



**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.)

T39N, R5E; Sec 13 SWSE, SESW; Sec 24 W2E2, E2W2; Sec 25 E2NW, NESW

Total Acres in Described Lease: 520 Described Mineral Lease is:  Fee  State  Federal  Indian

Federal or State Lease # COC69530

Distance from Completed Portion of Wellbore to Nearest Lease Line of described lease: 1280 Feet

**CULTURAL DISTANCE INFORMATION**

Distance to nearest:

Building: 1100 Feet

Building Unit: 1100 Feet

High Occupancy Building Unit: 5280 Feet

Designated Outside Activity Area: 5280 Feet

Public Road: 446 Feet

Above Ground Utility: 446 Feet

Railroad: 5280 Feet

Property Line: 448 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: \_\_\_\_\_

**SPACING and UNIT INFORMATION**

Distance from Completed Portion of Wellbore to Nearest Wellbore Permitted or Completed in the same formation: 5280 Feet

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

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

**SPACING & FORMATIONS COMMENTS**

\_\_\_\_\_

**OBJECTIVE FORMATIONS**

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
DAKOTA	DKTA			
MORRISON-SUNDANCE	MR-SN			

**DRILLING PROGRAM**

Proposed Total Measured Depth: 6600 Feet

Distance to nearest permitted or existing wellbore penetrating objective formation: 3276 Feet (Including plugged wells)

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?     No      
 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     609    

**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	20	16	64	0	80			
SURF	12+1/4	9+5/8	36	0	1100	456	1100	0
1ST	7+7/8	5+1/2	17	0	6600	890	6600	0

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 I hereby certify that there have been no changes to this permit. The land use description has not changed nor has our proposed action. The access road and well pad have not yet been built. There will be no pits constructed at this site and there will be no additional surface disturbance. This location does not need a variance and is not in a surface occupancy area. It is a split estate location and the BLM has leased the mineral estate to the Dan A. Hughes Company, who owns the surface estate and is also the operator. The BLM has recently approved the APD and we are currently dealing with County COA's which requires School to be out of session before we can begin the well.

This application is in a Comprehensive Drilling Plan \_\_\_\_\_ CDP #: \_\_\_\_\_

Location ID: \_\_\_\_\_

Is this application being submitted with an Oil and Gas Location Assessment application? \_\_\_\_\_ No \_\_\_\_\_

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

Signed: \_\_\_\_\_ Print Name: Terri Hartle \_\_\_\_\_

Title: Regulatory Analyst Date: 2/12/2014 Email: terri.hartle@westernls.com

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: Matthew Lee Director of COGCC Date: 3/29/2014

Expiration Date: 03/28/2016

API NUMBER  
05 105 06018 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>Deep Fresh Water Aquifer Concerns Area residents, county officials and other water resources stakeholders have reasonably demonstrated and expressed concern for and the likelihood of exposure deep fresh water aquifers while drilling this prospect. Conditions of permit approval will reflect those demonstrated concerns. Deviations from the conditions of approval must have substantial proof to support them and must be approved by any one of the following COGCC personnel:</p> <p>Regional Engineer (Mark Weems) Supervising Engineer (David Andrews) Engineering Manager (Stuart Ellsworth).</p> <p>Highlights/Components to Engineering Conditions of Permit Approval (COA's)</p> <ol style="list-style-type: none"> <li>1. Notices</li> <li>2. Surface casing set @ 1100' and cement to surface. Deepest fresh water well within 1 mi radius=302'</li> <li>3. Report surface casing cement pumping pressure prior to bumping the plug and include cement volume, density, &amp; yield and how many bbls of cement circulated to surface</li> <li>4. Formation Integrity test 50' below surface casing shoe; test to 10 ppg mud equivalent</li> <li>5. Bottom hole pore pressure design condition= 0.520 psi/ft</li> </ol>
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- 6.Casing change scenarios
- 7.Casing cementing scenarios
- 8.Cement bond or cement evaluation logs
- 9.Temperature survey
- 10.Resistivity logs
- 11.Porosity logs
- 12.Drilling mud reserve volumes on hand
- 13.Empty tank/pit reserve capacity for unexpected mud discharges from the well
- 14.Dry hole plug and abandon design and procedure

#### ENGINEERING CONDITIONS OF PERMIT APPROVAL (COA's)

##### COGCC CONTACTS:

Engineer – Mark Weems  
970-259-4587 off  
970-749-0624 cell  
mark.weems@state.co.us

Inspector – Steve Labowskie  
970-259-0945 off  
970-946-5073  
steve.labowskie@state.co.us

Provide contacts with seventy-two (72) hour notice of spud & include:

Operator Name  
Well Name and Number  
API #  
Legal Location  
Spud Date  
Name of rig supervisor  
Phone number of rig supervisor  
Email address of rig supervisor

Also and in addition to, provide the COGCC-Denver a 48 hour notice of spud via form 42

Provide COGCC contacts with:

Daily drilling reports & Pason/Drilling parameters or equivalent data  
At least three (3) hours notice of BOP test and casing seating depths

##### Casing Design & Implementation

###### Surface Casing

The surface casing is designed to be set at 1100' and cemented to surface. This is deemed adequate. The deepest water well within a mile radius (relative to sea level) is 302' deep and is located in NWSW 18 39N 6E.

While cementing surface casing, report surface pumping pressures near the conclusion of the job or just prior to bumping the plug at the float collar. Report cement volume (cu ft), cement density (ppg), cement yield (cu ft/sk), and bbls of cement circulated to pit. If top cementing is required, report cement data on daily drill report. In all cases submit cementing contractor's job summary with form 5- Drilling and Completion Report.

Perform formation integrity test (FIT) to 10 ppg mud equivalent after drilling 50' of formation below surf csg shoe. Assumed bottom hole pore pressure is 0.52 psi/ft or 3432 psi at a depth of 6600'.

###### Example:

Surface casing set @ 1100'; well drilled out 50' from surface casing shoe; mud weight = 8.33 ppg or .433 psig/ft; surface test pressure =  $0.052(10.0 \text{ ppg} - 8.33 \text{ ppg})(1150') = 100 \text{ psi}$

FIT results must be noted on daily reports. Pressure losses exceeding 15 percent after 15 minutes will require remedial wellbore sealing and retest or running and cementing intermediate casing to surface (1st consult w/ COGCC SW Regional Engineer).

## Subsequent Casing Strings

### Tentative Intermediate Casing

The need may arise to run intermediate casing; so, operator must have the capability of running alternate casing and on location within 24 hours. Provide COGCC contacts with the name and phone numbers of the casing supplier having at least 4000' of 7" O.D. casing and 2800 feet of 4 ½" O. D. casing on hand.

Criteria to run intermediate casing shall include but not be limited to the following;  
A failed formation integrity test after drilling out 50 feet from the surface casing shoe  
A cement pill (plug) or equivalent is used to seal a mud thief zone at depths between 4000'- 1100'  
Hard to control water flows

The minimal clearance allowed between the outside of the widest part of the casing (collar) and the inside of the next casing (inside drift) or wellbore shall be no less than 0.42 inches .

Any intermediate casing run and in all cases where intermediate casing is run, the intermediate casing will extend to surface and be cemented to surface. While cementing intermediate casing, report surface pumping pressures near the conclusion of the job or just prior to bumping the plug at the float collar. Report cement volume (cu ft), density (ppg) and yield (cu ft/sk) and bbls of cement circulated to pit. Submit a copy of the cementing contractor's job summary. Intermediate casing must have a temperature survey run within 24 hours of cementing even if it has been cemented to surface. A cement bond log (CBL) may be substituted in place of a temperature log. Submit two copies to COGCC-Denver (see rule 308A).

If intermediate casing is run, then the 4 ½" casing may be a liner (casing not run to surface) and must overlap the intermediate casing shoe by a minimum of 200 feet. The liner must be cemented from top to bottom.

A cement bond log is required on both the 4 ½" liner and 7" intermediate casing and must be run from the 4 ½" liner casing shoe, into the 7" intermediate casing and onto surface. Submit two (2) copies to the COGCC-Denver (see rule 308A).

In the event the operator chooses to run the production casing to surface with intermediate casing cemented in place, then the operator must run a temperature survey on the intermediate casing within 8-24 hours of cementing the intermediate casing to surface. A cement bond log may be substituted. Cement behind the production casing must overlap the intermediate casing shoe by a minimum of 200 feet. A cement bond long (CBL) is required to be run on the production casing.

### Production Casing and No Intermediate Casing

A cementing DV stage tool or external packers are recommended on the production casing cement job if no intermediate casing is installed. If the cement top on the production casing does not circulate to surface and remain at surface, then remedial cement work will be assessed and decided upon. Report the cement pumping pressures at the conclusion of the job or just prior to bumping the plug on the float collar. Report the cement volume (cu ft), density (ppg) and yield (cu ft/sk) and bbls of cement to pit. Submit one (1) copy of the cementing contractor's job summary. Submit two (2) copies of the cement bond log (CBL) (see rule 308A).

### Additional Conditions of Permit Approval - Logging

Run temp survey 8-24 hours after cementing intermediate casing. Temperature survey is mandatory on intermediate casing and may be substituted with a cement evaluation log. Submit two (2) copies to COGCC-Denver (see rule 308A).

Run resistivity logs from MTD to base of intermediate casing; otherwise, to the base of the surface casing if no intermediate casing is run. Submit two (2) copies to COGCC-Denver (see rule 308A).

Run porosity logs from MTD to surface. Submit two (2) copies to COGCC-Denver (see rule 308A).

	<p>Additional Conditions of Permit Approval - Mud Program Mud loses exceeding 20 bbls in any one incident must be noted on daily reports</p> <p>In addition to mud used during drilling operator to have a minimal additional 500 bbls of mixed mud reserve in tanks and on location ready to go in a moment's notice.</p> <p>A minimal of 500 bbls of water reserve in tanks and on location w/ dry mud materials and additives on hand ready for mixing up 500 bbls of additional mud reserve.</p>
	<p>Open hole resistivity and gamma logs shall be run to describe the stratigraphy of the entire well bore and to adequately verify the setting depth of surface casing and aquifer coverage. On a multi-well pad, these open hole logs are only required on one of the first wells drilled on the pad and the Drilling Completion Report - Form 5 for every well on the pad shall identify which well was logged.</p>

If the well is drilled without an earthen reserve pit, then have enough empty tanks on site to hold 500 bbls of mud.

Have dirt contractor located and available to dig a pit if well kick is likely to exceed 500 bbls of tank empty tank capacity on location.

Additional Conditions of Permit Approval - CEMENT ASSESSMENT

Scenario 1  
 Casing and cement as per approved APD (surface casing + production casing run & cemented to surface)  
 Run radial CBL or cement evaluation tool capable of identifying cement channels from MTD to surface on the production casing.

Scenario 2  
 7" intermediate casing and 4 1/2" production casing (liner); the 4 1/2" liner must overlap the intermediate casing a minimum of 200 feet

Run radial CBL or cement evaluation tool capable of identifying cement channels from MTD to surface on both the intermediate casing and production liner.

Scenario 3  
 Intermediate & production casing to surf  
 Run temp survey on intermediate casing and radial CBL on production casing from casing shoe to surface

For All and any other Scenario  
 Report Braden head pressure 24 hrs after cementing next casing string and again prior to perforating pay zone

Submit copy of all logs run to COGCC Denver office

Submit copy of cementing contractor's job log to COGCC Denver office for all casings

Dry Hole – Plug and Abandonment Procedure

100' cement plug above T/Dakota & tag

100' cement plug above T/Mancos & tag

100' cmt plug above each zone with hydrocarbon shows & tag

100' cmt plug above any water flows & tag

100'cmt plug 50' below surf casing shoe & tag (perforate & squeeze if intermed or prod csg is present)

100' cmt plug 550'-450' tag unnecessary if csg press tests ok

50' surf cmt plug

Cut casing off 4' below grade and install PA marker (above or below ground-check with landowner)

PA maker to include, operator name, well name & number, legal location, API #, date plugged

**Best Management Practices**

	<b><u>No BMP/COA Type</u></b>	<b><u>Description</u></b>

## Applicable Policies and Notices to Operators

Notice Concerning Operating Requirements for Wildlife Protection.

### Attachment Check List

**Att Doc Num**      **Name**

400554056	FORM 2 SUBMITTED
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Total Attach: 1 Files

### General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Final review completed; no LGD or public comment received.	3/26/2014 6:12:35 AM
Permit	Building unit appears to be further than 876 feet. Requested clarification. Operator measured from edge of pad. Distances revised per operator.	3/25/2014 11:22:01 AM
Permit	Location assessment is good until June/2015.	2/21/2014 9:22:13 AM
Permit	Passed completeness.	2/14/2014 9:31:39 AM

Total: 4 comment(s)