

FORM  
2A

Rev  
04/01

State of Colorado  
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:

400332378

Date Received:

10/04/2012

Oil and Gas Location Assessment

New Location  Amend Existing Location Location#: \_\_\_\_\_

Submit original plus one copy. This form is to be submitted to the COGCC prior to any ground disturbance activity associated with oil and gas development operations. This Assessment may be approved as a standalone application or submitted as an informational report accompanying an Application for Permit-To-Drill, Form 2. Approval of this Assessment will allow for the construction of the below specified location; however, it does not supersede any land use rules applied by the local land use authority. This form may serve as notice to land owners and other interested parties, please see the COGCC web site at <http://colorado.gov/cogcc/> for all accompanying information pertinent to this Oil and Gas Location Assessment.

Location ID:

**430927**

Expiration Date:

**11/28/2015**

This location assessment is included as part of a permit application.

1. CONSULTATION

- This location is included in a Comprehensive Drilling Plan. CDP # \_\_\_\_\_
- This location is in a sensitive wildlife habitat area.
- This location is in a wildlife restricted surface occupancy area.
- This location includes a Rule 306.d.(1)A.ii. variance request.

2. Operator

Operator Number: 10411  
 Name: ENDEAVOUR OPERATING CORPORATION  
 Address: 1125 17TH STREET #1525  
 City: DENVER State: CO Zip: 80202

3. Contact Information

Name: Terry Hoffman  
 Phone: (720) 542-8287  
 Fax: ( )  
 email: terry@rockymountainpermitting.com

4. Location Identification:

Name: Wiley Number: 22-3-97-2  
 County: RIO BLANCO  
 Quarter: NWSE Section: 22 Township: 3N Range: 97W Meridian: 6 Ground Elevation: 5889

Define a single point as a location reference for the facility location. This point should be used as the point of measurement in the drawings to be submitted with this application. When the location is to be used as a well site then the point shall be a well location.

Footage at surface: 1778 feet FSL, from North or South section line, and 1352 feet FEL, from East or West section line.  
 Latitude: 40.212075 Longitude: -108.259826 PDOP Reading: 1.2 Date of Measurement: 08/27/2012  
 Instrument Operator's Name: K. Stewart

5. Facilities (Indicate the number of each type of oil and gas facility planned on location):

Special Purpose Pits: <input type="checkbox"/>	Drilling Pits: <input type="checkbox"/>	Wells: <input type="text" value="1"/>	Production Pits: <input type="checkbox"/>	Dehydrator Units: <input type="checkbox"/>
Condensate Tanks: <input type="checkbox"/>	Water Tanks: <input type="text" value="2"/>	Separators: <input type="text" value="1"/>	Electric Motors: <input type="checkbox"/>	Multi-Well Pits: <input type="checkbox"/>
Gas or Diesel Motors: <input type="checkbox"/>	Cavity Pumps: <input type="checkbox"/>	LACT Unit: <input type="checkbox"/>	Pump Jacks: <input type="text" value="1"/>	Pigging Station: <input type="checkbox"/>
Electric Generators: <input type="checkbox"/>	Gas Pipeline: <input type="checkbox"/>	Oil Pipeline: <input type="checkbox"/>	Water Pipeline: <input type="checkbox"/>	Flare: <input type="text" value="1"/>
Gas Compressors: <input type="checkbox"/>	VOC Combustor: <input type="checkbox"/>	Oil Tanks: <input type="text" value="2"/>	Fuel Tanks: <input type="checkbox"/>	

Other: Trench on location for cuttings only.

6. Construction:

Date planned to commence construction: 11/15/2012 Size of disturbed area during construction in acres: 4.65  
 Estimated date that interim reclamation will begin: 10/01/2013 Size of location after interim reclamation in acres: 3.10  
 Estimated post-construction ground elevation: 5887 Will a closed loop system be used for drilling fluids: Yes   
 Will salt sections be encountered during drilling: Yes  No  Is H2S anticipated? Yes  No   
 Will salt (>15,000 ppm TDS Cl) or oil based muds be used: Yes  No   
 Mud disposal: Offsite  Onsite  Method: Land Farming  Land Spreading  Disposal Facility   
 Other: \_\_\_\_\_

**7. Surface Owner:**

Name: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Address: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Address: \_\_\_\_\_ Email: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ Date of Rule 306 surface owner consultation: \_\_\_\_\_  
 Surface Owner:  Fee  State  Federal  Indian  
 Mineral Owner:  Fee  State  Federal  Indian  
 The surface owner is:  the mineral owner  committed to an oil and gas lease  
 is the executer of the oil and gas lease  the applicant  
 The right to construct the location is granted by:  oil and gas lease  Surface Use Agreement  Right of Way  
 applicant is owner  
 Surface damage assurance if no agreement is in place:  \$2000  \$5000  Blanket Surety ID 20120034

**8. Reclamation Financial Assurance:**

Well Surety ID: 20120033  Gas Facility Surety ID: \_\_\_\_\_  Waste Mgnt. Surety ID: \_\_\_\_\_

**9. Cultural:**

Is the location in a high density area (Rule 603.b.): Yes  No   
 Distance, in feet, to nearest building: 4625, public road: 12197, above ground utilit: 29388  
 , railroad: 269280, property line: 862

**10. Current Land Use (Check all that apply):**

Crop Land:  Irrigated  Dry land  Improved Pasture  Hay Meadow  CRP  
 Non-Crop Land:  Rangeland  Timber  Recreational  Other (describe): \_\_\_\_\_  
 Subdivided:  Industrial  Commercial  Residential

**11. Future Land Use (Check all that apply):**

Crop Land:  Irrigated  Dry land  Improved Pasture  Hay Meadow  CRP  
 Non-Crop Land:  Rangeland  Timber  Recreational  Other (describe): \_\_\_\_\_  
 Subdivided:  Industrial  Commercial  Residential

**12. Soils:**

List all soil map units that occur within the proposed location. Attach the National Resource Conservation Service (NRCS) report showing the "Map Unit Description" report listing the soil typical vertical profile. This data is to used when segregating topsoil.

The required information can be obtained from the NRCS web site at <http://soildatamart.nrcs.usda.gov/> or from the COGCC web site GIS Online map page found at <http://colorado.gov/cogcc>. Instructions are provided within the COGCC web site help section.

NRCS Map Unit Name: 41. Havre loam, 0 to 4 percent slopes

NRCS Map Unit Name: 61. Patent loam, 3 to 8 percent slopes

NRCS Map Unit Name: 53. Moyerson stony clay loam, 15 to 65 percent slopes

### 13. Plant Community:

Complete this section only if any portion of the disturbed area of the location's current land use is on non-crop land.

Are noxious weeds present: Yes  No

Plant species from:  NRCS or,  field observation Date of observation: 08/27/2012

List individual species: \_\_\_\_\_

Check all plant communities that exist in the disturbed area.

- Disturbed Grassland (Cactus, Yucca, Cheatgrass, Rye)
- Native Grassland (Bluestem, Grama, Wheatgrass, Buffalograss, Fescue, Oatgrass, Brome)
- Shrub Land (Mahogany, Oak, Sage, Serviceberry, Chokecherry)
- Plains Riparian (Cottonwood, Willow, Aspen, Maple, Poplar, Russian Olive, Tamarisk)
- Mountain Riparian (Cottonwood, Willow, Blue Spruce)
- Forest Land (Spruce, Fir, Ponderosa Pine, Lodgepole Pine, Juniper, Pinyon, Aspen)
- Wetlands Aquatic (Bullrush, Sedge, Cattail, Arrowhead)
- Alpine (above timberline)
- Other (describe): Sagebrush & Native Grasses

### 14. Water Resources:

Rule 901.e. may require a sensitive area determination be performed. If this determination is performed the data is to be submitted with the Form 2A.

Is this a sensitive area:  No  Yes Was a Rule 901.e. Sensitive Areas Determination performed:  No  Yes

Distance (in feet) to nearest surface water: 127, water well: 1347, depth to ground water: 100

Is the location in a riparian area:  No  Yes Was an Army Corps of Engineers Section 404 permit filed  No  Yes

Is the location within a Rule 317B Surface Water Suppl Area buffer zone:

No  0-300 ft. zone  301-500 ft. zone  501-2640 ft. zone

If the location is within a Rule 317B Surface Water Supply Area buffer have all public water supply systems within 15 miles been notified:  No  Yes

### 15. Comments:

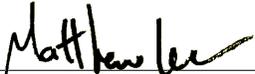
Footages listed as 5280' are greater than one (1) mile. Closest permitted water well is an inactive stock well with the permit # 16877-F. Closest active water well permit is #66373 and is more than one mile from the proposed location. This well is being drilled primarily as a "Pilot Hole" (with the potential to be produced). Possible lateral to be permitted in the future.

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

Signed: \_\_\_\_\_ Date: 10/04/2012 Email: terry@rockymountainpermitting.com

Print Name: Terry L. Hoffman Title: Permit Agent

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: 11/29/2012

**CONDITIONS OF  
APPROVAL, IF ANY:**

**All representations, stipulations and conditions of approval stated in this Form 2A for this location shall constitute representations, stipulations and conditions of approval for any and all subsequent operations on the location unless this Form 2A is modified by Sundry Notice, Form 4 or an Amended Form 2A.**

**SITE SPECIFIC COAs:**

Operator must implement best management practices to contain any unintentional release of fluids, including any fluids conveyed via temporary surface or buried pipelines.

Operator must ensure secondary containment for any volume of fluids contained at well site during drilling and completion operations (as shown on the Proposed BMPs attachment); including, but not limited to, construction of a berm or diversion dike, diversion/collection trenches within and/or outside of berms/dikes, site grading, or other comparable measures (i.e., best management practices (BMPs) associated with stormwater management) sufficiently protective of nearby surface water. Any berm constructed at the well pad location will be stabilized, inspected at regular intervals (at least every 14 days), and maintained in good condition.

Location is in a sensitive area due to close proximity to a water well; therefore, either a closed loop system must be used (which operator has indicated on the Form 2A), or the drilling pit must be lined and constructed above the top of groundwater.

Notify the COGCC 48 hours prior to start of pad construction, rig mobilization, spud, and start of hydraulic stimulation operations using Form 42 (the appropriate COGCC individuals will automatically be email notified, including the LGD for hydraulic stimulation operations).

The moisture content of any cuttings in a cuttings pit, trench, or pile shall be as low as practicable to prevent accumulation of liquids greater than de minimis amounts. At the time of closure, if the drill cuttings are to be left onsite, they must also meet the applicable standards of table 910-1.

Flowback and stimulation fluids must be sent to tanks, separators, or other containment/filtering equipment before the fluids can be placed into any pipeline, storage vessel, or lined pit (only if an amended Form 2A has been submitted/approved and a Form 15 Earthen Pit Permitted has been submitted/approved) located on the well pad; or into tanker trucks for offsite disposal. The flowback and stimulation fluid tanks, separators, or other containment/filtering equipment must be placed on the well pad in an area with additional downgradient perimeter berming. The area where flowback fluids will be stored/reused must be constructed to be sufficiently impervious to contain any spilled or released material.

Berms or other containment devices shall be constructed to be sufficiently impervious (preferably corrugated steel with poly liner) to contain any spilled or released material around crude oil, condensate, and produced water storage tanks.

The access road will be constructed to prevent sediment migration from the access road to nearby surface water or any drainages leading to other nearby surface waters or wetlands areas.

## GROUNDWATER/SURFACE WATER BASELINE SAMPLING

Baseline Water Testing: Prior to drilling, operator shall sample the two (2) closest domestic water wells, springs, or surface water features within a one (1) mile radius of the proposed oil and gas location. Testing preference shall be given to domestic water wells and springs over surface water. Testing of surface water features shall only be conducted if two (2) water wells or springs do not exist within a one (1) mile radius of the selected oil and gas location. If possible, the water wells or springs selected should be on opposite sides of the oil and gas location not exceeding a one (1) mile radius. If water wells or springs on opposite sides of the oil and gas location cannot be identified, then the two (2) closest wells or springs within a one (1) mile radius of the oil and gas location shall be sampled. The sample location shall be surveyed in accordance with Rule 215. Sampling and analysis shall be conducted in conformance with an accepted industry standard as described in Rule 910.b.(2).

Initial baseline testing shall include: pH, specific conductance, total dissolved solids (TDS), dissolved gases (methane, ethane, propane), alkalinity (total bicarbonate and carbonate as CaCO<sub>3</sub>), major anions (bromide, chloride, fluoride, sulfate, nitrate and nitrite as N, phosphorus), major cations (calcium, iron, magnesium, manganese, potassium, sodium), other elements (barium, boron, selenium and strontium), presence of bacteria (iron related, sulfate reducing, slime and coliform), total petroleum hydrocarbons (TPH) and BTEX compounds (benzene, toluene, ethylbenzene and xylenes). Hydrogen sulfide shall also be measured using a field test method. Field observations such as pH, temperature, specific conductance, odor, water color, sediment, bubbles, and effervescence shall also be included. COGCC recommends that the latest version of EPA SW 846 analytical methods be used where possible and that analyses of samples be performed by laboratories that maintain state or national accreditation programs.

If free gas or a dissolved methane concentration greater than 1.0 milligram per liter (mg/l) is detected in a water well, gas compositional analysis and stable isotope analysis of the methane (carbon and hydrogen – <sup>12</sup>C, <sup>13</sup>C, <sup>1</sup>H and <sup>2</sup>H) shall be performed to determine gas type. If test results indicated thermogenic or a mixture of thermogenic and biogenic gas. If the methane concentration increases by more than 5.0 mg/l between sampling periods, or increases to more than 10. mg/l, the operator shall notify the Director and the owner of the water well immediately.

After 90 days, but less than 180 days of completion of the first proposed well a “post-completion” test shall be performed for the same analytical parameters listed above and repeated one (1), three (3) and six (6) years thereafter. If the well is a non-producing well, then the one (1), three (3) and six (6) year samples will not be required. If no significant changes from the baseline have been identified after the third test (i.e. the six-year test), no further testing shall be required.

Additional “post-completion” test(s) may be required if changes in water quality are identified during follow-up testing. The Director may require further water well sampling at any time in response to complaints from water well owners.

Copies of all test results described above shall be provided to the Director and the landowner where the water quality testing well is located within three (3) months of collecting the samples used for the test. The analytical data and surveyed well locations shall also be submitted to the Director in an electronic data deliverable format.

Operator may conduct baseline groundwater sampling (if water wells are available for sampling) in accordance with the Colorado Oil and Gas Association (COGA) Voluntary Baseline Groundwater Quality Sampling Program (updated November 15, 2011).

Documented refusal to grant access by well owner or surface owner (for surface water and spring sampling) shall not constitute a violation of this COA.

### **Attachment Check List**

Att Doc Num	Name
2106474	CORRESPONDENCE
2106476	PROPOSED BMPs
400332378	FORM 2A SUBMITTED
400332975	NRCS MAP UNIT DESC
400332976	OTHER
400333262	ACCESS ROAD MAP
400333380	LOCATION DRAWING
400333381	REFERENCE AREA PICTURES
400333385	REFERENCE AREA MAP
400333387	LOCATION PICTURES
400335193	HYDROLOGY MAP

Total Attach: 11 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Operator working on SUA; will submit when signed. Changed right to construct to "bond". No LGD or public comments. Final Review--passed.	11/21/2012 1:43:28 PM
DOW	CPW attended an on-site consultation with the permitting agent and the COGCC on November 1, and communicated BMPs to the operator on November 5. The permitting agent regrettably declined every proposed BMP on November 9. See the attachments for these correspondences. Jacob Davidson, 11:14, 11-15-2012	11/15/2012 11:15:02 AM
OGLA	Initiated/Completed OGLA Form 2A review on 10-23-12 by Dave Kubeczko; requested acknowledgement of fluid containment, spill/release BMPs, baseline water testing, tank berming, flowback to tanks, sediment control access road, and cuttings low moisture content COAs from operator on 10-23-12; received acknowledgement of COAs from operator on 11-20-12; passed by CPW on 11-15-12 with operator/land owner not agreeing to BMPs, but operator will be considerate to mule deer and greater sage-grouse present in the area during operations; passed OGLA Form 2A review on 11-21-12 by Dave Kubeczko; fluid containment, spill/release BMPs, baseline water testing, tank berming, flowback to tanks, sediment control access road, and cuttings low moisture content COAs.	10/23/2012 12:04:10 PM
Permit	Operator amended distances. This form passed completeness.	10/10/2012 1:02:13 PM
Permit	Return to draft: 1. nearest building (5280') distance does not match location drawing (4625'). 2. GIS mapped nearest water well (#16877-F; around 1000' SW) does not match water resources section (5280').	10/6/2012 4:16:15 PM

Total: 5 comment(s)

## BMP

<u>Type</u>	<u>Comment</u>
Storm Water/Erosion Control	<p>Endeavour Operating Corporation Wiley #22-3-97-2 NWSE Section 22-T3N-R97W Rio Blanco Co., Colorado</p> <p>Best Management Practices Summary</p> <p>Stormwater Management Plans (SWMP) will be in place to address construction, drilling and operations associated with Oil &amp; Gas development throughout the state of Colorado in accordance with Colorado Department of Public Health and Environment (CDPHE). BMP's will be constructed around the perimeter of the site prior to, or at the beginning of construction. The BMP's used will vary according to the location, and will remain in place until the pad reaches final reclamation.</p> <p>Spill Prevention Control and Counter measures (SPCC) plans will be in place to address any possible spills associated with Oil &amp; Gas operations throughout the state of Colorado in accordance with CFR12.</p> <p>Housekeeping will consist of neat and orderly storage of materials and fluids. Wastes will be temporarily stored in sealed containers and regularly collected and disposed of at offsite, suitable facilities. If spills occur prompt cleanup will be required to minimize any commingling of waste materials with stormwater runoff. Routine maintenance will be limited to fueling and lubrication of equipment. Drip pans will be used during routine fueling and maintenance to contain spills or leaks. Any waste product from maintenance will be containerized and transported offsite for disposal or recycling. There will be no major equipment overhauls conducted onsite. Equipment will be transported offsite for major overhauls. Cleanup will consist of patrolling the roadways, access areas, and other work areas to pick up trash, scrap debris, other discarded materials, and any contaminated soil. These materials will be disposed of properly.</p> <p>The above BMP's will be provided to all Endeavour Operating Corporation, contractors and will be posted in the company trailer located on location during drilling, completion and production operations.</p>

Total: 1 comment(s)