

Dust Mitigation Plan

Red Rocks Oil and Gas Development Plan Amendment 2

This Dust Mitigation Plan has been prepared by Desert Eagle Operating, LLC (DEO) for Red Rocks Oil and Gas Development Plan – Amendment 2 in Las Animas County, Colorado. Amendment 2 consists of five proposed conventional vertical helium gas wells. The Plan addresses the Colorado Energy & Carbon Management Commission (ECMC) requirement at Rule 304.c.(5) to prepare a Dust Mitigation Plan and the dust mitigation criteria in Rule 427. The five proposed locations are listed in Table 1.

Table 1. Locations

Location	Qtr Qtr	Section/Township/Range	Lat/Lon
Red Rocks 1-09	SE¼NE¼	Section 1, T30S R55W	37.460372, -103.517227
Red Rocks 1-15	NW¼NE¼	Section 1, T30S R55W	37.465009, -103.522500
Red Rocks 35-01	SE¼SE¼	Section 35, T29S R55W	37.467959, -103.537764
Red Rocks 35-08A	NE¼SE¼	Section 35, T29S R55W	37.473477, -103.536136
Red Rocks 35-10	SW¼NE¼	Section 35, T29S R55W	37.475925, -103.541431

DEO proposes to develop helium gas using one conventional vertical helium gas well at each location. The wells will be drilled with air using a water well-sized drill rig. There will be no drilling mud, hydraulic fracturing, stimulation, or flowback. Freshwater will be used for cementing and dust suppression.

1.0 Soil Type

Natural Resources Conservation Service (NRCS) soil types for the locations, access, and buried off-location flowlines are listed by location in Tables 2 through 6. Soil types are shown on the Form 2A, Soil Unit Maps.

The locations will use existing and new unpaved access roads. Access is shown on the Form 2A, Access Road Maps.

Buried 8-inch polyethylene off-location flowlines will tie into the existing Red Rocks gathering system. Off-location flowlines are shown on the Form 2A, Related Location and Flowline Maps.

Table 2. Soil Type Red Rocks 1-09

Disturbance	NRCS Soil Type	Description
Oil and Gas Location	DaE – Dalerose-Rock outcrop complex	Dalerose-Rock outcrop complex, 3 to 25 percent slopes. The A-horizon is 0 to 5 inches of gravelly fine sandy loam overlaying 5 to 10 inches of gravelly loam. Well drained. The depth to restrictive feature is 6 to 20 inches.
Access	DaE – Dalerose-Rock outcrop complex VT – Villedry-Travessilla complex WC – Plughat-Villegreen complex	See above Villedry-Travessilla complex, 1 to 8 percent slopes. The A-horizon is 0 to 5 inches of silt loam and sandy loam overlaying 4 to 11 inches of silt loam and sandy loam. Well drained. The depth to restrictive feature is 6 to 40 inches.

Disturbance	NRCS Soil Type	Description
		Plughat-Villegreen complex, 1 to 4 percent slopes. The A horizon is 0 to 6 inches of silt loam and loam overlaying 3 to 9 inches of silty clay loam. Well drained. The depth to restrictive feature is 30 to 51 inches.
Flowline	DaE – Dalerose-Rock outcrop complex VT – Villedry-Travessilla complex	See above

Table 3. Soil Type Red Rocks 1-15

Disturbance	NRCS Soil Type	Description
Oil and Gas Location	DaE – Dalerose-Rock outcrop complex	See above
Access	DaE – Dalerose-Rock outcrop complex VT – Villedry-Travessilla complex WC – Plughat-Villegreen complex	See above
Flowline	No new off-location disturbance	No new off-location disturbance

Table 4. Soil Type Red Rocks 35-01

Disturbance	NRCS Soil Type	Description
Oil and Gas Location	DaE – Dalerose-Rock outcrop complex WC – Plughat-Villegreen complex	See above
Access	WC – Plughat-Villegreen complex	See above
Flowline	No new off-location disturbance	No new off-location disturbance

Table 5. Soil Type Red Rocks 35-08A

Disturbance	NRCS Soil Type	Description
Oil and Gas Location	VT – Villedry-Travessilla complex	See above
Access	VT – Villedry-Travessilla complex	See above
Flowline	VT – Villedry-Travessilla complex	See above

Table 6. Soil Type Red Rocks 35-10

Disturbance	NRCS Soil Type	Description
Oil and Gas Location	DaE – Dalerose-Rock outcrop complex VT – Villedry-Travessilla complex	See above
Access	VT – Villedry-Travessilla complex	See above
Flowline	VT – Villedry-Travessilla complex	See above

2.0 Area of Soil Disturbance

Areas of soil disturbance for each Oil and Gas Location are listed in Table 7.

Each Oil and Gas Location will be approximately 1.10 acres with a 1.00-acre Working Pad Surface. The drill rig is the size typically used to drill a water well. It is self-leveling. This minimizes vegetation clearing and soil disturbance to situate the drill rig. The Interim Reclamation area will be stabilized and revegetated in accordance with ECMC Rule 1003.

Table 7. Location Disturbance

Disturbance	Disturbance (ac)
Oil and Gas Location	1.10
Working Pad Surface	1.00
Production Pad	0.20
Interim Reclamation	0.90

Areas of soil disturbance for access are listed in Table 8.

DEO will use existing and new access roads. Access roads will be approximately 15 feet wide.

Table 8. Access Disturbance

Location	Existing Access (ft)	New Access (ft)	New Access (ac)
Red Rocks 1-09	7,160	910	0.31
Red Rocks 1-15	5,240	70	0.02
Red Rocks 35-01	330	140	0.05
Red Rocks 35-08A	1,440	130	0.04
Red Rocks 35-10	0	210	0.07

Areas of soil disturbance for new off-location flowlines are listed in Table 9.

Three of five locations require new off-location flowlines to tie in with the existing Red Rocks gathering system. In that case, off-location flowline corridor disturbance will be an estimated 20 feet wide for installation of a 2-foot-wide flowline trench and 8-inch polyethylene flowline. The trench will be approximately 48 inches deep with 3 feet of soil cover.

Table 9. Off-location Flowline Disturbance

Location	New Off-location Flowline (ft)	New Off-location Flowline (ac)
Red Rocks 1-09	2,050	0.94
Red Rocks 1-15	0	0
Red Rocks 35-01	0	0
Red Rocks 35-08A	1,260	0.58
Red Rocks 35-10	20	0.01

3.0 Whether Access Roads are Paved

Access will be provided using unpaved County Road (CR) 177.9 and unpaved access from CR 177.9 to the Oil and Gas Locations.

4.0 Anticipated Truck Trips

Table 10 lists anticipated durations by phase and truck trips.

Table 10. Anticipated Truck Trips

Phase	Estimated Days	Truck Trips ¹
Construction	2	10

Phase	Estimated Days	Truck Trips ¹
Drilling	5	30
Completion	5	30
Interim Reclamation	10	34
Production (mo/yr)	10 years	16/192

¹Truck trips are one way.

5.0 Best Management Practices

Table 11. Best Management Practices

Activity	Best Management Practices
Speed Restrictions	<ul style="list-style-type: none"> Drivers will be instructed to maintain a speed of 20 mph on the access road to minimize fugitive dust, road wear, and erosion.
Regular Road Maintenance	<ul style="list-style-type: none"> Regular inspection will occur for the access road for evidence of inadequate drainage and formation of potholes. Grading, blading, and filling potholes will be performed to maintain the road surface and discourage vehicles from widening the roadway or contributing to erosion.
Restricting Construction Activity During High Wind Days	<ul style="list-style-type: none"> The 2-day well pad construction will be scheduled to avoid high-wind warnings issued for Las Animas County.
Dust Suppression	<ul style="list-style-type: none"> Blowing soil and failure of the soil to stabilize and form a crust on the location during construction and after interim reclamation will indicate that a dust suppression BMP is needed. In that event, a water truck will be used to wet the pad surface.
Proppant	<ul style="list-style-type: none"> Proppant will not be used.
Interim Reclamation	<ul style="list-style-type: none"> Area not needed for production will be reclaimed in accordance with Rule 1003.
Dust Tracking	<ul style="list-style-type: none"> Aggregate will be placed as needed at the apron where the access road ties into the public road. The aggregate will serve as a wheel shaker and erosion control at the tie in.
Topsoil Stockpile	<ul style="list-style-type: none"> The stockpile will be mounded to prevent loose soils and promote vegetative growth. Wheel packing, a tackifier, seeding practices, or an erosion control blanket will be used to improve short term stabilization. Vegetation will be allowed to establish to stabilize the stockpile, outcompete weeds, and promote soil microbial activity.