

COGCC Odor Mitigation Plan

Rule. 426

Overview

This Odor Mitigation Plan is intended to facilitate compliance with Colorado Oil and Gas Conservation Commission (COGCC) Rules and Regulations, Rule 426. Carbon Storage Solutions (CSS) shall employ best practice and mitigation measures for control of odors caused by their operations. All CSS facilities and equipment shall be operated in such a manner that dust does not constitute a nuisance or hazard to public welfare. CSS operations on the subject pad will be conducted in a manner that minimizes odors outside the boundaries of the location.

This plan will serve as site specific guidance and recommended best management practices to properly manage and mitigate odors as part of CSS operations on at this facility. The operator will utilize these general guidelines on this site at the onset of construction activities as well as perform the necessary management throughout the project life.

Background

Front Range Energy (FRE) is a local Windsor, Colorado owned manufacturer of fuel ethanol and other high value co-products. FRE is proud to produce a renewable fuel, which displaces foreign sources of energy while enhancing our national security, cleans up tailpipe emissions, creates American and Colorado jobs, and supports our local, regional, and national economies.

To meet decarbonization targets and to continue to produce clean burning biofuels, FRE created Carbon Storage Solutions, LLC (CSS) --a wholly owned subsidiary of FRE-- to manage carbon dioxide emissions from the facility. To that end, CSS seeks to develop a project that will capture the CO₂ emissions derived from the ethanol fermentation process and sequester the CO₂ proximal to the FRE facility, creating a net-negative transportation fuel. As part of the Project feasibility, CSS will need to drill and test a single stratigraphic test well to examine the feasibility of the subsurface formations for the geologic storage of carbon dioxide.

Area of Impact

The stratigraphic test well will be located in the vicinity of the ethanol plant on property owned by FRE (see map). The FRE facility is located within the Kodak industrial park.

Upon gaining all required approvals, CSS and their contractors will create a well pad location and access way on FRE property. A drilling rig will be brought to location to drill to a depth of approximately 9,500 feet below the land surface. The well will be drilled and managed according to all rules and regulations set forth by the COGCC. During the drilling operations, rock, water, and geophysical well logs will be collected from the wellbore to determine the overall project feasibility of geologic sequestration at the site. The data collection plan follows the guidance and best practices defined by the Environmental Protection Agency for carbon storage feasibility assessment. Once testing is complete the well will be cased, and temporarily suspended according to COGCC regulations, while the CO₂ storage assessment is completed.

The surrounding area is comprised primarily of industrial sites including the Haliburton Sand Facility to the south, rail lines border the western and northern edge that service the Kodak industrial park area. The east and southeast of the site are comprised of agricultural areas. The proposed location is not within a disproportionately impacted community and the nearest residential building unit is greater than 2,001 feet from the edge of the pad.

General

CSS will employ Best Management Practices (BMPs) & mitigation measures for handling and disposing of E&P waste, including drilling mud and cuttings. Wastes stored onsite will be stored in compatible containers that are regularly inspected to ensure they are in good condition and free of excessive wear, structural issues or other defects that may impact their effectiveness. A closed-loop system will be used during drilling operations. No pits will be used on drilling locations.

I – Mitigation Practices 426.a.

Mitigation measures will be applied to the subject location in accordance with rule 426.a. when appropriate through one or more proposed methods. CSS will monitor compliance with the odor Mitigation Plan through periodic reviews.

BMPs and Mitigation Measures include, but are not limited to:

A. *All Phases*

1. CSS will not allow burning of debris to occur on the proposed site as per applicable codes. This provision does not include emergency flares.
2. CSS will require all non-essential vehicles to be shut-off to prevent excessive idling.

B. *Drilling*

1. Drilling rig engine exhaust will be directed up and away from the occupied buildings located to the approximate vicinity of the location.
2. CSS will utilize a freshwater mud system for surface hole.
3. CSS will be using Group II Oil Based Mud for drilling of the production string with Polycyclic Aromatic Hydrocarbon content 11-12% by weight.
4. Due to the low VOC and BTEX counts of the Group II System, odor neutralizer is not anticipated.
5. CSS will store oil-based drilling fluid not being used in the active mud system in closed, upright tanks.
6. In an effort to keep odor from oil base cuttings as low as possible, CSS will continuously haul cuttings to an approved disposal facility throughout the drilling process.
7. CSS will not stockpile cuttings or store any large amount of cuttings on location. Trucks will run continuously to keep the volume of cuttings on location at a bare minimum.
8. Upon tripping out of the hole, the OD and ID of the drill pipe will be wiped to remove any residual mud.
9. A catch can system mounted around the BOP to catch any mud that falls through the rotary table preventing any spillage and source of odor.

C. *Completions*

1. CSS is drilling this well for stratigraphic testing purposes with the ultimate goal of conversion to an EPA Class VI injection well.
2. CSS does not plan to hydraulically fracture the well once it is drilled and cased.
3. CSS does not anticipate any flowback fluids from this well.

D. *Production*

1. CSS does not plan to produce this well, therefore there will be no odors associated with production activities at this location.

E. *Testing*

1. The stratigraphic testing that will occur does not include any fluid flowback, therefore there will be no odors associated with the testing of this stratigraphic well.

II - Odors within Oil and Gas Locations 426.b.

CSS will conduct all operations at the stratigraphic test well site in a manner that minimizes odors outside the boundaries of the location. Sealed tanks with pressure relief valves and emissions control devices will be utilized throughout operations.

III - Oil and Gas locations within 2,000 feet of a building unit or DOAA 426.c.

The anticipated well pad is located within 2,000 feet of a "Building Unit" (as defined by COGCC). There are 7 building units, based on the square footage determination per the COGCC definition of "Building Units" within 2,000 feet of the site. There are only xx physical buildings that qualify as a "Building Unit" per COGCC definition within 2,000 feet of the location. All proximate Building Units and parcels within the vicinity of the Strat test Pad site are zoned as Industrial: I-1. There are NO Residential Building Units within 2,000 feet of the Strat Test Pad Site. CSS will use current and appropriate BMPs and mitigation measures as described in Section I.A-D to minimize odors from the proposed location.

IV - Complaint System 426.d.

If CSS is notified of a complaint, the community relations department will dispatch a CSS employee to further investigate. The team member contacted will depend on which phase of operations the site is currently in. Once the team member is able to investigate, they will report their findings back to the community relations department. If it is determined that additional mitigation is needed, GWOC will work to complete the mitigation measures. Timing will depend on which mitigation measures are needed. If requested, within 24 hours of receiving a complaint, CSS will provide the Director, the Relevant and/or Proximate Local Government, and the complainant (should the complainant request notification) with a complete description of all activities occurring at the facility during the timeframe specified in the complaint. CSS understands that the Director may require necessary and reasonable actions to reduce odors including, but not limited to, conducting air sampling to measure volatile organic compounds.

V - Cumulative Odors 426.e.

CSS understands that the Commission may require the operator to adopt additional BMPs and mitigation measures as conditions of approval or through guidance to minimize odors in areas with high concentrations of oil and gas activities that may expose one or more Building Units or Designated Outside Activity Areas to odor from oil and gas sources.

VI - Summary of All Applicable BMPs for Odor Mitigation Plan.

A. *Minimization and Mitigation BMPs.*

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4. Due to the low VOC and BTEX counts of the Group II System, odor neutralizer is not anticipated.
5. CSS will store oil-based drilling fluid not being used in the active mud system in closed, upright tanks.
6. In an effort to keep odor from oil base cuttings as low as possible, CSS will continuously haul cuttings to an approved disposal facility throughout the drilling process.
7. CSS will not stockpile cuttings or store any large amount of cuttings on location. Trucks will run continuously to keep the volume of cuttings on location at a bare minimum.
8. Upon tripping out of the hole, the OD and ID of the drill pipe will be wiped to remove any residual mud.
9. A catch can system mounted around the BOP to catch any mud that falls through the rotary table preventing any spillage and source of odor.
10. CSS does not plan to hydraulically fracture the well once it is drilled and cased.
11. CSS does not anticipate any flowback fluids from this well.
12. CSS does not plan to produce this well.
13. The stratigraphic testing that will occur does not include any fluid flowback.