



Outpost 33-8 OGD

Lighting Mitigation Plan CO ECMC Rule 424.Lighting

Prepared for:



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INTRODUCTION

This lighting mitigation plan has been developed to address the requirements as set forth in the Colorado Energy & Carbon Management Commission (CO ECMC) Rule 424.Lighting (400 Series) as required by CO ECMC Rule 304.c(3).

Description of Outpost 33-8 OGDG

Catamount Energy Partners (Operator No. 10464), to be referred to as Catamount, is completing a Form 2A for an Oil and Gas Location Assessment permit in La Plata County, Colorado. Please refer to the General Vicinity Map found as **Appendix A**. This project consists of the development of the Outpost 33-8 Pad which consist of the main well pad to drill complete and produce the wells from and the Temporary Outpost tank Pad with a total of two existing production wells and ten proposed production wells, the associated wells for the pad are provided in **Table 1**. The well pad will be on an expansion of an existing pad location developed on private land owned and managed by Brown, J Paul & Debra A and the Water Tank TUA Pad will be a new pad on private land owned and managed by Jaques, Cordy Et Al. per the La Plata County parcel maps.

Table 1. Associated Wells

Outpost 33-8 Pad	
Existing Wells	
Docar 33-8-26 #6	Docar 33-8-26 #4
Proposed Wells	
Outpost 33-8-23 #1	Outpost 33-8-26 #1
Outpost 33-8-23 #2	Outpost 33-8-26 #2
Outpost 33-8-23 #3	Outpost 33-8-26 #3
Outpost 33-8-23 #4	Outpost 33-8-26 #4
Outpost 33-8-23 #5	Outpost 33-8-26 #5

Location of Outpost 33-8 OGDG

The sites are located approximately 3.33 miles southwest of Ignacio, Colorado. The mileages provided are to describe the general location of the project area and not to be used as driving directions to the two pad locations.

Location of Outpost 33-8 Tank Pad

Legal Description: NWNE, Section 26, T33N-R08W, 6th P.M., La Plata County, Colorado

Location Coordinates: 37.080952, -107.683253 (NAD 83)

Elevation: 6,612 feet

Parcel Number: 595327100812

Location of Outpost 33-8 Well Pad

Legal Description: NENE, Section 26, T33N-R08W, 6th P.M., La Plata County, Colorado

Location Coordinates: 37.079979, -107.680822 (NAD 83)

Elevation: 6,578.5 feet

Parcel Number: 595325200071

OUTPOST 33-8 PAD LIGHTING MITIGATION PLAN (RULE 424.a)

The Outpost 33-8 OGDG Lighting Mitigation Plan (LMP) provides the proposed actions to meet the requirements of CO ECMC Rule 424.Lighting (400 Series) and Rule 304.c(3). The purpose of this plan is to assess and minimize potential impacts from lighting related to the Outpost 33-8 OGDG project. Following this LMP, Catamount will ensure adequate control of lighting from these activities, as well as comply with CO ECMC and local jurisdictional requirements. In addition, Catamount has experience in applying these lighting control measures throughout their operations. Employees are trained to identify conditions and operate to minimize excessive lighting conditions.

STATEMENT OF EXPERTISE (RULE 424.a(1))

The Lighting Site Plans and Diagrams were completed by Mr. Clinton Beck, P.E. with Grouse Mountain Environmental Consultants LLC. He has sixteen years of experience with lighting plan reviews, including design.

This Outpost 33-8 LMP was developed in coordination with Catamount’s Principal and associated Drilling and Completions teams.

LIGHTING MITIGATION PLAN COMPONENTS (RULE 424.a(2))

Catamount anticipates lighting will only be utilized during drilling, completions, and flowback activities on the Outpost 33-8 Well Pad and will result in a maximum of 260 days of lighting.

Table 2. Outpost 33-8 Well Pad Lighting Activity & Duration

Stage	Avg. Time Interval (days)
Drilling	150 Days*
Completions/Drillout/Flowback	70/26/14 Days*
Production	N/A
Total Days:	260 Days

*Includes mobilization and demobilization of large equipment

During these operational phases, personnel are planned to be continuously present onsite. Catamount will minimize continuous on-site lighting if personnel are not onsite or if lighting is not required. Please note that no lighting will be required for the development of the Outpost 33-8 production pad nor will lighting be required during the production phase.

PRE-PRODUCTION FACILITY LIGHTING PLAN (RULE 424.a(2)(A))

Pre-production activities will consist of initial grading, drill rig mobilization, drilling, completions, and flowback. Initial grading and drill rig mobilization will be conducted during daylight hours. Pre-production lighting facility plan is detailed in Section 6 of this LMP.

ADEQUATE LIGHTING (RULE 424.a(2)(A)(i))

Adequate lighting will be provided during pre-production activities to ensure the safety of all personnel within the Outpost 33-8 Well Pad area. Safety procedures, including lighting, are detailed in the Catamount Safety Management Program.

PRE-PRODUCTION LIGHTING SPECIFICS (RULE 424.a(2)(A)(ii))

The drilling phase activities may take an estimated maximum of 150 days for the ten new wells. Helmerich and Payne, Inc. (H&P) and Cyclone Drilling, Inc. has provided lighting details for various drill rigs similar to the one to operate at the Outpost 33-8 Well Pad, as such these specifications were assumed in developing the lighting plans. Lighting utilized during drilling activities is located directly on the drill rig, therefore, the lighting is centered within the site perimeter and lighting is cast downward and outward. For safety reasons, lighting may extend slightly beyond the site perimeter. Where possible, lighting will be directed downward and inward to avoid excess lighting beyond the site boundary. The Drilling Phase Lighting Site Plan and Diagram (**Appendix B**) was developed using photometric calculations to represent site-specific illumination levels for the Outpost 33-8 Well Pad.

Specifications on drill rig lighting fixtures detailing the anticipated location of the drill rig, lighting angles, types of fixtures, and height of application are provided in the Drill Phase Lighting Site Plan Diagram.

During completions and flowback phase activities, the site will be lit to provide adequate lighting for safety of personnel. The completions and flowback activities can take an estimated maximum of 110 days to complete the ten new wells. While most completion activities occur during daylight, personnel may access the site throughout a 24-hour workday period during the flowback phase. All lighting for completions and flowback operations will be cast downward and inward towards the center of the site. Lighting will not extend past the perimeter of the working pad. Portable lighting, such as light plants, will be used during this phase. The Completions and Flowback Phase Lighting Figure, depicting the location of lighting equipment within the site perimeter, is provided in **Appendix C**. This includes the lighting equipment specifications.

TEMPORARY LIGHTING FOR SAFETY (RULE 424.a(2)(A)(iii))

In the event that temporary lighting is required, lighting will comply with the applicable standards and rules pursuant to this LMP and CO ECMC Rules 424.b through 424.f when allowable. In the event of an emergency, Catamount will place a priority on personal safety and will adhere to Rule

424.a(2)(A)(i) to ensure safety to those both present and accessing the site. Lighting safety standards are stated in the Catamount Safety Management Program.

PRODUCTION FACILITY LIGHTING PLAN (RULE 424.a(2)(B))

CO ECMC Rule 424.a(2)(B) is not applicable to the Outpost OGDG. This site will not have fixed lighting installed or utilized during the production phase. Production activities are conducted during daylight hours and do not require lighting.

CO ECMC rule 424.a(2)(B)(iv) is not applicable to the Outpost 33-8 Well Pad. No Building Unit, Residential Building Unit, or High Occupancy Building Unit were located within two thousand (2,000) feet of the proposed well pad.

This lighting plan provides a photometric plan that calculates the illuminance, measured in lux within the pad boundary. This lighting plan, including the appendices, demonstrate that one or more of the proposed methods throughout ensure compliance with CO ECMC Rules 424.d and 424.e.

LIGHTING STANDARDS (424.b)

Drilling, Completions, and Flowback activities will require lighting. Lighting is not required during the Production phase. Lighting standards will apply to all lighting usage, including temporary lighting.

DIRECTION OF LIGHTING (424.b(1))

During completions and flowback, lighting will be directed downward and inward to the center of the Outpost 33-8 Pad. Lighting during the drilling phase will be cast outwards only on necessary points for safety considerations, such as meeting OSHA standards at pad entrance and temporary parking areas. Where possible, lighting will be directed downward and inwards to avoid excess lighting beyond the working pad boundaries.

The Outpost 33-8 Well Pad is located within two thousand (2,000) feet of two residential buildings. Drill rig lighting will illuminate the entire drill rig, which is required for a safe working environment. Lighting will adhere to CO ECMC Rule 424.a(2)(A)(i). The drill rig lighting is pre-configured to direct lighting for these considerations.

LIGHTING BUFFERS (424.b(2))

Catamount will utilize appropriate equipment to reduce light intensity outside the Outpost 33-8 Pad boundaries. For drilling activities, the lighting may be cast slightly along and outside the boundary of the proposed working pad surface for safety. Since the site will be graded along the perimeter, it is vital for personnel accessing the site during drilling operations to be able to identify the edge of the pad. The extent of the lighting extending beyond the working pad boundary is illustrated in

Appendix B and C. Light intensity outside of the pad boundary is minimal and reduces within a short distance from the Outpost 33-8 Pad boundary.

LIGHTING BMPs (424.b(3))

Catamount will implement the following BMPs as allowed by CO ECMC Rule 424.b(3)(D). Lighting is required for drilling, completions, and flowback activities. As noted earlier, production activities will occur during daylight hours and will not require external lighting.

- Utilize low-glare or no-glare lighting wherever possible.
- Conduct lighting inspections to confirm the lighting fixtures are oriented according to this LMP and according to appropriate safety plans.
- Lighting will be turned off when not required, such as when personnel are not on site or if adequate lighting is already supplied, or work is not occurring in the respective area.

PRE-PRODUCTION FACILITY LIGHTING (424.c)

Catamount will require lighting for pre-production activities, including the drilling, completions and flowback phases.

SAFETY (424.c(1))

Adequate lighting will be provided to ensure the safety of all personnel within the Outpost 33-8 Well Pad area. Safety procedures, including lighting, are detailed in the Catamount Safety Management Program.

NOISE BARRIER (424.c(2))

A noise barrier is not proposed for the Outpost 33-8 Well Pad. The site is not within two thousand (2,000) feet of a High Occupancy Building Unit but is within 2000' of two Residential Building Units. Signed informed consent waivers have been obtained from both Residential Building Unit owner.

LIGHTING IMPACTS (424.c(3))

This LMP addresses the lighting impacts to the applicable interests or units as defined by CO ECMC Rule 424.c(3). Catamount will take all necessary and reasonable precautions to ensure that lighting from the Outpost 33-8 Well Pad activities do not unnecessarily impact the health, safety, and welfare of the interests under this rule.

LIGHTING IMPACTS ON RESIDENTIAL OCCUPANCY (424.c(3)(A))

CO ECMC Rule 424.c(3)(A) is applicable. The Outpost 33-8 Well Pad is within two thousand (2,000) feet of two Residential Building Units (RBUs). Both RBUs have signed informed consent waivers from the owners (Kirgis and Brown). The Kirgis RBU is 1890 feet to the northeast and is shielded by a hill. The Brown RBU is vacant and is 1625 feet to the northeast.

LIGHTING IMPACTS ON MOTORISTS (424.c(3)(B))

The Outpost 33-8 Well Pad is located approximately 1.16 miles from the nearest public road. The nearest public road is La Plata County Road 318. Catamount does not anticipate impacts to motorists due to topography and directional lighting. The entrance to this subject parcel and the Outpost 33-8 Well Pad is shown on the General Vicinity Map (**Appendix A**).

LIGHTING IMPACTS ON WILDLIFE (424.c(3)(C))

The Outpost 33-8 OGDG is located within High Priority Habitat (HPH). Mule Deer Severe Winter Range. Land disturbing activities are proposed to take place outside of the timing stipulation periods associated with these HPH areas. Lighting will be cast inward and downward towards the center of the site during the completions phase and will not extend beyond the periphery of the pad location.

PRODUCTION PHASE LIGHTING (424.d)

Catamount does not anticipate using lighting during the production phase at the Outpost 33-8 Well or Production Pads. Lighting will only be located inside building structures with no external lighting. In the event of an emergency or unforeseen events, Catamount will adhere to lighting standards as stated in CO ECMC Rule 424.d.

SAFETY DURING PRODUCTION (424.d(1))

Adequate lighting will be provided to ensure the safety of all personnel within the Outpost 33-8 Well Pad area. Production activities are conducted during daylight hours and will not require lighting. In the event of an emergency or unforeseen event, Catamount will follow the lighting standards within this LMP and the Safety Management Program.

PRODUCTION LIGHTING ZONE (424.d(2))

Production activities are conducted during daylight hours and will not require lighting. In the event of an emergency or unforeseen event, Catamount will follow the lighting standards within this LMP and the Catamount Safety Management Program. Should lighting be required during production operation, lighting will not exceed the 1.25 Lumens per square foot of Working Pad Surface for Rural and HPH areas as specified in CO ECMC Rule 424.d(2).

LOCAL ZONING (424.d(3))

The Outpost 33-8 OGDG is located in La Plata County, Colorado. La Plata County Planning District: Southeast La Plata defines the subject parcel as Undefined. Adjacent parcels to the subject parcel are similarly zoned as Undefined. The La Plata County Planning District: Southeast La Plata Zoning Map (**Appendix D**) provides zoning information and property boundaries for the subject and surrounding parcels.

DIRECTOR DECISION (424.d(3)(A); 424.d(3)(B); & 424.d(3)(C))

The Outpost 33-8 TUA Tank Pad will be a new location developed on private land owned and managed by Jaques, Cordy Et Al (595327100812).

The Outpost 33-8 Well Pad will be a new location developed on private land owned and managed by the Brown, J Paul & Debra A (Parcel 595325200071).

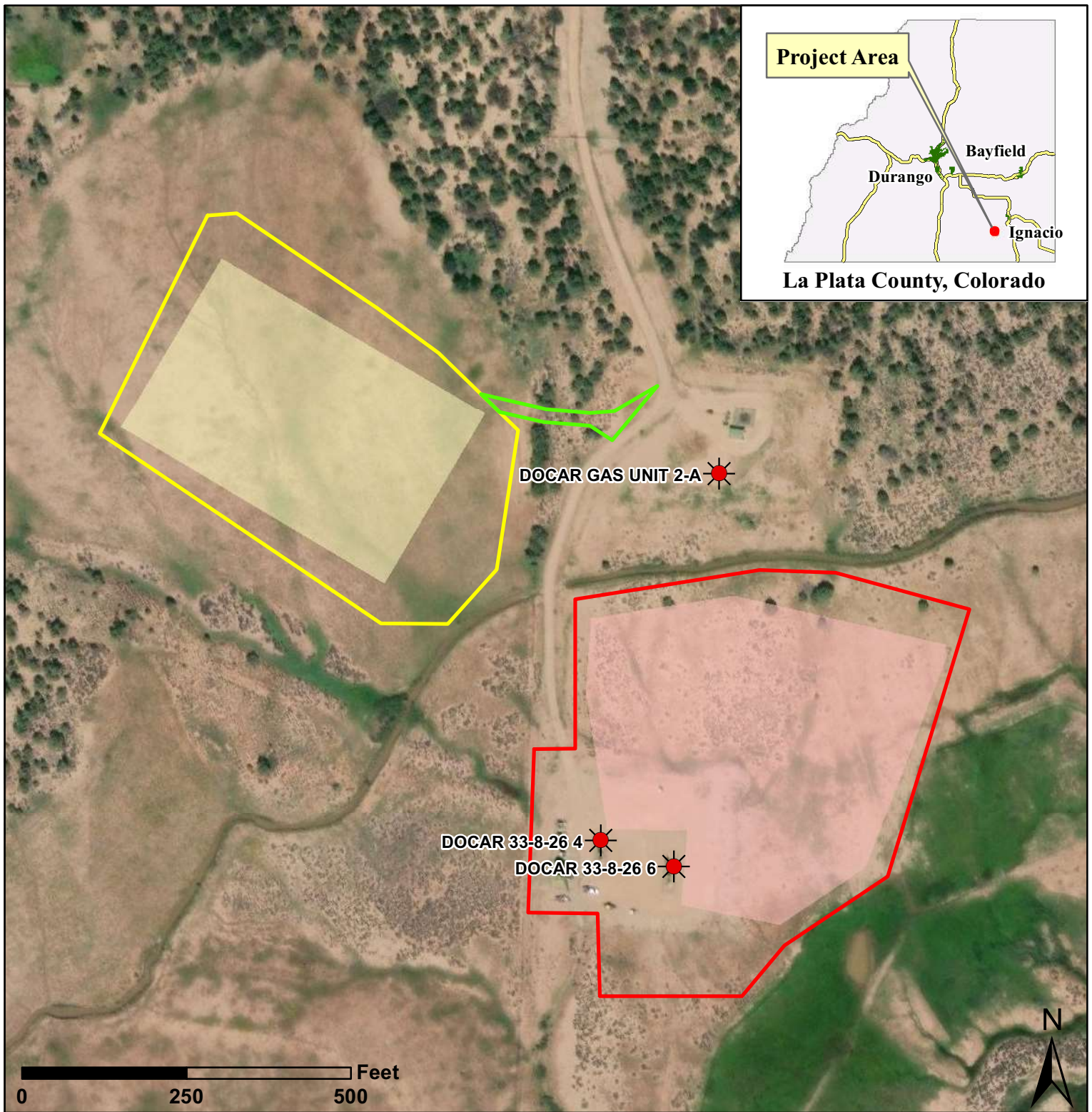
LIGHTING DURING NON-STAFFED HOURS (424.e)

External lights will only be utilized during drilling, completions, and flowback activities. The stated activities will result in a maximum total of 260 days of lighting for the completion of the ten wells (**Table 1**). During these operational phases, personnel will be present onsite. Catamount will minimize continuous on-site lighting if personnel are not onsite. The production phase will not require lighting during routine operations. In the event of an emergency, temporary lighting may be used during the production phase.








CUMULATIVE IMPACT (424.f)

Impacts from cumulative lighting are not anticipated from the Outpost 33-8 Well Pad. The Oil and Gas Development Plan includes ten proposed wells listed in Table 1. The facility will not require external lighting during production operations and personnel will only access the site during daylight hours. Lighting at the proposed Outpost 33-8 Well Pad will only occur during drilling, completions, and flowback phases. No lighting is proposed for the construction of the Outpost 33-8 TUA Tank Pad. The site is within two thousand feet (2,000') of two Residential Building Units with one of the RBUs shielded by a hill and trees and the other RBU is vacant. The site is not within a mile of a High Occupancy Building Unit.

APPENDIX A
GENERAL VICINITY MAP



Notes: The Outpost well pad would be an expansion of the existing well pad for the Docar 33-8-26 4 and Docar 33-8-26 6. No new access road would be required for the well pad and the pipelines would tie into existing infrastructure. The tank pad and access road are temporary use areas that would be reclaimed following drilling and completion.

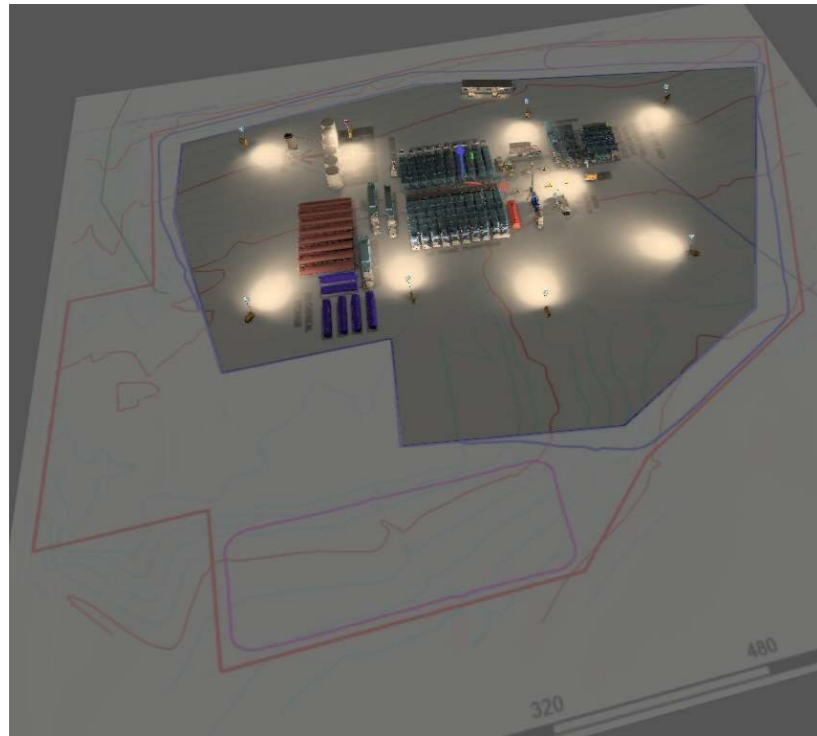
<p>Legend</p> <ul style="list-style-type: none">  Temporary Access Road  Tank Pad Permitted Area  Well Pad Permitted Area  Tank Pad Working Surface  Well Pad Working Surface  Oil & Gas Wells 	<p>Cottonwood CONSULTING </p> <p>Mapping by: E. Millar, 10/29/2024 Coordinate System: NAD 1983 UTM Zone 13 N</p> <p>Well Pad Location: NENE Sec 26 T33N R8W, NMPM</p>	<p>Figure 1 Outpost Pad Catamount Energy Partners LLC</p>
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APPENDIX B
DRILLING PHASE LIGHTING SITE PLAN &
DIAGRAM

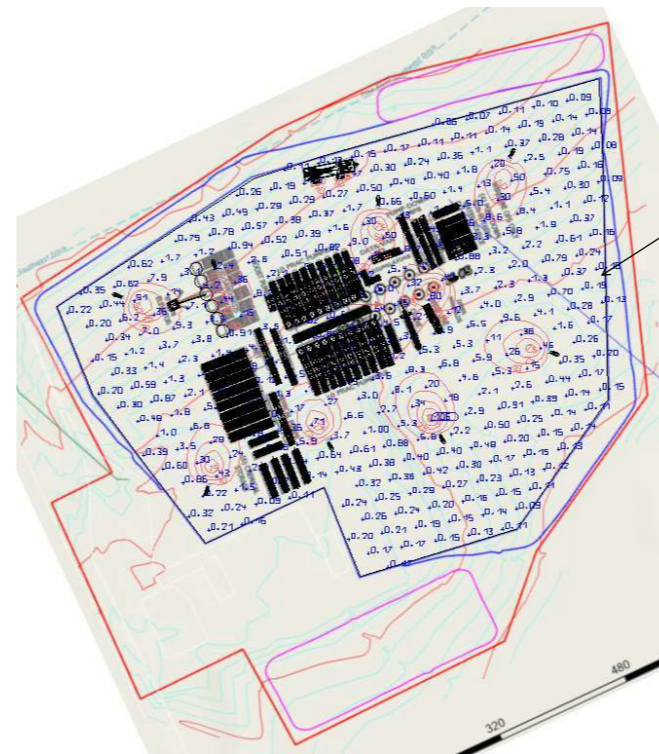
APPENDIX C
COMPLETIONS & FLOWBACK LIGHTING SITE
PLAN & DIAGRAM

W:\VY\Current\Catamount Resources\Output 33-82 OGD\Lighting Plan\Lighting Plan\Lighting Plan - Completions Lighting Plan.dwg LAYOUT1 - PLOTTED: 11/18/2024 9:32 AM BY: CLINT BECK

ISOMETRIC VIEW



SURFACE PHOTOMETRIC RESULTS (FC)



PAD BOUNDARY:
 <1.25 FC STANDARD AT PAD BOUNDARY

LEGEND / NOTES

PHOTOMETRIC CALCULATIONS:
 LIGHTING PATTERN AND INTENSITIES ARE FROM TESTING CONDUCTED IN A LABORATORY SETTING. ACTUAL FIELD PERFORMANCE MAY VARY BASED ON INSTALLATION AND CLIMATIC CONDITIONS.

CALCULATIONS BASED POINT-TO-POINT METHOD USING DIALUX EVO LIGHTING SOFTWARE.

1FC = 1 LUMEN/FT²

EXTERIOR LIGHTING CONCEPTS:

MINIMUM 0.2 FC RECOMMENDED FOR OPEN PARKING AREAS. 2.5 FC MINIMUM FOR ACTIVE WORKING AREAS.

SITE LOCATION:

Legal Description: NE1/4 of Section 26, T33N-R8W, 6th P.M., La Plata County, Colorado

Location Coordinates:
 37.079979, -107.680822 (NAD 83)

Elevation: 6,578.5 feet

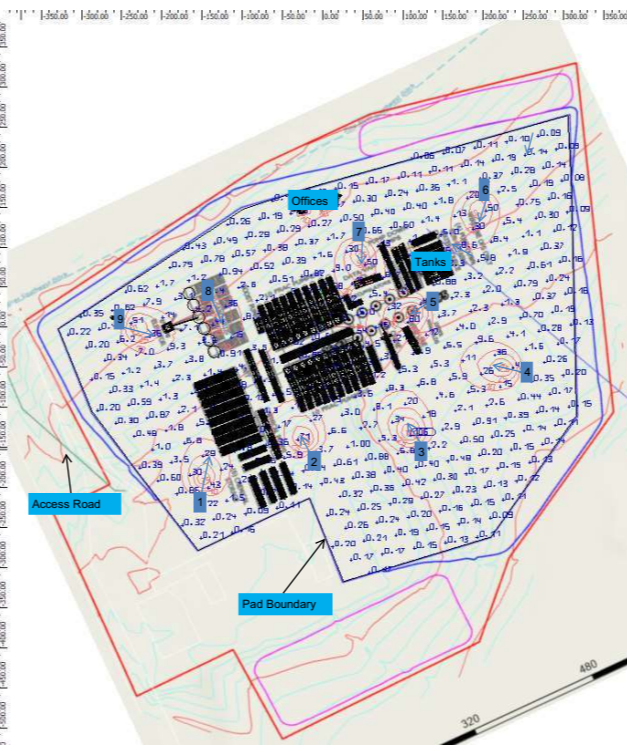
WORKING PAD AREA = 195,149 ft²

LUMINAIRE LIST & SPECIFICATIONS

Item	Part	Luminaire efficacy
19390310	2702010W	71.0 lm/W

Item	Part	Luminaire efficacy
20	047.01	100 lm/W

LIGHTING PLAN



Luminaire ID	Mounting Height (ft)	Type
1	24-26	Allmand
2	24-26	Allmand
3	24-26	Allmand
4	24-26	Allmand
5	24-26	Allmand
6	24-26	Allmand
7	24-26	Allmand
8	24-26	Allmand
9	24-26	Allmand

PRINCIPAL HORIZONTAL DIRECTIONS LEFT AND RIGHT LAMP SETS
 UPPER ALLMAND LAMPS AT 60° TO THE HORIZONTAL
 LOWER ALLMAND LAMPS AT 30° TO THE HORIZONTAL
 ALL DIALIGHT FLOODS AT 45° TO THE HORIZONTAL
 ALLMAND LAMPS AT LOCATIONS 8 AND 10 - LUMINATE ONLY MIDDLE AND LOWER LAMPS



Professional Engineer
Clinton D. Beck, P.E.

P.E.'s Number: 0059532 | State: CO | Date Signed: 11/20/2024

GMEC Project No: 2416090.00
 Date: 11/20/2024
 Grouse Mountain
 760 W. Fetterman St.
 Buffalo, WY 82834
 TEL. 307.684.2112

C.1

No.	Date	Revisions	By	Ckd

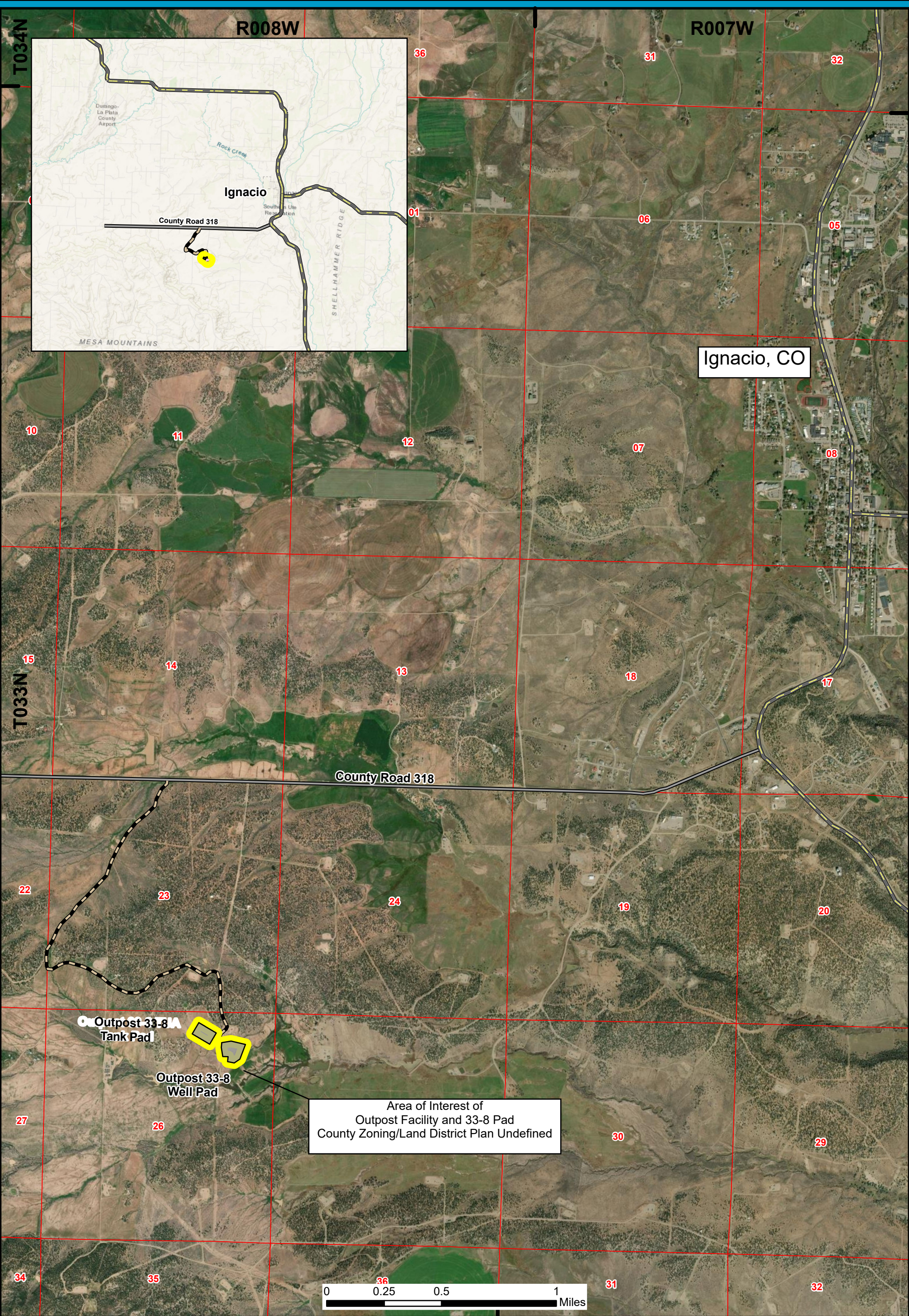


Catamount Energy Partners
**OUTPOST 33-8 OGD
 OUTPOST 33-8 WELL PAD - COMPLETIONS LIGHTING**
 ISOMETRIC SITE AND LIGHTING PLAN - PHOTOMETRIC RESULTS

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(Not To Scale)

APPENDIX D
LA PLATA COUNTY PLANNING DISTRICT:
SOUTHEAST LA PLATA ZONING MAP



Ignacio, CO

Area of Interest of
Outpost Facility and 33-8 Pad
County Zoning/Land District Plan Undefined

Outpost 33-8A
Tank Pad

Outpost 33-8
Well Pad



La Plata County Planning District: South East La Plata Zoning Map

- Well Pad Area
- Existing Access
- Highways
- County Roads

Coordinate System: NAD 1983 UTM Zone 13N
 Projection: Transverse Mercator
 Datum: North American 1983
 Units: Meter
 Scale: 1:24,000
 Date: 11/19/2024
 Created by: gtraylor
 File Name: Catamount_Outpost_33-8_Zoning_11142424

