



**Twin Bridges Resources LLC**  
Red Rocks  
Helium Gas Wells

**Lesser Impact Area  
Exemption Requests**



This document describes the Lesser Impact Area exemption requests being made by Twin Bridges Resources LLC for the Red Rocks 35-15 exploratory helium gas well in Las Animas County, Colorado. The requested exemptions from Plans that are required under Rule 304.c is being made pursuant to Rule 304.d.(1) and Colorado Oil and Gas Conservation Commission guidance (February 18, 2021).

## 1.0 Noise Mitigation Plan

<b>Exemption Requested</b>	Rule 304.c.(2) Noise Mitigation Plan
<b>Resource Concern</b>	Noise impacts to people and wildlife.
<b>Exemption Circumstance</b>	The resource concern is not present.
<b>Description</b>	Mapped distances and on-site review demonstrate that the nearest residential building unit is approximately 2.7 miles northeast of the edge of the Red Rocks 35-15 working pad surface. There are no high priority habitats within 1 mile of the working pad surface. The area does not support habitat for species of concern. It is dry, heavily disturbed from existing two-track roads, and is near a plugged and abandoned O&G well.

## 2.0 Light Mitigation Plan

<b>Exemption Requested</b>	Rule 304.c.(3) Light Mitigation Plan
<b>Resource Concern</b>	Light impacts to people and wildlife.
<b>Exemption Circumstance</b>	The resource concern is not present.
<b>Description</b>	Well drilling will occur during daylight hours. During production, the location will not be lit.

## 3.0 Geologic Hazard Plan

<b>Exemption Requested</b>	Rule 304.c.(21) Geologic Hazard Plan
<b>Resource Concern</b>	Geologic hazards within 1 mile of the working pad surface. See Form 2A, Geologic Hazard Maps 6a and 6b.
<b>Exemption Circumstance</b>	The resource concern is not present.
<b>Description</b>	A professional geologist has made the determination that a geologic hazard is not present. The professional geologist's self-certification statement is provided below. The individual's qualifications meet the statutory definition at C.R.S. 23-41-208.(1)(b) as follows: the individual is engaged in the practice of geology. He is a graduate of Montana State University (Earth Sciences 1979), University of Wyoming (Geology 1981), and has a Ph.D. in Geosciences from the University of Arizona (1998). He has been professionally engaged in hydrocarbon and helium exploration from 1981 to the present. He was an employee of the Utah Geologic

Survey from 2000 to 2010 (field mapping). He is an Adjunct Professor at the University of Arizona, Department of Geosciences (2017 to present).

#### SELF-CERTIFICATION

The geological information I reviewed includes COGCC GIS Online, Las Animas County Hazard Mitigation Plan (Tetra Tech, Inc. 2016), USGS regional geologic mapping<sup>1</sup>, satellite imagery, topographic analysis (CalTopo), and a stratigraphic columnar section of the local area<sup>2</sup>. The following geologic hazards, including their discussion in the Las Animas County Hazard Mitigation Plan, were evaluated for relevance to the proposed Oil and Gas Location: avalanche; dam/levee failure; drought; earthquake; erosion and deposition; expansive soils; extreme heat; flood; hail; landslide, mud/debris flow, rockfall (collectively, landslide); lightening; severe wind; subsidence; and tornado. Of the potential hazards, landslides were determined to be relevant based on their mapped proximity within 1 mile of the proposed Oil and Gas Location and their relevance to construction of new infrastructure.

A geologic hazard finding from a landslide, and an associated Geologic Hazard Plan, is believed to be unnecessary for this location. A landslide, including the definition provided by Las Animas County, is considered to be the movement of masses of loosened rock and soil down a hillside or slope. Risk areas typically are slopes greater than 30 percent and areas with a history of landslides. Mapped landslide areas in the vicinity of the Oil and Gas Location correlate specifically to canyon areas that reside directly on the Dakota-Purgatoire cliff band, as well as the down canyon exposures of the Morrison Formation. Lithologically, the Morrison Formation is known to include a variety of swelling clays and shales that may increase the risk for unstable slopes and landslides in those areas. This stratigraphy is illustrated by the Geologic Hazard Maps prepared for the location and is highlighted in green in Figure 1, below. These outcrops are greater than 1/2 mile down canyon or more than 250 feet below the proposed surface well pad location. The proposed location is not close to a mesa edge. The location is sited on a thick mesa of stable Dakota Sandstone (shown in red on Figure 1) and relatively flat topography. The location does not have any landslide risk associated with it. Based on this evaluation, there is no risk of landslide affecting the Oil and Gas Location.



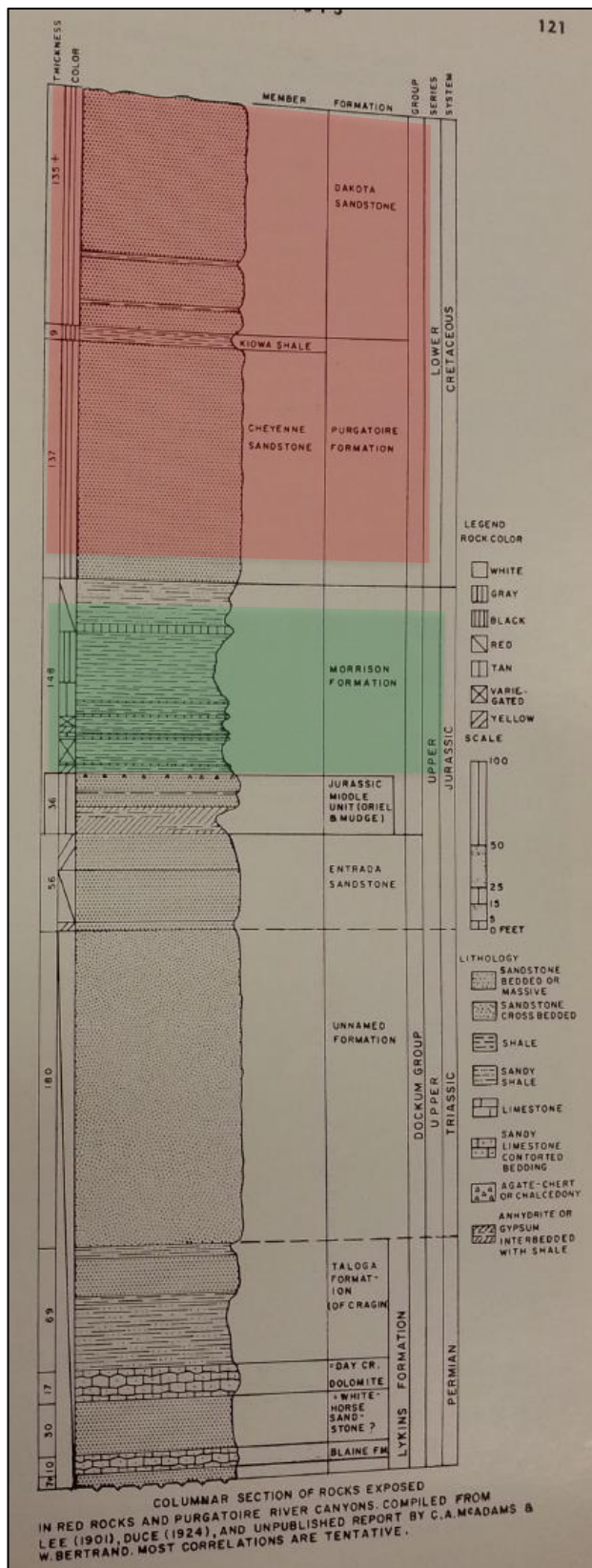
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6/24/21

Date

<sup>1</sup>Scott, 1968. Geologic and Structure Contour Map of the La Junta Quadrangle, Colorado and Kansas. USGS Miscellaneous Geologic Investigations Map I-560. Link: [https://ngmdb.usgs.gov/Prodesc/proddesc\\_9348.htm](https://ngmdb.usgs.gov/Prodesc/proddesc_9348.htm)

<sup>2</sup>McGinnis et. al, 1956. Guide Book to the Geology of the Raton Basin, Colorado. Rocky Mountain Association of Geologists, p.121.



**Figure 1. Stratigraphic Column in the Vicinity of Red Rocks and the Purgatoire River Canyon.**

The figure illustrates the general lithologies of the Lower Cretaceous Dakota Sandstone / Purgatoire Formation composed of massive sandstone (highlighted in red), approximately 250 feet thick. These units comprise the mesa top along CR 177.9 and also comprise the surface geology of the proposed Oil and Gas Location.

From McGinnis et. al, 1956. *Guide Book to the Geology of the Raton Basin, Colorado*. Rocky Mountain Association of Geologists, p. 121.