

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:

400299920

Date Received:

06/27/2012

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:

**430112**

Expiration Date:

**09/03/2015**

☒ 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: 10421

Name: PETROLEUM RESOURCE MANAGEMENT CORP.

Address: 1580 LINCOLN ST., STE 635

City: DENVER State: CO Zip: 80203

3. Contact Information

Name: Duncan Shepherd

Phone: (303) 861-9480

Fax: (303) 861-7362

email: petromgt@comcast.net

4. Location Identification:

Name: Sheehan 2 Number: 4-2

County: MOFFAT

QuarterQuarter: TR 37 Section: 2 Township: 10N Range: 89W Meridian: 6 Ground Elevation: 8266

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: 2082 feet FNL, from North or South section line, and 350 feet FEL, from East or West section line.

Latitude: 40.852625 Longitude: -107.336557 PDOP Reading: 3.0 Date of Measurement: 05/17/2012

Instrument Operator's Name: Dan Siek

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

Special Purpose Pits: 0	Drilling Pits: 1	Wells: 1	Production Pits: 0	Dehydrator Units: 0
Condensate Tanks: 0	Water Tanks: 0	Separators: 0	Electric Motors: 0	Multi-Well Pits: 0
Gas or Diesel Motors: 0	Cavity Pumps: 0	LACT Unit: 0	Pump Jacks: 0	Pigging Station: 0
Electric Generators: 0	Gas Pipeline: 0	Oil Pipeline: 0	Water Pipeline: 0	Flare: 0
Gas Compressors: 0	VOC Combustor: 0	Oil Tanks: 0	Fuel Tanks: 0	

Other: Exploratory well.

6. Construction:

Date planned to commence construction: 08/01/2012 Size of disturbed area during construction in acres: 2.00  
 Estimated date that interim reclamation will begin: 10/01/2012 Size of location after interim reclamation in acres: 1.50  
 Estimated post-construction ground elevation: 8265 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: Dried and buried in pit

## 7. Surface Owner:

Name: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Address: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Address: \_\_\_\_\_ Email: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ Date of Rule 306 surface owner consultation: 03/01/2012  
 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 \_\_\_\_\_

## 8. Reclamation Financial Assurance:

☒ Well Surety ID: 20120059 ☐ 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: 4650, public road: 6200, above ground utilit: 4650  
   , railroad: 121490, property line: 1046

## 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 be 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: Soil survey information is not available from either NRCS web site or the GIS online map page

NRCS Map Unit Name: \_\_\_\_\_  
NRCS Map Unit Name: \_\_\_\_\_

### 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: \_\_\_\_\_  
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): \_\_\_\_\_

### 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: 200, water well: 4650, depth to ground water: 600  
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 Supply 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:

Please see attached comments. Reference area is located immediately adjacent and to the west of the well pad location on undisturbed land.

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

Signed: \_\_\_\_\_ Date: 06/27/2012 Email: rickobe1@aol.com

Print Name: Rick Obernolte Title: 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: Matthew Lee Director of COGCC Date: 9/4/2012

**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 ensure 110 percent secondary containment for any volume of fluids (excluding freshwater) contained at well site during drilling and completion operations; 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.

Operator must implement best management practices to contain any unintentional release of fluids, including any fluids conveyed via temporary surface or buried pipelines. Additional containment shall be required where temporary pumps and other necessary equipment or chemicals are located.

Location is in a sensitive area due to close proximity to a water well; therefore, either a closed loop system must be used, or the drilling pit must be lined.

Notify COGCC Oil and Gas Location Assessment (OGLA) Specialist for Western Colorado (Dave Kubeczko; email dave.kubeczko@state.co.us) and the COGCC Field Inspection Supervisor for Northwest Colorado (Shaun Kellerby; email shaun.kellerby@state.co.us) 48 hours prior to start of construction of the well pad, start of construction of the pit (if different), pit liner installation, and start of fracing operations (via Form 42).

The access road will be constructed as to not allow any sediment to migrate from the access road to nearby surface water or any drainages leading to surface water.

If the well is to be hydraulically stimulated, 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 pit 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.

The moisture content of any drill 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 remain onsite, they must also meet the applicable standards of table 910-1.

No portion of any pit that will be used to hold liquids shall be constructed on fill material, unless the pit and fill slope are designed and certified by a professional engineer, subject to review and approval by the director prior to construction of the pit. The construction and lining of the pit shall be supervised by a professional engineer or their agent. The entire base of the pit must be in cut.

Because of proximity of the well pad to the nearby surface water irrigation ditch to the north and the drainage to the east, operator will grade the well pad surface to slope towards the south, away from the edges of the fill slopes. There should either be a retention trench or retention ponds along the southern pad boundary within the bermed area. In addition, tertiary containment will be required at the well pad location consisting of two lateral collection trenches/ditches along the northwest and northeast sides of the pad (outside of the well pad berm/ditches). The trenches will be graded to flow into one or two oversized rock-filled catchment basins located near the west-southwest corner and/or the east-northeast corner of the well pad. This basins will be surrounded by straw waddle and/or silt fencing.

Berms or other containment devices shall be constructed to be sufficiently impervious to contain any spilled or released material around crude oil, condensate, and/or produced water storage tanks, including temporary facilities. The berms will consist of corrugated steel and an impervious poly (or similar) liner will be installed to the top of the steel berm and beneath the tanks.

At the time of pit closure, operator must submit disposal information via a Form 4 Sundry Notice to Dave Kubeczko (Dave Kubeczko; email dave.kubeczko@state.co.us). The disposal method will need to be approved prior to operator starting pit closure. Provide photographs of the pit subsequent to liner removal along with a minimum of one confirmation soil sample from beneath the pit (analyzed for pH, SAR, major cations/anions (chloride, fluoride, sulfate, sodium); total dissolved solids (TDS); benzene, toluene, ethylbenzene, total xylenes (BTEX); gasoline range organics (GRO); diesel range organics (DRO); and metals (arsenic, barium, calcium, chromium, iron, magnesium, selenium). Documentation shall be submitted via either a Form 15 Pit Report or Form 27.

**BASELINE GROUNDWATER SAMPLING FOR WILDCAT WELLS:**

Baseline Groundwater Testing: Prior to drilling, operator shall sample the two (2) closest domestic water wells or springs within a one (1) mile radius of the proposed 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.

Initial baseline testing shall include: field observations (turbidity, odor, sample location description); laboratory analyses will include pH; alkalinity; specific conductance; major cations/anions (chloride, fluoride, sulfate, sodium); total dissolved solids (TDS); nutrients (nitrates, nitrites); benzene, toluene, ethylbenzene, total xylenes (BTEX); gasoline range organics (GRO); diesel range organics (DRO); total petroleum hydrocarbons (TPH); polyaromatic hydrocarbons (PAH's [including benzo(a)pyrene]); and metals (arsenic, barium, calcium, chromium, iron, magnesium, selenium). Sampling shall be performed by qualified individuals using methods consistent with commonly accepted environmental sampling procedures. Field observations such as pH, temperature, specific conductance, odor, water color, sediment, bubbles, and effervescence shall also be included.

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.

If free gas or a methane concentration level greater than 1 mg/l is detected in a water quality testing well, gas compositional analysis, and stable isotopes of both the carbon and hydrogen isotopes of methane shall be performed to determine gas type (thermogenic, biogenic or a mixture).

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 in accordance with the Colorado Oil and Gas Association (COGA) Voluntary Baseline Groundwater Quality Sampling Program (updated November 15, 2011).

**Attachment Check List**

Att Doc Num	Name
2034491	LOCATION PICTURES
2034494	CORRESPONDENCE
2034508	DOW CONSULTATION
2034509	ECOLOGIC RESOURCE SURVEY
2034510	SURFACE OWNER CONSENT
400299920	FORM 2A SUBMITTED
400299934	OTHER
400299977	LOCATION PICTURES
400299983	LOCATION PICTURES
400299984	LOCATION PICTURES
400299987	LOCATION PICTURES
400299993	ACCESS ROAD MAP
400299994	CONST. LAYOUT DRAWINGS
400299995	HYDROLOGY MAP
400299997	LOCATION DRAWING
400299999	REFERENCE AREA MAP
400301602	WELL LOCATION PLAT
400305377	SURFACE AGRMT/SURETY

Total Attach: 18 Files

**General Comments**

User Group	Comment	Comment Date
Permit	This location is in an RSO which would preclude this location. The surface owner would really like the well to be sited here and the location will be mitigated to deal with storm water runoff and runoff. CPW has agreed with the mitigation and the location will be approved with the storm water mitigation.	9/4/2012 1:49:10 PM
CPW	CPW has made several site visits to the Sheehan 2-4-2 well pad location. This site is complicated by a history of water diversions and irrigation ditches that have changed stream flow and channels. The pad site is mapped as being in a Cutthroat Trout RSO; CPW believes that given the significant changes in the hydrology, that if the operator provides storm water measures that will ensure that sedimentation will not occur into Cutthroat Trout tributaries and streams then mitigation will be sufficient for the location. CPW encourages pad perimeter berming, grading to slope away from the stream and irrigation ditches, rigorous interim reclamation measures and if necessary a third ring of berming on key infrastructure components. Access roads to the pad should be graded in such a way as to drain away from the stream channel.	9/4/2012 1:48:02 PM
DOW	<p>CPW on-sited the proposed location with the COGCC, Carmony Exploration LLC, and Access Environmental LLC on Thursday, August 2nd. At the on-site, it was made clear that the proposed location was within a wildlife restricted surface occupancy area (RSO), the Cutthroat Trout Designated Critical Habitat, which triggered CPW's consultation. CPW suggested that the operator move the location outside of the Cutthroat Trout Designated Critical Habitat RSO area, which would expedite permitting by the COGCC, remove CPW from the consultation process, and help the operator meet its drilling goals this fall. CPW emailed Carmony Exploration LLC on numerous occasions to communicate recommendations and share updated fish survey results.</p> <p>The surface owner has requested that CPW not attach BMPs to the permit per COGCC Rule. CPW respects the landowners request to not attach wildlife BMPs.</p> <p>CPW reviewed the well pad location at the onsite, from GIS mapping, from CPW District Wildlife Manager and CPW Biologist knowledge, and from US Forest Service fish surveys of the area. If CPW were to recommend BMPs for the well pad location, they would include the following:</p> <ol style="list-style-type: none"> <li>1.No surface disturbance within 300 feet of any water within a Designated Cutthroat Trout Habitat watershed.</li> <li>2.Avoid surface facility density in excess of 10 well pads per 10-square mile area (one well pad per section) in Designated Cutthroat Trout Habitat watersheds.</li> <li>3.Bridge stream crossings or use culverts to prevent stream bed damages and the transfer of disease organisms.</li> <li>4.Minimize stream disturbances during June and July to avoid impacts to spawning cutthroat trout.</li> <li>5.When working in designated cutthroat trout habitat, disinfect heavy equipment, hand tools, boots and any other equipment that was previously used in a river, stream, lake, pond, or wetland prior to moving the equipment to another water body. The disinfection practice should follow this outline: <ol style="list-style-type: none"> <li>a.Remove all mud and debris from equipment and spray/soak equipment with a 1:15 solution of disinfection solution containing the following ingredients: <ol style="list-style-type: none"> <li>i.Dialkyl dimethyl ammonium chloride, 5-10% by weight;</li> <li>ii.Alkyl dimethyl benzyl ammonium chloride, 5-10% by weight;</li> <li>iii.Nonyl phenol ethoxylate, 5-10% by weight;</li> <li>iv.Sodium sesquicarbonate, 1-5%;</li> </ol> </li> </ol> </li> </ol>	8/22/2012 9:02:46 PM

	<p>v.Ethyl alcohol, 1-5%; and</p> <p>vi.Tetrasodium ethylene diaminetetraacetate, 1-5%</p> <p>vii.and water, keeping the equipment moist for at least 10 minutes and managing rinsate as a solid waste in accordance with local, county, state, or federal regulations; or</p> <p>b.Spray/soak equipment with water greater than 140 degrees Fahrenheit for at least 10 minutes.</p> <p>c.Sanitize water suction hoses and water transportation tanks (using methods described above) and discard rinse water at an appropriately permitted disposal facility.</p> <p>CPW still strongly supports finding a solution to the current pad location problem in relation to Colorado River Cutthroat Trout. Relocating the pad outside the RSO will decrease the probability of contaminating the stream, if spills occur. The current location is near the crest of a gradual ridge between two gentle washes. At the discussed alternate location to the east, spilled fluids would enter a dry wash, where contaminated soil could be removed. Spills at the current location have a higher probability of entering the unnamed stream directly, which would then likely flow to surrounding hay meadows, and return to designated critical habitat of Colorado River Cutthroat Trout.</p> <p>Jacob Davidson, 8-22-2012, 21:05</p>		
Permit	Corrected qtr/qtr to Tract 37. Oper. provided corrected distances to cultural features and nearest water well.	8/17/2012 8:13:29 AM	
OGLA	Initiated/Completed OGLA Form 2A review on 08-16-12 by Dave Kubeczko; placed fluid containment, spill/release BMPs, moisture content/containment cuttings, sediment control, stormwater BMPs, lined pit/closed loop, no pit in fill, baseline GW sampling, bermed tanks, and flowback to tanks COAs on 08-16-12; changed to sensitive area due to close SW (200'); passed by CPW on 08-22-12, no BMPs due to surface owner requesting no CPW Consultation; COGCC/PRMC onsite on 08-27-12 to evaluate downstream ephemeral tributary of Roaring Fork and whether trout are present - no water and no trout found; CPW and Fish and Wildlife onsited on 08-30-12, waiting results????; second surface owner letter requesting location be left as is (08-29-12); passed OGLA Form 2A review on (TBD: 08-31-12) by Dave Kubeczko; fluid containment, spill/release BMPs, moisture content/containment cuttings, sediment control, stormwater BMPs, lined pit/closed loop, no pit in fill, baseline GW sampling, bermed tanks, and flowback to tanks COAs.	8/16/2012 9:12:23 AM	
Permit	Operator made corrections.	7/13/2012 9:49:03 AM	
Permit	<p>Requested that RSO box be checked on Consultation and Contact info.</p> <p>Requested that either the oil and gas lease signed by the surface/mineral owner gives the right to construct or, if it is granted by a SUA, that the SUA be attached.</p>	6/27/2012 1:44:13 PM	

Total: 7 comment(s)

### **BMP**

Type

Comment

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Total: 0 comment(s)