

# NOISE MITIGATION PLAN CATAMOUNT OUTPOST 33-8 PAD

La Plata County, Colorado



**Prepared For:**

  
**CATAMOUNT**  
ENERGY PARTNERS  
Catamount Energy Partners, LLC  
600 17th St Suite 1400S  
Denver, CO 80202

**Prepared By:**

  
**Cottonwood**  
CONSULTING

Cottonwood Consulting, LLC  
PO Box 1653  
Durango, CO 81302

**Completion Date:** May 27, 2025

**Table of Contents**

1.0	INTRODUCTION .....	1
2.0	PROJECT DESCRIPTION.....	1
3.0	ECMC RULE 423.....	1
4.0	EXISTING NOISE SOURCES .....	2
5.0	PROJECT NOISE SOURCES.....	3
6.0	ANTICIPATED NOISE LEVELS .....	4
7.0	TOPOGRAPHICAL CONSIDERATIONS.....	5
8.0	BACKGROUND NOISE SURVEYS .....	6
9.0	NOISE MONITORING.....	7
10.0	BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES .....	7

**List of Tables**

Table 1.	Maximum Permissible Noise Levels .....	2
Table 2.	Noise Levels at RBU #1 .....	4
Table 3.	Noise Levels at RBU #2 .....	5
Table 4.	Noise Levels at POC #3.....	5

**List of Figures**

Figure 1.	RBU #1 Elevation Profile.....	6
Figure 2.	RBU #2 Elevation Profile.....	6
Figure 3.	Noise Mitigation Map	

## **1.0 INTRODUCTION**

Cottonwood Consulting, LLC (Cottonwood) has prepared this noise mitigation plan for Catamount Energy Partner’s (Catamount’s) proposed natural gas development project in La Plata County, Colorado. Catamount proposes to expand one well pad, construct one temporary tank pad, and drill ten new gas wells. The project is referred to in this noise mitigation plan as the “Outpost 33-8 Pad”.

This plan was created to comply with the requirements of Sections 304.c.(2) of the Colorado Energy and Carbon Management Commission (ECMC) rules. ECMC Rule 304.c.(2) requires that operators submit a noise mitigation plan consistent with the requirements of ECMC Rule 423.a. The plan provides an explanation of how Catamount will comply with the maximum permissible noise levels specified in ECMC Rule 423.b.(1), including a description of proposed measures to mitigate noise impacts. The following document serves as the noise mitigation plan and includes the associated mitigation measures.

## **2.0 PROJECT DESCRIPTION**

Catamount proposes to expand one well pad, construct one temporary tank pad, and drill ten new gas wells in Section 26 Township (T) 33 North (N) Range (R) 8 West (W), New Mexico Principal Meridian (NMPM) in La Plata County, Colorado. Catamount intends to construct the pads and begin drilling the wells in 2025.

The Outpost 33-8 Pad would be located on private land approximately 3.5 miles southwest of Ignacio, Colorado. The elevation of the proposed project is approximately 6,580 feet above mean sea level. Access to the well pad is from existing roads. Catamount would construct a new 270-foot-long access road to access the tank pad.

The well pad would be an expansion and partial pad share of an active well pad operated by Red Willow Production Company (ECMC, 2024a). The tank pad would be located northwest of the well pad.

The proposed well pad would be constructed prior to the drilling rig and tanks being mobilized onto location. Following construction, the phases of the project would include drilling, completion, flowback, and production. Details regarding the individual phases and the associated noise levels are described in detail in Section 3.0. Noise levels are analyzed for the well pad only, since drilling, completion, flowback, and production will occur primarily on the well pad.

## **3.0 ECMC RULE 423**

### Noise Levels

Noise associated with oil and gas development is regulated by ECMC Rule 423. The ECMC sets maximum permissible noise levels that are specific to land use designation and time of day. Operators are required to comply with these standards during oil and gas operations. Table 1 summarizes the maximum permissible noise levels found in ECMC Table 423-1.

Table 1. Maximum Permissible Noise Levels

Land Use Designation	7:00 am to next 7:00 pm	7:00 pm to next 7:00 am
Residential/Rural/State Parks & State Wildlife Areas	55 dB(A)	50 dB(A)
Commercial/Agricultural	60 dB(A)	55 dB(A)
Light Industrial	70 dB(A)	65 dB(A)
Industrial	80 dB(A)	75 dB(A)
All Zones	60 dB(C)	60 dB(C)

Notes: dB(A) – A-weighted decibel; dB(C) – C-weighted decibel

Per ECMC Rule 423.b(2), there are exceptions for drilling, completion, and flowback operations. For these operations in residential, rural, commercial, and agricultural areas, the maximum permissible noise levels are 60 dB(A) in the hours between 7:00 p.m. to 7:00 a.m. and 65 dB(A) in the hours between 7:00 a.m. to 7:00 p.m. In all zones, maximum permissible noise levels are 65 dB(C) in the hours between 7:00 p.m. to 7:00 a.m. and 65 dB(C) in the hours between 7:00 a.m. to 7:00 p.m.

Residential Building Units (RBUs)

ECMC Rule 423 states that for proposed oil and gas locations with a Working Pad Surface within 2,000 feet of one or more Residential Building Units (RBUs), at least one, and no more than six noise points of compliance should be established and evaluated during noise surveys.

There are two RBUs located within 2,000 feet of the Working Pad Surface (see Figure 1). RBU #1 is located approximately 1,643 feet east of the well pad and is and is visible from the pad. RBU #2 is located approximately 1,892 feet north of the proposed well pad and is separated from the pad by the hillside to the north and the associated pinyon-juniper forest. RBU #2 is not visible from the well pad.

Points of Compliance

Per ECMC Rule 423.a(5), noise surveys will be conducted at points of compliance located in the direction of each RBU. The points of compliance will be located at least 350 feet from the Working Pad Surface, and no less than 25 feet from the exterior wall of the RBUs that is closest to the Working Pad Surface. Two points of compliance have been established near each RBU and one point of compliance has been established approximately 995 feet northeast of the well pad in the direction of the two RBUs.

**4.0 EXISTING NOISE SOURCES**

The proposed project is located in an area consisting of oil and gas development and agricultural activities. The largest source of noise in the project area are the existing oil and gas facilities, including the Jaques Compressor Station located less than 0.5 miles west of the Outpost 33-8 Pad, and the adjacent well pads with associated pumping units and engines. Other sources of noise in the project area include traffic along County Road 318 and other roads, airplanes, and agricultural

activities. Noise generated from the proposed project would mix with and add to the existing noise sources in the area.

## **5.0 PROJECT NOISE SOURCES**

Noise would be generated during all phases of the proposed project. ECMC Rule 423.a.(2) requires that operators estimate the duration and anticipated noise level of each stage of operation, including drilling, completion, flowback, and production. Details regarding the different phases, the estimated duration of each phase, and the associated noise level are summarized below.

### Drilling

Catamount would use directional drilling techniques to access the formation. Drilling would begin after the drilling rig has been assembled on the well pad. Once drilling begins, the operation would continue 24 hours per day until the bottom hole location is reached. Noise would be generated during the drilling phase due to traffic, engines and pumps, moving equipment, and the drilling process itself. The noise generated from drilling would be intermittent, short term, and fluctuating. The drilling rig would be on location for approximately 15 days per horizontal well.

### Completion

Following drilling, the project would enter the completion phase, including the use of hydraulic fracturing to stimulate the wells. Hydraulic fracturing is a process used to enhance production by creating or enlarging fractures in the reservoir rocks through the injection of fluids under high pressure. Creating or enlarging fractures within the reservoir rock allows for increased communication within the reservoir and enhances the flow of gas towards the wellbore. Hydraulic fracturing also bypasses any near-wellbore damage within the geologic formation. The fluids used in hydraulic fracturing are primarily composed of water with chemicals added for a variety of purposes, including limiting the growth of bacteria and preventing corrosion of the well casing. A proppant, such as sand, is injected with the fluids in order to keep the fractures open after the stimulation process is complete. Noise would be generated during the completion phase due to traffic, moving equipment, and engines and pumps used to stimulate the wells. The noise generated during completion would be intermittent, short term, and fluctuating. The completion phase of the project would require approximately 10 days per horizontal well.

### Flowback

The vast majority of the hydraulic fracturing fluids would “flowback” to the wellbore for subsequent disposal at an approved facility. Noise would be generated during the flowback phase mostly due to traffic. The noise generated during flowback would be continuous, short term, and consistent with the production phase of the project. The flowback phase of the project would require approximately 14 days to complete.

Production

If economically viable, the proposed wells would enter the production/operational phase following completion activities. The wells would produce gas for subsequent transportation, treatment, and sales. The wells would most likely also produce water in conjunction with gas. Noise would be generated during the production phase due to traffic and production equipment, including pumping units with associated engines. The noise generated during production would be continuous and long term. The anticipated lifespan of the wells would be approximately 30 years.

**6.0 ANTICIPATED NOISE LEVELS**

The anticipated noise levels at each point of compliance were based on noise surveys conducted for the 2017 paper titled *Noise Characterization of Oil and Gas Operations*, published by Cameron Radtke, Daniel A. Autenrieth, Tiffany Lipsey & William J. Brazile in the *Journal of Occupational and Environmental Hygiene* (Radtke et al. 2017). Noise levels were measured at various oil and gas locations during drilling, completion, and production and equipment present on the monitored well pads was similar to equipment Catamount plans to utilize during the project. This equipment includes engines and pumps, moving equipment, the drilling rig, and pumping units with associated engines.

Noise levels were extrapolated to the distance of the RBUs and point of compliance based on the equations from ECMC Rule 423(c)(2)(B):

$$db(A) \text{ distance } 2 = db(A) \text{ distance } 1 - 20 \times \log 10 (\text{distance } 2/\text{distance } 1)$$

$$db(C) \text{ distance } 2 = db(C) \text{ distance } 1 - 20 \times \log 10 (\text{distance } 2/\text{distance } 1)$$

Noise levels were measured at 23 oil and gas well sites in northern Colorado, including production sites and sites where drilling and completion were actively occurring.

Table 2, below, shows the noise levels expected at RBU #1.

Table 2. Noise Levels at RBU #1

Phase	Noise Levels at RBU #1 without sound walls		Noise Levels at RBU #1 with sound walls	
	db(A)	db(C)	db(A)	db(C)
Drilling	51.7	65.7	43.7	59.7
Completion	55.7	66.7	45.7	59.7
Flowback	33.7	50.7	-	-
Production	33.7	50.7	-	-

Notes: Sounds levels at the RBU based on equations from ECMC Rule 423(c)(2)(B). RBU - residential building unit; ft – feet; dB(A) – A-weighted decibel; dB(C) – C-weighted decibel.

Table 3, below, shows the noise levels expected at RBU #2.

Table 3. Noise Levels at RBU #2

Phase	Noise Levels at RBU #2 without sound walls		Noise Levels at RBU #2 with sound walls	
	db(A)	db(C)	db(A)	db(C)
Drilling	50.5	64.5	42.5	58.5
Completion	54.5	65.5	44.5	58.5
Flowback	32.5	49.5	-	-
Production	32.5	49.5	-	-

Notes: Sounds levels at the RBU based on equations from ECMC Rule 423(c)(2)(B). RBU - residential building unit; ft – feet; dB(A) – A-weighted decibel; dB(C) – C-weighted decibel.

Table 4, below, shows the noise levels expected at POC #3, located 995 feet northeast of the well pad.

Table 4. Noise Levels at POC #3

Phase	Noise Levels at POC #3 without sound walls		Noise Levels at POC #3 with sound walls	
	db(A)	db(C)	db(A)	db(C)
Drilling	55.9	69.9	47.9	63.9
Completion	59.9	70.9	49.9	63.9
Flowback	37.9	54.9	-	-
Production	37.9	54.9	-	-

Notes: Sounds levels at the POC based on equations from ECMC Rule 423(c)(2)(B). POC; point of compliance; ft – feet; dB(A) – A-weighted decibel; dB(C) – C-weighted decibel.

Based on these data, without the use of sound walls, dB(C) noise levels at RBU #1, RBU #2, and POC #3 during drilling and completion are expected to exceed ECMC Table 423-1 standards. Catamount plans to utilize sound walls to reduce noise levels below ECMC Table 423-1 standards in the direction of RBU #1 during those phases. Additionally, the topography and vegetation located in the surrounding area will further mitigate noise impacts in the direction of RBU #2 and POC #3 during the project, as discussed in Section 6.0 below.

## 7.0 TOPOGRAPHICAL CONSIDERATIONS

ECMC Rule 423.a(3) requires operators to describe topographical consideration of noise and noise propagation at the proposed oil and gas facility. The Outpost 33-8 Pad is located on a gentle south-southeast facing slope approximately 450 feet north of an intermittent stream. There are hills located to the north, west, and south of the tank and well pad locations. The hills rise approximately 135 feet, 45 feet, and 100 feet above the pads, respectively. These topographical features, and the associated vegetation, influence noise propagation in the project area and will minimize impacts to nearby residences.

Figures 1 and 2, below, show the topographical profile between the proposed wells and RBUs #1 and #2.

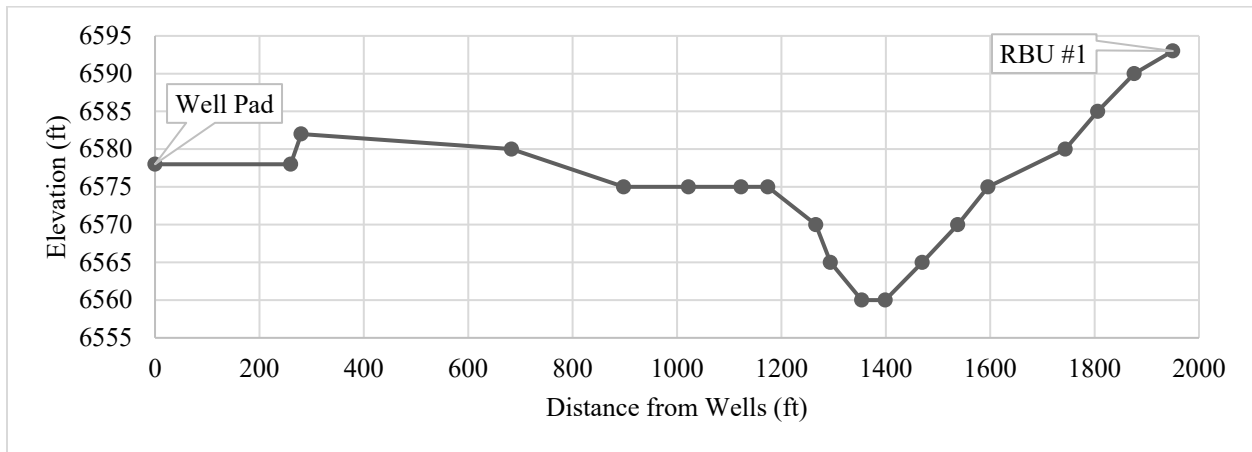


Figure 1. RBU #1 Elevation Profile

Based on the topography between the proposed wells and RBU #1, noise is expected to travel from the well pad to RBU #1. Catamount plans to install sound walls on the north and east corners of the well pad to mitigate noise impacts to RBU #1.

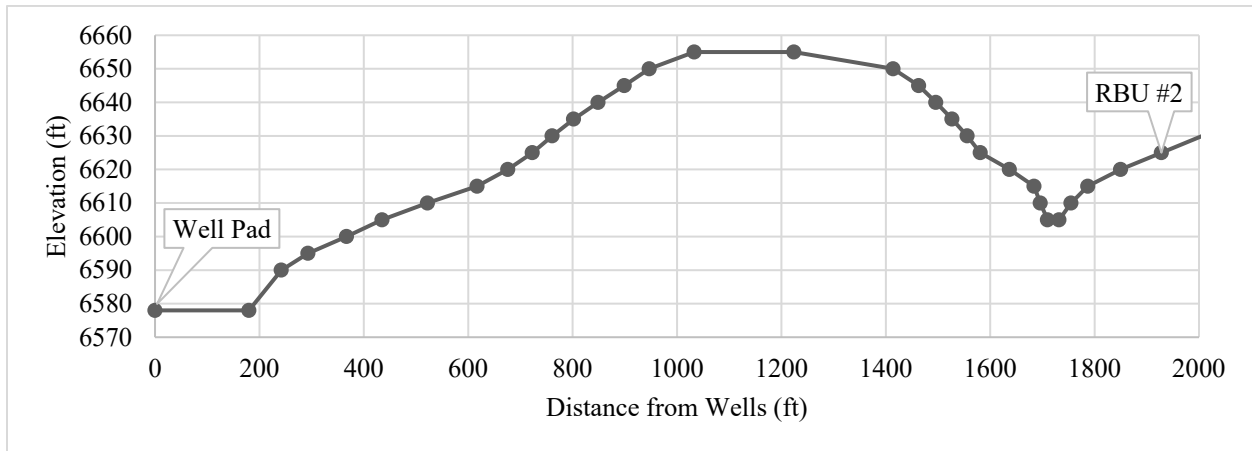


Figure 2. RBU #2 Elevation Profile

The topography between the proposed wells and RBU #2 would minimize noise impacts to RBU #2.

## 8.0 BACKGROUND NOISE SURVEYS

Background noise surveys will be conducted between 30 and 90 days prior to the start of construction and this noise mitigation plan will be updated accordingly based on the results. The background noise surveys will be conducted at the noise points of compliance identified in Section 3.0

The background noise survey will be conducted per ECMC Rule 423.b and over a 72-hour period, including at least 24 hours between 10:00 p.m. on a Friday and 4:00 a.m. on a Monday. A single

cumulative daytime ambient noise level and a single cumulative nighttime ambient noise level will be established by taking the logarithmic average of all daytime or nighttime 1-hour Leq values measured and in accordance with the sound level data collection requirements pursuant to the maximum permissible noise levels. The sound meters and methodology used during the noise surveys will be consistent with ECMC Rule 423.

## **9.0 NOISE MONITORING**

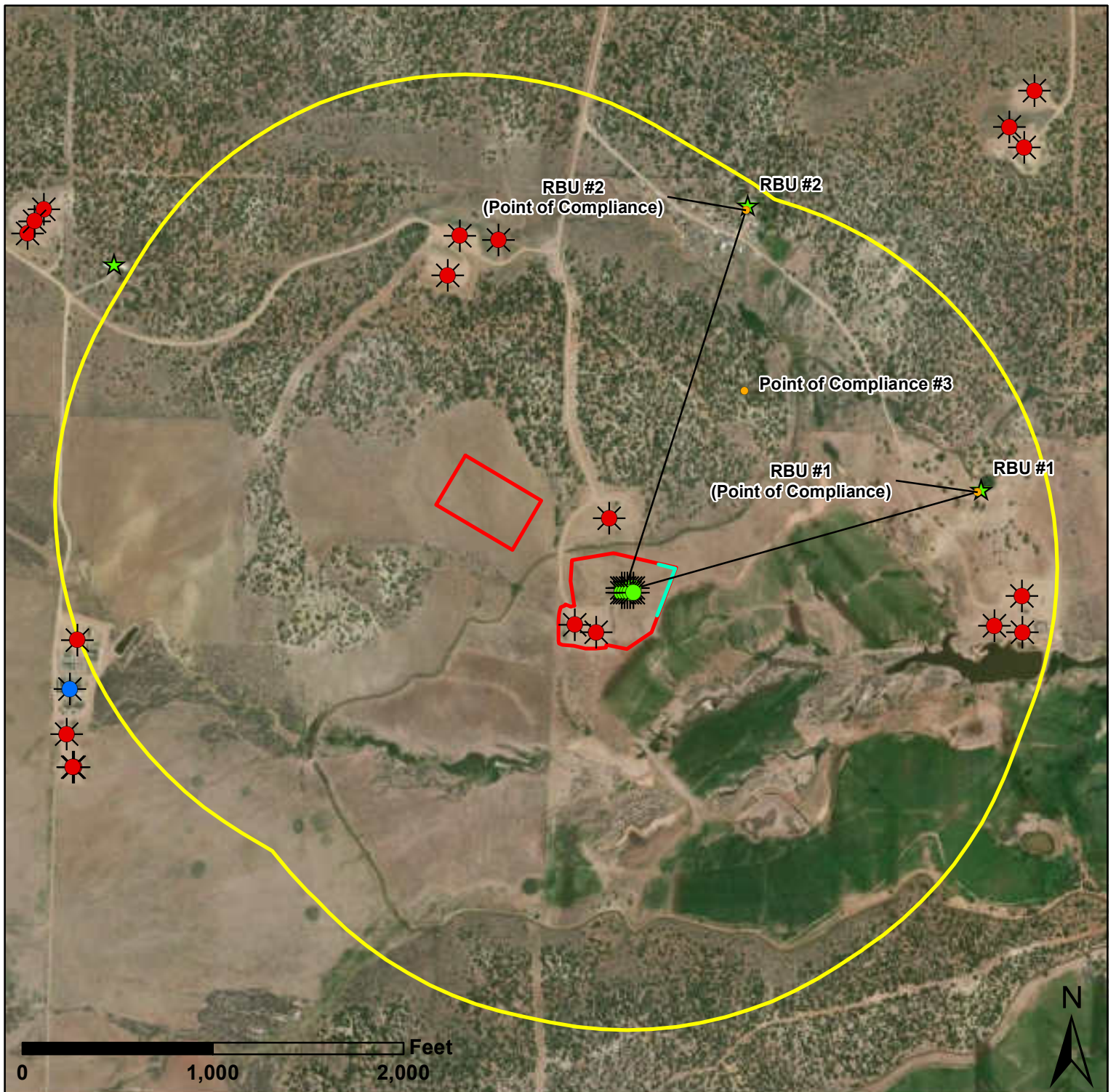
Per ECMC Rule 423.c(1), during pre-production activities and ongoing operations lasting longer than 24 consecutive hours, including drilling, completion, recompletion, stimulation, and well maintenance, in areas within 2,000 feet of an RBU, Catamount will take continuous sound measurements from each noise point of compliance. Catamount will evaluate noise levels to ensure they do not exceed ECMC Table 423-1 standards and will implement additional best management practices (BMPs) as needed based on the results of the monitoring.










## **10.0 BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES**


Catamount will implement the following BMPs and mitigation measures to minimize noise impacts to receptors in the vicinity of the Outpost 33-8 Pad:

- 1) Catamount will comply with the maximum permissible noise levels as outlined in ECMC Rule 423.
- 2) The well pad and tank pad will be sited in a way that minimizes noise impacts. The hillside and associated pinyon-juniper woodlands north of the pad would reduce sound travel to RBU #2.
- 3) Sound walls would be installed during drilling and completion activities.
- 4) The pad would be located adjacent to an existing oil and gas facility in order to mingle noise from the proposed project with existing noise sources.
- 5) Service companies will maintain equipment in a manner that minimizes nuisance noise from moving parts (pumps, engines, etc.).
- 6) Traffic will be kept to a minimum, especially during nighttime hours. Additionally, vehicle speed, revving of engines, and unnecessary engine braking will be kept to a minimum.
- 7) Landowners will be notified of upcoming work in order to address any specific concerns regarding noise.
- 8) Work will be limited to daytime hours, when possible, to minimize nighttime noise impacts.
- 9) Produced water will be transported via underground pipeline to minimize the amount of water hauling traffic at the site.
- 10) Catamount will implement noise-controlling measures, as needed, that could include enclosing noise sources, installing mufflers on equipment, constructing noise obstacles, avoiding the use of compressors, and directing exhaust away from receptors.

**FIGURE**



Legend	
	Working Pad Surface
	Proposed Wells
	2,000ft Buffer
	Point of Compliance
	Topographic Profile
	Proposed Sound Wall
	Residential Building Unit
	Oil & Gas Wells
	Jaques Compressor Station


  
 Mapping by: K. O'Brien, 5/27/2025  
 Coordinate System:  
 NAD 1983 UTM Zone 13 N

Well Pad Location:  
 NENE Sec 26 T33N R8W, NMPM

**Figure 3**  
**Noise Mitigation Map**  
**Outpost Pad Noise**  
**Mitigation Plan**  
**Catamount Energy Partners LLC**