

Noise Mitigation Plan
COGCC Rule 304.c.(2)
COGCC Rule 423

Cascade Creek 0697-15-08 Well Site
Laramie Energy, LLC

Prepared For:



Laramie Energy, LLC
760 Horizon Drive, Suite 101
Grand Junction, CO 81506

Prepared By:



Entrada Consulting Group
330 Grand Ave, Suite C
Grand Junction, CO 81501

Project Number 021-036

Introduction

Laramie Energy LLC (Laramie) has retained Entrada Consulting Group, Inc. (Entrada) to prepare a noise mitigation plan for submittal to the Colorado Oil and Gas Conservation Commission (COGCC). The following plan addresses the requirements for 423 Noise under 400 Series of the Colorado Oil and Gas Conservation Commission's (COGCC) Rules.

The Cascade Creek (CC) 0697-15-08 Noise Mitigation Plan (NMP) was developed in accordance with Rule 423 and Rule 304.c.(2) to assess and minimize potential impacts from noise. Laramie (Operator # 10433) is proposing to drill 18 wells at the CC 0697-15-08 well site. The CC 0697-15-08 will utilize a closed-loop drilling system for the 18 wells. Drilling, completions, flowback, and production phases will occur at the proposed location.

Location

The site's location is centralized to Laramie's Cascade Creek operations area. The site is located on Parcel #216921400026 within Garfield County, Colorado (**Vicinity Map – Attachment A**). The parcel is owned by Laramie, the Operator. The parcel is located 12.2 miles north of De Beque, Colorado. The site is located approximately 14 miles northeast of De Beque, Colorado and 21.8 miles northeast by access route. The site is located approximately 9.6 miles from the nearest public road, County Road 213. Garfield County designates the subject parcel as the Resource Lands zone district (**Garfield County Zoning Map – Attachment B**).

CC 0697-15-08 Legal description: SENE of Section 15, Township 6 South, Range 97 West, 6th P.M.

Location Coordinates: Latitude: 39.526319°; Longitude: -108.198886°

Noise Mitigation Description – Rule 423.a.

Operations at the CC 0697-15-08 will adhere to applicable COGCC 423 Rules of the 400 Series regulations for noise mitigation.

The CC 0697-15-08 is not located within 2,000 feet of any Residential Building Units, High Occupancy Building Units, School properties, School Facilities, or Designated Outdoor Activity Areas. The subject well site is not located in a High Priority Habitat. The Surface Owner is the Operator, Laramie. The nearest adjacent surface owner, Couey Family, LLLP (Couey) accepts noise levels of the Industrial Zone.

The CC 0697-15-08 NMP was developed in the event a complaint was received. Laramie will collect background ambient noise readings prior to construction. Compliance points are not identified in the subject noise mitigation plan due to the site's location characteristics:

- Resource Lands Zone District

- At a distance greater than one mile to the nearest Residential Building Unit, High Occupancy Building Unit, School property, School Facility, public road, or Designated Outdoor Activity Area
- Not located within a High Priority Habitat
- The Operator is the Surface Owner.
- The Couey, nearest adjacent parcel owner, has signed an agreement accepting noise levels at the Industrial Zone.

If a complaint is received, Laramie will coordinate with COGCC to determine an appropriate compliance point.

Compliance

Rule 423.a.(1) *An explanation of how the Operator will comply with the maximum permissible noise levels specified in Rule 423.b.(1). This is to include a description of methods to design acoustical mitigation measures or choose/site equipment appropriately such that the Operator has a reasonable expectation of compliance.*

The CC 0697-15-08 is located in a remote, non-populated area. No Residential Building Units, High Occupancy Building Units, School properties, School Facilities, or Designated Outdoor Activity Areas are located less than 2,000 feet of the CC 0697-15-08 site perimeter (**Aerial Location Drawing - Attachment C**). The well site will not be operating in a High Priority Habitat. Laramie is the Surface Owner for the CC 0697-15-08 location. The nearest adjacent landowner, Couey, has signed an agreement (**Attachment D**) with Laramie accepting noise levels at the Industrial Zone.

No additional acoustical mitigation equipment will be required based on the CC 0697-15-08 location's characteristics and noise estimates.

Operational Stages

Rule 423.a.(2) *Estimated duration of each stage of operation, including drilling, completion, Flowback, production, and an estimate of the noise levels of each stage of operation.*

Entrada obtained estimates for noise levels for drilling and completions/flowback operations from third-party sources. Laramie is not currently drilling or conducting completions and flowback activities; therefore, a noise survey could not be conducted for the operational phases. Only A-weighted decibels were provided. Noise levels for production operations were collected at a well site with producing wells within the Cascade Creek operations area.

Drilling and completions/flowback operational phases will not occur simultaneously at the CC 0697-15-08. After drilling activities have concluded, completions and flowback operational activities will commence.

Time and Sound Level Estimates Per Operations Phases – CC 0697-15-08

| Stage | Distance of Collection Point | Time Interval (Days) | Estimated Sound Levels (Minimum Average) dB(A) | Estimated Sound Levels (Maximum Average) dB(A) |
|--------------------------|------------------------------|----------------------|--|--|
| Drilling | 500 feet | 110 | 59.5 | 63.2 |
| Completions and Flowback | 350 feet | 66 | 53.2 | 57.9 |
| Production | On Pad Location | NA | 39.9 | 45.3 |

Drilling Phase

Helmerich and Payne, Inc (H&P) provided drill rig noise level readings from their Flex5 Rig. Noise level readings were collected at various positions on the drill rig and at a distance of 500 feet, without sound walls, while the rig was operated. Drill rig noise levels are detailed in **Attachment E**. Drilling activities will take approximately 110 days to complete.

Completions and Flowback Phase

For completions activities, Laramie has contracted Calfrac Well Services Ltd (Calfrac). Noise levels for completions and flowback were collected utilizing Calfrac equipment at a different location (**Attachment F**), obtained from a third-party source. The noise level readings were collected at a distance of 350 feet during completions and flowback activities. Completions and flowback activities will take approximately 66 days to complete. The total timeframe for completions and flowback phase is 66 days; however, only 36 days will have completion activities.

Production Phase

Laramie retained Entrada Consulting Group, Inc to conduct a noise assessment during production activities. Sound readings were collected during normal production operations at the CC 0697-03-07, which currently has 13 producing wells. The report (**Attachment G**), titled “Laramie Energy CC 0697-03-07 Production Noise Assessment”, stated measurement points were established on the pad due to the surrounding topography. The average sound level for the site was 42.3 db(A) on the pad location. At 131 feet distance from the site perimeter, the sound level from the pad during production operations is neutral.

Topography

Rule 423.a.(3) *Reference to topographical considerations of noise and noise propagation at the proposed Oil and Gas Location.*

The topography of the area consists of rolling hills atop a plateau that is bounded by cliffs and cut by deeply incised, steep walled canyons. The CC 0697-15-08 is located on the Roan Plateau at an elevation at 8,502.8 feet above mean sea level.

There are three main vegetation community types surrounding the project area: mountain shrublands, sagebrush shrublands, and aspen woodlands. The mountain shrublands are composed primarily of Utah serviceberry (*Amelanchier utahensis*) intermixed with mountain snowberry (*Symphoricarpos oreophilus*), Gambel oak (*Quercus gambelii*), and mountain big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*). Sagebrush shrublands are composed primarily of Mountain sagebrush and mountain snowberry with an understory of native perennial grasses and forbs. North-facing slopes in the surrounding area support patchy aspen woodlands composed of quaking aspen (*Populus tremuloides*), mountain snowberry, and chokecherry (*Prunus virginiana*).

Best Management Practices

Rule 423.a.(4) *Description of Best Management Practices and best engineering practices for measuring and mitigating noise levels and an implementation schedule for such technology.*

Laramie will adhere to the following BMPs to mitigation noise levels:

- Exhaust mufflers installed on engines to reduce noise impacts.
- Mufflers or vent tanks will be used for sound suppression when bypassing air injection on connections when drilling with aerated fluid.
- Major surface pipe handling operations will be limited to daylight as much as possible.
- Solids control equipment and shale shakers will be maintained to ensure proper function and noise mitigation.

Residential Building Distance Compliance

Rule 423.a.(5) *For proposed Oil and Gas Locations with a Working Pad Surface within 2,000 feet of one or more Residential Building Units, at least one, and no more than six noise points of compliance where monitors will be located.*

Rule 423.a.(5) is not applicable. The CC 0697-15-08 is not located within 2,000 feet of Residential Building Units, High Occupancy Building Units, School properties, School Facilities, or Designated Outdoor Activity Areas.

The Aerial Location Drawing (**Attachment C**), depicting a 2,000-foot buffer surrounding the site perimeter, shows no Residential Buildings Units exist within 2,000 feet of the site perimeter. The Cultural Distances Table (**Attachment C**), states distances to cultural features as required in the Form 2A. No Residential Building Units, High Occupancy Building Units, School properties, School Facilities, or Designated Outdoor Activity Areas exist within one mile of the proposed site perimeter.

Preliminary Plan

Rule 423.b. *A preliminary plan for how the Operator will conduct background ambient noise surveys to establish baseline conditions for noise levels on the site, for both A-scale and C-scale noise.*

Laramie will retain an independent party to conduct background ambient noise surveys. Sound measurement baseline readings will be collected 30-90 days prior to site development. Weather events during measurement readings will be observed and recorded. Winds are prevalent on the Roan Plateau and a wind screen will be utilized if wind speeds exceed 5 miles per hour. The geographic location and high elevation of the Roan Plateau not only allows for consistent local winds, but varying weather conditions as well. Background ambient noise surveys may be impacted by varying weather conditions or winds.

Background sound levels will be collected for both A-scale and C-scale noise. Sound measurements will be collected using Type II equipment. Background collection points will be determined at time of sound measurement readings to consider factors such as vegetation height. Coordinates of sound measurement points will be recorded. Background sound levels will be collected in areas with similar elevation. Laramie may collect background ambient noise from Couey's property. Per Rule 423.b. requirements, the background ambient survey will be collected for over a 72-hour period, including at least 24 hours during the hours between 10 PM Friday and 4 am Monday.

Noise Zone

Rule 423.b.(1) *All Oil and Gas Operations will comply with the following maximum permissible noise levels in Table 423-1 unless otherwise required by Rule 423. The Director may require Operators to comply with a lower maximum permissible noise level based on the consultation process with Relevant and Proximate Local Governments, CDPHE, or CPW pursuant to Rules 302.g, 309.e, & 309.f.*

Table 423-1 – Maximum Permissible Noise Levels

| ZONE | 7:00 am to next 7:00 pm | 7:00 pm to next 7:00 am |
|--|--------------------------------|--------------------------------|
| Industrial | 80 db(A) | 75 db(A) |
| All Zone (Pre-Production) Rule 423.b.(2).B. | 65 db(C) | 65 db(C) |
| All Zones (Production) | 60 db(C) | 60 db(C) |

All sound measurements collected in the field will measure cumulative noise as required by Rule 423.d. Sound measurements will be collected in the event of a complaint and will comply with COGCC Rule 423.c.(2) Monitoring Procedures in the event of a complaint. Couey, the nearest adjacent Surface Owner, has signed an agreement accepting the noise levels of the Industrial Zone.

Table 423-2 – Maximum Cumulative Permissible Noise Levels

| ZONE | 7:00 am to next 7:00 pm | 7:00 pm to next 7:00 am |
|-------------|--------------------------------|--------------------------------|
| Industrial | 90 db(A) | 85 db(A) |
| All Zones | 75 db(C) | 70 db(C) |

Drilling and Completions Noise Requirements

Rule 423.b.(2) *Unless otherwise required by Rule 423, drilling or completion operations, including Flowback: **Rule 423.b.(2).B.** In all zones maximum permissible noise levels will be 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.*

The CC 0697-15-08 is not located within 2,000 feet of a Residential Building Unit, High Occupancy Building Unit, School properties, School Facilities, or Designated Outdoor Activity Areas.

Local Government Zoning

Rule 423.b.(3) *The basis for determining land use designation pursuant to Table 423-1 will be the Relevant Local Government's land use or zoning designation.*

Garfield County defines the subject parcel as the Resource Lands zone district. A Residential Building Unit is not located within 2,000 feet of the proposed site location. The nearest adjacent landowner, Couey, has signed a statement (**Attachment D**) accepting noise levels of the Industrial Zone.

The Garfield County Zoning Map (**Attachment B**) displays the zoning for the subject parcel and surrounding area. All land within a 2,000-foot radius of the site is zoned Resource Lands.

Building Unit Permissible Noise Levels

Rule 423.b.(3)A. *To protect public health, safety, and welfare, the Director may require Operators to comply with a lower maximum permissible noise level in areas zoned industrial, light industrial, or commercial, if the Oil and Gas Facility will be within 2,000 feet of a Residential Building Unit or High Occupancy Building Unit.*

The CC 0697-15-08 is not located within 2,000 feet of a Residential Building Unit or High Occupancy Building Units.

The Aerial Location Drawing (**Attachment C**), depicting a 2,000-foot buffer surrounding the site perimeter, shows no residential buildings exist within 2,000 feet of the site. The Cultural Distances Table (**Attachment C**), states distances to cultural features as required in the Form 2A.

High Priority Habitat

Rule 423.b.(4) *When operating in High Priority Habitat, Operators will consult CPW and, on federal lands, the Bureau of Land Management, or United States Fish and Wildlife Service, to determine the acceptable noise limits and monitoring protocols.*

The CC 0697-15-08 is not located within a High Priority Habitat. The well site is not located on federal lands. A consultation with the CPW, BLM, or U.S. Fish and Wildlife is not required for the proposed site.

There is the potential for noise generated during drilling activities to impact wildlife and migratory birds. Increased anthropogenic noise in the area may cause avoidance of nearby forage and cover habitat for wildlife species and nest abandonment for migratory birds. Drilling, completions, and flowback is anticipated to take approximately 176 days to complete. Due to the short duration of drilling activity and the amount of available habitat on the Roan Plateau it is unlikely noise associated with drilling would have long-term impacts on wildlife and migratory birds at a population level.

Landowner Agreement

Rule 423.b.(5) *Operators may exceed the noise levels in Table 423-1 as measured at the nearest noise point of compliance if all affected Surface Owners and tenants agree in writing to the higher noise limit requested by the Operator.*

Laramie is the Surface Owner for the CC 0697-15-08 location. The nearest adjacent landowner, Couey, has signed a statement accepting noise levels of the Industrial Zone (**Attachment D**).

Permissible Increase - Rule 423.b.(6) and Shri11 Noise - Rule 423.b.(7)

The CC 0697-15-08 not located within 1,000 of a Residential Building Unit. Laramie, the is the Surface Owner of the subject location and parcel owner of the subject parcel. The nearest adjacent landowner to the CC 0697-15-08 location, Couey, has signed an agreement accepting noise levels for the Industrial noise zone.

Sound Level Measurement

Rule 423.c. *To demonstrate compliance with Tables 423-1 and 423-2 Operators will measure sound levels according to the following standards:*

Rule 423.c.(1) *During pre-production activities and ongoing operations lasting longer than 24 consecutive hours such as drilling, completion, recompletion, Stimulation, and Well maintenance, in areas zoned residential or within 2,000 feet of a Building Unit, Operators will take continuous sound measurements from each noise point of compliance designated pursuant to Rule 423.a.(5).*

Rule 423.c.(1) is not applicable to the proposed site location. The location is neither zoned residential nor is located within 2,000 feet of a Building Unit. The CC 0697-15-08 is located in Garfield County, Colorado. Garfield County defines the subject parcel as the Resource Lands zone district. Land within 2,000 feet of the CC 0697-15-08 is zoned Resource Lands. A Building Unit and any Residential zoned parcels are located more than one mile radius from the CC 0697-15-08 working pad surface.

Complaint Noise Reading - Rule 423.c.(2)A.; Rule 423.c.(2)B.

Laramie will adhere to Rule 423.c.(2).A. if a complaint is received. Based on aerial imagery and data from the Garfield County Assessor, the CC 0697-15-08 is not located within 2,000 feet of a Building Unit, public road, or Designated Outside Activity Area. Couey is the nearest adjacent landowner from the CC 0697-15-08 location. All points of measurement will be recorded.

Wind Screen

Rule 423.c.(3) *Operators will equip sound level meters with wind screens that are in good working order, and will take readings when the wind velocity at the time and place of measurement is not more than 5 miles per hour. In determining an Oil and Gas Operation's contribution to sound levels, the Director will consider wind readings that exceed 5 mph.*

The CC 0697-15-08 is located on the Roan Plateau at an elevation at 8,502.8 feet above mean sea level. The topography of the area consists of rolling hills atop a plateau that is bounded by cliffs and cut by deeply incised, steep walled canyons. Winds are prevalent in this area and winds often exceed speeds of 5 miles per hour. Wind can further reduce the sound heard at a distance if the receptor is upwind of the sound. The action of the wind disperses the sound waves reducing the recordable noise level upwind. Winds do not increase sound levels downwind.

Weather forecasts are not reliable in predicting winds within the Roan Plateau and varying topography can make for varying weather conditions within the region of the Roan Plateau. The Operator will attempt to have sound measurement readings observed when velocity of wind speeds are less than 5 miles per hour. Sound level meters will be equipped with wind screens during the readings in the event that wind speeds exceed 5 miles per hour. Type of wind screen and weather conditions will be noted in readings records. Noise and wind readings will be made available to the Director upon request.

Sound Measurement Height

Rule 423.c.(4) *Operators will take sound level measurements 5 feet above ground level.*

All sound level measurements will be measured at 5 feet above ground level. Photographic evidence of sound monitoring equipment positioned at 5 feet above

ground level will be provided with sound level measurement records as stated in 423.c.(9).

Calculated Sound Levels

Rule 423.c.(5) *Operators will determine sound levels by averaging logarithmic minute-by-minute measurements made over a minimum 1-hour sample duration.*

Sound levels will be determined by averaging logarithmic minute-by-minute measurements made over a minimum 1-hour sample duration. Observed measurements will be recorded.

Sound Meter Requirements

Rule 423.c.(6).*All sound meters will be type II meters at a minimum. All measurements will be reported using LeqA (fast) and LeqC (slow). Meters will be field calibrated pre-survey and post survey. Continuous surveys will be field calibrated pre-survey and post survey and pursuant to the manufacturer's recommended interval. All survey fee will be inspected at time of calibration for compliance with the Commission's Rules.*

Sound meters utilized during sound measurement readings will be type II at a minimum and will be calibrated pre-survey and post survey. Type sound meter equipment will be noted and maintained with sound measurement records as stated in 423.c.(9).

Varying Sample Condition

Rule 423.c.(7) *Operators will take samples under conditions that are representative of the noise experienced by the complainant (e.g. , at night, morning, evening, or during special weather conditions).*

The CC 0697-15-08 is not located within 2,000 feet of a Residential Building Unit. If a noise complaint is received, Laramie will take sound level readings at various times or conditions.

Designation Post Approval

Rule 423.c.(8) *If a Building Unit, High Occupancy Building Unit, High Priority Habitat, or Designated Outside Activity Area is built or designated after an Oil and Gas Development Plan or Form 2A is approved, the Operator of the Oil and Gas Location need not comply with Rule 423.c with respect to the newly built or designated Building Unit, High Occupancy Building Unit, High Priority Habitat, or Designated Outside Activity Area.*

The proposed well site is not located within a High Priority Habitat or Designated Outside Activity Area. A Building Unit nor a High Occupancy Building Unit exists within a 2,000-foot radius of the site. Garfield County defines the subject parcel as the Resource Lands zone district.

Records

Rule 423.c.(9) *Operators will maintain records to demonstrate compliance with this Rule 423.c, and will submit the records to the Director upon request.*

Laramie will maintain records of sound measurement readings in compliance with Rule 423.c. and will submit the records upon request to the Director. Sound measurement readings, dates and times, coordinates of compliance points, wind speed, and weather will be recorded and maintained.

Cumulative Noise

Rule 423.d. Cumulative Noise. *All noise measurements will be cumulative.*

Impacts from cumulative noise are not anticipated from sites proposed in the *Laramie Energy 2021 Cascade Creek Oil and Gas Development Plan* (OGDP). The OGDP includes three proposed well sites (CC 610-21-41, CC 0697-15-08, and CC 603-23-32) and the Annex Cuttings Facility, an Exploration and Production Waste Management Facility. Drilling, completions, and flowback activities will not occur simultaneously at the three proposed well sites; therefore, cumulative noise impacts from pre-production operations is not anticipated. Cumulative noise during the production phase is not expected based on the sound levels observed during production operations and the distances between sites.

Pre-production and production activities will not occur at the Annex Cuttings Facility, a cuttings management area. Drilling, completion, and flowback activities will not be conducted at the Annex Cuttings Facility.

The Cumulative Impacts Plan (CIP), which assessed potential cumulative of the proposed OGDP, was prepared by WestWater Engineering, Inc. The CIP concluded that due to the distance from Residential Building Units, Child Care Centers, and Schools there will be no cumulative adverse effects from noise to Public Health as a result of the proposed OGDP.

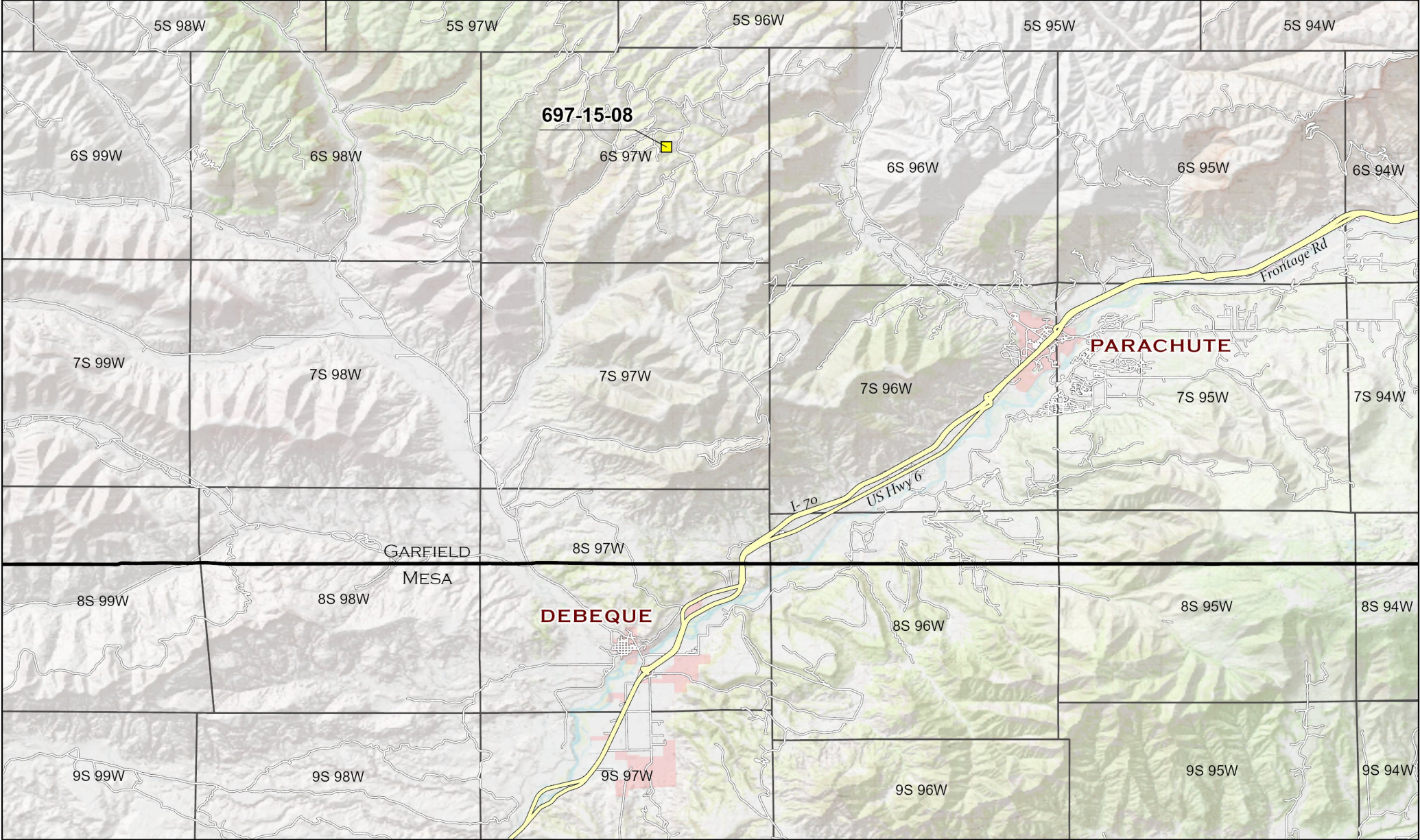
Attachments


| | |
|----------------------|---|
| Attachment A: | Vicinity Map |
| Attachment B: | Garfield County Zoning Map |
| Attachment C: | Cultural Distance Table and Aerial Location Drawing |
| Attachment D: | Couey Agreement |
| Attachment E: | Drill Rig Sound Measurement Figure |
| Attachment F: | Completions and Flowback Sound Measurements |
| Attachment G: | Production Operations Noise Assessment |



Attachment A

Cascade Creek 0697-15-08 Well Site Vicinity Map





LEGEND
 Site Location

03.57

mi

1 inch = 3.5 mi

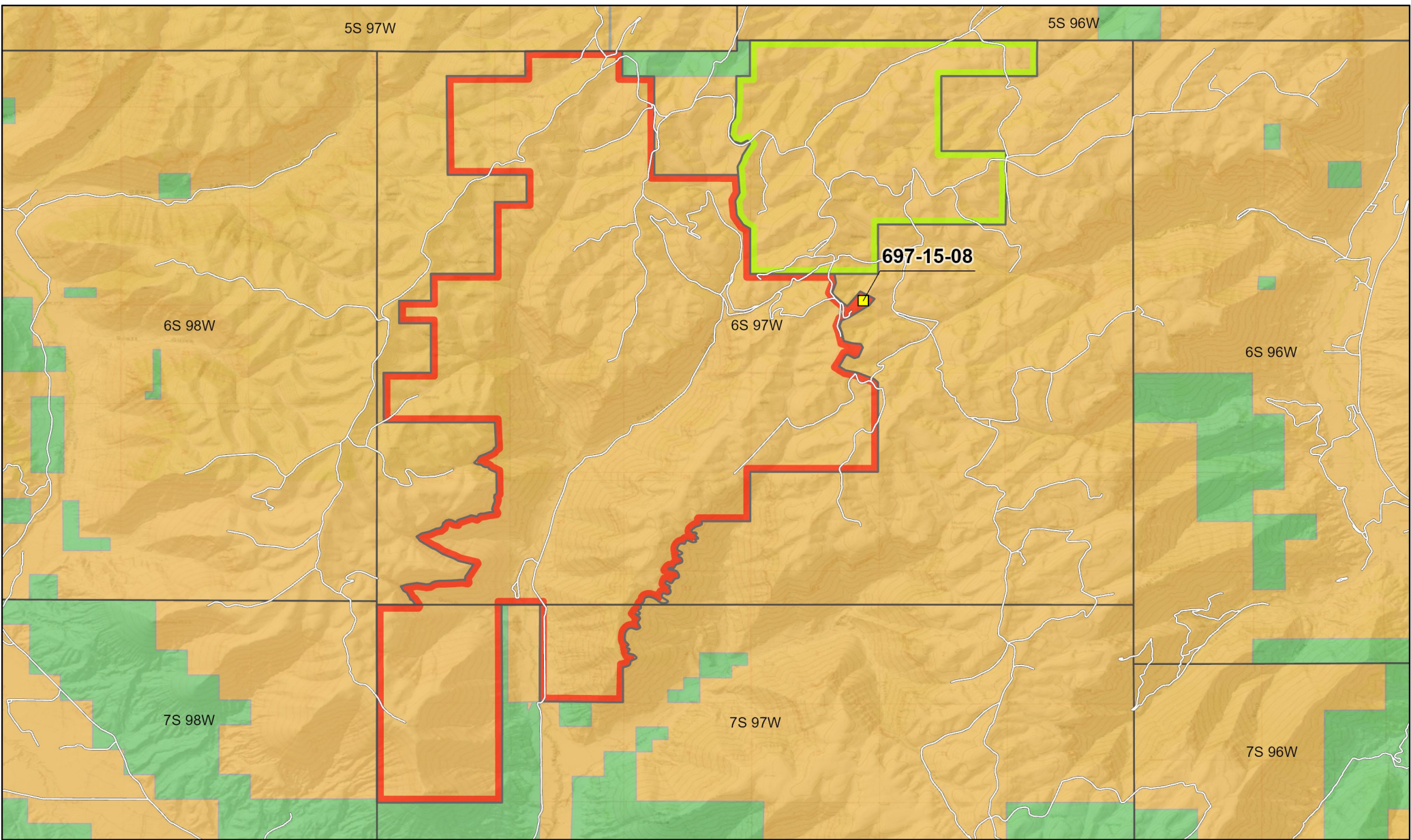


| | | | | |
|---------------------|--|---|---|--------|
| Project No: 021-036 | | Vicinity Map Cascade Creek 697-15-08 Pad Laramie Energy SENE, Section 15, T6S R97W, 6th P.M. Garfield County, Colorado |  <div>330 Grand Avenue, Unit C Grand Junction, CO 81501 970-549-1015</div> | Figure |
| Map By: NDB | | | | |
| Date: 4/13/2021 | | | | 1 |



Attachment B


Garfield County Zoning Map




LEGEND

 Laramie Parcel (216921400026)

 Couey Parcels (216910100020, 216902200030)


 Public Lands


 Resource Lands

07,00014,000

Ft

1 inch = 7,000 ft



| | | | |
|---------------------|--|---|--------|
| Project No: 021-036 | <div>Garfield County Zoning Map Cascade Creek 697-15-08 Pad Laramie Energy SENE, Section 15, T6S R97W, 6th P.M. Garfield County, Colorado</div> | <div><div>330 Grand Avenue, Unit C Grand Junction, CO 81501 970-549-1015</div></div> | Figure |
| Map By: NDB | | | 2 |
| Date: 4/13/2021 | | | |



Attachment C

Cascade Creek 0697-15-08 Well Site

- **Cultural Distance Table**
- **Aerial Location Drawing**

CC 697-15-08



CAERUS
PICEANCE LLC
COUEY
FAMILY LLP

N33°27'E
135' TO
PROPERTY LINE

S73°46'E
1075' TO ROAD

S59°45'E
1216' TO
BUILDING

**S80°35'W
611' TO ROAD**

**N71°20'W
1028' TO
PIPELINES**

EXISTING TANKS - S 169'

EXISTING SEPARATORS - S 305'

EXISTING GATHERING LINE - S 325'

EXISTING CASCADE CREEK 697-15-23 PAD:
PR 697-15-21D - S 277'
PA 697-15-22D - S 286'
PR 697-15-31D - S 295'
PR 697-15-29D - S 306'
PR 697-15-30D - S 316'
PA 697-15-23 - S 326'

**S76°20'W
567' TO
PIPELINES**

S53°21'W
1712' TO
PIPELINES

| LOCATION DRAWING FEATURES 304b(7)A | |
|--|----------|
| FEATURE | DISTANCE |
| i BUILDING | 1216' |
| ii BUILDING UNITS | 0 |
| iii PUBLICLY MAINTAINED ROADS AND TRAILS | 0 |
| iv FENCES | 0 |
| v ABOVE GROUND UTILITIES | 0 |
| vi RAILROADS | 0 |
| vii PIPELINES | AS SHOWN |
| viii MINES | 0 |
| ix OIL AND GAS WELLS AND PRODUCTION FACILITIES | AS SHOWN |
| x INJECTION WELLS | 0 |
| xi PLUGGED OIL AND GAS WELLS | AS SHOWN |
| xii KNOWN WATER WELLS | 0 |
| xiii KNOWN SEWERS WITH MANHOLES | 0 |

AERIAL LOCATION DRAWING

LARAMIE ENERGY, LLC.
CC 697-15-08

CC 097-15-08
SENE, SECTION 15, T. 6 S., R. 97 W., 6th P.M.,
GARFIELD COUNTY, COLORADO

DRS **RIFFIN & ASSOCIATES, INC.**
1414 ELK ST., ROCK SPRINGS, WY 82901
828

1414 ELK ST., ROCK SPRINGS, WY 82901

DRAWN: 12/8/2020 - DEH

DRG JOB No. 22026

COGCC RULE REVISIONS

Cascade Creek 0697-15-08 Well Site

Location Drawing

Rule 304.b.(7)A



| Rule | Feature | Description |
|------------------------|--|---|
| Rule 304.b.(7).A.i | <i>Building</i> | A building, as opposed to a “Residential Building Unit”, is located approximately 1,216 feet to the southeast of the proposed WPS. The building is a prefabricated structure positioned on cement blocks. There is no driveway or address associated with this structure. The building does not appear to have electricity. Since the building is placed upon cement blocks, the location of this structure is not permanent. |
| Rule 304.b.(7).A.i | <i>All Building Units, with High Occupancy Building Units identified</i> | NONE |
| Rule 304.b.(7).A.ii. | <i>Publicly maintained roads and trails</i> | NONE |
| Rule 304.b.(7).A.iii. | <i>Fences</i> | NONE |
| Rule 304.b.(7).A.iv. | <i>Above-ground utility lines</i> | NONE |
| Rule 304.b.(7).A.v. | <i>Railroads</i> | NONE |
| Rule 304.b.(7).A.vi. | <i>Pipelines or Pipeline markers</i> | AS SHOWN ON MAP |
| Rule 304.b.(7).A.vii. | <i>Mines</i> | NONE |
| Rule 304.b.(7).A.viii. | <i>Oil and gas Wells and associated Production Facilities</i> | Location ID: 335595 <ul style="list-style-type: none"> Well CC 697-15-21D Well CC 697-15-31D Well CC 697-15-29D Well CC 697-15-30D |
| Rule 304.b.(7).A.ix | <i>Known water wells</i> | NONE |
| Rule 304.b.(7).A.x | <i>Plugged oil and gas Wells, including dry holes</i> | Location ID: 335595 <ul style="list-style-type: none"> CC PA 697-15-23 CC PA 697-15-22D |
| Rule 304.b.(7).A.xi | <i>Injection Wells and associated facilities</i> | NONE |
| Rule 304.b.(7).A.xii. | <i>Known sewers with manholes</i> | NONE |



Attachment D

Couey Agreement



LARAMIE ENERGY, LLC
1001 SEVENTEENTH ST., SUITE 1900
DENVER, COLORADO 80202

TEL: (303) 339-4400

SENT VIA EMAIL

June 15, 2021

Couey Family, LLLP
6275 County Road 315
Silt, CO 81652
Attn: Kelly Couey

RE: Noise and Lighting Letter Exceedances
Cascade Creek Production Field
Township 6 South, Range 97 West 6th P.M.
Sections 3, 10 & 15
Garfield County, Colorado

Dear Mr. and Mrs. Couey:

Laramie Energy, LLC, ("Laramie"), is proposing the development and operation of three well sites and one cuttings management facility in the Cascade Creek production field located in Garfield County. Laramie is requesting Couey Family LLLP, ("Couey"), as Surface Owner and Adjacent Landowner, to accept increased permissible noise and lighting levels. As of the date of this letter, the Garfield County Community Development Department has determined the Light Industrial zone for noise and lighting will be applied to the proposed sites based on current parcel zoning and surrounding land uses.

Couey is the surface owner for the proposed Cascade Creek 0603-23-32 well site (Section 3, Township 6 South, Range 97 West, 6th P.M.) and the 0610-21-41 well site (Section 10, Township 6 South, Range 97 West, 6th P.M.).

Couey is an adjacent owner to the east of the proposed Cascade Creek 0697-15-08 well site and the Annex Cuttings Facility (ACF) (Section 15, Township 6 South, Range 97 West, 6th P.M.).

The Colorado Oil and Gas Conservation Commission ("COGCC") states in Rule 423.b.(5) *"Operators may exceed the noise levels in Table 423-1 as measured at the nearest noise point of compliance if all affected Surface Owners and tenants agree in writing to the higher noise limit requested by the Operator."*

Laramie requests that Couey accept the noise and light exceedances for the Light Industrial zone and that Industrial zone noise levels are permissible.

Couey Family, LLLP

Noise and Lighting Letter Exceedances

June 15, 2021

Page 2 of 4

Noise Standards

| ZONE | 7:00 am to next 7:00 pm | 7:00 pm to next 7:00 am |
|------------------|--------------------------------|--------------------------------|
| Light industrial | 70 db(A) | 65 db(A) |
| Industrial | 80 db(A) | 75 db(A) |

Sound compliance points may be located within Couey's parcel boundary. Sound measurement readings will be collected at compliance points during preliminary, pre-production, and production phases.

Lighting Standards

| LAND USE | Lumens per square foot of Working Pad Surface |
|------------------|--|
| Light Industrial | 5.0 |
| Industrial | 7.5 |

Lighting will be utilized during drill rig mobilization, drilling, completions, and flowback activities.

Annex Cuttings Facility

SE ¼ of Section 15, Township 6 South, Range 97 West, 6th P.M.

Parcel # 216921400026

Surface Owner: Laramie Energy, LLC; Operator # 10433
1001 Seventeenth Street, Suite 1900
Denver, CO 80202

Cascade Creek 0697-15-08 Well Site

SENE of Section 15, Township 6 South, Range 97 West, 6th P.M.

Parcel # 216921400026

Surface Owner: Laramie Energy, LLC; Operator # 10433
1001 Seventeenth Street, Suite 1900
Denver, CO 80202

The Couey owned parcel adjacent to the Annex Cutting Facility and the CC 0697-15-08 well site is Parcel #216914100029.

Couey Family, LLLP
Noise and Lighting Letter Exceedances
June 15, 2021
Page 3 of 4

Cascade Creek 0603-23-32 Well Site

NESW of Section 3, Township 6 South, Range 97 West, 6th P.M.
Parcel #216902200030
Surface Owner: Couey Family, LLLP
6275 County Road 315
Silt, CO 81652

Cascade Creek 0610-21-41 Well Site

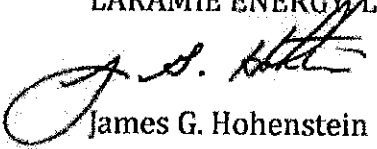
NENW of Section 10, Township 6 South, Range 97 West, 6th P.M.
Parcel # 216910100020
Surface Owner: Couey Family, LLLP
6275 County Road 315
Silt, CO 81652

If you have no objections to the Noise and Lighting Exceedances as set forth, please signify by executing this letter in the space provided below and return an executed copy to jhohenstein@laramie-energy.com. Please retain a fully executed copy of this letter for your records.

Thank you for your consideration in regard to this matter. If you should have any questions, comments or should you wish to discuss this subject further, please do not hesitate to call me at (303) 339-4408.

Very truly yours,

LARAMIE ENERGY, LLC



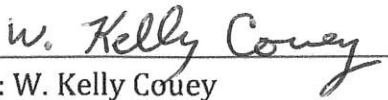
James G. Hohenstein
Vice President - Land

APPROVAL PAGE FOLLOWS:

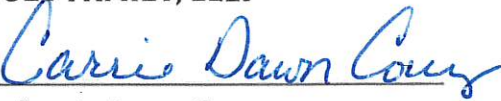
Couey Family, LLLP
Noise and Lighting Letter Exceedances
June 15, 2021
Page 4 of 4

WE HAVE NO OBJECTIONS TO THE NOISE AND LIGHTING EXCEEDANCES AS SET FORTH IN THIS LETTER.

COUEY FAMILY, LLLP


By: W. Kelly Couey
Title: General Partner
Date: June 27, 2021

COUEY FAMILY, LLLP

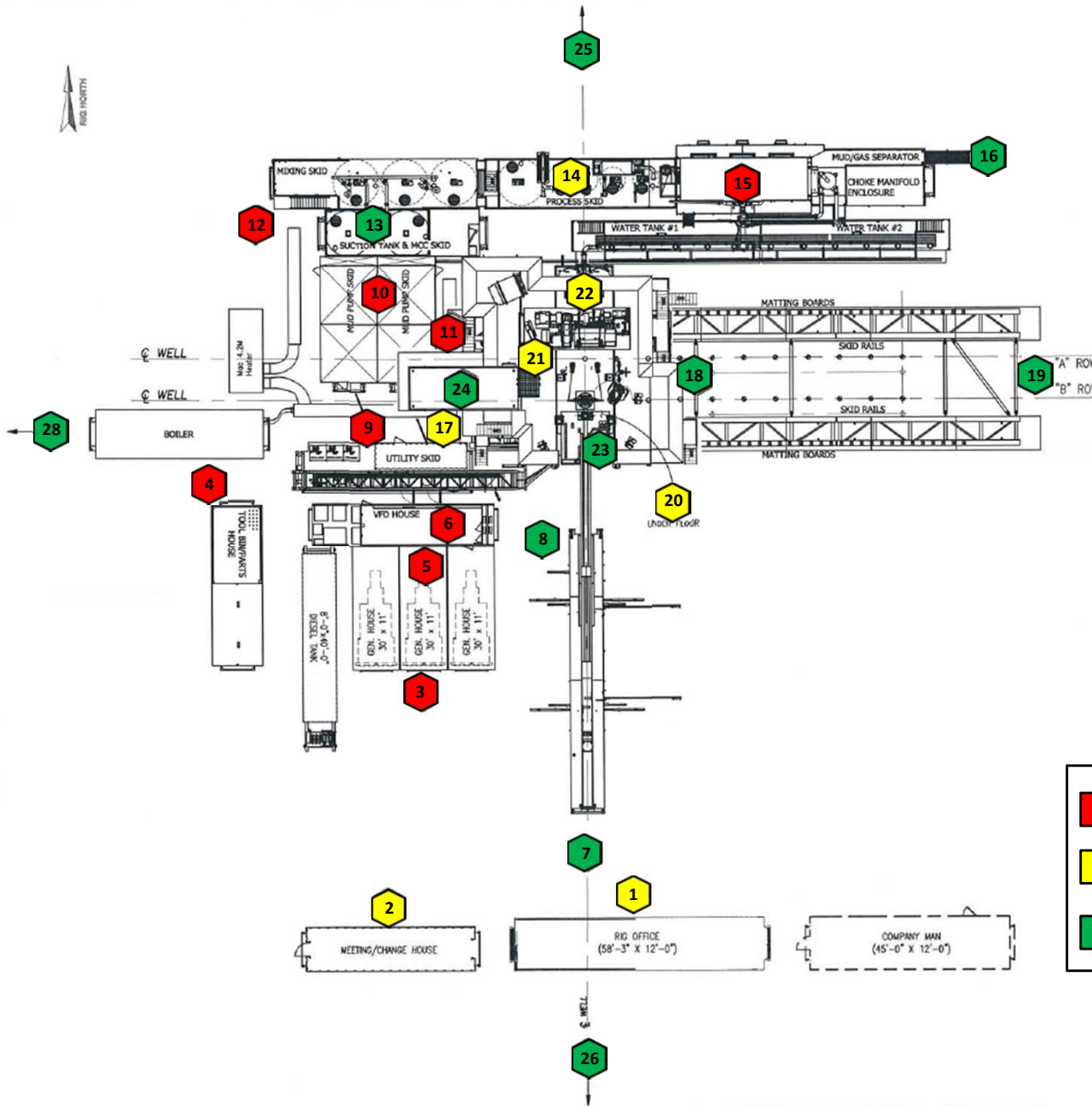

By: Carrie Dawn Couey
Title: General Partner
Date: June 27, 2021



Attachment E

Drilling Operations Helmerich and Payne, Inc Flex5 Rig Sound Measurement Figure

FlexRig 5 Average Noise Level Survey Map



| | Area Description | Average dB(A) |
|----|------------------------------------|---------------|
| 1 | In Front of Rig Managers Trailer | 78.2 |
| 2 | In Front of Change House | 79.1 |
| 3 | In Front of Gens | 92.3 |
| 4 | Between Diesel Tank and Boiler | 87.0 |
| 5 | Inside Motor Shed | 105.7 |
| 6 | Inside VFD | 87.7 |
| 7 | End of Catwalk | 75.3 |
| 8 | Between VFD and Catwalk | 79.4 |
| 9 | Between Pumps and Pump Parts House | 92.4 |
| 10 | Inside Pump House | 96.1 |
| 11 | Between Pump House and Skid Rails | 87.9 |
| 12 | Outside of Hopper House | 85.3 |
| 13 | On Top of Suction Pits | 79.0 |
| 14 | On Top of Process Pits | 82.1 |
| 15 | Shakers | 88.2 |
| 16 | Bottom of Shaker Stairs | 74.5 |
| 17 | Ground Level Outside DS Sub | 82.9 |
| 18 | Ground Level Outside ODS Sub | 75.0 |
| 19 | Far End of Skid Rails ODS | 71.9 |
| 20 | BOP Deck | 81.3 |
| 21 | Inside DS Top Box | 82.4 |
| 22 | Behind Drawworks | 82.6 |
| 23 | V-Door | 75.4 |
| 24 | Driller's Cabin | 69.2 |
| 25 | 500 ft. North | 63.2 |
| 26 | 500 ft. South | 61.7 |
| 27 | 500 ft. East | 59.5 |
| 28 | 500 ft. West | 61.5 |

RIG OPERATIONS WHILE READINGS
TAKEN: DRILLING AHEAD

| | | |
|--|---------------------------------|----------------|
| | Hearing Protection Required: | >85.0 dB |
| | Hearing Protection Recommended: | 84.0 - 84.9 dB |
| | No Hearing Protection Required: | <79.9 dB |

April - 14



Attachment F

Completions and Flowback Sound Measurements

| COMPLETION AND FLOWBACK PHASES SOUND MEASUREMENT READINGS | | | | | | | | | |
|---|--------------|--------------------|--------------|----------------|-----------------|-------------------|------------------|---------|---------|
| Collection Data Points | Stage Status | Temperature (° F): | Cloud Cover: | Precipitation: | Wind Direction: | Wind Speed (mph): | Collection Time: | dBa Max | dBA Min |
| Sound Measurement - North | | | | | | | | | |
| Point 1 | Start Up | 79 | Clear | 0 | SW | 7.6 | 12:45 PM | 60.3 | 53.3 |
| Point 2 | Start Up | 79 | Clear | 0 | SW | 7.6 | 1:00 PM | 54.0 | 49.6 |
| Point 3 | Full Push | 79 | Clear | 0 | SW | 7.6 | 1:15 PM | 66.5 | 55.2 |
| Point 4 | Full Push | 79 | Clear | 0 | S | 7.6 | 1:30 PM | 69.3 | 61.8 |
| Point 5 | Full Push | 79 | Clear | 0 | W | 7.6 | 1:45 PM | 67.3 | 61.4 |
| Point 6 | Full Push | 79 | Clear | 0 | SW | 7.6 | 2:00 PM | 68.5 | 61.3 |
| Point 7 | Full Push | 79 | Clear | 0 | SW | 7.6 | 2:15 PM | 66.3 | 59.1 |
| Point 8 | Full Push | 79 | Clear | 0 | SW | 7.6 | 2:30 PM | 61.0 | 57.4 |
| Point 9 | Full Push | 79 | Clear | 0 | S | 7.6 | 2:45 PM | 64.7 | 51.8 |
| Point 10 | Full Push | 80 | Clear | 0 | SW | 8.1 | 3:00 PM | 67.3 | 62.3 |
| Point 11 | Full Push | 80 | Clear | 0 | SW | 8.1 | 3:15 PM | 62.7 | 55.6 |
| Point 12 | Full Push | 80 | Clear | 0 | SW | 8.1 | 3:30 PM | 62.9 | 57.1 |
| Point 13 | Full Push | 80 | Clear | 0 | W | 8.1 | 3:45 PM | 62.8 | 56.6 |
| Point 14 | Full Push | 80 | Clear | 0 | W | 8.1 | 4:00 PM | 61.2 | 56.5 |
| Point 15 | Full Push | 80 | Clear | 0 | SW | 8.1 | 4:15 PM | 66.7 | 57.7 |
| Point 16 | Full Push | 80 | Clear | 0 | SW | 8.1 | 4:30 PM | 66.5 | 59.3 |
| Point 17 | Full Push | 80 | Clear | 0 | SW | 8.1 | 4:45 PM | 62.6 | 56.0 |
| Point 18 | Full Push | 79.0 | Clear | 0 | SW | 8.3 | 5:00 PM | 60.8 | 55.9 |
| Point 19 | Full Push | 79.0 | Clear | 0 | SW | 8.3 | 5:15 PM | 61.7 | 55.9 |
| Point 20 | Full Push | 79.0 | Clear | 0 | SW | 8.3 | 5:30 PM | 64.7 | 58.4 |
| Point 21 | Tail Off | 79.0 | Clear | 0 | SW | 8.3 | 5:45 PM | 65.6 | 60.9 |
| Point 22 | Tail Off | 77.0 | Clear | 0 | W | 6.6 | 6:00 PM | 49.1 | 46.0 |
| Point 23 | Tail Off | 77.0 | Clear | 0 | SW | 6.6 | 6:15 PM | 49.4 | 44.0 |
| Point 24 | Tail Off | 77.0 | Clear | 0 | SW | 6.6 | 6:30 PM | 49.4 | 45.9 |
| Sound Measurement - South | | | | | | | | | |
| Point 1 | Start Up | 79 | Clear | 0 | SW | 7.6 | 12:45 PM | 59.9 | 53.8 |
| Point 2 | Start Up | 79 | Clear | 0 | SW | 7.6 | 1:00 PM | 54.5 | 48.0 |
| Point 3 | Full Push | 79 | Clear | 0 | SW | 7.6 | 1:15 PM | 64.0 | 60.9 |
| Point 4 | Full Push | 79 | Clear | 0 | S | 7.6 | 1:30 PM | 63.0 | 57.5 |
| Point 5 | Full Push | 79 | Clear | 0 | W | 7.6 | 1:45 PM | 63.8 | 60.0 |
| Point 6 | Full Push | 79 | Clear | 0 | SW | 7.6 | 2:00 PM | 62.3 | 56.0 |
| Point 7 | Full Push | 79 | Clear | 0 | SW | 7.6 | 2:15 PM | 64.2 | 61.3 |
| Point 8 | Full Push | 79 | Clear | 0 | SW | 7.6 | 2:30 PM | 64.0 | 61.6 |
| Point 9 | Full Push | 79 | Clear | 0 | S | 7.6 | 2:45 PM | 65.6 | 60.3 |
| Point 10 | Full Push | 80 | Clear | 0 | SW | 8.1 | 3:00 PM | 63.1 | 60.2 |
| Point 11 | Full Push | 80 | Clear | 0 | SW | 8.1 | 3:15 PM | 64.9 | 62.6 |
| Point 12 | Full Push | 80 | Clear | 0 | SW | 8.1 | 3:30 PM | 64.6 | 62.5 |
| Point 13 | Full Push | 80 | Clear | 0 | W | 8.1 | 3:45 PM | 64.9 | 62.0 |
| Point 14 | Full Push | 80 | Clear | 0 | W | 8.1 | 4:00 PM | 64.6 | 60.2 |
| Point 15 | Full Push | 80 | Clear | 0 | SW | 8.1 | 4:15 PM | 63.6 | 59.8 |

| | | | | | | | | | |
|--------------------------|-----------|------|-------|---|----|-----|----------|------|------|
| Point 16 | Full Push | 80 | Clear | 0 | SW | 8.1 | 4:30 PM | 62.1 | 57.7 |
| Point 17 | Full Push | 80 | Clear | 0 | SW | 8.1 | 4:45 PM | 62.1 | 59.7 |
| Point 18 | Full Push | 79.0 | Clear | 0 | SW | 8.3 | 5:00 PM | 65.1 | 61.6 |
| Point 19 | Full Push | 79.0 | Clear | 0 | SW | 8.3 | 5:15 PM | 65.1 | 62.5 |
| Point 20 | Full Push | 79.0 | Clear | 0 | SW | 8.3 | 5:30 PM | 65.5 | 62.9 |
| Point 21 | Tail Off | 79.0 | Clear | 0 | SW | 8.3 | 5:45 PM | 65.1 | 62.2 |
| Point 22 | Tail Off | 77.0 | Clear | 0 | W | 6.6 | 6:00 PM | 60.3 | 57.8 |
| Point 23 | Tail Off | 77.0 | Clear | 0 | SW | 6.6 | 6:15 PM | 66.9 | 46.9 |
| Sound Measurement - East | | | | | | | | | |
| Point 1 | Start Up | 79 | Clear | 0 | SW | 7.6 | 12:45 PM | 46.9 | 40.5 |
| Point 2 | Start Up | 79 | Clear | 0 | SW | 7.6 | 1:00 PM | 43.2 | 35.9 |
| Point 3 | Full Push | 79 | Clear | 0 | SW | 7.6 | 1:15 PM | 47.8 | 45.8 |
| Point 4 | Full Push | 79 | Clear | 0 | S | 7.6 | 1:30 PM | 49.9 | 46.8 |
| Point 5 | Full Push | 79 | Clear | 0 | W | 7.6 | 1:45 PM | 51.8 | 48.2 |
| Point 6 | Full Push | 79 | Clear | 0 | SW | 7.6 | 2:00 PM | 50.6 | 45.4 |
| Point 7 | Full Push | 79 | Clear | 0 | SW | 7.6 | 2:15 PM | 50.4 | 47.2 |
| Point 8 | Full Push | 79 | Clear | 0 | SW | 7.6 | 2:30 PM | 50.5 | 47.1 |
| Point 9 | Full Push | 79 | Clear | 0 | S | 7.6 | 2:45 PM | 50.8 | 48.3 |
| Point 10 | Full Push | 80 | Clear | 0 | SW | 8.1 | 3:00 PM | 49.4 | 46.1 |
| Point 11 | Full Push | 80 | Clear | 0 | SW | 8.1 | 3:15 PM | 52.6 | 49.7 |
| Point 12 | Full Push | 80 | Clear | 0 | SW | 8.1 | 3:30 PM | 51.0 | 48.0 |
| Point 13 | Full Push | 80 | Clear | 0 | W | 8.1 | 3:45 PM | 50.8 | 48.0 |
| Point 14 | Full Push | 80 | Clear | 0 | W | 8.1 | 4:00 PM | 52.7 | 48.4 |
| Point 15 | Full Push | 80 | Clear | 0 | SW | 8.1 | 4:15 PM | 52.1 | 49.4 |
| Point 16 | Full Push | 80 | Clear | 0 | SW | 8.1 | 4:30 PM | 52.2 | 47.5 |
| Point 17 | Full Push | 80 | Clear | 0 | SW | 8.1 | 4:45 PM | 52.1 | 49.1 |
| Point 18 | Full Push | 79.0 | Clear | 0 | SW | 8.3 | 5:00 PM | 53.2 | 48.7 |
| Point 19 | Full Push | 79.0 | Clear | 0 | SW | 8.3 | 5:15 PM | 53.4 | 50.4 |
| Point 20 | Full Push | 79.0 | Clear | 0 | SW | 8.3 | 5:30 PM | 52.3 | 49.3 |
| Point 21 | Tail Off | 79.0 | Clear | 0 | SW | 8.3 | 5:45 PM | 53.6 | 48.1 |
| Sound Measurmeent - West | | | | | | | | | |
| Point 1 | Start Up | 79 | Clear | 0 | SW | 7.6 | 12:45 PM | 54.1 | 47.7 |
| Point 2 | Start Up | 79 | Clear | 0 | SW | 7.6 | 1:00 PM | 49.4 | 46.5 |
| Point 3 | Full Push | 79 | Clear | 0 | SW | 7.6 | 1:15 PM | 60.6 | 56.1 |
| Point 4 | Full Push | 79 | Clear | 0 | S | 7.6 | 1:30 PM | 56.0 | 52.4 |
| Point 5 | Full Push | 79 | Clear | 0 | W | 7.6 | 1:45 PM | 53.2 | 49.9 |
| Point 6 | Full Push | 79 | Clear | 0 | SW | 7.6 | 2:00 PM | 60.6 | 52.7 |
| Point 7 | Full Push | 79 | Clear | 0 | SW | 7.6 | 2:15 PM | 54.7 | 50.7 |
| Point 8 | Full Push | 79 | Clear | 0 | SW | 7.6 | 2:30 PM | 53.5 | 50.5 |
| Point 9 | Full Push | 79 | Clear | 0 | S | 7.6 | 2:45 PM | 54.6 | 52.7 |
| Point 10 | Full Push | 80 | Clear | 0 | SW | 8.1 | 3:00 PM | 56.8 | 54.3 |
| Point 11 | Full Push | 80 | Clear | 0 | SW | 8.1 | 3:15 PM | 58.1 | 50.9 |
| Point 12 | Full Push | 80 | Clear | 0 | SW | 8.1 | 3:30 PM | 56.8 | 53.6 |
| Point 13 | Full Push | 80 | Clear | 0 | W | 8.1 | 3:45 PM | 54.7 | 51.2 |
| Point 14 | Full Push | 80 | Clear | 0 | W | 8.1 | 4:00 PM | 54.8 | 50.9 |
| Point 15 | Full Push | 80 | Clear | 0 | SW | 8.1 | 4:15 PM | 54.1 | 49.7 |
| Point 16 | Full Push | 80 | Clear | 0 | SW | 8.1 | 4:30 PM | 54.9 | 52.0 |

| | | | | | | | | | |
|-----------------|-----------|------|-------|---|----|-----|---------|------|------|
| Point 17 | Full Push | 80 | Clear | 0 | SW | 8.1 | 4:45 PM | 55.9 | 51.8 |
| Point 18 | Full Push | 79.0 | Clear | 0 | SW | 8.3 | 5:00 PM | 53.9 | 50.7 |
| Point 19 | Full Push | 79.0 | Clear | 0 | SW | 8.3 | 5:15 PM | 53.6 | 50.9 |
| Point 20 | Full Push | 79.0 | Clear | 0 | SW | 8.3 | 5:30 PM | 55.7 | 52.5 |
| Point 21 | Tail Off | 79.0 | Clear | 0 | SW | 8.3 | 5:45 PM | 56.8 | 53.1 |
| Point 22 | Tail Off | 77.0 | Clear | 0 | W | 6.6 | 6:00 PM | 48.2 | 43.0 |
| Point 23 | Tail Off | 77.0 | Clear | 0 | SW | 6.6 | 6:15 PM | 47.8 | 43.3 |
| Point 24 | Tail Off | 77.0 | Clear | 0 | SW | 6.6 | 6:30 PM | 48.1 | 44.6 |



Attachment G

Production Operations Noise Assessment

Production Operations Noise Assessment
Cascade Creek 0697-03-07 Well Site
Laramie Energy, LLC

Prepared For:



Laramie Energy, LLC
760 Horizon Drive, Suite 101
Grand Junction, CO 81506

Prepared By:



Entrada Consulting Group
330 Grand Ave, Suite C
Grand Junction, CO 81501

August 6th, 2021

Project Number 021-039



Production Operations Noise Assessment Cascade Creek 0697-03-07 Production Pad Laramie Energy, LLC

Introduction

Laramie Energy LLC (Laramie) retained Entrada Consulting Group, Inc. (Entrada) to conduct a noise assessment of production operations for submittal to the Colorado Oil and Gas Conservation Commission (COGCC).

The proposed *Laramie Energy 2021 Cascade Creek Oil and Gas Development Plan* (OGDP), includes three proposed well sites (CC 0610-21-41, CC 0697-15-08, and CC 0603-23-32) and the Annex Cuttings Facility, an Exploration and Production Waste Management Facility. Production operations sound readings were collected to provide estimates of production sound levels for the three well sites proposed in the OGDP.

Sound Measurement Location

Production phase sound measurement readings were collected on August 4, 2021, at the CC 0697-03-07 Pad (Location ID 452807). The CC 0697-03-07 Pad was selected as the site to collect sound readings based on elevation, proximity to proposed wells and number of producing wells at the Location (**Table 1**). The CC 0697-03-07 is located in Section 3, Township 6 South, Range 97 West, 6TH P.M., in Garfield County, Colorado.

Table 1: Sound Readings Collection Location and Proposed OGDP Locations

| Well Site (Location) | CC 0697-03-07 | CC 0603-23-32 | CC 0610-21-41 | CC 0697-15-08 |
|-----------------------------------|----------------|---------------|---------------|---------------|
| Elevation | 8438 | 8610 | 8591 | 8514 |
| Number of Wells | 13 (Producing) | 24 (Proposed) | 23 (Proposed) | 18 (Proposed) |
| Distance to the CC 0697-03-07 Pad | | 0.63 miles | 0.89 miles | 2.2 miles |

CC 0697-03-07 to Proposed Well Sites



Sound Measure Collection Points

Sound readings were collected during normal production operations. Due to the topography of the site, sound readings were collected on the well site location. Collection points off location were not possible due to change in elevation, could provide data that is not reflective of production activities at the CC 0697-03-07 Pad. Collection points are identified below in the Sound Measurement Collection Points Figure.

Four collection points, one in each corner of the pad, were established to provide accurate sound measurement of production operations. Equipment on the site at the time of sound measurement readings included 8 tanks, three 5-pack separators, and 13 producing wells.

Sound Measurement Collection Points Figure



Sound Level Meter Equipment

Sound level readings were collected utilizing a Extech Digital Sound Level Meter (Type 2). The sound meter was calibrated prior to sound readings. Sound equipment was equipped with a wind screen as demonstrated in photographs. The sound meter was positioned 5 feet above the ground surface and was positioned towards the centered of the pad. The photographs below display the sound meter equipment at each collection point. Extech Digital Sound Level Meter measure from 35 decibels to 130 decibels.

Point 1



Point 1



Point 2



Point 3



Point 4





**Production Operations Noise Assessment
Cascade Creek 0697-03-07 Production Pad
Laramie Energy, LLC**

Sound Level Readings

Readings were collected every minute for a period of 15 minutes per collection point. Wind speeds were recorded at the time noise readings were collected. Weather observations are listed below in Table 2.

Table 2: Weather Observations

| Temperature (° F) | Cloud Cover | Precipitation | Wind Observation | Additional Notes: |
|-------------------|---------------|---------------|--|-------------------|
| 78° | Partly Cloudy | None | Variable wind speeds, including strong gusts | Hazy sky |

During the collection period, winds speeds ranges from zero (0) to 8.5 miles per hour. A correlation between wind speeds and increased decibels (db(A)) was observed. The recorded decibels range from 35.0 db(A) to 67.8 db(A). It should be noted sound levels of 60 db(A) and higher were only observed when wind exceeded speeds of 8 miles per hour or greater.

In determining the average db(A), readings with wind speeds over 5 miles per hour were omitted from the calculations. Sound levels with wind speeds over 5 miles per hour are displayed on the COGCC Noise Compliance Assessment Form.

Table 3: Average Sound Levels

| Point 1 | Point 2 | Point 3 | Point 4 | CC 0697-03-07 |
|-------------|-------------|-------------|-------------|---------------|
| 45.3 db(A)* | 42.8 db(A)* | 44.7 db(A)* | 39.9 db(A)* | 43.2 db(A)* |

*Not including sound data observed with wind speeds of 5 miles per hour or greater

The average of decibels recorded during the sound assessment was 43.2 db(A) within the site perimeter. Based on the production phase noise levels observed on August 4, 2021, at 131 feet distance from the site perimeter, the sound level from the pad during production operations is neutral.

COGCC NOISE COMPLIANCE ASSESSMENT FORM

Collected by: Stuart Hall and Katy Middleton

Date: August 4th, 2021

| Start Time | | 12:45 P.M. | | | 1:05 P.M. | | | 1:25 P.M. | | | 1:45 PM | | |
|-----------------|-------|--------------------------------|------------|---------------|--------------------------------|------------|----------------------|--------------------------------|------------|---------------|--------------------------------|------------|---------------|
| GPS Coordinates | | N: 39.55794° W: -108.20596° | | | N: 39.55904° W: -108.20559° | | | N: 39.55894° W: -108.20457° | | | N: 39.55785° W: -108.20483° | | |
| | | db(A) | wind speed | Interferences | db(A) | wind speed | Interferences | db(A) | wind speed | Interferences | db(A) | wind speed | Interferences |
| MINUTE INTERVAL | 0-1 | 50.0 | 3.3 | Gust of wind | 40.8 | 0.2 | | 41.2 | 0 | | 38.3 | 0 | |
| | 1-2 | 48.7 | 2.4 | Gusts of wind | 59.2 | 5.1 | Strong gusts of wind | 40.9 | 0 | | 36.1 | 0 | |
| | 2-3 | 59.2 | 3.8 | Gusts of wind | 66.5 | 8.2 | Strong gusts of wind | 42.0 | 0 | | 36.7 | 0 | |
| | 3-4 | 45.9 | 0.9 | | 67.8 | 8.5 | Strong gusts of wind | 40.4 | 0 | | 35.0 | 0 | |
| | 4-5 | 41.9 | 0.1 | | 40.3 | 2.6 | Gusts of wind | 44.7 | 2.9 | Gusts of wind | 37.1 | 0 | |
| | 5-6 | 38.8 | 0 | | 50.3 | 3.1 | Gusts of wind | 42.5 | 2.4 | | 40.9 | 2.5 | Gusts of wind |
| | 6-7 | 42.4 | 2.0 | Gust of wind | 47.2 | 1.0 | | 59.8 | 3.1 | Gusts of wind | 39.8 | 0 | |
| | 7-8 | 39.9 | 0 | | 39.0 | 0.2 | | 44.0 | 0 | | 53.5 | 4.4 | Gusts of wind |
| | 8-9 | 38.6 | 0 | | 47.0 | 2.2 | Gust of wind | 40.4 | 0 | | 50.6 | 2.4 | Gusts of wind |
| | 9-10 | 49.1 | 2.9 | Gust of wind | 39.1 | 0.6 | | 53.2 | 0.6 | | 55.4 | 5.3 | Gusts of wind |
| | 10-11 | 54.6 | 4.9 | Gust of wind | 38.4 | 0.8 | | 46.0 | 3.0 | Gusts of wind | 55.2 | 5.2 | Gusts of wind |
| | 11-12 | 42.0 | 1.8 | Gust of wind | 45.2 | 2.6 | Gusts of wind | 41.3 | 0 | | 41.5 | 2.8 | Gusts of wind |
| | 12-13 | 38.3 | 0 | | 49.8 | 3.3 | Gusts of wind | 53.4 | 1.5 | | 36.0 | 0 | |
| | 13-14 | 42.5 | 0.1 | | 37.5 | 0 | | 40.2 | 0 | | 35.8 | 0 | |
| | 14-15 | 48.1 | 2.6 | Gust of wind | 38.4 | 0 | | 41.0 | 0 | | 36.8 | 0 | |

Notes: Variable wind speeds, including strong gusts of wind. Partly cloudy, hazy sky. 78° (F) at 12:40 P.M.