

**APPLICATION FOR PERMIT TO:**

**Drill**       Deepen       Re-enter       Recomplete and Operate

TYPE OF WELL    OIL <input checked="" type="checkbox"/> GAS <input type="checkbox"/> COALBED <input type="checkbox"/> OTHER _____ ZONE TYPE       SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONES <input type="checkbox"/> COMMINGLE ZONES <input type="checkbox"/>	Refiling <input type="checkbox"/> Sidetrack <input type="checkbox"/>
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Date Received:  
06/11/2018

Well Name: Bighorn      Well Number: 4M-17H-P267  
 Name of Operator: CRESTONE PEAK RESOURCES OPERATING LLC      COGCC Operator Number: 10633  
 Address: 1801 CALIFORNIA STREET #2500  
 City: DENVER      State: CO      Zip: 80202  
 Contact Name: Erin Lind      Phone: (720)410-8478      Fax: (    )  
 Email: erin.lind@crestonepr.com

**RECLAMATION FINANCIAL ASSURANCE**  
 Plugging and Abandonment Bond Surety ID: 20160104

**WELL LOCATION INFORMATION**  
 QtrQtr: SESE      Sec: 17      Twp: 2N      Rng: 67W      Meridian: 6  
 Latitude: 40.133682      Longitude: -104.907733  
 Footage at Surface: 924 Feet      FNL/FSL      FSL      710 Feet      FEL/FWL      FEL  
 Field Name: WATTENBERG      Field Number: 90750  
 Ground Elevation: 4960      County: WELD  
 GPS Data:  
 Date of Measurement: 01/20/2018      PDOP Reading: 1.2      Instrument Operator's Name: Travis Winnicki  
 If well is  Directional       Horizontal (highly deviated)      **submit deviated drilling plan.**  
 Footage at Top of Prod Zone:      FNL/FSL      FEL/FWL      Bottom Hole:      FNL/FSL      FEL/FWL  
    460      FSL      1815      FEL      2654      FSL      1839      FEL  
    Sec: 17      Twp: 2N      Rng: 67W      Sec: 8      Twp: 2N      Rng: 67W

**LOCATION SURFACE & MINERALS & RIGHT TO CONSTRUCT**  
 Surface Ownership:  Fee       State       Federal       Indian  
 The Surface Owner is:       is the mineral owner beneath the location.  
 (check all that apply)       is committed to an Oil and Gas Lease.  
     has signed the Oil and Gas Lease.  
     is the applicant.  
 The Mineral Owner beneath this Oil and Gas Location is:  Fee       State       Federal       Indian  
 The Minerals beneath this Oil and Gas Location will be developed by this Well: Yes  
 The right to construct the Oil and Gas Location is granted by: Surface Use Agreement  
 Surface damage assurance if no agreement is in place: \_\_\_\_\_      Surface Surety ID: \_\_\_\_\_

**LEASE INFORMATION**

Using standard QtrQtr, Sec, Twp, Rng format, describe one entire mineral lease that will be produced by this well (Describe lease beneath surface location if produced. Attach separate description page or map if necessary.)

T2N-R67W Section 17: W2SE, SESE

Total Acres in Described Lease: 120 Described Mineral Lease is:  Fee  State  Federal  Indian

Federal or State Lease # \_\_\_\_\_

Distance from Completed Portion of Wellbore to Nearest Lease Line of described lease: 0 Feet

**CULTURAL DISTANCE INFORMATION**

Distance to nearest:

Building: 715 Feet  
 Building Unit: 1039 Feet  
 High Occupancy Building Unit: 5280 Feet  
 Designated Outside Activity Area: 5280 Feet  
 Public Road: 905 Feet  
 Above Ground Utility: 947 Feet  
 Railroad: 5280 Feet  
 Property Line: 327 Feet

**INSTRUCTIONS:**

- All measurements shall be provided from center of the Proposed Well to nearest of each cultural feature as described in Rule 303.a.(5).  
 - Enter 5280 for distance greater than 1 mile.  
 - Building - nearest building of any type. If nearest Building is a Building Unit, enter same distance for both.  
 - Building Unit, High Occupancy Building Unit, and Designated Outside Activity Area - as defined in 100-Series Rules.

**DESIGNATED SETBACK LOCATION INFORMATION**

Check all that apply. This location is within a:  Buffer Zone  
 Exception Zone  
 Urban Mitigation Area

- Buffer Zone – as described in Rule 604.a.(2), within 1,000' of a Building Unit  
 - Exception Zone - as described in Rule 604.a.(1), within 500' of a Building Unit.  
 - Urban Mitigation Area - as defined in 100-Series Rules.

Pre-application Notifications (required if location is within 1,000 feet of a building unit):

Date of Rule 305.a.(1) Urban Mitigation Area Notification to Local Government: \_\_\_\_\_

Date of Rule 305.a.(2) Buffer Zone Notification to Building Unit Owners: 04/19/2018

**SPACING and UNIT INFORMATION**

Distance from completed portion of proposed wellbore to nearest completed portion of offset wellbore permitted or completed in the same formation: 77 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 460 Feet (Enter 5280 for distance greater than 1 mile.)

Federal or State Unit Name (if appl): \_\_\_\_\_ Unit Number: \_\_\_\_\_

**SPACING & FORMATIONS COMMENTS**

Proposed Spacing Unit: S2NE, SE Sec. 8; E2 Sec. 17 T2N R67W

**OBJECTIVE FORMATIONS**

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
CODELL	CODL		560	GWA

## DRILLING PROGRAM

Proposed Total Measured Depth: 15596 Feet

Distance from the proposed wellbore to nearest existing or proposed wellbore belonging to another operator, including plugged wells:

Enter distance if less than or equal to 1,500 feet: 129 Feet  No well belonging to another operator within 1,500 feet

Will a closed-loop drilling system be used? Yes

Is H<sub>2</sub>S gas reasonably expected to be encountered during drilling operations at concentrations greater than or equal to 100 ppm? No (If Yes, attach an H<sub>2</sub>S Drilling Operations Plan)

Will salt sections be encountered during drilling? No

Will salt based (>15,000 ppm Cl) drilling fluids be used? No

Will oil based drilling fluids be used? Yes

BOP Equipment Type:  Annular Preventor  Double Ram  Rotating Head  None

## GROUNDWATER BASELINE SAMPLING AND MONITORING AND WATER WELL SAMPLING

Water well sampling required per Rule 318A

## DRILLING WASTE MANAGEMENT PROGRAM

Drilling Fluids Disposal: OFFSITE Drilling Fluids Disposal Methods: Commercial Disposal

Cuttings Disposal: OFFSITE Cuttings Disposal Method: Commercial Disposal

Other Disposal Description:

Beneficial reuse or land application plan submitted? \_\_\_\_\_

Reuse Facility ID: \_\_\_\_\_ or Document Number: \_\_\_\_\_

## CASING PROGRAM

Casing Type	Size of Hole	Size of Casing	Wt/Ft	Csg/Liner Top	Setting Depth	Sacks Cmt	Cmt Btm	Cmt Top
CONDUCTOR	24	16	42	0	98	78	98	0
SURF	13+1/2	9+5/8	40	0	2405	925	2405	0
1ST	8+1/2	5+1/2	20	0	15596	2171	15596	

Conductor Casing is NOT planned

## DESIGNATED SETBACK LOCATION EXCEPTIONS

Check all that apply:

- Rule 604.a.(1)A. Exception Zone (within 500' of Building Unit)
- Rule 604.b.(1)A. Exception Location (existing or approved Oil & Gas Location now within a Designated Setback as a result of Rule 604.a.)
- Rule 604.b.(1)B. Exception Location (existing or approved Oil & Gas Location is within a Designated Setback due to Building Unit construction after Location approval)
- Rule 604.b.(2) Exception Location (SUA or site-specific development plan executed on or before August 1, 2013)
- Rule 604.b.(3) Exception Location (Building Units constructed after August 1, 2013 within setback per an SUA or site-specific development plan)

## GREATER WATTENBERG AREA LOCATION EXCEPTIONS

Check all that apply:

- Rule 318A.a. Exception Location (GWA Windows).
- Rule 318A.c. Exception Location (GWA Twinning).

## RULE 502.b VARIANCE REQUEST

Rule 502.b. Variance Request from COGCC Rule or Spacing Order Number \_\_\_\_\_

### OTHER LOCATION EXCEPTIONS

Check all that apply:

Rule 318.c. Exception Location from Rule or Spacing Order Number \_\_\_\_\_

Rule 603.a.(2) Exception Location (Property Line Setback).

ALL exceptions and variances require attached Request Letter(s). Refer to applicable rule for additional required attachments (e.g. waivers, certifications, SUAs).

### OPERATOR COMMENTS AND SUBMITTAL

Comments The distance from completed portion of the proposed wellbore to nearest wellbore permitted/completed in the same formation is the Miller 34-17J, 123-20945, operated by CPR.  
The distance to nearest well belonging to another operator is the Miller 31-17C, 123-12718, operated by Extraction Oil and Gas Inc. This well falls within 150' of the completed interval so a consent letter per Rule 317.s. will be obtained prior to the approval of this APD.  
Interwell distances were determined using our in-house 3D anti-collision reports.  
Open Hole Logging Exception requested. See attached letter.

This application is in a Comprehensive Drilling Plan No CDP #: \_\_\_\_\_

Location ID: 440933

Is this application being submitted with an Oil and Gas Location Assessment application? Yes

I hereby certify all statements made in this form are, to the best of my knowledge, true, correct, and complete.

Signed: \_\_\_\_\_ Print Name: Toby Sachen

Title: Contractor Date: 6/11/2018 Email: toby.sachen.contractor@cresto

Operator must have a valid water right or permit allowing for industrial use or purchased water from a seller that has a valid water right or permit allowing for industrial use, otherwise an application for a change in type of use is required under Colorado law. Operator must also use the water in the location set forth in the water right decree or well permit, otherwise an application for a change in place of use is required under Colorado law. Section 37-92-103(5), C.R.S. (2011).

Based on the information provided herein, this Application for Permit-to-Drill complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved:  Director of COGCC Date: 11/21/2018

Expiration Date: 11/20/2020

**API NUMBER**

05 123 48762 00

### Conditions Of Approval

**All representations, stipulations and conditions of approval stated in the Form 2A for this location shall constitute representations, stipulations and conditions of approval for this Form 2 Permit-to-Drill and are enforceable to the same extent as all other representations, stipulations and conditions of approval stated in this Permit-to-Drill.**

COA Type	Description
	<p>This Permit to Drill is approved subject to all the BMPs and COAs on the most recently approved Form 2A and any subsequently approved Form 4 for the Oil and Gas Location. The most recently approved Form 2A and any subsequent Form 4s containing applicable COAs for this location shall be posted onsite during construction, drilling, and completions operations.</p>
	<p>1) Submit Form 42 electronically to COGCC 48 hours prior to MIRU (Spud Notice), for the first well/activity on the pad and provide 48 hour spud notice for all subsequent wells drilled on the pad.  2) Comply with Rule 317.j and provide cement coverage from the end of production casing to a minimum of 200' above Niobrara and from 200' below Shannon to 200' above Sussex. Verify coverage with cement bond log.  3) Oil-based drilling fluid is to be used only after all fresh water aquifers are covered.</p>
	<p>Operator acknowledges the proximity of the listed well: Operator agrees to: provide mitigation option 1 or 2 (per the DJ Basin Horizontal Offset Policy) to mitigate the situation, ensure all applicable documentation is submitted based on the selected mitigation option chosen, and submit a Form 42 ("OFFSET MITIGATION COMPLETED") for the remediated wells, referencing the API number of the proposed horizontal well(s) stating what appropriate mitigation occurred and that it has been completed, prior to the hydraulic stimulation of this well.</p> <p>Miller 2-17 (API 123-16647)</p>
	<p>Operator acknowledges the proximity of the following non-operated listed wells: Operator agrees to: provide mitigation option 1 or 2 (per the DJ Basin Horizontal Offset Policy) to mitigate the situation, ensure all applicable documentation is submitted based on the selected mitigation option chosen, and submit a Form 42 ("OFFSET MITIGATION COMPLETED") for the remediated wells, referencing the API number of the proposed horizontal well(s) stating what appropriate mitigation occurred and that it has been completed, prior to the hydraulic stimulation of this well.</p> <p>Alvin State 1 (API 123-10602)  Miller 1 (API 123-07272)  Perrin Gas Unit 1 (API 123-09841)  Perrin 2-20 (API 123-14248)  State Dechant 2-16 (API 123-14247)</p>
	<p>Operator will submit signed Rule 317.s Stimulation Setback Consents via Sundry Notice, Form 4 prior to stimulation of this well.</p> <p>In the Form 5A comments, operator will (1) certify that this well has no treated interval within 150' of the treated interval of another operator's well for which a signed Stimulation Setback Consent was not obtained, (2) provide the following information for all other operator's offset wells without consent that have a treated interval within 150' of this as-drilled wellbore: well name and API number, depth of the perforation in this well nearest to the treated interval of the offset well, and the distance between the wells at that depth, and (3) address the wells listed below as either (a) obtained consent or (b) treated interval more than 150' away from this as-drilled wellbore.</p> <p>Miller 31-17C (API 123-12718)</p>
	<p>Bradenhead tests shall be performed and reported according to the following schedule and Form 17 submitted within 10 days of each test:</p> <p>1) Within 60 days of rig release and prior to stimulation or  2) If a delayed completion, 6 months after rig release and prior to stimulation.  3) Within 30 days after first production, as reported on Form 5A.  If a Bradenhead test reports a surface casing pressure greater than 200 psig, stimulation is not allowed until the Engineering Supervisor has been consulted.</p>

## Best Management Practices

<b>No BMP/COA Type</b>	<b>Description</b>
1 Drilling/Completion Operations	Upon initial rig-up and at least once every thirty (30) days during drilling operations thereafter, pressure testing of the casing string and each component of the blowout prevention equipment including flange connections will be performed to seventy percent (70%) of working pressure or seventy percent (70%) of the internal yield of casing, whichever is less. Pressure testing shall be conducted and the documented results will be retained by the operator for inspection by the Director for a period of one (1) year. Activation of the pipe rams for function testing shall be conducted on a daily basis when practicable.
2 Drilling/Completion Operations	Adequate blowout prevention equipment will be used on all well servicing operations.
3 Drilling/Completion Operations	Backup stabbing valves shall be required on well servicing operations during reverse circulation. Valves shall be pressure tested before each well servicing operation using both low-pressure air and high-pressure fluid.
4 Drilling/Completion Operations	No drill stem tests will be performed.
5 Drilling/Completion Operations	Prior to drilling operations, Crestone will perform an anti-collision scan of existing offset wells that have the potential of being within close proximity of the proposed well. This anti-collision scan will include definitive MWD or gyro surveys of the offset wells with included error of uncertainty per survey instrument, and compared against the proposed wellpath with its respective error of uncertainty. If current surveys do not exist for the offset wells, the Operator may have gyro surveys conducted to verify bottomhole location. The proposed well will only be drilled if the anti-collision scan results indicate that there is not a risk for collision, or harm to people or the environment. For the proposed well, upon conclusion of drilling operations, an as-constructed gyro survey will be submitted to COGCC with the Form 5.
6 Drilling/Completion Operations	Crestone will comply with the "COGCC Policy for Bradenhead Monitoring During Hydraulic Fracturing Treatments in the Greater Wattenberg Area", dated May 29, 2012.
7 Drilling/Completion Operations	One of the first wells drilled on the pad will be logged with Cased hole Pulsed Neutron Log with Gamma Ray Log from the kick-off point to into the surface casing. All wells on the pad will have a cement bond log with gamma-ray run on production casing (or on intermediate casing if production liner is run) into the surface casing. The horizontal portion of every well will be logged with a measured while-drilling gamma-ray log. The Form 5, Completion Report, for each well on the pad will list all logs run in that well and have those logs attached. The Form 5 for each well shall clearly state "No open-hole logs were run" and shall reference the Rule 317.p Exception granted for the well.

Total: 7 comment(s)

### Applicable Policies and Notices to Operators

Notice Concerning Operating Requirements for Wildlife Protection.  
[http://cogcc.state.co.us/documents/reg/Policies/Wildlife\\_Notice.pdf](http://cogcc.state.co.us/documents/reg/Policies/Wildlife_Notice.pdf)

Policy for Bradenhead Monitoring During Hydraulic Fracturing Treatments in the Greater Wattenberg Area.  
<http://cogcc.state.co.us/documents/reg/Policies/PolicyGwaBradenheadMonitoringFinal.pdf>

### Attachment Check List

<b>Att Doc Num</b>	<b>Name</b>
401654623	FORM 2 SUBMITTED
401654685	OTHER
401654686	DEVIATED DRILLING PLAN
401654687	DIRECTIONAL DATA
401654805	EXCEPTION LOC WAIVERS
401654806	SURFACE AGRMT/SURETY
401658958	OffsetWellEvaluations Data

401666325	WELL LOCATION PLAT
401668720	PROPOSED SPACING UNIT
401689969	EXCEPTION LOC REQUEST
401689970	OPEN HOLE LOGGING EXCEPTION
401848465	OFFSET WELL EVALUATION

Total Attach: 12 Files

### General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Per operator, checked buffer zone box and input date of buffer zone notification to building unit owners.  Final Review Completed.	11/16/2018
Engineer	Offset Wells Evaluated.	09/10/2018
Permit	Passed Completeness.	08/07/2018
Permit	Returned to draft without completeness review pending outcome of hearing for GWA wellbore unit objection.	07/02/2018
Permit	Returned to draft: Operator request.	06/29/2018
Permit	Returned to draft for: Logging exception provided is not adequate. GR log starts at 4400'. Another well needs to be provided or the exception needs to be removed and the BMP changed. There are 12 abandoned API's on this pad. These need to be used on the new APD's and a comment needs to be provided on the changes.	06/18/2018
Permit	Returned to draft for: Logging exception provided is not adequate. GR log starts at 4400'. Another well needs to be provided or the exception needs to be removed and the BMP changed. There are 12 abandoned API's on this pad. These need to be used on the new APD's and a comment needs to be provided on the changes.	06/18/2018

Total: 7 comment(s)