

BCU 14L Well Pad

Dust Mitigation Plan

**COGCC Rule 304.c.(5)
COGCC Rule 427. Dust**



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1. INTRODUCTION

The BCU 14L Dust Mitigation Plan was developed in compliance with Colorado Oil and Gas Conservation Commission's (COGCC) Rule 304.c.(5) *Dust Mitigation Plan* and Rule 427 *Dust* under 400 Series of the COGCC Rules. The BCU 14L Dust Mitigation Plan addresses the requirements of COGCC Rule 304.c.(5) as part of the Form 2A Location Assessment Permit Application.

2. BCU 14L WELL PAD

Laramie Energy, LLC (Laramie) (Operator # 10433) is pursuing a Form 2A for an Oil and Gas Location Assessment permit in Mesa County, Colorado. The BCU 14L well pad (BCU 14L) was previously permitted as an Oil and Gas Location, but never constructed. The subject Form 2A is an amendment to an existing COGCC location, Location # 391336. Laramie is proposing to drill 10 new directional wells at the BCU 14L. The BCU 14L is adjacent to existing infrastructure, reducing surface disturbance proposed in the 2022 BCU 14L Oil and Gas Development Plan (OGDP).

The site's location is centralized to Laramie's North Vega operations area and will be tied into to existing infrastructure to minimize dust and traffic impacts. Laramie operates support facilities in the area that will accommodate operations at the BCU 14L. Laramie is the Surface Owner of the location and subject parcel. Laramie is also owner of the adjacent parcels to the west and north.

Laramie will utilize a closed-loop drilling system at the BCU 14L. Only water-based bentonite drilling fluids, not oil-based fluids, will be utilized for the 10 wells. The site will operate in accordance with applicable local, state, and Federal regulations.

The parcel is located 11 mapped miles east of Collbran, Colorado. The BCU 14L is located approximately 882 feet south (mapped distance) from the nearest public road, Highway 330.

OGDP Title: 2022 BCU 14L OGDP

Location Name: BCU 14L

Location ID: 391336

Legal Description: SWSW of Section 14, Township 9 South, Range 93 West, 6th P.M.

Location Coordinates: Latitude: 39.272724°; Longitude: -107.744654°

Elevation: 7394 feet

County: Mesa County

Zone District: Agricultural, Forestry, Transitional District (AFT)

Operations will be conducted in the following phases at the BCU 14L: construction, drill rig mobilization, drilling, production installation, completions and flowback (including equipment mobilization, staging, and demobilization), production, interim reclamation, inspections, and final grading/reclamation of the site. Phases may occur simultaneously at

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the site. Inspection activities will occur during the lifespan of the site. Laramie anticipates that the well pad will remain in production for approximately 30 years, based on the average lifespan of a well site within the North Vega operations area. **Table 1** details the anticipated timeframe for each operational phase.

Table 1. Timeframe for Operational Phases at the BCU 14L Well Pad

Phase/Activity /Stage	Timeframe (Days)
Construction	30
Drilling Mobilization	4
Drilling	42
Drilling Demobilization	4
Production Installation	21
Completions Mobilization	10
Completions and Flowback	34
Completions Demobilization	10
Interim Reclamation	14
Production	Up to 30 years
Inspection Activities	Will Occur During All Phases

3. BCU 14L WELL PAD DUST MITIGATION PLAN

The BCU 14L Dust Mitigation Plan (DMP) details the treatment of unpaved roads and disturbed surfaces to reduce dust produced by vehicle traffic, and construction activities, or wind. The application of the DMP will reduce airborne particulate matter during operations and vehicular transportation to ensure compliance with COGCC and local jurisdictional requirements.

Laramie implements fugitive dust controls throughout the North Vega operations area. Employees are trained to identify conditions and operate to minimize fugitive dust emissions. The subject pad will comply with standards as stated in COGCC Rule 427 Dust section of the 400 series.

In order to minimize and mitigate fugitive dust, Laramie has incorporated several practices. Appropriate speed limits have been designated for vehicles on unpaved roadways. Restriction of land disturbance construction activity during high-wind days are also enforced. Field employees will notify operations if dust is observed. Water trucks are utilized to wet roadways, as needed, when natural moisture is insufficient to prevent airborne dust. Water trucks apply magnesium chloride or fresh water to roadways depending on location. Laramie’s access roads within the transportation route are treated with fresh water to reduce dust emissions.

4. SOIL TYPE – COGCC RULE 427.a.(1)

A soils report from the Natural Resource Conservation Service (NRCS) indicates that within

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the BCU 14L Area of Disturbance, Working Pad Surface, and adjacent surrounding area the dominant soil is the Pagoda-Hesperus complex (Map Unit 53) soils.

Pagoda-Hesperus complex (Map Unit 53)

The Pagoda-Hesperus complex soil unit is composed of Pagoda and similar soils (50%), other soils (30%), and Hesperus and similar soils (20%). The Pagoda-Hesperus complex, 12 to 40 percent slopes, occurs in elevation of 7,400 to 8,800 feet and is classified as not prime farmland. This map unit is on foothills and old mudflows. It formed in colluvium and alluvium derived dominantly from shales. The vegetation in areas that are not cultivated is mainly Gambel’s oak, nodding brome, mountain brome, elk sedge, Saskatoon serviceberry, and Columbia needlegrass. Runoff is medium or rapid, and the hazard of water erosion is very severe.

Table 2. Description of Pagoda-Hesperus complex (Map Unit 53) Composition

Composition	Landform	Parent Material
Pagoda	Mudflows	Alluvium derived from shale and/or colluvium derived from shale
Hesperus	Hills	

The Pagoda is a well drained clay/clay loam with a high water supply of about 10.9 inches. Pagoda is classified as hydrologic soil group C and permeability is slow. The available water capacity is moderate. The effective rooting depth is 60 inches or more. The Pagoda soil is deep and well drained. It formed on hillsides and old mudflows derived dominantly from shale.

The Hesperus soil is deep and well drained. It formed in colluvium and alluvium derived dominantly from shale. Permeability is moderately slow in the Hesperus soil. The available water capacity is high. The effective rooting depth is 60 inches or more.

Table 3. Pagoda-Hesperus complex (Map Unit 53) Profile

Location	Composition	Typical Profile		
Area of Disturbance, Site-Specific Access Road, Surrounding Area	Pagoda	A - 0 to 6 inches: clay loam	Bt1 - 6 to 17 inches: clay loam Bt2 - 17 to 27 inches: clay	Bk - 27 to 60 inches: clay
	Hesperus	H1 - 0 to 7 inches: loam	H2 - 7 to 60 inches: clay loam, loam	

5. PROPOSED VEHICLE SPEED LIMIT – COGCC RULE 427.a.(2)

Vehicles will utilize private and public roads to access the BCU 14L. Approximately 0.5 miles of unpaved, existing gravel private access roads will be used to reach the BCU 14L. Private access roads are comprised of existing private lease roads and private access on Laramie’s property. Laramie owns and maintains access roads on Laramie own surface. Private access unpaved roads maintained by Laramie within the North Vega operations

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area will not exceed speeds of 25 miles per hour (m.p.h.) During dry conditions or when dust is visible, vehicles will reduce speeds based on conditions. Field employees will notify operations if dust is observed.

6. SOIL DISTURBANCE – COGCC RULE 427.a.(3)

The construction of the BCU 14L will result in approximately 6.02 acres of disturbance. Private access roads near the proposed well pad are existing. Laramie will have to construct a minor spur off of an existing access road to provide an entrance to the BCU 14L. The site-specific access road will result in 0.05 acres of disturbance. Existing infrastructure is located near the well pad and pipelines will be installed within the shoulder of the access road except for 152 feet outside the access road disturbance. In order to tie into the existing pipeline, the proposed pipeline alignment will result in 0.17 acres of new disturbance. The Area of Disturbance will be 5.8 acres and the Working Pad Surface will be 2.9 acres. The short-term disturbance will be 6.02 acres, which includes the Area of Disturbance, Site-specific access road, and new pipeline segment. The pipeline disturbance will be reclaimed following installation.

Interim reclamation will begin after all wells are drilled and completed as planned with production facilities installed at the pad. During interim reclamation, the cut and fill slopes will be reshaped and contoured, reclaiming approximately 4.1 acres. The long-term disturbance associated with this pad will be 1.75 acres for the production phase (1.7 acres for Production Pad Surface plus 0.05 acres for the site-specific access road).

Table 4. Disturbance Acreage– BCU 14L Well Pad

Well Pad	Disturbance in Acres
Area of Disturbance	5.8
Site-Specific Access Road	0.05
Pipeline Disturbance	0.17
Working Pad Surface (included within Area of Disturbance)	2.9
Total New Disturbance	6.02
Area to be Interim Reclaimed	4.1
Production Pad Surface (after Interim Reclamation)	1.7
Long-Term Disturbance (Production Pad Surface + Site-Specific Access Road)	1.75

7. ACCESS ROAD – COGCC RULE 427.a.(4)

The BCU 14L will be located on Laramie owned parcels. The adjacent landowner (nearest RBU Owner) has deeded access through Laramie owned parcels to access their property. The existing network of private access road which will be used to access the BCU 14L is not site-specific and allows the nearest RBU owner to access their property.

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The site-specific access road will connect to the existing access roads and will result in 0.05 acres of disturbance. Laramie will apply gravel to the BC 14L site-specific access road and well pad. Initial gravel application shall be a minimum of 6 inches. Laramie will provide timely, year-round road maintenance and cleanup of private, Operator owned access roads. A regular schedule for maintenance will include, but not be limited to, blading, ditch and culvert cleaning, road surface replacement, and dust abatement.

Unpaved roads and staging areas operated by Laramie shall be watered three times daily when being used by construction vehicle traffic to maintain no visible vehicle travel dust emissions. Laramie will maintain the site-specific access road for the BCU 14L, which is located on private property.

8. TRUCK TRIPS – COGCC RULE 427.a.(5)

The following **Table 5** summarizes the expected average Vehicles Per Day (VPD) trips and maximum trips per activity for the operational life of the well pad. One (1) vehicle accessing the pad will result in two (2) trips: one trip for entering the site and one trip for leaving the site.

Table 5: Trip Generation – Total Trips Accessing BCU 14L Well Pad

STAGE	TIME INTERVAL (DAYS)	TOTAL MAXIMUM TRIPS GENERATED PER ACTIVITY	AVERAGE VPD TRIPS PER ACTIVITY
Construction	30	200	6.7
Drill Rig Mobilization	4	111	27.8
Drilling	42	720	17.1
Drilling Demobilization	4	111	27.8
Production Installation	21	168	8
Completions Mobilization	10	444	44.4
Completions; Flowback	34	1360	40
Completions Demobilization	10	444	44.4
Production			2
Interim Reclamation	14	64	4.6
Inspections			0.07
Final Reclamation	-	-	-

The first 169 days of operations will incur the most vehicular trips, encompassing mobilization, drilling, completions, and flowback activities. After interim reclamation activities, vehicle trips will average 60 trips per month (an average of 1 vehicle accessing the well pad daily).

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9. SUPPRESSING FUGITIVE DUST – COGCC RULE 427.a.(6)

During construction and earthwork activities, employees and contractors will report if wind speeds increase, and dust is observed. Laramie will implement dust abate measures, as stated in the DMP, to reduce and prevent dust caused by wind.

To prevent dust from wind when the site is not actively being accessed, Laramie will employ watering. Inactive excavated or graded soils and soil piles shall be sufficiently watered or sprayed with a soil stabilizer to create a surface crust or shall be covered.

Employees and contractors will be notified if weather events that may promote dust are predicted or observed.

Table 6: Fresh Water Source – BCU 14L Well Pad

NAME	OWNER	PARCEL #	COORDINATES: LATITUDE/ LONGITUDE	WATER SOURCE
Groundhog Gulch Pond	Laramie Energy, LLC 1001 17 th Street Suite 1900 Denver, CO 80202	2661-282-00-319	39.251261°/ -107.781546°	Pond (Surface Water)
Currier Reservoir	Water Source Vander Laan Merial C PO Box 27059 Denver, CO 80227-0059	2657-071-00-003	39.290369°/ -107.718387°	Reservoir (Surface Water)
	Buzzard Creek Take Out Laramie Owned Surface Laramie Energy, LLC 1001 17 th Street Suite 1900 Denver, CO 80202	2661-143-00-288	39.274981° / - 107.743452°	

10. MINIMIZING FUGITIVE DUST – COGCC RULE 427.b.

Laramie will adhere to COGCC Rule 427.b. Laramie will implement fugitive dust controls throughout the North Vega operations area as stated in the BCU 14L Pad Dust Mitigation Plan to minimize dust caused by operations. The Groundhog Gulch Pond is located on property owned by Laramie. Laramie owns the water rights of Groundhog Gulch Pond. Water from the pond is an available source when there are no calls on the river. Historically, the Buzzard Creek goes on call during late spring and remains on call until September. During years of reduce precipitation, the water may go on call at Cameo (Colorado River). When Buzzard Creek is not on-call, Laramie is able to fill Groundhog Gulch Pond. Groundhog Gulch Pond is also able to receive irrigation water run-off from Erie Canal during the irrigation season. Fresh water may also be purchased from Currier Reservoir. The Currier Reservoir established water rights is sourced from the reservoir supplied by Sheep Creek. Fresh water transported via truck will be used for drilling activities and/or dust abatement

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11. APPLYING DUST SUPPRESSANT – COGCC RULE 427.c.

Laramie will utilize fresh water and/or magnesium chloride as a dust suppressant depending on conditions and location. Any chemical-based dust suppressant shall be applied per manufacturer’s recommendations and in sufficient quantities to maintain compliance.

11.1. PROHIBITED FLUIDS FOR DUST SUPPRESSION – COGCC RULE 427.c.1.

Laramie will not apply the following fluids for dust suppression as state in COGCC Rule 427.c.(1):

- Produced water
- E&P Waste or hazardous waste
- Crude oil or any oil not specifically designed for road maintenance
- Solvents
- Any process Fluids

11.2. DUST MITIGATION NEAR WATER BODIES - COGCC RULE 427.c.(2)

Laramie will adhere to COGCC 427.c.(2) and will only utilize fresh water (*potable or non-potable*) to conduct dust suppression activities within 300 feet of the ordinary high-water mark of any water body. Fresh water sources are detailed in **Table 6**.

11.3. SAFETY DATA SHEETS – COGCC RULE 427.c.(3)

Laramie will maintain SDS for any chemical-based dust suppressant utilized in within the BCU 14L working pad surface and access road. Records will be made available upon request. Any chemical-based dust suppressant shall be applied per manufacturer’s recommendations and in sufficient quantities to maintain compliance.

12. SURROUNDING AREA - COGCC RULE 427.d.

The DMP was designed to mitigate and minimize dust impacts to any receptors, including building units, wildlife and vegetation in the surrounding area.

There are two RBUs within 2,000 feet of the BCU 14L as described below.

RBU Owner	RBU Distance	Direction
R&SPENS&CO	1192 Feet	SE
JULIUS EQUIPMENT INC	1812 Feet	SW

Dust and traffic impacts are not anticipated at either RBU. The RBU located 1812 feet is geographically isolated from the BCU 14L by a mountain ridge and vary topography. The RBU is not located on the haul route; therefore, no dust impacts are not anticipated.

The nearest RBU has deeded access through Laramie owned property. Laramie maintains private access roads on Laramie owned surface to provide the adjacent landowner (nearest

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RBU owner) safe and accessible access to their property. Laramie does not maintain access roads on the adjacent's landowner's surface.

HPH (aquatic sportfish waters) would not be impacted associated with dust but rather the impacts from the type of dust suppressant used (such as mag chloride vs. fresh water). Laramie has committed to using only fresh water for dust suppression within 300 feet of the ordinary high-water mark of Buzzard Creek during pre-production and production transportation activities associated with the BCU 14L in order to mitigate potential impacts to aquatic sportfish habitat present along Buzzard Creek.

13. CUMULATIVE DUST IMPACTS – COGCC RULE 427.e.

Laramie shall implement dust abatement measures as needed to prevent cumulative dust impacts from vehicular traffic, equipment operations, or wind events. BMPs such as creating efficient travel routes, reducing vehicular travel when possible, and observing wind and soil conditions will mitigate and minimize fugitive dust.

14. BEST MANAGEMENT PRACTICES – COGCC RULE 427.a.(7)

Laramie has adopted the following best management practices to mitigate dust during construction and transportation activities:

- Vehicles will not travel at speeds over 25 m.p.h. on unpaved roads.
- During dry conditions or when dust is visible, vehicular speeds will be reduced.
- Restriction of land disturbance construction activity during high-wind day.
- Field employees will notify operations if dust is observed.
- Water trucks will be utilized to wet roadways, as needed, when natural moisture is insufficient to prevent airborne dust.
- Water trucks will apply magnesium chloride or fresh water to roadways depending on location.
- Construction activities that occur on unpaved surfaces shall be discontinued during periods when activities are causing visible dust plumes that cannot be avoided by approved dust suppression methods.
- Contractor shall conduct a visual inspection of the vehicle wheels and the wheels of the equipment loaded upon each vehicle to assess the presence of dirt.
- Laramie will use fresh water sources for dust suppression within 300 feet of the ordinary high-water mark of any water body within the North Vega operations area.