

APPLICATION FOR PERMIT TO:

Drill Deepen Re-enter Recomplete and Operate

Date Received:
06/05/2014

TYPE OF WELL OIL GAS COALBED OTHER WATER

ZONE TYPE SINGLE ZONE MULTIPLE ZONES COMMINGLE ZONES

Refiling Sidetrack

Well Name: SHANNON STATE Well Number: #1

Name of Operator: GRYNBERG* JACK DBA GRYNBERG PETROLEUM CO COGCC Operator Number: 36200

Address: 3600 S. YOSEMITE ST - STE 900

City: DENVER State: CO Zip: 80237-1830

Contact Name: JACK GRYNBERG Phone: (303)8507490 Fax: (303)8507498

Email: J.GRYNBERG@GRYNBERG.COM

RECLAMATION FINANCIAL ASSURANCE

Plugging and Abandonment Bond Surety ID: 20100037

WELL LOCATION INFORMATION

QtrQtr: SWSW Sec: 36 Twp: 12N Rng: 101W Meridian: 6

Latitude: 40.951756 Longitude: -108.704329

Footage at Surface: 840 feet FNL/FSL FSL 598 feet FEL/FWL FWL

Field Name: SUGAR LOAF Field Number: 80000

Ground Elevation: 6898.4 County: MOFFAT

GPS Data:
Date of Measurement: 03/31/2014 PDOP Reading: 2.1 Instrument Operator's Name: LEO HILTNER

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

Sec: _____ Twp: _____ Rng: _____ Sec: _____ Twp: _____ Rng: _____

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: No

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.)

LOTS 2, 4, 6, 8-10 OF TRACT 39A, T12N, R101W, SEC 36

Total Acres in Described Lease: 172 Described Mineral Lease is: Fee State Federal Indian

Federal or State Lease # 7868.3

Distance from Completed Portion of Wellbore to Nearest Lease Line of described lease: 598 Feet

CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 1413 Feet

Building Unit: 5280 Feet

High Occupancy Building Unit: 5280 Feet

Designated Outside Activity Area: 5280 Feet

Public Road: 3095 Feet

Above Ground Utility: 5280 Feet

Railroad: 5280 Feet

Property Line: 485 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: 1436 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 840 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.)
FORT UNION-WASATCH	FT-WS			

DRILLING PROGRAM

Proposed Total Measured Depth: 5922 Feet

Distance to nearest permitted or existing wellbore penetrating objective formation: 1420 Feet (Including plugged wells)

Will a closed-loop drilling system be used? No

Is H₂S gas reasonably expected to be encountered during drilling operations at concentrations greater than or equal to 100 ppm? No (If Yes, attach an H₂S 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: UIC Disposal

Cuttings Disposal: OFFSITE Cuttings Disposal Method: Commercial Disposal

Other Disposal Description:

ALL WASTE WILL BE DISPOSED OF AN APPROVED DISPOSAL FACILITY

Beneficial reuse or land application plan submitted? No

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
SURF	12+1/4	10+3/4	32.75	0	263	150	263	0
1ST	8+3/4	5+1/2	17	0	5900	350	5900	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 THIS IS A RE-ENTRY INTO A PLUGGED AND ABANDONED 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: JACK GRYNBERG

Title: CEO Date: 6/2/2014 Email: J.GRYNBERG@GRYNBERG.

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: 11/20/2014

Expiration Date: 11/19/2016

API NUMBER
05 081 05469 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
	Operator to provide formation tops on Form 5 from surface to TD with no gaps. Assuming formations are present include but do not be limited to: Green River Formation and its members, Wasatch, Fort Union, Ohio Creek, Mesaverde, Williams Fork, Lance, Fox Hills, Lewis.
	(1) COMPLIANCE WITH THE MOST CURRENT REVISION OF THE NORTHWEST COLORADO NOTIFICATION POLICY IS REQUIRED. SEE ATTACHED NOTICE. (2) CEMENT ON PRODUCTION CASING (5+1/2" FIRST STRING) MUST EXTEND INTO THE SURFACE CASING (MINIMUM 200' LAP ABOVE SURFACE CASING SHOE) TO PROVIDE ISOLATION OF ALL CRETACEOUS (INCLUDING MESAVERDE GROUP) AND TERTIARY (INCLUDING LEWIS, FOX HILLS, LANCE, FORT UNION, WASATCH, AND ALL MEMBERS OF THE GREEN RIVER FORMATION) OIL, GAS, AND WATER-BEARING SANDSTONE AND COALBED FORMATIONS THAT ARE NOT OTHERWISE COVERED BY SURFACE CASING. VERIFY PRODUCTION CASING (5+1/2" FIRST STRING) CEMENT COVERAGE WITH A CBL. (3) APPROVAL OF THIS FORM DOES NOT AUTHORIZE INJECTION. AUTHORIZATION TO INJECT REQUIRES APPROVAL OF FORM 31 AND FORM 33. (4) BEFORE STIMULATING THE OBJECTIVE INJECTION FORMATION(S), COLLECT WATER SAMPLE(S) AND ANALYZE FOR TOTAL DISSOLVED SOLIDS. PRIOR APPROVAL OF FORM 4 IS REQUIRED FOR STEP RATE AND INJECTIVITY TESTS.

Best Management Practices

No BMP/COA Type	Description

Applicable Policies and Notices to Operators

NW Colorado Notification Policy.

Notice Concerning Operating Requirements for Wildlife Protection.

Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
901043	WELLBORE DIAGRAM
901044	OTHER
2055994	OFFSET WELL EVALUATION
2362517	FORM 2 SUBMITTED
2362518	DRILLING PLAN
400632274	WELL LOCATION PLAT

Total Attach: 6 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	The Hiawatha State 1 is an AL. This APD will correct the location of the well moving it to match the Plat. Plat attachment includes Const. Layout, Location Drawing, Access Road Map, Hydrology, Reference Area Map, Loc and Ref Area Photos. Final review complete.	11/3/2014 9:46:25 AM
Permit	The State Land Board has verified the bonding required by them for this location.	9/2/2014 10:56:34 AM
Permit	The supplied Well location plat spots at the DA Hiawatha State #1A not the Shannon State well as indicated in this "re-enter". Have requested clarification and correct Well location Plat, placed ON HOLD.	9/2/2014 6:58:27 AM
Engineer	Objective Formation clarification request sent to operator on 8/28/2014, "The Form 2 #2362517 lists Wasatch, Fort Union, Lance, and Lewis as objective formations. However, it appears that your planned gross perforation interval from 3300' to 4046' is limited to the lower portion of the Wasatch Formation and the upper portion of the Fort Union Formation. Please reply to confirm that Lance and Lewis are no longer objective formations for injection." Operator confirmed that injection intervals will be limited to the Upper Fort Union and Lower Wasatch from 3300' to 4046'. Operator's proposed objective formations FORT UNION-LANCE-LEWIS and WASATCH-FT UNION-LEWIS removed, and FT-WS (Fort Union - Wasatch) objective added. Attached cross section (labeled OFFSET WELL EVALUATION) illustrates proposed injection intervals compared to offset wells. COGCC UIC Engineer task added to evaluate planned injection intervals.	8/28/2014 4:37:20 PM
Engineer	Withdrawn per operator's request on 8/25/2014. Pushed back to In Process on 8/28/2014 as a result of operator's offset mitigation concern response.	8/25/2014 10:13:32 AM
Engineer	Evaluated this well and existing offset wells within 1,500 feet of this wellbore: EVALUATED SUBJECT RE-ENTRY DA WELL STATE #1 (05-081-05469), TD AT 5922' IN MVRD. PLUGGED AS A DA HOLE WITH 30 SX AT 5451' (MVRD), 30 SX AT 4600' (LNCE), 30 SX ACROSS SURFACE CASING SHOE AT 263', AND 10 SX AT SURFACE. RE-ENTRY IS PROPOSED FOR INJECTION INTO LWIS, LNCE, FTUN, AND WSTC AFTER FULLY CEMENTING A NEW PRODUCTION CASING. EVALUATED OFFSET PA WELL SUGARLOAF #36-3 (05-081-06613), TD AT 5910' IN MVRD. MVRD AND FTUN PRODUCER, TOP MVRD PERF AT 5430' AND TOP FTUN PERF AT 4571', PRODUCTION CSG CMT TOP AT 3340' BY CBL. ANGEL SQUEEZED INTO CSG LEAKS ISOLATED B/W 2356' TO 2879'. WELL PA WITH 50 SX CMT IN CSG FROM 5720' TO 5270' ACROSS MVRD PERFS, 40 SX CMT IN CSG FROM 4780' TO 4420' ACROSS FTUN PERFS, 100 SX CMT IN CSG FROM 2930' TO 2050' ACROSS CSG LEAKS (ALSO SQUEEZED 40 SX CMT INTO LEAKS), 12 SX CMT IN CSG FROM 670' TO 570', AND 23 SX CMT AT SURFACE IN CSG AND ANNULUS. NO APPARENT CEMENT PRESENT IN THE ANNULUS ACROSS THE SURFACE CASING SHOE AT 620'. COGCC NOTIFIED	8/20/2014 10:10:31 AM

OPERATOR ON 8/20/2014, CONCERNED WITH NO ANNULAR CEMENT COVERAGE ACROSS THE SURFACE CASING SHOE. OPERATOR RESPONDED ON 8/27/2014, "The Sugarloaf #36-3 (API# 05-081-06613) was plugged and abandoned in 1992. The well is located in the NWSW Section 36, T12N, R101W and over 1,140 feet further north of the subject well. It appears in my opinion to be adequately plugged with 12 sacks of cement in the casing from 670'-570' and 23 sacks of cement in the casing and annulus. Also, the proposed perforations in the Shannon State #1 SWD well are 3,300-50'; 3,410-28'; 3,720-50' and 4,030-46' and with good cement above these zones in the Sugarloaf #36-3 well we feel that communication between the wells will not occur. In conclusion, the Sugarloaf #36-3 well is nearly 1/4 mile north of our proposed SWD, the injection zones in the Shannon State #1 well are much deeper than the casing shoe at 620' in the Sugarloaf #36-3 well and with adequate cement plugs in the well there will be no communication between the wells." COGCC replied on 8/28/2014, "Based on the top proposed Wasatch perforation of 3300', COGCC agrees that the offset well Sugarloaf 36-3 has an adequate annular plug in the interval from 2879' to 2356' to prevent up-hole communication with any potential fresh water zones. No mitigation required."

EVALUATED OFFSET PR WELL HIAWATHA STATE 2-36 (05-081-07314), TD AT 6299 IN MVRD. FTUN PRODUCER WITH TOP PERF AT 4695' AND REPORTED TOP OF PRODUCTION CASING CEMENT AT 2600' (CBL NOT AVAILABLE FOR REVIEW). SURFACE CASING SET AT 519'. A SIGNIFICANT WSTC INTERVAL (POTENTIAL FRESHWATER SOURCE) IS NOT CEMENTED. COGCC NOTIFIED OPERATOR ON 8/20/2014, CONCERNED WITH LACK OF WSTC ISOLATION. OPERATOR RESPONDED ON 8/27/2014, "The top of the cement in the Hiawatha State #2-36 (API# 05-081-07314) well is at 2,600' and our proposed perforations in the Shannon State #1 well are 3,300'-50'; 3,410'-28'; 3,720'-50' and 4,030'-46'. Therefore, the entire interval between the top of the perfs at 4,695' and TOC at 2,600' in the Hiawatha State #2-36 well is cemented. In conclusion, we feel there is no risk of communication between the injection zones of the Shannon State #1 well and the Wasatch zones in the Hiawatha State #2-36 well." COGCC replied on 8/28/2014, "Based on the proposed gross perforation interval from 3300' to 4046' and the distance to the offset well Hiawatha State 2-36, COGCC agrees that the potential for communication with the offset well production perforations is low because the production perforations are in the lower portion of the Fort Union Formation. COGCC also agrees that the potential for impacting the uncemented portion of the offset well is low because of the lateral separation between wells and the vertical separation between the proposed top injection perforation of 3300' and the TOC in the offset well at 2600'. No mitigation required."

EVALUATED HIAWATHA DEEP #4-36 (05-081-07427), TD AT 14501 IN THE NGSD OR UNDERLYING SHALE. A 2009 WELLBORE DIAGRAM SHOWS PLUGGED BACK NGSD AND FRTR COMPLETIONS, AN OPEN BXTR COMPLETION BELOW A PACKER, AND OPEN MVRD COMPLETIONS ABOVE THE PACKER WITH THE TOP MVRD PERF AT 6385'. THERE IS NO REPORTED PRODUCTION FROM THE WELL THROUGH JUNE 2014. TOP OF CEMENT IS 6375' BY CBL ON THE PRODUCTION CASING (7" SECOND STRING), WHICH IS BELOW THE INTERMEDIATE CASING SHOE (9+5/8" FIRST STRING) AT 5712'. A PORTION OF MVRD MAY BE EXPOSED IN THAT INTERVAL, BUT IT IS NOT A SIGNIFICANT ISOLATION CONCERN. THE ESTIMATED FIRST STRING CEMENT TOP IS APPROXIMATELY 4010' BY COGCC'S CALCULATION (250 SX LEAD, 12.5 PPG, 2.13 CF/SK AND 50 SX TAIL, 15.8 PPG, 1.16 CF/SK IN A 12+1/2" HOLE WITH 9+5/8" 43.5 PPF CSG). PERMIT CONDITIONS FOR THE WELL REQUIRED INTERMEDIATE CASING CEMENT 200' ABOVE THE FTUN TOP WITH CEMENT COVERAGE VERIFICATION BY CBL. THE OPERATOR DID NOT REPORT THE FORT UNION TOP, NOR WAS AN INTERMEDIATE CASING CBL PROVIDED FOR VERIFICATION OF FTUN COVERAGE. POTENTIAL FRESH WATER ZONES, THE UPPER PORTION OF FTUN AND A SIGNIFICANT PORTION OF WSTC, MAY BE UNCEMENTED BEHIND INTERMEDIATE CASING IN THIS WELL. HOWEVER, THE MULTIPLE CASING STRING DESIGN ALLOWS FOR ADDED PROTECTION FROM COMMUNICATION WITH OFFSET STIMULATION. NO MITIGATION REQUIRED.

Engineer	Changed PTMD from 5900' to the current TMD of the well, 5922' (this is an existing well). The casing weight provided for the first string (11.6#) is common for 4+1/2" csg but not 5+1/2" csg. Requested a revision from the operator on 8/20/2014. Operator responded on 8/27/2014, indicating that the correct casing weight is 17#.	8/20/2014 9:49:38 AM
Engineer	EXISTING 263' SURFACE CASING DOES NOT PROVIDE FULL COVERAGE OF THE WASATCH AND FORT UNION FORMATIONS, BASED ON REPORTED LOG TOPS IN OFFSET WELLS. THERE ARE NO PERMITTED WATER WELLS WITHIN ONE MILE. HOWEVER, THE WASATCH AND FORT UNION FORMATIONS ARE CONSIDERED POTENTIAL SOURCES OF FRESH WATER (CGS GROUND WATER ATLAS OF COLORADO, 2003). BOTH FORMATIONS ALSO PRODUCE HYDROCARBONS IN OFFSET WELLS. COGCC CONCURS WITH THE OPERATOR'S PLAN TO FULLY CEMENT THE PRODUCTION CASING (5+1/2" FIRST STRING) TO PROVIDE FULL CEMENT COVERAGE IN THE WELLBORE.	3/1/2014 2:24:25 PM
Permit	Passed completeness. Attached WBD and Federal Form for Application for Transportation and Utility Systems and Facilities on Federal Lands.	7/28/2014 9:47:17 AM
Permit	C. Houser with Grynberg confirmed that ROW with BLM is still being worked on and needs to address the injection well project. Also working on WBD.	7/22/2014 8:49:58 AM
Permit	After speaking with operator, made the following corrections: 1. Zone type selected as single 2. Attached well plat 3. Selected Surface owner as Federal and unmarked that the surface owner has signed an oil and gas lease 4. No Spacing & Formations so no corrections were made here 5. Selected water sampling rule as 609 6. Marked that Conductor casing is not planned. Waiting for Operator to attach a Wellbore Diagram and SUA	6/24/2014 11:51:24 AM
Permit	1. Zone type blank 2. Missing well plat. 3. Checked as signed oil and gas lease, but has SUA selected as right to construct. 4. Asked operator to check spacing formations and fill in spacing order number, unit acreage, and unit configuration 5. Missing water well sampling rule 6. No conductor casing entered, but "conductor casing is not planned" isn't checked.	6/10/2014 8:41:48 AM

Total: 12 comment(s)