Air Quality Rules: State, County and Other Front Range Jurisdictions

Acronyms and notes:

AQCC – Colorado Department of Public Health & Environment, Air Quality Control Commission

VOC - Volatile Organic Compound. Includes benzene. VOCs are ozone precursors.

NOx - Nitrogen Oxides, ozone precursors

LDAR - Leak Detection and Repair

Pneumatic Devices = Are known major source of methane emissions in the industry. The two main types of pneumatic device used in the oil and gas industry are: Pneumatic controllers, which control conditions such as levels, temperatures and pressure; or Pneumatic pumps, which inject chemicals into wells and pipelines or circulate dehydrator fluids.

Green Completions = Use of equipment that separates gas and liquid hydrocarbons from the flowback that comes from the well as it is being prepared for production. The gas and hydrocarbons can then be treated and used or sold, avoiding the waste of natural resources that cannot be renewed

APEN – Air Pollution Emission Notice: CDPHE emission reporting requirement

Title V - Permits and reporting required for multi-well facilities emitting more than 25 tons/year of hazardous air pollutants (HAP), or 10 tons/year or more of any single HAP, or 100 tons/year of any pollutant subject to regulation.

IR Camera = Infrared Camera used to detect methane leaks

Summa Canister = Sample collection device for air samples

Speciate - To break down a sample into its individual compounds. For example, if total VOCs above the regulatory level are detected, the lab will identify all of the different VOCs in the canister.

O&GF – Oil and gas facility

CDPHE - AQCC Regulation 7 Control of Ozone via Precursors and Control of Hydrocarbons via O&G Emissions	Applies to all drilling operations on or after May 1, 2021 Sets out stringent air quality monitoring requirements during pre-production and early production phases across all upstream oil and gas facilities. There are 3 components to Regulation 7: ○ Air Quality Monitoring Requirements ○ Recordkeeping and Reporting ○ Best Practice Guidelines for Selecting an Air Quality Monitoring Solution
Air Quality Monitoring Requirements	Operators must monitor air quality for a period starting no later than 10 days before pre-production activities and continue for no shorter than six months after the well is capable of producing saleable oil or gas material (defined as “early production”).
Comprehensive Monitoring Plan to AQCC and Local Government	Submit *at least 60 days before monitoring begins*. Required CMP items include: ○ Contact details – both for the owner-operator or their representative, along with local government details ○ A planned schedule of operations ○ Monitoring objectives (including pollutants and parameters being monitored – e.g., VOCs, BTEX/benzene, and methane) ○ An account of equipment set to be used in monitoring ○ A siting plan (including number, height, and location of monitors) ○ Topographical site map ○ Description of operating procedures (including sampling times, response levels, calibration, and data collection)

Local Government Review and CDPHE Consultation	Local governments have 14 days from receiving the plans to consult with CDPHE and have the opportunity to take part in the approval process.
Records	All records from the Air Quality Monitoring Plan must be kept for a minimum of three years and monthly reports must be submitted by the end of the month following the sampling period.
Monitoring Requirements	○ Systems must be capable of continuous monitoring, reporting at a frequency of at least every fifteen minutes. ○ Cloud-based solutions are preferred as they provide real-time alerts and remote data access.
Arapahoe County	The County has limited air quality rules, related to odor and dust
Odor	- Prevent odors migrating offsite during drilling through the use of low-odor Category III drilling fluid, unless a waiver or modification is allowed. - Use closed-loop systems in place of open pits. - Proactively respond to and address odor complaints. - Operator may be required to address odor complaints with additional measures such as wiping down drill pipe, increasing mud additives, using filtration systems, enclosing shale shakers and frequently transporting drill cuttings offsite for disposal.
Dust and Odor Oil & Gas rules	County may require modifications to equipment for drilling, completion, or production operations to incorporate new technologies for reduction of noise, odor, dust or for mitigating other surface impacts caused by the Facility or its operations if new technologies are technologically sound, economically practical, and commercially available.
Dust GESC Manual	Operator shall be responsible for dust control on the site. Disturbed areas not yet ready to be seeded, landscaped, paved, or otherwise stabilized, shall be watered, sprayed with a tackifier, mulched (without seed) or ripped as necessary to preclude visible dust emissions. Dust that leaves the site in any amount that can be considered a safety issue is not acceptable, is a violation of the GESC Permit, and can be enforced upon. Throughout the life of a project, roads used for egress shall be kept clean and free of sediment that can be tracked. In the event of accidental tracking of mud or dirt on access roads, the mud and/or dirt shall be cleaned immediately. Tracking of sediment from a construction site is not acceptable, is a violation of the GESC Permit. Roads can only be cleaned with water if all wash water is captured and prevented from entering the storm sewer system.
Adams County	
Air Emission Sources	Air contaminant emission sources shall comply with the permit and control provisions of the state air quality control program (C.R.S. § 25-01 et seq.) and the rules and regulations promulgated by the State Air Quality Control Commission. The Operator shall employ the following (9 rows below) control measures and operating procedures to avoid or minimize all emissions into the atmosphere.
Air Quality Action Days	Air quality action days. Operator shall respond to air quality action day advisories posted by the CDPHE for the front range area by implementing suggested air emission reduction measures as feasible. Emissions reduction measures shall be implemented for the duration of an air quality action day advisory and may 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; v. Postpone construction or maintenance activities, if feasible; vi. Postpone well maintenance and liquids unloading activities that would result in emission to the atmosphere.
Leak Detection and Repair (LDAR)	Operator shall develop and maintain an LDAR program using modern leak detection Technologies for equipment used at the facility that complies with applicable Air Quality Control Commission (AQCC) Regulations and the following requirements: i. Inspections must occur at least semiannually; more frequent inspections may be required based on the nature, location, and size of the facility. ii. Any leaks discovered by Operator, including any verified leaks that are reported to Operator by a member of the public, shall be reported to the County no later than twenty-four hours after discovery.

	iii. The Operator shall maintain a weekly log of all reported leaks and shall make that log available upon request from the County. Operator shall repair leaks in accordance with AQCC Regulation 7 LDAR repair provisions such that repair of an identified leak is initiated no later than 5 working days from the date of discovery and completed within 30 days. If the leak presents an imminent hazard to persons or property, the Operator may not operate the affected component, equipment or pipeline segment until the Operator has corrected the problem and notified the County of the successful repair. In the event of leaks that do not pose an imminent hazard to persons or property, if more than 30 days repair time is needed after a leak is discovered, Operator shall contact the County and provide an explanation of why more time is required. iv. Plan shall include detailed recordkeeping of the inspections for leaking components. v. At least once per year, the Operator shall notify the County five (5) business days prior to an LDAR inspection of its facilities to provide the County the opportunity to observe the inspection.
Well Completions and Emissions Control	i. Operators shall utilize EPA Reduced Emission Completions for oil wells and gas wells. ii. Operators shall utilize closed loop, pitless drilling, completions systems without permanent onsite storage tanks for containment and/or recycling of all drilling, completion, and flowback fluids. Any emissions must be routed to and controlled by a flare or combustor operated with at least a 98% destruction removal efficiency.
Combustion Devices	i. For any flares or combustion devices used, manufacturer test or other data must be maintained and demonstrate that the device has a destruction removal efficiency of 98% for hydrocarbons. ii. To the extent used, all flares, thermal oxidizers, or combustion devices shall be designed and operated as follows: (a) The flare and or combustor shall be fired with natural gas. (b) The flare and or combustor shall be designed and operated in a manner that will ensure no visible emissions during normal operation. Visible emissions are defined as the observation 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. (c) The flare and or combustor shall always be operated with a flame present when emissions may be vented to it. (d) All combustion devices shall be equipped with an operating auto-igniter. (e) 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. (f) If using an electric arc ignition system, the arcing of the electric arc ignition system shall pulse continually, and a device shall be i nstalled and used to continuously monitor the electric arc ignition system.
Liquids Unloading	i. Best management practices during liquids unloading activities are required including the installation of artificial lift, automated plunger lifts and at least 90% emissions reductions when utilizing combustion to control any venting. ii. If manual unloading is permitted, Operator shall remain onsite.
General Air Quality Protection Measures.	i. Operators should work to limit truck traffic to and from the site. ii. Hydrocarbon emissions control of at least 98% or better for crude oil, condensate, and produced water tanks with uncontrolled actual emissions of Volatile Organic Compounds (VOCs) greater than two tons per year (TPY) VOCs. iii. No venting other than if necessary for safety or during an emergency or as otherwise allowable in COGCC rules. iv. Operators should consolidate product treatment and storage facilities within a facility. v. Operators should centralize compression equipment within a facility.
Site-Specific Air Quality Protection Measures	To eliminate or minimize air emissions, the County may require any or all of the following depending on the size, location and nature of the facility: i. Ambient Air Monitoring. An air monitoring plan that describes how the operator will conduct baseline monitoring within 500 feet of a proposed facility prior to construction and conduct monitoring during the drilling, completion, and production phases of development. The plan may include monitoring for all potential emissions, including but not limited to, methane, VOCs, Hazardous Air Pollutants (HAPs), Oxides of Nitrogen (NOx), Particulate Matter (PM), and Fine Particulate Matter (PM 2.5). ii. Operator shall pay for the baseline and ongoing monitoring. Baseline and continuous monitoring shall be done by a consultant approved by the County. Any continuous monitoring system shall be able to alert the operator of increases in monitored air pollutant concentrations. Implementation of tankless production techniques. iii. The use of zero emission dehydrators.

	iv. Use of a pressure-suitable separator and vapor recovery unit (VRU) where applicable. v. Pipeline infrastructure for produced water, natural gas, crude oil, and condensate constructed and placed into service prior to the start of any fluid flow from any wellbore. vi. The use of 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. vii. Automated tank gauging. viii. Flaring shall be eliminated other than during emergencies or upset conditions; All flaring shall be reported to the county.
Odors	a. Operator shall implement and maintain, an odor mitigation plan that demonstrates how the Operator will minimize odors from its operations and comply with Colorado Department of Public Health and Environment, Air Quality Control Commission, Regulation No. 2 Odor Emissions, 5 CCR 1001-4, Regulation No. 3, 5 CCR 1001-, and Regulation No. 7, 5 CCR 10019 sections VII and VIII. The plan shall also provide a plan for timely responding to odor complaints from the community, and for identifying and implementing additional odor control measures to control odors emanating from the Oil and Gas Facility. b. Operator shall notify the County's LGD no later than 24 hours after receiving odor complaint. c. Operator shall prevent odors from oil and gas facilities from affecting the health and welfare of the public by proactively addressing and, to the fullest extent, resolving complaints filed by members of the community, in coordination with County and Adams County Health Department staff. d. In response to an odor related complaint, the County may require Operator to provide a complete description of all activities occurring at the Oil and Facility and measures or actions taken to reduce odors to the County's LGD within 24 hours upon request. e. The Director of Community and Economic Development 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-elated complaint. Speciated air sample collection shall be done utilizing a third-party vendor approved by the County. f. To ensure compliance with the odor mitigation plan, the County may require the Operator to implement any of the following measures depending on the size, location, and nature of the facility: i. Adding an odorant which is not a masking agent or adding chillers to the mud systems. ii. Increasing additive concentration during peak hours provided additive does not create a separate odor. Additive must be used per manufacturer's recommended level. iii. Using filtration systems or additives to minimize odors from drilling and fracturing fluids except that operator shall not mask odors by using masking fragrances. Enclose shale shaker to contain fumes from exposed mud, where safe and feasible, iv. Wipe down drill pipe each time drilling operation "trips" out of hole. iv Requiring the use of, at a minimum, low odor Category III drilling fluid.
Dust	a. Operator shall minimize dust pollution associated with onsite activities and traffic. b. No untreated produced water or other process fluids shall be used for dust suppression. c. he Operator shall avoid creating dust or dust suppression activities within 300 feet of the ordinary highwater mark of any water body unless the dust suppressant is water. Safety Data Sheets (SDS) for any chemical-based dust suppressant shall be submitted to the County prior to use. d. To ensure the Operator controls dust, one or more of the following may be required based on the location, nature, and size of the facility: i. Ceasing all earthwork activities when wind speeds equal or exceed 30 MPH at any time measured by onsite anemometer, ii. The use of reduced speed restrictions, iii. Approved dust suppression activities, iv. Ceasing ongoing truck traffic causing fugitive dust, until Operator has minimized dust to acceptable levels.
Note:	Adams County Air Quality is also mentioned in their Cumulative Impacts section
Aurora **Oil & Gas Manual**	Operators shall follow the provisions of the latest rules and regulations of the Colorado Oil & Gas Conservation Commission (COGCC), the Colorado Department of Public Health and Environment (CDPHE), and the Air Quality Control Commission (AQCC), as applicable. Pursuant to the Colorado Air

	Pollution Prevention and Control Act (APPCA), C.R.S. 25-7-128, local governments may enact local air pollution resolutions or ordinances that include more stringent emission control regulations than state requirements.
Section 135-5. Protection of Air Quality.	Air Quality Monitoring Plan required. In order to minimize degradation to air quality, Operator shall avoid, minimize, or mitigate all potentially harmful emissions and odors, and avoid, minimize, or mitigate dust associated with onsite activities and traffic on access roads
Minimization of Emissions	a. The use of electric equipment and electric line power to operate all permanent production equipment. b. The use of no-bleed continuous and intermittent pneumatic devices that do not bleed natural gas to the atmosphere. 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. c. Any combustion device, auto-ignition system, recorder, vapor recovery device, or other equipment used to meet the hydrocarbon destruction efficiency or control efficiency regulation shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. d. Year-round compliance with the odor standards pursuant to COGCC and CDPHE regulations. e. Venting is prohibited unless necessary for safety. If emergency venting is required, or if accidental venting occurs, the Operator shall provide notice to the City of such event as soon as, but in no event later 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. f. Reduction of Emissions from Oil and Gas Well Maintenance Activities. For planned maintenance activities involving the intentional flaring of gas, the Operator shall provide forty-eight (48) hour advance written notice to the City of such proposed flaring. Such notice shall identify the duration and nature of the flaring event, a description as to why flaring is necessary, what steps will be taken to limit the duration of flaring, and what steps the Operator proposes to undertake to minimize similar events in the future. g. Telemetric control and monitoring systems to detect when pilot lights on control devices are extinguished. h. Exhaust from all engines, turbines, motors, coolers, and all other equipment must be vented up and away from the nearest residences. i. Operator shall participate in Natural Gas STAR program or other voluntary programs to encourage innovation in pollution control at the Oil and Gas Location.
Air Quality Monitoring and Testing for All Facilities for all phases	Operator shall conduct air sampling for a period of five (5) consecutive days prior to any construction activities for any new Oil and Gas Location or prior to drilling additional wells on any Oil and Gas Location already constructed. Operator shall conduct baseline sampling using a continuous monitoring system that detects the following: wind speed, wind direction, temperature, humidity, pressure, particulate matter (PM2.5 and PM10), sulfur dioxide (SO2), nitrogen oxides (NOx), carbon dioxide (CO), methane, ethane, propane, butane, total volatile organic carbon (VOC), and a sample to be analyzed by EPA Method TO-15 (Determination of Volatile Organic Compounds (VOCs) in Air), which includes benzene, toluene, ethylbenzene and xylene. Operator shall conduct baseline sampling at least thirty (30) days in advance of any construction activities at the Oil and Gas Location. Results of the baseline air sampling must be received by the Oil & Gas Manager prior to the issuance of the final OGP. Results will be used to compare with future samples to determine any change in air quality over time. Both baseline and future samples will also be compared to general air quality measurements in the Aurora area to determine how the air at the Oil and Gas Location compares to the Aurora region. Continuous Air Monitoring. During Drilling, Completion, and Production Phases, the Operator shall conduct continuous air monitoring capable of detecting total hydrocarbons. Continuous air monitoring is defined as data points obtained at least once per minute, and twenty-four (24) hours per day. Periodic Air Sampling. During all Operational Phases, the Operator shall deploy canisters and collect air samples for speciated hydrocarbon analysis when monitoring indicates elevated levels of hydrocarbons or at the request of the City.
Air Monitoring and Leak Detection for Facilities Without Permanent Tanks	Data related to air monitoring or sampling during any phase shall be reported to the City quarterly. Reports shall include, at a minimum, a summary of continuous monitoring methods used, location of each continuous monitor, maximum one (1) minute and average concentrations over the reporting period (for each parameter monitored). The report shall include the number of grab samples collected, the date, time, and reason for collecting each grab sample, and the concentration range for each pollutant. All exceedances of health-based limits shall be reported along with any measures taken to mitigate the emissions. Leak Detection and Repair. During the Production Phase, the Operator shall develop and maintain a Leak Detection And Repair (LDAR) program as required by CDPHE using modern leak detection technologies such as infra-red (IR) cameras for equipment used on the Oil and Gas Location

	For the first five (5) years of the Production Phase at an Oil and Gas Location, the Operator shall conduct at least semi-annual inspections of all equipment at the Oil and Gas Location; more frequent inspections may be required based on the nature and location of the facility and as required by state rules. At least once per year, the Operator shall notify the City five (5) business days prior to an LDAR inspection of its facilities to provide the City the opportunity to observe the inspection. Records: The Operator will maintain records of all leaks found, the date the leaks were repaired, and the date the location is re-screened to verify that the leak has been repaired. Such records must be maintained for five (5) years and must be made available to the City upon request.
Repairs	Except when an emergency circumstance would necessitate an immediate repair, Operator must repair leaks as quickly as practicable. If more than five (5) days of repair time is needed after a leak is discovered, an explanation of why more time is required must be submitted to the City.
Air Quality Requirements for Facilities with Permanent Tanks	Tankless production sites are required unless the Operator provides sufficient rationale for why permanent storage tanks are needed. For facilities that must use permanent storage tanks and do not transport all hydrocarbons and produced water via pipelines, the following Air Quality provisions will apply until the pipeline infrastructure is available: a. Operator shall comply with the regulations in Sections 135-5(a)(4)a., 135- 5(a)(4)b., 135-5(a)(4)e., and 135-5(a)(4)f. of this Oil & Gas Manual.
	Leak Detection and Repair. Unless more frequent inspections are required by the AQCC, for the five (5) year period beginning with the start of the Production Phase at an Oil and Gas Location, Operator shall conduct IR camera monitoring of all equipment at the respective Oil and Gas Location based on the following minimum frequency: 1. Year 1 – monthly 2. Year 2 – quarterly 3. Year 3-5 – semi-annually 4. The first inspection will occur within thirty (30) days of the facility commencing production.
Additional Monitoring	After the initial five (5) year period, Operator will conduct semi-annual IR camera monitoring until all Wells at the Oil and Gas Location are either connected to a Gathering Line and Associated Infrastructure or are plugged and abandoned
3rd Party may be required for additional air monitoring & analysis	As needed in response to emergency events such as spills, process upsets, or accidental releases. Operator may evaluate other technologies throughout the life of the wells and may use other technologies if they are as effective in detecting target compounds.
Ozone Air Quality Action Days.	The Operator shall respond to Ozone Air Quality Action Day advisories posted by the CDPHE for the Front Range Area by implementing their suggested air emission reduction measures as feasible. Emission reduction measures shall be implemented for the duration of an Ozone Air Quality Action Day advisory and may include measures such as: 1. Minimization of vehicle and engine idling. 2. Reducing truck traffic and worker traffic. 3. Delaying vehicle refueling. 4. Postponement of construction and maintenance activities if feasible. Within sixty (60) days following the conclusion of each annual Ozone Air Quality Action Day season, Operator must submit a report to the City that details which measures it implemented during any Ozone Air Quality Action Day advisories.
Compliance Reports	The Operator must submit quarterly reports to the City certifying: a. compliance with these air quality requirements and documenting any periods of material non-compliance, including the date and duration of each such deviation and a compliance plan and schedule to achieve compliance, and b. that the equipment at the Oil and Gas Location 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. The quarterly report must contain a certification as to the truth, accuracy, and completeness of the reports, signed by a Responsible Official, as defined by the CDPHE. The Operator will also provide the City with a copy of any self-reporting submissions that Operator provides to the CDPHE due to any incidence of noncompliance with any CDPHE air quality rules or regulations at the Oil and Gas Location.
Combustion Devices	To the extent flares, thermal oxidizers, or combustion devices are utilized, all such flares shall be designed and operated as follows: a. The combustion device must be fired with natural gas and designed to operate with a ninety-eight percent (98%) or higher hydrocarbon destruction efficiency.

	b. The combustion device must be designed and operated in a manner that will ensure no visible emissions during normal operation. Visible emissions mean observations of smoke for any period or periods of duration greater than or equal to one (1) minute in any fifteen (15) minute period during normal operation, pursuant to EPA Method 22. Visible emissions do not include radiant energy or water vapor. c. The combustion device must be operated with a flame present at all times when emissions may be vented to it, or another mechanism that does not allow uncontrolled emissions. d. The combustion device will have no visible flame, with the exception of the pilot light, from the Oil and Gas Location boundary. The combustion device shall completely conceal the flame. e. All combustion devices must be equipped with an auto-igniter unless manned while in use.
Burning	No open burning of trash, debris, or other objects shall occur on any Oil and Gas Location except for approved flaring.
Air Modeling Study	If the City determines that an Air Modeling Study is necessary to create a dispersion model, Operator will be invoiced its proportionate share in an amount not to exceed $5000 per Oil & Gas Location
Odor	In order to minimize degradation to air quality, Operator shall avoid, minimize, or mitigate all potentially harmful emissions and odors, and avoid, minimize, or mitigate dust associated with onsite activities and traffic on access roads; Year-round compliance with the odor standards pursuant to COGCC and CDPHE regulations.
Odor Prevention	Operator will prevent odors by routing to closed-loop systems unless technically infeasible. Odors emitting from an Oil and Gas Location must be controlled immediately. Operator must minimize odors by proactively addressing and resolving verified citizen concerns within twelve (12) hours. Operator must use a filtration system or additives to drilling fluids to prevent or minimize odors but cannot mask odors. In order to meet the provisions of this section, Operator shall implement the following measures: a. Wiping down the drill pipe each time that the drilling operation “trips” out of the hole. b. Increasing additive concentrations during peak hours.
Fugitive Dust Suppression	Requires a Fugitive Dust Suppression Plan
Fugitive Dust Suppression requirements	(1) Minimize Dust. In addition to complying with COGCC rules, dust associated with activities on the Oil and Gas Location and traffic on access roads shall be minimized throughout construction, drilling, and operational activities such that there are no visible dust emissions from access roads or the Oil and Gas Location unless infeasible given wind conditions. (2) Water Use. No untreated produced water or other process fluids shall be used for dust suppression. Reclaimed water used in compliance with CDPHE Regulation 84 must be treated prior to use for dust suppression. (3) Covering of Material. At the Oil and Gas Location, sand, silica, or similar material must be stored in covered containers. (4) Safety Data Sheets (SDS). Safety Data Sheets (SDS) for any chemical-based dust suppressant, other than magnesium chloride, shall be submitted to the City prior to use.
Aurora **Operating Agreements with ConocoPhillips and Axis Exploration**	Vapor from tanks on multiple well facilities will be directed to a Vapor Recovery Unit as needed to meet CDPHE air permit requirements. Piping and tank connections will be subject to LDAR inspections.
	To minimize degradation of air quality, operator must eliminate, capture or minimize all potentially harmful emissions and minimize dust.
Minimization of Emissions	- Use electric equipment and electric line power; - Use Tier 3 hydraulic fracturing pumps. If Tier 4 fracturing pumps are economically feasible, Operator will use Tier 4 fracturing pumps. - Use no-bleed continuous and intermittent pneumatic devices that do not bleed natural gas to the atmosphere. 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.
Combustion Devices	Any combustion device, auto-ignition system, recorder, vapor recovery devices or other equipment used to meet the hydrocarbon destruction or control efficiency requirement shall be installed, calibrated, operated and maintained in accordance with manufacture’s recommendations, instructions and operating manuals.
Odor Standards	Year-round compliance with the odor standards per COGCC and CDPHE regulations
Reduce pipeline emissions	Reduce emissions from gas pipeline maintenance. Provide 48 hour notices of intentional venting and state the duration and nature of the venting event, why venting is necessary, what vapors will likely be vented and steps to limit the duration and volume of venting. Provide notice of emergency venting no longer than 24 hours after the event.
Telemetric Control	Install telemetric control and monitoring systems to detect when pilot lights on control devices are extinguished
Exhaust	Exhaust from all engines, motors, coolers and other equipment must be vented up.
Voluntary Participation	Participate in the CDPHE Environmental Leadership Program or other voluntary programs to encourage innovation in pollution control at well sites.
Permanent Production Tanks	Any permanent production tanks must be connected to a combustion device with 95% or better total VOC destruction, provided that sufficient onsite gas is available to fuel a combustor.

Leak Detection and Repair (LDAR)	Operator shall develop and maintain an acceptable leak detection and repair (LDAR) program as required by CDPHE using modern technologies (IR camera) for 5 years beginning with the start of the production phase for each new well with the following minimum frequency: - Year 1: monthly - Year 2: quarterly - Year 3: semi-annually Operator will maintain records of all leaks found for 5 years including the date the leaks were repaired and date the location was re-screened.
Ambient Air Sampling	Starting Jan 1, 2020, Operator shall conduct, as approved by the City, specific ambient air quality testing with these specific practices and procedures: - Pre-construction or pre-drilling baseline air quality testing for 5 days prior to construction activities or prior to the addition of new wells - Drilling phase – Operator shall conduct drilling rig sampling using a continuous monitoring system that detects VOCs including BTEX at each well site; Operator shall conduct continuous air monitoring for particulate matter. - Production Facility – Within 30 days of initial production of a new well or well site, Operator shall place on-site monitors capable of continuous sampling and detecting of VOCS in the parts per billion range, either automatically or manually.
Continuous Monitoring	The continuous monitoring systems shall have the ability to automatically trigger the collection of a summa canister or other technology capable of detecting VOCs in the ppb range. Meteorological sensors on location will also record wind, temperature, humidity and pressure date to taking into account seasonal and operational variations to separate ambient background from local pad impacts.
Data Collected	City shall have full access to the collected data
Other Technologies	Operator may evaluate or use other technologies throughout the life of the wells if they are effective in detecting target compounds.
Ambient Air Sampling	In conjunction with the City Program, Operator shall conduct baseline air quality testing within 500 ft of a pad. Testing must be performed by a consultant approved by the City. As part of the City program, the City may require the use of a third party to conduct additional air monitoring and analysis in response to emergency events such as a spill, process upsets or accidental releases.
Ozone Air Quality Action Days	Operator shall respond to air quality Action Day advisories posted by CDPHE for the Front Range by implementing their suggested air emission reduction measures as feasible, for the duration of the Action Day advisory and may include: - Minimize vehicle and engine idling - Reduce truck traffic and worker traffic - Delay vehicle refueling - Postpone construction activities to the maximum extent possible.
Compliance	Submit quarterly reports certifying: - Compliance with these requirements and document any periods of non-compliance including date and duration of deviations and a compliance plan to achieve compliance; - That equipment at the site continues to operate within its design parameters and if not steps taken - Quarterly report must contain a certification as to truth and accuracy, signed by a Responsible Official.
Reduced Emissions Completions (aka Green Completions)	Operator shall comply with EPA Reduced Emission Completion rules for oil and gas wells.
Boulder County	Note: Boulder County approved an oil & gas air pollution tax in 2018.
General Rule	Avoid or minimize and mitigate community impacts including those related to traffic, noise, odor and air pollution, dust, light pollution, and visual impacts.
Odor	Existing oil and gas facilities must not emit odor detectable after dilution with 2 or more volumes of odor free air. Odor Plan. A list of all odor reduction measures that will be used to address the predicted odors from the proposed oil and gas facilities and operations and meet the standards in 12-1000(P). Identification of all natural features (e.g., topography, prevailing wind patterns, vegetation) that will aggravate or mitigate odor impacts on the areas within 2000 feet of the parcel(s) where the oil and gas facilities are proposed to be located. A plan for timely responding to odor complaints and communicating the results to the complainant and to the County

	Oil and gas operations will avoid or sufficiently minimize and mitigate adverse impacts on public health, safety, and welfare, the environment and wildlife from odor. No odor from the proposed oil and gas facility or oil and gas operations shall be detectable after dilution with 2 or more volumes of odor free air as measured at the property line of the oil and gas location. 1. Compliance with Section 12-1000(P); on-going monitoring for compliance. 2. Odor reduction requirements may include: a. Using minimum low odor Category IV or better drilling fluid. This could include non-diesel-based drilling muds including drilling muds that are low odor and do not contain benzene, toluene, ethylbenzene or xylene (BTEX); b. Adding odorants that are not a masking agent; c. Additional or enhanced measures during peak odor-producing phases or times such as increasing additive concentration; d. Wipe down drill pipe each time drilling operation "trips" out; e. Adding chillers to the mud systems; f. Using filtration systems or additives to minimize odors from drilling and fracturing fluids except that the Applicant shall not mask odors; g. Enclosing shale shakers to contain fumes from exposed mud where safe and feasible; h. Removing drilling mud from drill pipe as it is removed from the well; i. Prohibition on exposed drilling mud; or j. Limitation or prohibition on use of diesel generators.
Ozone Exceedance	A report of the number of ozone exceedances as measured at any and all CDPHE monitoring stations in Boulder County and the amount by which the 2015 National Ambient Air Quality Standards of 70 parts per billion or any newer standard under the Clean Air Act were exceeded. The report should include all data for the preceding three-year period.
Air Quality Measures	Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate adverse impacts to air quality. To protect air quality and public health, emissions control measures may be required, including, but not limited to, one or more of the following: 1. Compliance with the current, most protective air quality regulations and health-based standards, which may include regulations and standards set by the EPA, CDPHE, COGCC, Centers for Disease Control, or other relevant authorities. 2. Continuous monitoring during all phases from pre-production through the end of production, which may monitor air quality at the oil and gas facilities, nearby properties, and other areas of concern. 3. A leak detection and repair (LDAR) program that may include: a. Use of best available technology leak detection, such as infra-red cameras and hydrocarbon analyzers; b. Regular on-site inspections at a frequency determined by the Director; c. Immediate leak repair; d. Reporting of monitoring and inspection results to the Director, who may make such reports available to the public; e. Operator maintenance of all images and data obtained from leak detection devices for 10 years, to be made available to the Director upon request; and f. Immediate reporting of all leaks detected to the Director; 4. Completion of wells using reduced emission completion practices. 5. Require closed loop pitless systems for containment and/or recycling of all drilling, completion, flowback and produced fluids. 6. Routine flaring is prohibited. In the event of an emergency, Operators may be required to shut-in the well if the emergency lasts greater than 24 hours; routine maintenance does not constitute an emergency. a. Routine flaring is the flaring of natural gas during the normal course of oil and gas production for reasons other than safety and emergencies and other conditions outside of the control of the operator. 12-28 b. For any permitted flaring, manufacture test or other data demonstrating hydrocarbon destruction or control efficiency that complies with a design destruction efficiency of 98% or better. Proof that any flare, auto ignition system, recorder, vapor recovery device or other equipment used to meet the hydrocarbon destruction or control efficiency requirement is installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. Electronic surveillance monitors to detect when pilot lights on control devices are extinguished 7. Venting is prohibited during all phases unless approved by the Director or required in situations where there is an immediate threat to public health, safety, and welfare, the environment, and wildlife. 8. Require all pneumatics to be non-emitting pneumatic controllers. 9. Zero-emission desiccant dehydrators or 98% control of hydrocarbon emissions from glycol dehydrators.

	10. Operator participation in Natural Gas STAR or other voluntary programs to encourage innovation in pollution control. 11. Emission reduction measures in immediate response to posting of air quality action day advisories by CDPHE for the County area, including minimizing vehicle and engine idling, reducing truck and employee traffic, delaying vehicle refueling, suspending or delaying use of gas-powered ancillary equipment, postponing well maintenance and storage tank hydrocarbon liquid loadout, postponing construction and maintenance activities. 12. Consolidation and centralization of product treatment and storage equipment and compression equipment. 13. Use of a pressure-suitable separator and vapor recovery unit. 14. Hydrocarbon control of 98% or better for crude oil, condensate, and produced water tanks. 15. Require dry seals on centrifugal compressors. 16. Routing of emissions from rod-packing and other components on reciprocating compressors to vapor collection systems. 17. Control emissions by 98% during storage tank hydrocarbon liquids loadout (i.e. loading out liquids from storage tanks to trucks). 18. Prohibit manual venting during well liquids unloading activities, use best management practices during liquids unloading activities, including the installation of artificial lift, and automated plunger lifts or other forms of artificial lift (98% or better hydrocarbon flare only). 19. Reduction or elimination of emissions from flowline maintenance activities such as pigging, including routing emissions to a vapor collection system.
Existing Emissions	An independent expert's inventory of methane, VOCs, NOx, CO2, and particulate emissions for all oil and gas facilities and operations in Boulder County owned or operated by the Applicant for the calendar year prior to registration or renewal. Operators must submit all Air Pollution Emission Notices for hazardous air pollutants submitted to the Air Pollution Control Division to the independent expert for review.
Air Quality Modelling	Air Quality Modeling. A qualified, independent modeling study that considers all relevant environmental and atmospheric conditions, and: j. Assesses the existing air quality at the proposed site; ii. Predicts the anticipated emissions (including hazardous air pollutants, methane, VOCs, NOx, CO2, and particulate emissions) from the proposed oil and gas facilities and operations, assuming use of and identifying all emissions control equipment and processes intended for use at the oil and gas facilities; and iii. Models the impacts on air quality from the proposed oil and gas facilities and operations over their lifetime, until final reclamation obligations are completed to the County's satisfaction, including the compounding effects of climate change on ozone and particulate pollution in the county and taking into account and identifying all relevant factors including natural conditions and other air quality impacts from any existing or foreseeable source.
Compliance with National Ambient Air Quality standards	Oil and gas facilities and operations will not compromise the attainment of ozone standards for the Denver Metro/North Front Range ozone nonattainment area as established by the US Environmental Protection Agency ("EPA"). [The most protective health-based guidelines for hazardous air pollutants set by CDPHE.]
Particulate Matter	Oil and gas facilities and operations will not contribute particulate matter to the air in a manner that fails to protect public health.
Methane	Oil and gas facilities and operations will avoid or sufficiently minimize and mitigate emissions or release of methane.
Notices (APENs)	Operators must submit all air pollution emission notices for hazardous air pollutants submitted to the CDPHE Air Pollution Control Division to the independent expert for review.
Air Quality Report:	Air quality report containing the following: Analysis of Existing Emissions An independent expert's inventory of methane, VOCs, NOx, CO2, and particulate emissions for all oil and gas facilities and operations in Boulder County owned or operated by the applicant for the calendar year prior to registration or renewal. Describe use of and identify all emissions control equipment and processes intended for use at the oil and gas facilities; and models the impacts on air quality from the proposed oil and gas facilities and operations over their lifetime, until final reclamation obligations are completed to the city's satisfaction, including the compounding effects of climate change on ozone and particulate pollution in the city and taking into account and identifying all relevant factors including natural conditions and other air quality impacts from any existing or foreseeable source.
Air Quality Modeling.	A qualified, independent modeling study that considers all relevant environmental and atmospheric conditions and assesses the existing air quality at the proposed site and predicts the anticipated emissions (including hazardous air pollutants, methane, volatile organic compounds, nitrogen oxides, CO2, and particulate emissions) from the proposed oil and gas facility.

Broomfield	Also regulates Air Quality through its Comprehensive Plan
Comprehensive Plan	Policy OG.1: Anticipate and mitigate potential risks associated with air emissions related to oil and gas development, particularly in and around populated areas. Action Step OG-1.1: Develop, submit, and implement a site specific ambient air quality testing and monitoring plan approved by Broomfield that includes but is not limited to:
Baseline Testing	Baseline air quality testing within 500 feet of a proposed oil and gas development site by a consultant approved by Broomfield and paid for by the operator. Air quality monitoring of all oil and gas phases, including drilling, completions (principally hydraulic fracturing and flowback), and operations within 500 feet of the oil and gas development site by a consultant.
Designs and Operating Procedures	Action Step OG-1.2: Require oil and gas operators to design and operate facilities in Broomfield by incorporating at a minimum but not limited to the following, with designs and operating procedures subject to approval by Broomfield prior to the start of any site construction: ● Closed loop, pitless drilling, completions and production systems without permanent on-site storage tanks with any required venting channeled through 98% effective emissions control devices; ● Green completion practices; ● Tier 4 or better diesel engines, diesel and natural gas co-fired engines, natural gas fired spark ignition engines or electric line power used to power hydraulic fracturing pumps; ● Pipelines for transport of fresh water, produced water, oil and gas to/from facilities; ● Enhanced Leak Detection and Repair (LDAR) program; ● Electric drilling rigs powered by an electric utility; ● No flaring at well sites except during upset conditions, with flares providing a minimum of 98% hydrocarbon destruction efficiency; ● Ongoing maintenance checks of all equipment to minimize the potential for gaseous or liquid leaks; and ● All oil and gas practices to use Best Management Practices (BMPs).
	Action Step OG-1.3: Develop and implement an enhanced Broomfield oil and gas facilities inspection program. ● Broomfield inspector allowed access to oil and gas sites upon notice, which can include notification at the gate; ● More frequent leak detection tests by the inspector; and ● Consider Broomfield purchase / lease / share with other municipalities an infrared camera for emissions inspections.
	Action Step OG-1.4: Require oil and gas operators to develop and implement shutdown protocols with detailed notification and inspection requirements in order to ensure safe shutdowns and timely local communications.
	Action Step OG-1.5: Require oil and gas operators in Broomfield to commit to compliance with United States Environmental Protection Agency (USEPA) and Colorado Department of Public Health and Environment (CDPHE) standards for emissions, as such regulations exist now and to more stringent requirements adopted in the future.
	Action Step OG-1.6: Pursue air quality regulations for activities prior to oil and gas operations, including but not limited to drilling, hydraulic fracturing, and flowback stages, potentially establishing monitoring and specifying emission limits.
	Action Step OG-1.7: Require ambient air quality resulting from oil and gas facilities to be in compliance with 2017 Centers for Disease Control (CDC) Agency for Toxic Substances and Disease Registry (ATSDR) and USEPA Integrated Risk Information System (IRIS) ambient air quality guidelines or future more restrictive guidelines for benzene, toluene, ethylbenzene and xylene (BTEX), and other air toxins.
	Action Step OG- 1.8: Odor emitting from oil and gas facilities must be controlled. Require operators to prevent odors generated by oil and gas operations from affecting the health and welfare of the public by proactively addressing and resolving complaints filed by impacted members of the community, in coordination with Broomfield Public Health staff.
	Action Step OG- 1.9: Operator must show a net reduction in volatile organic compounds (VOCs), through options that can include, but are not limited to, plugging and abandoning existing wells.
Air Quality Monitoring Program Monitoring Equipment	The AQM includes equipment and analysis of data by Colorado State University (CSU), Ajax Analytics & Boulder A.I.R. The following equipment monitors oil and gas emissions (VOCs): APIS sensors with real-time trigger canisters that collect air samples for laboratory analysis when triggered by elevated total volatile organic (TVOC) emissions. Analysis of the trigger canisters allows for identification of individual compounds & concentrations. Trigger canisters are in operation both

	near oil and gas well pads and in adjacent neighborhoods. They detect over 800 compounds and results of the canister samples are analyzed by scientists at the Atmospheric Sciences Lab at Colorado State University and all canister results are made public when received. Stationary monitoring stations provide real-time data of volatile organic compounds, including oil and gas signature emissions, like benzene, and ozone data.
Larimer County Article 11.2.9	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. A substantial modification is any permanent physical change not required by law that substantially increases the site footprint, air emissions, traffic, noise, or risk of spills, or will significantly change the operations of the O&GF. Use of a drilling rig or hydraulic fracturing equipment to deepen or recomplete an existing well into a new geologic formation is a substantial modification. Maintenance activities are not substantial modifications.
Air Quality Mitigation Plan	A. An Air Quality Mitigation Plan shall be submitted with all O&GF applications to demonstrate how the development and operation of the facility will minimize and mitigate adverse impacts to air quality, and will demonstrate compliance with and implementation of standards in §§11.3.3 and 4.11 of this Code.
Air Quality Monitoring	B. Air Quality Monitoring. The air quality mitigation plan will include a section on air quality monitoring that describes how the Operator will conduct baseline monitoring prior to construction of the O&GF. The monitoring plan shall also describe how the Operator will conduct 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 shall include methane and total VOCs (including BTEX). 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 monitoring shall be conducted within 500 feet of a proposed O&GF over a 30- day period. Baseline monitoring shall track levels and changes in monitored air pollutant concentrations. Baseline monitoring 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 drilling and completion activities. Each hydrocarbon monitor shall include a sampling device to automatically collect a speciated air sample when the monitor levels reach a threshold concentration level defined by the third-party consultant or in response to a request by Larimer County Department of Health and Environment (LCDHE). Meteorological monitoring is also required during the time period that air quality monitoring is conducted. High frequency monitoring of production operations will continue until three years have passed from the date the last well drilled on the site has entered the production phase, unless a school, licensed child care center, hospital, or residence is within 1,000' of the edge of the well site. In such instance, 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. 3. In the event a speciated sample is triggered, the County shall be notified as required by the Director. Depending on the circumstances, expedited lab analysis may be required. 4. The air quality monitoring plan shall meet the minimum requirements of AQCC Regulation 7 section VI.C. and receive approval from the Air Pollution Control Division prior to beginning air quality monitoring at the permitted site of the O&GF. a. When submitting the air quality monitoring plan to APCD, the operator shall submit at least 90 days in advance of the pre-drilling monitoring to account for the County's 30-days of pre-drilling air quality monitoring requirement. b. The air quality monitoring plan submitted to APCD for review shall include the pollutants identified in § 11.3.3.B. c. APCD will review the monthly reports of the air quality monitoring plan through the 6 months of early production. After the 6-months, the Operator shall retain a third party consultant to implement the approved monitoring plan to monitor air quality for the timelines identified in § 11.3.3.B.2. Monthly reports would then be submitted to the County rather than APCD by the last day of the month.
Consideration of Cumulative Impacts	C. The Air Quality Mitigation Plan must consider the cumulative impacts to existing air quality including ambient air quality standards for ground-level ozone, meeting oil and gas sector greenhouse gas reduction targets, and the cumulative impacts of all approved and existing oil and gas operations within the County. The cumulative impacts plan prepared for the COGCC may be used to meet this requirement.

Describe Operations Compliance with AQCC Regulations	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.
Green Completions	E. Reduced Emission (Green) Completions, as defined in COGCC Rule 903.c.1, as may be amended, shall be used for all completions and well workovers.
Best Management Practices	F. The Following Air Quality Best Management Practices shall be required unless an equal or better system exists: 1. Zero emission desiccant dehydrators. 2. Emission controls of 98% or better for glycol dehydrators. 3. Pressure-suitable separator and vapor recovery units. 4. Zero emission 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.
Combustion Devices	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 or combustion shall utilize a flare that has a manufacturer specification of 98% destruction removal efficiency or better; 2. 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; 3. The flare and or combustor shall be operated with a flame present at all times when emissions are vented to it; 4. All combustion devices shall be equipped with an operating auto-igniter; 5. If using a pilot flame ignition system, the presence of a pilot flame shall be monitored using a thermocouple or other equivalent device to detect the presence of a flame. A pilot flame shall be maintained in the flare's pilot light burner at all times when emissions are routed to the flare. A surveillance system shall be in place to monitor the pilot flame and shall activate a visible and audible alarm in the case that the pilot goes out; and 6. 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.
Operation and Maintenance	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.
Electric Power	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.
Air Quality Requirements for New and Existing Facilities	Air Quality Requirements for both new and existing facilities: 1. New and existing O&GF shall utilize operational provisions to the extent practical to reduce emissions on Air Quality Action Advisory Days posted by the 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 unless repairing identified leaks or releases, 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.
Venting Prohibited	2. Venting is prohibited except as allowed in COGCC rules
Flaring Prohibited	3. Flaring is prohibited except as allowed in COGCC rules. When allowed, flaring shall comply with § 11.3.3.G.
Leak Detection and Repair Article 11.3.4.	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 updated at least 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 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 LCDHE and County Local Government Designee (LGD) upon request. D. Repair of leaks shall occur within 72 hours of detection. If a leak is not repaired within 72- hours, the Operator must use other means to stop the leak including, but not limited to, isolating the component or shutting in the well, unless such other means will cause greater emissions. 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. E. Equipment leaks that pose an imminent safety risk to persons, wildlife, or the environment require the Operator to take the most appropriate safety response action, which may include shut down of the affected equipment or facility and not be allowed to resume operation 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.
Odors Article 11.3.5.	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.
Compliance with CDPHE AQCC Regulation 2	B. New and existing oil and gas operations shall comply with the 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 and this §11.3.5. 1. If a resident within ½ mile (2,640 feet) 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 gas 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 within 72 hours of the complaint. If the Operator or County determines that the odor is caused by Operator's operations, Operator shall resolve the odor concern to the maximum extent practicable within 24 hours of receiving the complaint. 2. Oil and gas facilities must not emit odor detectable after dilution with two (2) or more volumes of odor free air at any occupied residence. Two odor measurements shall be made within a period of one hour – these measurements being separated by at least fifteen (15) minutes and taken 25 feet from the exterior wall of the residence. 3. If it is determined that the operator caused odors in violation of County odor requirements, Operators may be required to cease or change operations, notify affected residents, and/or temporarily relocate residents until the O&GF is no longer causing a violation. 4. For both existing and new O&GF, the Operator shall communicate the schedule/timing of well completion activities to all residents within 2,000 feet by mail. Notifications shall be sent between seven and 21 calendar days prior to the start of completion activities. 5. If odor persists after an Operator complies with §11.3.5.B.1, and there are reasonable grounds to believe the O&GF is causing the odor, the County may require the Operator to conduct additional investigation, which may include audio, visual, and olfactory inspections or instrument based (e.g., infrared camera) leak inspections, and take appropriate corrective action based on the results of investigation and the severity of odor. 6. In response to odor complaints the County may require an Operator to collect and analyze a speciated air sample to measure for volatile organic compounds or hazardous air pollutants known to cause potential health risks and have acute health guideline values identified by the Agency for Toxic Substances and Disease Registry and/or CDPHE to further evaluate the risk of the odor. Speciated air sample collection shall be done utilizing a third-party vendor approved by the County.
Odor Mitigation Plan	C. The Odor Mitigation Plan shall include investigation and control strategies which shall be implemented upon receipt of an odor complaint(s), the determination that the O&GF is causing the odor, 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. The utilization of filtration systems and/or additives to minimize, not mask, odors from drilling and fracturing fluids 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. The utilization of enclosed shale shakers 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. 7. Wipe down drill pipe as they exit the well bore each time.
Weld County Has 3 air monitoring stations that began recording data in early 2021	The Weld County Department of Public Health and Environment's Air Quality Program conducts inspections of stationary sources of air pollution, and actively responds to air quality complaints to protect public health and the natural environment.
	Each monitoring site continuously collects ozone and meteorological data. The Missile Site Park also collects data on ozone precursors, specifically NOx and currently hosts a volatile organic compounds (VOC) monitor for the Colorado Department of Public Health and Environment's Air Pollution Control Division.