

DRAFT AIR QUALITY SUBMITTAL REQUIREMENTS AND STANDARDS

SUBMITTAL REQUIREMENTS

d. Air Quality ~~Survey~~Modeling, Monitoring and Mitigation

i. Air Quality Modeling Plan

A plan for modeling to be conducted by a third-party consultant approved by the Town that provides for facility emissions inventories and air quality impact studies for drilling, completions and operations based upon proposed equipment use and operational phases, and any emissions reductions associated with plugging and abandonment.

ii. ~~Ambient Air Quality Sampling Plan~~ Air Quality Monitoring Plan

A monitoring plan that ~~includes~~provides for:

- (A) Pre-construction baseline ambient air quality testing, completed by a consultant approved by the Town for 15-90 days for areas located within 500 feet of the well sites if approval from surrounding surface owners can be obtained.
- (B) Air quality monitoring program conducted by a consultant mutually agreed to by both the Operator and the Town and paid for by Operator. The program will require monitoring for all potential emissions, including but not limited to, methane, VOCs, Hazardous Air Pollutants (HAPs), Oxides of Nitrogen (NOx), Particulate Matter (PM), Fine Particulate Matter (PM 2.5), and Carbon Monoxide (CO) and methane (CH4).
- ~~(C) Town may require Operator to conduct a~~Additional monitoring as needed to respond to emergency events such as spills, process upsets, or accidental releases. Operator will provide access to the well sites to the Town's third-party inspector as needed to allow air sampling to occur.
- ~~(D) Town may require Operator to conduct a~~Additional monitoring as needed to respond to emergency events such as spills, process upsets, or accidental releases. Operator will provide access to the well sites to the Town's third-party inspector as needed to allow air sampling to occur.

iii. Air Quality ~~Impact Assessment and~~ Mitigation Plan

An assessment of air quality impacts of the proposed Oil and Gas Operation and a plan to maintain air quality, including a plan to minimize VOC emission in compliance with approval standards in Section 10.12.3. A plan that demonstrates compliance with the Oil and Gas Operation standards in Section 10.12.3 and that includes:

- (A) Compliance with EPA, CDPHE and COGCC standards for emissions and odors. If these standards become more stringent in the future, the Operator will update its air quality mitigation plan to comply with the more stringent standards.
- (B) Compliance with 2017 CDC Agency for Toxic Substances and Disease Registry and US EPA Integrated Risk Information System ambient air quality guidelines. If these guidelines become more stringent in the future with more restrictive guidelines for benzene, toluene, ethylbenzene and xylene (BTEX), and other air toxins, the Operator will update its air quality mitigation plan to comply with the revised guidelines.

iv. Leak Detection and Repair Program

A ~~hydrocarbon emissions~~ leak detection and repair program using modern leak detection technologies for equipment used in the Operation, such as infra-red cameras, for equipment used on the well site that demonstrates compliance with the requirements of the Oil and Gas Operation standards in 10.12.3. The ~~program~~plan shall provide for:

- (A) A minimum of monthly inspections with more frequent inspections based on the design and size of the facility. Notice provided to the LGD five (5) business days prior to an LDAR inspection of facilities to give the Town the opportunity to observe the inspection.
- (B) Detailed recordkeeping of inspections for leaking components.
- (C) If an infrared (IR) camera is used, retention of an infrared image or video of all leaking components before and after repair with records maintained for two years and available to the Town upon request.
- (D) Immediately reporting to the LGD any leaks discovered by the Operator, including any leaks that are reported to Operator by a member of the public. Operator shall repair leaks within forty-eight-hours. If the Town determines that the leak presents an imminent threat to persons or property, the Operator may not operate the affected component, equipment or flowline segment until the Operator has corrected the problem and the Town agrees that the affected component, equipment or flowline segment no longer poses a hazard to persons or property. In the event of leaks that the Town believes do not pose an immediate hazard to persons or property, if more than forty-eight-hours repair time is needed after a leak is discovered, Operator shall contact the LGD and provide an explanation of why more time is required.
- (E) Continuous monitoring to detect leaks or measure hydrocarbon emissions and to monitor meteorological data. Any continuous monitoring system shall be able to alert the Operator of increases in air contaminant concentrations.
- (F) Monthly LDAR report provided to LGD, organized by facility detailing the inspection results, any associated repairs, and any outstanding leaks. Operator will also provide a copy of all reports submitted to the AQCC, including monthly downtime reports and semi-annual control equipment status reports for production facilities located within Town limits. The Town will make this information available on its website, or may provide a link for such information from Town's website to Operator's website.

v. Odor Management Plan

A plan to minimize and mitigate the emission of detectable odors by the Oil and Gas Operation and to ensure that the Operation will not create a public nuisance as set forth in Section 5-1-6.H of the Municipal Code. The plan shall demonstrate compliance with the Oil and Gas standards in Section 10.12.3. and provide for a timely response to odor complaints from the community and for identifying and implementing additional odor control measures necessary to control odors emanating from the Operation.

STANDARDS

G. Air Quality

Oil and Gas Operations shall not degrade air quality and shall prevent adverse impacts to public health, safety and welfare, and the environment.

1. Minimization of Emissions

To minimize emissions, the Operator shall:

- a. Use closed loop, pitless drilling, completions and production systems without permanent on-site storage tanks for containment and/or recycling of all drilling, completion, flowback and produced fluids.

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- b. Use ~~Tier 2 and liquefied natural gas dual fuel hydraulic fracturing pumps. When Tier 4 fracturing pumps become technologically feasible, and readily available using Liberty Quiet Fleet or comparable technology, then Operator will begin using such Tier 4 fracturing pumps. Operator will use and~~ Tier 4 diesel and natural gas ~~co-fired Tier 2 or Tier 3 engines and natural gas fired spark ignition engines.~~
- c. Utilize pipelines for all transportation of gas and fluids from production facilities whenever available.
 - i. Pipeline infrastructure for fresh water shall be constructed and placed into service prior to spudding for delivery of all fresh water to be used during the drilling, completion, production and operations phases.
 - ii. Pipeline infrastructure for produced water, natural gas, crude oil and condensate will be constructed and placed into service prior to the start of any fluid flow from any wellbore.
- d. Demonstrate hydrocarbon destruction or control efficiency by using an enclosed combustion device that complies with a design destruction efficiency of 98% or better.
- e. Reduce emissions of the natural gas byproduct associated with oil and gas well production. Emission reduction includes prohibiting uncontrolled venting in compliance with AQCC Regulation 7 Section XII.C.1.
- f. Implement best management practices during liquids unloading (*i.e.*, maintenance activities to remove liquids from existing wells that are inhibiting production), including at least 95% emissions reduction when utilizing combustion and the installation of artificial lift or unloading through the separator where feasible.
- g. Implement “tankless” production techniques.
- h. ~~Obtain All equipment with engines or motors that can be electrified will be electrified from the power grid or from renewable sources. electrification from the power grid or from renewable sources for all permanent equipment that can be electrified.~~ All equipment that is not electrically operated ~~should shall~~ use quiet design mufflers (also referred to as hospital grade or dual dissipative) or equivalent; or acoustically insulated housing or covers to enclose the motor or engine.
- i. Install, calibrate, operate, and maintain any flare, auto ignition system, recorder, vapor recovery device or other equipment used to meet the hydrocarbon destruction or control efficiency requirement in accordance with the manufacturer’s recommendations, instructions, and operating manuals.
- j. Use telemetric control and monitoring systems, including surveillance monitors to detect when pilot lights on control devices are extinguished.
- k. Use zero emission desiccant gas processing dehydrators.
- l. ~~Reduce or eliminate~~ Reduce or eliminate emissions from oil and gas pipeline maintenance activities such as pigging or blowdowns.
 - i. If any maintenance activity will involve the intentional venting of gas from a well tank, compressor or pipeline flowline, beyond routine pipeline maintenance activity and pigging, the Operator shall provide forty-eight (48) hour advance written notice ~~of the proposed venting~~ to the LGD of such proposed venting. Such notice ~~will shall~~ identify the duration and nature of the venting event, a description as to why venting is necessary, a description of what vapors will likely be vented, what steps will be taken to limit the duration of venting, and what steps the operator proposes to undertake to minimize similar events in the future.

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- ii. If emergency venting is required, or if accidental venting occurs, Operator shall provide notice to LGD ~~of such event~~ as soon as possible, but ~~in no event no~~ longer than twenty-four (24) hours from the time of the event, with the information listed above and with an explanation as to the cause and how the event will be avoided in the future.
- m. Participate in Natural Gas STAR program or other voluntary programs to encourage innovation in pollution control at the well pad site.
- n. Centralize compression facilities within a well site.
- o. Vent exhaust from all stationary engines, motors, chillers and other mechanized equipment up or in a direction away from the closest occupied structures to such equipment.
- p. Use a pressure-suitable separator and/or vapor recovery unit (VRU) when appropriate.
- q. Construct flowline infrastructure prior to beginning production.
- r. Use dry seals on centrifugal compressors.
- s. Route emissions from rod-packing and other components on reciprocating compressors to vapor collection systems.
- t. Control hydrocarbon emissions of 98% or better for centrifugal compressors and reciprocating compressors.
- u. Use emission reduction measures to respond to air quality action day advisories posted by the Colorado Department of Public Health and Environment for the Front Range Area. Emission reduction measures will be implemented for the duration of an Air Quality Action Day advisory and ~~may will~~ include ~~measures such as:~~
 - i. Minimize vehicle and engine idling;
 - ii. Reduce truck traffic and worker traffic;
 - iii. Delay vehicle refueling;
 - iv. Suspend or delay use of fossil fuel powered ancillary equipment; and
 - v. Postpone construction activities
- vi. Within thirty days following the conclusion of each annual air quality action day season, Operator shall submit a report to the LGD that details which measures it implemented during any action day advisories.
- v. Establish shutdown protocols, approved by the Town, with notification and inspection provisions to ensure safe shut-down and timely notification to affected neighborhoods.
- w. Conduct ongoing maintenance checks of all equipment to minimize the potential for gaseous or liquid leaks.
- x. Minimize truck traffic to and from the site.
- y. Use desiccant gas processing dehydrators or other zero emitting dehydrators.
- z. Hydrocarbon control of 98% or better for crude oil, condensate, and produced water tanks with uncontrolled actual emissions of VOCs greater than two TPY VOCs.
- aa.. Consolidate product treatment and storage facilities within a well pad site.
- bb. Centralize compression facilities within a well pad site.

- cc. Use pressure-suitable separator and vapor recovery unit (VRU) where applicable.
- dd. Use EPA Reduced Emission Completions for wells. Daily logs documenting reduced emission completions provided to the LGD.
- ee. Use no-bleed continuous and intermittent pneumatic devices. This requirement can be met by replacing natural gas with electricity or instrument air, or routing the discharge emissions to a closed loop-system or process.
- ff. Conduct root cause analysis for any Grade 1 gas leaks.
- gg. Use automated tank gauging.
- hh. For Operators with existing Oil and Gas Operations in the Town of Erie, demonstrate that the Operation will not result in any increase of volatile organic compounds (VOCs) from Operator's existing and planned Operations in the Town. Operator may include anticipated reductions from plugging and abandoning existing wells located in Town when modeling total VOCs from existing and future Operations and related activities.
- ii. Comply with all OSHA work practice requirements with respect to benzene.
- jj. Construct flowline infrastructure prior to beginning production.
- kk. Use other best management practices to control emissions as they become available.

2. Flares and Combustion Devices.

Flaring shall be eliminated other than during emergencies or upset conditions and all flaring shall be reported to the LGD. If flaring is required, all flares, thermal oxidizers, or combustion devices shall be designed and operated as follows:

- a. Flaring shall be done with a flare that has a manufacturer specification of 98% destruction removal efficiency or better
- b. Flare and/or combustor shall be fired with natural gas.
- c. Flare and/or combustor shall be designed and operated in a manner that will ensure no visible emissions during normal operation.
 - i. No visible emissions 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.
 - ii. Visible emissions do not include radiant energy or water vapor.
- d. Flare and/or combustor shall be operated with a flame present at all times when emissions may be vented to it.
- e. All combustion devices shall be equipped with an operating auto-igniter.
- f. 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 pilot flame and shall activate a visible and audible alarm in the case that the pilot goes out.
- g. 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. 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.

3. Leak Detection and Repair (LDAR)

- a. Operations shall be conducted in conformance with the Leak Detection and Repair Plan.
- b. If the Town determines that the leak presents an immediate hazard to persons or property, the Operator may not operate the affected component, equipment or flowline segment until the Operator has corrected the problem and the Town agrees that the affected component, equipment or flowline segment no longer poses a hazard to persons or property. In the event of leaks that the Town believes do not pose an immediate hazard to persons or property, if more than forty-eight-hours repair time is needed after a leak is discovered, Operator shall contact the LGD and provide an explanation of why more time is required. Continuous monitoring to detect leaks or measure hydrocarbon emissions and monitor meteorological data shall be required. Any continuous monitoring system shall be able to alert the Operator of increases in air contaminant concentrations. Operator shall provide detailed recordkeeping of the inspections for leaking components.
- ~~a. The Applicant shall develop and maintain a leak detection and repair program approved by the LGD using CDPHE approved instrument monitoring methods (AIMM), for equipment used on the well site. Inspection frequency will be determined by the LGD based on site-specific factors. Operators must repair any leaks as quickly as practicable~~
- ~~b. Operator shall provide to the LGD a monthly LDAR report organized by facility detailing the inspection results, any associated repairs, and any outstanding leaks. Operator will also provide a copy of all reports submitted to the AQCC, including monthly downtime reports and semi-annual control equipment status reports for production facilities located within Town limits. The Town will make this information available on its website, or may provide a link for such information from Town's website to Operator's website.~~

4. Well Completion

For each well completion operation with hydraulic fracturing, the Operator shall control emissions by the following procedures.

- a. For the duration of flowback, route the recovered liquids into one or more storage vessels or re-inject the recovered liquids into the well or another well, and route the recovered gas into a gas flowline or collection system, re-inject the recovered gas into the well or another well, use the recovered gas as an onsite fuel source, or use the recovered gas for another useful purpose that a purchased fuel or raw material would serve, with no direct release to the atmosphere.
- b. If compliance with paragraph 4.a above is infeasible, the Operator must capture and direct flowback emissions to a completion combustion device equipped with a reliable continuous ignition source over the duration of flowback, except in conditions that may result in a fire hazard or explosion, or where high heat emissions from a completion combustion device may negatively impact waterways or nearby structures. Non-flammable gas may be vented temporarily until flammable gas is encountered where capture or combustion is not feasible.

5. Compliance

- a. Operator will submit annual reports to the LGD certifying
 - (A) Compliance with these air quality requirements and documenting any periods of material non-compliance, including the date and duration of

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each such deviation and a compliance plan and schedule to achieve compliance, and

- (B) Equipment at the well sites continues to operate within its design parameters, and if not, what steps will be taken to modify the equipment to enable the equipment to operate within its design parameters.
- b. The annual report shall contain a certification as to the truth, accuracy and completeness of the reports, signed by a responsible corporate official. [The Operator will also provide the LGD with a copy of any self-reporting submissions that operator provides to the CDPHE due to any incidence of non-compliance with any CDPHE air quality rules or regulations.](#)