not to exceed fifteen minutes in any one-hour period. Night-time levels between 7:00 p.m. and the next 7:00 a.m. shall not be exceeded therefore requiring strategic planning of noise-inducing activities to be conducted during daytime hours at the site.

- C.** Sound levels shall be measured at or within 25 feet of the parcel boundary line where the O&GF site is located. When evaluating a noise complaint, the County shall measure sound at or within 25 feet of the parcel boundary line of the O&GF site and other property boundaries which are more representative of the noise impact.
- D.** During construction, **drilling, and completion activities, and up to production,** the County will require continuous noise monitoring for all oil and gas facilities located with one-half mile (1/2) of any existing residences, schools, or state licensed daycares. **The County may adjust this distance based on the location, nature, and size of the facility.** The County may require continuous noise monitoring be conducted by an approved third-party consultant. **based on the location, nature, and size of the facility.**
- E.** O&GF activities shall be operated so the ground vibration inherently and recurrently

generated is not perceptible, without instruments, at any point on a boundary line of the property on which the O&GF is located.

- F. In situations where low frequency noise is a component of the problem, a sound level measurement shall be taken 25 feet from the exterior wall of the residence or occupied structure nearest to the noise source, using a noise meter calibrated to the db(C) scale. If this reading exceeds 60.5 db(C), the County shall require the Operator to obtain a low frequency noise impact analysis by a qualified sound engineer, including identification of any reasonable control measure available to mitigate such low frequency noise impact to be implemented by the O&GF. Such study shall be provided to the County for consideration and possible action.
- G. Construction of O&GFs, including drilling/well completions, recompletions, and pipeline installations, shall be subject to the maximum permissible noise levels specified for light industrial zones for the period within which construction is being conducted. Construction activities directly connected with abatement of an emergency are exempt from the maximum permissible noise levels.
- H. 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.
- I. Motors, Generators, and engines shall be enclosed in acoustically insulated housings or covers.
- J. To ensure the Operator controls noise to the allowable levels set forth above, one or more of the following may be required based on the location, nature, and size of the facility:
  1. Noise mitigation plan identifying hours of maximum noise emissions, type, frequency, and level of noise to be emitted, and proposed mitigation measures;
  2. Obtain all power from utility line power or renewable sources;
  3. Utilize the most current equipment to minimize noise impact during drilling, completions, and all phases of operation including the use of "Quiet Fleet" noise mitigation measures for completions;
  4. Sound walls around well drilling and completion activities to mitigate noise impacts;
  5. Restrictions on the unloading of pipe or other tubular goods between 6:00 p.m. and 8:00 a.m.;
  6. The use of electric drill rigs;
  7. 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;
  8. The use of liquefied natural gas dual fuel hydraulic fracturing pumps.
- K. All noise studies and assessments required by the County shall be completed by a qualified sound professional.

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### 11.3.12. Dust

- A. **A Fugitive Dust Control Plan** shall be submitted with all O&GF applications. The plan shall disclose techniques and methods to be utilized at the proposed O&GF to prevent or mitigate fugitive dust generated by the construction and operations of the proposed O&GF and shall demonstrate compliance with and implementation of standards in §§11.3.12 and 4.11 of this Code. All fugitive dust (including dust generated from fracking sand) shall be contained to the maximum extent practicable.
- B. Best management practices (BMPs) for the mitigation of dust associated with on-site

operations and traffic activities shall be employed at the facility. The BMPs shall be outlined in the Fugitive Dust Control Plan

- ~~C. Produced water and other process fluids shall not be used for dust suppression unless adequately pretreated so that it does not create odors and has been approved for land application by CDPHE Water Quality Control Division.~~
- D. Safety Data Sheets (SDSs) shall be provided with the application for any proposed chemical based dust suppressants.
- E. Unless otherwise approved by the County Health and Engineering Departments, only water will be used for dust suppression activities within 300-feet of the ordinary high- water mark of any body of water.
- F. Both new and existing operations shall be conducted in such a manner that dust does not constitute a nuisance or hazard to public health, safety, welfare or the environment.
  - 1. If there is a complaint of dust by a nearby resident or business (including agriculture) that is made directly to the Operator, to the COGCC, or to the County, the Operator shall determine whether the dust is caused by Operator's operations. Operator will provide a complete description of all activities occurring at the oil and facility at the time of the complaint. Operator shall report its conclusions, including the factual basis for the conclusions, to the County and the complainant. If the dust is caused by Operator's operations, Operator shall resolve the dust concern to the maximum extent practicable within 24 hours.
  - 2. If deemed necessary and reasonable, the County may require additional dust mitigation efforts at any point during Operations.

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### 11.3.13. Access

- A. **A Traffic Impact Analysis and Routing Plan** shall be submitted with all O&GF applications. The plan shall disclose routing alternatives and transportation infrastructure improvements proposed for the proposed O&GF to mitigate projected transportation impacts and demonstrate compliance with and implementation of the standards in this §11.3.13. ~~The Traffic Impact Analysis and Routing Plan will be prepared by a vendor selected by the Operator from a County-approved list of vendors. The Traffic Impact Analysis and Routing Plan will include:~~
  - 1. The proposed haul routes to and from the site, and public and private roads that traverse or provide access to the proposed operation;
  - 2. 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;
  - 3. identify and distinguish impacts to County roads and bridges related to O&GF construction, operations and ongoing new traffic generation.
  - 4. The Traffic Impact Analysis and Routing Plan shall 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 County roads;
  - 5. 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 hour;

6. Truck routing map and truck turning radius templates with a listing of required and determined that certain improvements are necessary at intersections along the route;
  7. Restriction of non-essential traffic to and from any Well Site to periods outside of peak am and pm traffic periods and during school hours (generally 7-8am and 3-6pm) if Well Site or access road are within 2000' of school property.
  8. Identification of need for any additional traffic lanes, which would be subject to the final approval of the County's engineer.
- B.** Designs for private access drives shall conform to the Local Low Volume cross section found in the Larimer County Rural Area Road Standards and shall include the following:
1. The first 50 feet of access drive from the edge of pavement of the adjacent road will be paved, or made of an approved all weather surface, and the remaining portions of the access drive shall be composed of a minimum of 6 inches of compacted Class 5 road base.
  2. The access drive entrance shall include returns with a 30-foot radius.
  3. A mud and debris tracking pad shall be located at the end of the paved portion of the access drive.

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#### 11.3.14. Wildlife

- A.** O&GF application must contain 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 (“CNHP”), Species of Concern listing, Tier 1 and Tier 2 species as identified by the Colorado Parks and Wildlife (“CPW”), and of federally-designated threatened or endangered species, as mapped by 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.
- B.** New O&GFs will comply with §4.4.4 – Wildlife.

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#### 11.3.15. Chemical Handling

- A. A Chemical and Hazardous Materials Report and Handling Plan** shall be submitted with all O&GF applications. The plan shall disclose the type of hazardous and non-hazardous materials and chemicals that will be used on the site of the proposed O&GF, including how they will be handled to prevent spills and demonstrate compliance with and implementation of standards in this §11.3.14.
- B.** Prior to any hydraulic fracturing activity, the Operator shall provide the County with a copy of the Chemical Disclosure Registry form provided to the COGCC pursuant to the COGCC’s “Hydraulic Fracturing Chemical Disclosure”.
- C.** Drilling and completion chemicals shall be removed from the site within sixty (60) days of the drilling completion.

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#### 11.3.16. Recycle, Reuse and Disposal of Fluids

- A. A Waste Management and Disposal Plan** shall be submitted with all O&GF applications. The plan shall document the techniques and methods of the proposed O&GF to manage wastes generated on the site and demonstrate compliance with and implementation of the

standards in this §11.3.16.

- B. Drilling, completion flowback, and produced fluids shall be recycled or reused whenever technically feasible.
- C. If not to be recycled or reused onsite, exploration and production waste may be temporarily stored in tanks for up to 30-days while awaiting transport to licensed disposal or recycling sites.
- D. Produced water shall be recycled or reused or shall be transported by pipeline unless easements are not available.
- E. The Operator shall take precautions to prevent adverse environmental impacts to air, water, soil, or biological resources to the extent necessary to protect public health, safety, and welfare, including the environment and Wildlife Resources to prevent the unauthorized discharge or disposal of oil, gas, Exploration and Production Waste, chemical substances, trash, discarded equipment, or other oil field waste.
- F. The requirements of this §11.3.14 shall not prevent discharges or beneficial uses of water reviewed and permitted by the CDPHE Water Quality Control Division or another agency with jurisdiction.

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### 11.3.17. Lighting and Visual Impacts

- A. For all phases of the development of the site, the application shall demonstrate compliance with the visual and aesthetic rules of COGCC and this Code for landscaping, fencing, and lighting set forth in Article 4.0 *Development Standards*.
- B. All O&GFs 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.
- 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. See §4.10 *Exterior Lighting*.
- D. For all phases of site development, fencing shall be installed for security and visual aesthetics of the use.
- E. Sound or screening wall to mitigate for noise during construction and well completion may be required if the O&GF is within 2,000 feet of residential buildings or lots, or if electric requirement is appealed.
- F. O&GFs applications shall minimize removal of trees and vegetation on the site.
- G. 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.
- H. O&GF applications shall demonstrate compliance with weed control requirements of the County Weed District and Forestry Services Department, including for access roads serving the facility.

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### 11.3.18. Well Plugging and Abandonment

- A. **A Reclamation Plan** shall be submitted. The plan shall demonstrate how well abandonment and reclamation shall comply with the COGCC rules and shall include the following information:
  - 1. Removal of all equipment from the well site,

2. Restoration of the site surface to the conditions of the site reclamation plan,
3. Notice to the County LGD of the commencement and completion of such activity, and
4. Coordinates for the location of the decommissioned well(s), and any associated gathering or flow lines, shall be provided with the notice of the completion of well abandonment.

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### 11.3.19. Well Liquids Unloading

- A. Best management practices, including artificial lift, automated plunger lifts and at least 98% emission reductions when utilizing combustion to control venting shall be employed at all facilities unless technically infeasible.
- B. Approved manual unloading shall require on-site supervision of the unloading process.

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### 11.3.20. Flammable Materials

- A. The location of flammable materials on site shall conform to all COGCC safety standards and local fire codes.
- B. A minimum 25-foot buffer, free of weeds and dried grasses, shall be required around flammable materials or equipment.

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### 11.3.21. Waste Disposal

- A. **A Waste Management and Disposal Plan** shall be submitted with all O&GF applications. The plan shall document the techniques and methods of the proposed O&GF to manage wastes generated on the site and demonstrate compliance with and implementation of the standards in this §11.3.21.
- B. Oil and gas facilities shall remain free of debris and excess materials during all phases of operation.
- C. Burning of debris, trash or other flammable material is not allowed.
- D. Temporary storage of materials (up to 30-days) may be allowed with installation of screening to mitigate from aesthetic impacts from public rights-of-way or if requested by landowner.

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### 11.3.22. Interim Reclamation and Removal of Equipment

- A. **An Interim Reclamation Plan.** Operator shall submit and implement an interim reclamation plan as defined by COGCC rules. The Interim Reclamation Plan will include:
  1. Site plan that defines the "working pad surface" limited to those areas necessary production,
  2. Written description of existing vegetation in the area,
  3. 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.
- B. There shall be no permanent storage of equipment (i.e., vehicles, trailers, commercial products, chemicals, drums, totes, containers, materials, and all other supplies not necessary for uses on an oil and gas location) on the site of an oil and gas facility.
- C. 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 condition permitting.

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**11.3.23. Maintenance of Machinery**

- A. Statewide Best Management Practices shall be used to prevent contamination of soils and stormwater runoff, including equipment and vehicle maintenance and fluid containment.
- B. There shall be no maintenance of field equipment involving hazardous materials within 300-feet of a water body.
- C. Any fueling on-site shall occur over an impervious surface with a secondary containment berm and sump in case of a spill and shall not occur during storm events.

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**11.3.24. Flow Lines, Transfer Lines, and Gathering Lines**

Any newly constructed or substantially modified oil and gas pipelines (not including temporary water lines) shall meet the following requirements:

- A. The use of pipelines to transport liquid production wastes and product is required to the greatest extent practicable.
- B. All off-site lines transporting process materials, production wastes, product and any other items used or generated by the facility shall be located to avoid existing or proposed residential, commercial, and industrial buildings, places of assembly, surface waterbodies and designated open spaces. Buried pipelines 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. Flowlines, gathering lines and transmission lines shall be sited at a minimum of 50 feet away from residential and non-residential buildings, as well as the high water mark of any surface water body. This distance shall be measured from the nearest edge of the pipeline. Increased setbacks shall be evaluated on a case-by-case basis, with the determining locational factor being the size, pressure, and type of pipeline being proposed.
- D. Pipelines and gathering lines that pass within 150 feet of residential or non-residential building or the high-water mark of any surface water body shall incorporate leak detection, secondary containment, or other mitigation, as appropriate.
- E. To the maximum extent feasible, pipelines shall be aligned with established roads in order to minimize surface impacts and reduce habitat fragmentation and disturbance.
- F. To the maximum extent feasible, operators shall share existing pipeline rights-of-way and consolidate new corridors for pipeline rights-of-way to minimize surface impacts.
- G. Coordinates of all flow lines, gathering lines, and transfer lines shall be provided in a format suitable for input into the County's GIS system depicting the locations and type of above and below ground facilities.
- H. Pursuant to COGCC Rules, existing and permitted oil and gas operations must conduct leak detection inspections and pressure testing and monitoring in order to identify flowline leaks or integrity issues. Leaks, spills, or integrity issues will be reported to the County as soon as practicable but no later than 24 hours after discovery. Spills that have contaminated surface water within 15 miles upstream of a Public Water System must notify the County and the Public Water System immediately upon discovery.
- I. 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.

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**11.3.25. Temporary Water Lines**

- A. Temporary waterlines shall be used unless development is not within a water service area.
- B. Temporary waterlines shall be buried at all existing driveway and road crossings, or utilize existing culverts, if available.
- C. The County must be notified of the location of temporary water lines but they do not require a separate permit.

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**11.3.26. Financial Assurance**

- A. Financial Assurance. The Operator shall provide the County with financial assurance as provided in this section and regulations established by the Director pursuant to this section.<sup>7</sup>
  - 1. Administrative Regulations. The Director shall establish administrative regulations for financial assurances consistent with this section. Such requirements shall include, at a minimum, standard language for each type of financial assurance; qualifications for issuing institutions; and procedures for the review, processing, acceptance, replacement, cancellation and termination, use, release, reduction, or aggregation of financial assurances and standby trusts to implement financial assurances. Such requirements shall be reviewed and updated by the Director as needed to meet the intent of this section.
  - 2. Minimum Requirements.
    - a. Amount. The financial assurance shall be in the amount of ninety thousand dollars (\$90,000.00), multiplied by the number of approved wells on the associated planned well site. The Financial Assurance (including any existing Financial Assurance) shall be adjusted for inflation on January 1, 2022, and on January 1 of each year thereafter. "Inflation" shall mean the annual percentage change in the United States department of labor, bureau of labor statistics, consumer price index for Denver-Aurora-Lakewood, all items, all urban consumers, or its successor index.
    - b. Term. The financial assurance required by this section shall be provided to the County before the commencement of any work, including Well Pad construction, and shall remain shall be provided until all wells at the well site have been plugged and abandoned and all OGFs has been adequately reclaimed to COGCC standards, unless the financial assurance is replaced, released or reduced pursuant to administrative regulations established by the Director. No financial assurance shall be released or reduced unless:
      - i. alternate financial assurance is provided; or
      - ii. the Director determines that the amount of financial assurance released or reduced is not necessary to ensure the purpose for which it was provided.
    - c. Type. The financial assurance must be in the form of a surety bond or irrevocable standby letter of credit, or approved combination thereof.
    - d. Purpose. The Financial Assurance must guarantee, at a minimum, that the Operator

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<sup>7</sup> This entire section may be more appropriate in a "Financial Assurances Handout"

will:

- i. secure the wells, well sites, associated well site lands and infrastructure; plug and abandon all wells at the well site in compliance with State law, and reclaim the well site in compliance with State law;
  - ii. perform all requirements of the Oil and Gas Permit for the OGF;
  - iii. provide an alternate financial assurance and obtain the County's written approval of such alternate financial assurance upon the issuing institution's cancellation or failure to extend a financial assurance, as provided in this section; and
  - iv. guarantee that, if the Director notifies the issuing institution that the Operator has failed to do any of the foregoing or the occurrence of any event providing for an authorized use as defined in this section, the issuing institution will pay the amount of the bond or letter of credit into a standby trust fund.
3. State and Federal Bonding Requirements. The financial assurance required by this section may be reduced or waived to the extent the federal or state bonding requirements satisfies the requirements of this section.
- ~~B. The Applicant shall demonstrate the financial capability to reclaim all disturbed areas during each phase of the site development and following termination of the oil and gas operation on the site. This shall include meeting any state requirements, and any additional requirements the County deems necessary to protect the public health, safety, and welfare.~~
- B.** Insurance. Operator shall comply with these insurance standards to: protect human health and safety; prevent damage to property; prevent unacceptable losses to public finances; and prevent unreasonable interference with the public welfare. These standards are established to improve and to prevent degradation to the quality of life and the general welfare in the County.
1. The 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:
    - a. Commercial General Liability insurance on an occurrence based form including coverage for bodily injury or property damage for operations and products and completed operations with limits of not less than \$1,000,000 each and every occurrence.
    - b. Automobile Liability insurance with limits of not less than \$1,000,000 each accident covering owned, hired, and non-owned vehicles. ~~and every occurrence.~~
    - c. Workers' Compensation insurance- Statutory Workers' Compensation Coverage for the employee's normal State of employment/hire. Including Employer's Liability insurance - with limits of not less than \$1,000,000 Each Accident, Disease - Each Employee, Disease - Policy Limit.
    - d. Control of Well/Operators Extra Expense insurance - with limits of not less than \$10,000,000 covering the cost of controlling a well that is out of control or experiences a blowout, re-drilling or restoration expenses, seepage and pollution

damage resulting from an out of control well or blowout as first party recovery for the operator and related expenses, including, but not limited to, loss of equipment and evacuation of residents.

- e. Umbrella/Excess Liability - 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 the Construction Phase, Drilling Phase or Completions Phase is ongoing at any Well Site under a permit, Operator will maintain such insurance with limits no less than \$100,000,000 per occurrence.~~
  - f. 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 \$5,000,000 per pollution incident. Coverage to 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.  
~~—with limits of not less than \$5,000,000 per pollution incident, with coverage being required beginning with the date that is eight (8) years from the date of first production from each new well ("Required Date"). Coverage must include gradual pollution events. This insurance may be on a claims-made basis, however the retroactive date must precede the Required Date in order to cover all wells.~~
2. Operator shall waive and cause its insurers under the above policies to waive for the benefit of the County any right of recovery or subrogation which the insurer may have or acquire against the County or any of its affiliates, or its or their employees, officers or directors for payments made or to be made under such policies.
  3. Operator shall add the County and its elected and appointed officials and employees as Additional Insureds under general liability (including operations and completed operations), auto liability, and umbrella liability.
  4. Operator shall ensure that each of the policies are endorsed to provide that they are primary without right of contribution from the County or any insurance or self-insurance otherwise maintained by the County, and not in excess of any insurance issued to the County.
  5. Operator shall ensure that each of the policies above (excluding workers' compensation and OCC/COW) 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.
  6. All policies shall be endorsed such that they cannot be canceled or non-renewed without at least 30 days' advanced written notice to Operator and the County, evidenced by return receipt via United States mail, except when such policy is being canceled for nonpayment of premium, in which case ten (10) days advance written notice is required. Language relating to cancellation requirements stating that the insurer's notice obligation is limited to "endeavor to" is not acceptable.
  7. Operator shall, prior to permit issuance, deliver Certificates of Insurance reasonably acceptable to the County confirming all required minimum insurance is in full force and effect.
  8. 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 County.

9. Operator shall require any of its subcontractors to carry the types of coverage and in the minimum amounts in accordance with the requirements set out in Section B.1 a, b, and c. Operator shall be responsible for any damage or loss suffered by the County as a result of non-compliance by Operator or any subcontractor with this section.
  10. If Operator's coverage lapses, is cancelled or otherwise not in force, the County reserves the right to obtain insurance required herein and charge all costs and associated expenses to Operator, which shall become due and payable immediately.
  11. ~~If that the coverage required is not widely available to operators in the Denver-Julesburg Basin, in lieu of the coverage required, Operator and the County may establish a joint escrow account that shall be used to satisfy any obligations of Operator that would have otherwise have been covered by the coverage required. Operator shall fund such account with an amount equal to \$5,000.00 per new well then producing (the "Per Well Amount"). The aggregate amount to be placed into the account shall be re-visited on an annual basis based on the then number of producing new wells. The Per Well Amount shall be adjusted each year by the increase or decrease in the Consumer Price Index issued by the United States Bureau of Labor Statistics for the Denver-Boulder metropolitan area. Any interest accrued in the account shall be credited towards the Operator's required contributions to the account and any excess amounts in the account above and beyond the amount required by this provision shall be promptly returned and released to Operator.~~
- ~~C. The Applicant shall, for the life of the use, carry customary and usual environmental liability insurance.~~

## 11.4. Appeals

§6.7.2 *Appeals*, of this Code shall provide direction for all appeals to standards, processes, and provisions of this Article 11.0, *Oil and Gas Facilities*.

## 11.5. Enforcement and Inspections

- 11.5.1. ~~Compliance.~~ ~~Applications for New and existing~~ O&GFs shall demonstrate compliance with this and all other relevant Sections of this Code.<sup>8</sup> Failure of an Operator to maintain compliance with the County approval of an O&GF may result in the revocation of the approval pursuant to the procedures in §6.3 *Common Review Procedures*.
- 11.5.2. ~~Right to Enter.~~ The County reserves the right to inspect ~~the property~~ any O&GF for compliance. County inspections may occur without Operator present. However, unless urgent circumstances exist, the County will use best efforts to give four (4) hours prior notice to the Operator's contact person at the telephone number on file. Inspections in response to odor or noise may occur as soon as feasible upon receipt of the complaint. Routine inspections will be coordinated with the Operator to allow Operator presence onsite to the extent possible and to ensure the site visit is conducted in accordance with all applicable Operator safety

<sup>8</sup> Section 1.9 addresses enforcement, penalties, and inspections.

requirements.<sup>9</sup> The County reserves the right to increase required inspections if Operator is found to be non-compliant.

**11.5.3. Non-limitation of Actions.** The County retains the right to seek whatever remedy or redress is legally allowable. The County reserves the right to seek an injunction action, mandamus action, or any other legally available mechanism to prevent, mitigate, cease, or deter any activity that is detrimental to the public health, safety, and welfare of Larimer County residents, the environment, and wildlife.

**11.5.4. Documentation.** Upon request, operators will make available to the County all documents, reports, and records required by governmental agencies or otherwise required to be maintained for the purposes protecting the public health, safety and welfare.

**11.5.5. Cease and Desist.**

- A.** The Director has the authority to issue a Cease and Desist order, requiring the operator to stop all Oil and Gas operations where either there is (1) an emergency condition necessitating the cessation of activities or (2) three or more documented violations within a six month time frame.
- B.** The Cease and Desist order shall be served on the Operator, who may request an appeal to the Board of County Commissioners within seven days, which hearing shall take place within fourteen days of the request.

**11.5.6. Fines and Penalties.**

- A.** Any Operator who violates any provision of the Land Use Code shall be subject to a penalty issued by the Director.
- B.** If the Director has reasonable cause to believe that a violation is taking place, the Director shall issue a Notice of Violation enumerating the alleged violations. Each separate violation of an individual regulation shall be considered separate infraction, and each day that a violation exists will be considered a separate violation.
- C.** The Notice of Violation shall identify the facts giving grounds for the violation, the particular provision that is being violated, the penalty for such violation, and a demand indicating what action must be taken to remedy the violation.
- D.** Unless otherwise indicated by the Director, the Operator shall respond to the Notice of Violation within 48 hours.
- E.** Following the response, the Director will issue a fine based on the guidance in section \_\_\_\_\_.
- F.** If the Operator disagrees with the fine, the Operator may, within fourteen days issuance of the fine, appeal to the Board of County Commissioners pursuant to section.
- G. Amount of Fine**
  - 1.** The Director has the authority to issue a fine between the amounts of \$300 and \$15,000 for each violation and for each separate day. In considering the appropriate fine to issue, the Director may consider the following factors:
  - 2.** Whether the violation resulted in threatened or actual impact to public health, safety, welfare, the environment or wildlife and the degree to which it did so;

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<sup>9</sup> This is intentionally different than the requirements in Section 1.9. Oil and gas facilities are an often-unattended industrial activity that, at times, may require inspections without delay.

3. Whether the violation threatened or actually impacted livestock, wildlife, fish, soil, crops, water, and all other environmental resources and the degree to which it did so;
4. Degree of threatened or actual damage to agricultural lands, public lands, private property, freshwater sources, public drinking water, natural resources, environmental features, or wildlife;
5. The size of the leak, release, or spill;
6. Whether the violation resulted in a significant waste of oil and gas resources;
7. The toxicity of leak or spill;
8. Whether the violation led to death or serious injury;
9. The duration of the violation;
10. Whether the same or similar violations have occurred at the location previously;
11. The Operator's history of violations of any applicable rules, of similar or different types, at the location or others;
12. The timeliness and adequacy of the Operator's corrective actions;
13. The degree the violation was outside of the violator's reasonable control and responsibility;
14. Whether the violator acted with gross negligence, or knowing and willful misconduct;
15. Whether the violator self-reported; and
16. Whether violator was cooperative with all agencies involved in working to mitigate the impacts of the violation.

**11.5.7. Governmental Immunity and Non-Liability of County.** These regulations shall not be construed to hold the County or any of its employees or officials, acting within the scope of their employment in any manner, responsible or liable for any damages to persons or property resulting from any inspection, enforcement or review as required by these standards and regulations or resulting from any failure to enforce or inspect, or resulting from the issuance or denial of any building permit, or the institution or failure to institute any court action as authorized or required by these standards and regulations. In enacting these standards and regulations, the Board of County Commissioners intends to preserve all rights of the County, its agencies and departments, its elected and appointed officials and employees to immunity from liability as set forth in the Colorado Governmental Immunity Act, C.R.S. §§24-10-101, et seq.

## 11.6. Fees and Security for Reclamation

Where reimbursement to the County or any other party is required by this section, such reimbursement shall be payable immediately upon invoice. The County may require a deposit to cover such costs.

The following fees are applicable to oil and gas facilities:

- A. A Capital Transportation Impact fee.
- B. **Inspection fees.** The applicant for a new OGFs shall agree to provide reimbursement to the County for the full cost necessary to inspect all OGFs owned by the Operator within unincorporated Larimer County. Upon completion of an inspection, the Operator shall receive an invoice for the cost of such inspection.

## **11.7. Termination or Modifications of Use**

**11.7.1.** No modification to an approved O&GF shall be made without obtaining appropriate land use approvals from the County. A modification is any permanent physical change not required by law that substantially increases the site footprint or air emissions.

**11.7.2.** Upon termination of use, the O&GF shall be reclaimed pursuant to the reclamation plan provided.

## **11.8. Definitions**

Unless otherwise listed herein, the definitions found within the C.R.S. and Colorado Oil and Gas Conservation Commission (COGCC) regulations shall apply.