

**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 _____	Refiling <input type="checkbox"/>
ZONE TYPE    SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONES <input type="checkbox"/> COMMINGLE ZONES <input type="checkbox"/>	Sidetrack <input type="checkbox"/>

Date Received:  
04/17/2014

Well Name: <u>SRC MARKHAM</u>	Well Number: <u>R-16-9NHZ</u>
Name of Operator: <u>SYNERGY RESOURCES CORPORATION</u>	COGCC Operator Number: <u>10311</u>
Address: <u>20203 HIGHWAY 60</u>	
City: <u>PLATTEVILLE</u>	State: <u>CO</u>
	Zip: <u>80651</u>
Contact Name: <u>Paul Gottlob</u>	
	Phone: <u>(720)420-5747</u>
	Fax: <u>( )</u>
Email: <u>paul.gottlob@iptenergyservices.com</u>	

**RECLAMATION FINANCIAL ASSURANCE**

Plugging and Abandonment Bond Surety ID: 20090043

**WELL LOCATION INFORMATION**

QtrQtr: SENW    Sec: 16    Twp: 4N    Rng: 68W    Meridian: 6

Latitude: 40.313927    Longitude: -105.010106

Footage at Surface:	<u>2440</u>	feet	FNL/FSL	<u>2144</u>	feet	FEL/FWL
	FNL		FNL		FEL	FWL

Field Name: WATTENBERG    Field Number: 90750

Ground Elevation: 4963    County: WELD

GPS Data:

Date of Measurement: 02/24/2014    PDOP Reading: 1.2    Instrument Operator's Name: Aaron A. Demo

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
<u>2200</u>	FNL	<u>920</u>	<u>460</u>	FNL	<u>920</u>
FNL		FEL	FNL		FEL

Sec: 16    Twp: 4N    Rng: 68W       Sec: 9    Twp: 4N    Rng: 68W

**LOCATION SURFACE & MINERALS & RIGHT TO CONSTRUCT**

Surface Ownership:  Fee     State     Federal     Indian

The Surface Owner is:

(check all that apply)

is the mineral owner beneath the location.

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: oil and gas lease

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.)

ALL, Sec. 9, T4N, R68W & N/2, Sec. 16, T4N, R68W.

Sec. 9 is all Fee. 3/4 of N/2 of Sec. 16 is Fee. The E/2 of NE/4 of Sec. 16 is State Land Board Minerals #2486.12.

Total Acres in Described Lease: 960 Described Mineral Lease is:  Fee  State  Federal  Indian

Federal or State Lease # 2486.12

Distance from Completed Portion of Wellbore to Nearest Lease Line of described lease: 460 Feet

## CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 1068 Feet

Building Unit: 1068 Feet

High Occupancy Building Unit: 5280 Feet

Designated Outside Activity Area: 5280 Feet

Public Road: 2017 Feet

Above Ground Utility: 1887 Feet

Railroad: 5280 Feet

Property Line: 215 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: 3575 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

Spacing Unit: ALL, Sec. 9, T4N, R68W & N/2, Sec. 16, T4N, R68W = 960 acres.

## OBJECTIVE FORMATIONS

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
NIOBRARA	NBRR		960	GWA

## DRILLING PROGRAM

Proposed Total Measured Depth: 14099 Feet

Distance to nearest permitted or existing wellbore penetrating objective formation: 1471 Feet (Including plugged wells)

Will a closed-loop drilling system be used? Yes

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 318A

## DRILLING WASTE MANAGEMENT PROGRAM

Drilling Fluids Disposal: OFFSITE Drilling Fluids Disposal Methods: Land application

Cuttings Disposal: OFFSITE Cuttings Disposal Method: Other

Other Disposal Description:

Drilling Fluids & Cuttings will be off-site at Land Application locations to be determined - a permitted location will be in place prior to use.

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	9+5/8	36	0	550	290	550	0
1ST	8+3/4	7+0/0	26	0	7040	618	7040	3000
1ST LINER	6+1/8	4+1/2	11.6	6840	14099			

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

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

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: Paul Gottlob

Title: Regulatory & Eng. Tech. Date: 4/17/2014 Email: paul.gottlob@iptenergyservices

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: \_\_\_\_\_

Expiration Date: \_\_\_\_\_

API NUMBER

05

## 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**

COA Type	Description

## Best Management Practices

No	BMP/COA Type	Description
1	Planning	Multi-well Pads. It is a multi-well pad located in a manner which allows for resource extraction while maintaining the highest distances possible from the offsetting residential areas.
2	Traffic control	Access roads. The access road will be constructed to accommodate local emergency vehicles. This road will be maintained for access at all times.
3	General Housekeeping	Fencing requirements. A permanent fencing plan will be reviewed by the surface owner, & the applicant.
4	General Housekeeping	Removal of surface trash. All trash, debris and material not intrinsic to the operation of the oil and gas facility shall be removed and legally disposed of as is applicable.
5	Material Handling and Spill Prevention	Leak Detection Plan. Pumper will visit the location daily and visually inspect all tanks and fittings for leaks. Additionally, monthly documented SPCCP inspections are conducted pursuant to 40 CFR §112.

6	Material Handling and Spill Prevention	Berm construction. Tank berms shall be constructed of steel rings with a synthetic or engineered liner and designed to contain 150% of the capacity of the largest tank. All berms will be visually checked periodically to ensure proper working condition.
7	Material Handling and Spill Prevention	Load-lines. All load-lines shall be bull-plugged or capped.
8	Material Handling and Spill Prevention	Tank specifications. Tanks will be designed, constructed and maintained in accordance with NFPA Code 30. The tanks are visually inspected once a day for issues, and recorded inspections are conducted once a month.
9	Noise mitigation	Lighting abatement measures shall be implemented, including the installation lighting shield devices on all of the more conspicuous lights, low density sodium lighting where practicable; and rig shrouding is not believed necessary as this is an industrial area and the only building unit within 1,000' is owned by the operator, however, at its election the operator may install temporary engineering controls consisting of perimeter sound walls shall be used on the location during drilling and completion activities to provide noise relief. Permanent equipment on location shall be muffled to reduce noise, or shall be appropriately buffered.
10	Drilling/Completion Operations	Closed Loop Drilling Systems – Pit Restrictions. Not applicable; a closed-loop system will be used for drilling.
11	Drilling/Completion Operations	Green Completions – Emission Control Systems. Test separators and associated flow lines and sand traps shall be installed on-site to accommodate Green completions techniques pursuant to COGCC Rules. In the anticipated absence of a viable gas sales line, the flow-back gas shall be thermally oxidized in an emissions control device (ECD), which will be installed and kept in operable condition for least the first 90-days of production pursuant to CDPHE rules. This ECD shall have an adequate capacity for 1.5 times the largest flow-back within a 10 mile radius, will be flanged to route gas to other or permanent oxidizing equipment and shall be provided with the equipment needed to maintain combustion where non-combustible gases are present.
12	Drilling/Completion Operations	Blowout preventer equipment (“BOPE”). A double ram and annular preventer will be used during drilling. At least the drilling company shall have a valid well blowout prevention certifications.
13	Drilling/Completion Operations	BOPE for well servicing operations. Adequate BOP equipment shall be used. Stabbing valves shall be installed in the event of reverse circulation and shall be prior tested with low and high pressure fluid.
14	Drilling/Completion Operations	Pit level indicators. Not applicable; a closed-loop system will be used and no pits shall be dug.
15	Drilling/Completion Operations	Drill stem tests. Not applicable; no Drill Stem tests are planned.
16	Drilling/Completion Operations	Control of fire hazards. All materials which are considered fire hazards shall be a minimum of 25' from the wellhead tanks or separators. Electrical equipment shall comply with API RP 500 and will comply with the current national electrical code. An emergency response plan has been generated for this site.
17	Drilling/Completion Operations	Guy line anchors. All guy line anchors shall be brightly marked pursuant to Rule 604.c (2)Q.
18	Final Reclamation	Well site cleared. Within 90-day subsequent to the time of plugging and abandonment of the entire site, superfluous debris and equipment shall be removed from the site.
19	Final Reclamation	Identification of plugged and abandoned wells. P&A'd wells shall be identified pursuant to 319.a.(5).

Total: 19 comment(s)

## Applicable Policies and Notices to Operators

Notice Concerning Operating Requirements for Wildlife Protection.

### Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
400590013	FORM 2 SUBMITTED
400591070	OffsetWellEvaluations Data
400591090	DIRECTIONAL DATA
400591095	DEVIATED DRILLING PLAN
400591134	EXCEPTION LOC REQUEST
400591140	EXCEPTION LOC REQUEST
400591141	30 DAY NOTICE LETTER
400592415	WELL LOCATION PLAT
400598437	EXCEPTION LOC WAIVERS
400598642	PROPOSED SPACING UNIT

Total Attach: 10 Files

### General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Returned to draft per operator's request	4/25/2014 8:28:43 AM
Permit	Returned to draft. Minerals should be State, not Fee. Missing SUA. Distance to Building is greater than distance to Building Unit. Casing program is incomplete: stops at 7250'. Distance to property line is more than 150'. No waiver is required and exception box should be unchecked. First attachment labeled "Offset Well Evaluation" is list of water wells. Needs to be removed. Second attachment labeled "Offset Well Evaluation" is a drawing of the pad. Needs to be removed. Plats of the two sections must be on one attachment. Exception Location Request letter citing 350' setback is out of date. Needs to be removed. Corrected attachments labeled Directional Data to Deivated Drilling Plan and Multi-Well Plan. Corrected Exception Location Request attachment to Exception Location Waiver. Missing Exception Location Request for Rule 318A.a. Missing Proposed Spacing Unit attachment.	4/18/2014 2:22:00 PM

Total: 2 comment(s)