

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:

400256794

Date Received:

05/18/2012

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:

429618

Expiration Date:

07/16/2015

☒ 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: 78110

Name: SWEPI LP

Address: 4582 S ULSTER ST PKWY #1400

City: DENVER State: CO Zip: 80237

3. Contact Information

Name: Michael Bergstrom

Phone: (303) 2226347

Fax: (303) 2226258

email: michael.bergstrom@shell.com

4. Location Identification:

Name: Freeman Number: 3-24

County: HUERFANO

QuarterQuarter: NWSW Section: 24 Township: 27S Range: 69W Meridian: 6 Ground Elevation: 7070

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: 2105 feet FSL, from North or South section line, and 536 feet FWL, from East or West section line.

Latitude: 37.684831 Longitude: -105.067631 PDOP Reading: 2.0 Date of Measurement: 01/17/2012

Instrument Operator's Name: J.H. (Uintah Surveying)

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

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

Other: glycol heat trace heater

6. Construction:

Date planned to commence construction: 09/01/2012 Size of disturbed area during construction in acres: 4.57
 Estimated date that interim reclamation will begin: 03/01/2013 Size of location after interim reclamation in acres: 1.20
 Estimated post-construction ground elevation: 7067 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: 12/14/2011
 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 20030020

8. Reclamation Financial Assurance:

☒ Well Surety ID: 20030028 ☐ 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: 1158, public road: 499, above ground utilit: 15840
 , railroad: 57816, property line: 529

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: Willowman gravelly sandy loam, 3% to 8% slopes

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: Please see attached Rangeland Productivity and Plant Composition Report

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: 919, water well: 3730, depth to ground water: 250

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:

Proposed BMPs shown on Construction & Layout Drawings. Closest water well details included in Colorado Division of Water Resources well info attachment.

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

Signed: _____ Date: 05/18/2012 Email: michael.bergstrom@shell.com

Print Name: Michael L. Bergstrom Title: Senior Regulatory Advisor

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: 7/17/2012

**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.

Provide notice to COGCC 48-hours prior to commencement of Hydraulic Fracturing activities via form 42.

Provide notice to COGCC 48-hours prior to commencement of construction activities via form 42.

The operator will conduct baseline sampling of (at a minimum) the two (2) closest water wells prior to spudding the well. The operator may conduct additional groundwater monitoring at their own discretion.

Laboratory analysis at a minimum will include the following: pH (lab), TDS, Conductivity (lab, not resistivity), SAR calculation, Ca, K, Mg, Na, As, B, Ba, Cd, Cr, Cu, Fe, Mn, Pb, Se (all total recoverable), Br, Cl, F, SO₄, Alkalinity (Total, HCO₃ and CO₃ – all expressed as CaCO₃), benzene, toluene, ethyl benzene, o-xylene, m- + p-xylene, Dissolved Methane, DRO, GRO. Field parameters including pH, Temperature and Conductivity shall be recorded prior to collecting the sample for laboratory analysis. Field observations such as odor, water color, sediment, bubbles and effervesce shall also be included.

If free gas or a dissolved methane concentration level greater than one (1) milligrams per liter (mg/l) is detected in a water well, gas compositional analysis and stable isotope analysis of the methane (carbon and deuterium) shall be performed to determine gas type (biogenic or thermogenic). If the methane concentration increases by more than five (5) mg/l between sampling periods, or increases to more than ten (10) mg/l, the operator shall notify the Director and the owner of the water well immediately. If thermogenic methane concentrations increase between sampling periods, the operator shall submit to the Director an action plan to determine the source of the increase.

The selected sampling locations will be sampled again 1 year, 3 years and 6 years after completion. Post completion sampling of water wells will consist of the same analyte list as the pre-drilling program. Copies of all test results, field parameters and field observations described above shall be provided to the Director, and the water well owner within three (3) months of collecting the samples. The analytical data and surveyed sample locations shall also be submitted to the Director in an electronic data deliverable format approved by Director.

Participating in the COGA voluntary baseline water quality monitoring program meets the requirements of this COA.

Only enclosed flares shall be utilized at the location. A Form 4 Sundry Notice is required to be filed with the COGCC stating that flaring will be taking place on the location. The Sundry is required to be submitted and approved prior to initiating flaring. The Sundry shall also include a line drawing of the flare.

Emissions from condensate, crude oil, and produced water tanks and from glycol dehydrators shall be controlled by a device capable of 95% control efficiency of VOC. The device(s) shall be maintained to allow maximum efficiency during operations. If necessary, a permit from the Colorado Department of Public Health and Environment, Air Pollution Control Division, for the tank(s), Dehydrator(s) and control device(s) shall be obtained.

Flowback and stimulation fluids must be sent to tanks. The flowback and stimulation fluid tanks must be placed on the well pad in an area with additional down gradient perimeter berming sufficiently impervious to contain any spilled or released material (per Rule 604.a.(4)). Tanks used for flowback must be equipped with emission reducing devices during flowback.

Venting of gas is prohibited on the location.

Attachment Check List

Att Doc Num	Name
1792477	CORRESPONDENCE
2533595	CORRESPONDENCE
2533596	CORRESPONDENCE
2533597	CORRESPONDENCE
2533608	CORRESPONDENCE
2533610	CORRESPONDENCE
400256794	FORM 2A SUBMITTED
400257141	NRCS MAP UNIT DESC
400272639	LOCATION PICTURES
400272641	REFERENCE AREA PICTURES
400272658	OTHER
400272797	CONST. LAYOUT DRAWINGS
400281859	LOCATION DRAWING
400286302	ACCESS ROAD MAP
400286305	REFERENCE AREA MAP
400286308	HYDROLOGY MAP

Total Attach: 16 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Corrected lease information rcd from opr. Final Review passed 7/12/2012 NKP	7/12/2012 2:46:13 PM
Permit	On hold waiting for information from opr 7/12/2012 NKP	7/12/2012 11:18:52 AM
OGLA	A letter responding to Public Comments that were received by the COGCC has been completed and sent via email. The 2A is off hold, Ready to pass.	7/11/2012 3:47:50 PM
OGLA	Comments were received from J.PFander on 6-7-2012 via USPS. They have been included in the Correspondence.	6/11/2012 10:29:18 AM

Public	<p>Additional Conditions of Approval Requested</p> <ol style="list-style-type: none"> 1. We request an apriori, thorough, hydrogeological study of the basin, and that permits not be granted if drilling or fracturing could adversely impact water resources based on the study. 2. Please make no fracing or additional reservoir stimulation methods as per the drilling plans a COA of the wells. 3. In addition to the existing COA that that only closed-loop, pitless drilling and pitless operations be used, we request that they only be done with non-toxic drilling and fracking chemicals and green completions. 4. We request advance notice to the public of Hydraulic Fracturing. 5. In addition to the existing COA that it shall not be stored in ponds, we request that raw produced water from drilling, fracking, completion or production, NOT be spread on roads or grounds. 6. We request the applicant shall post a bond, escrow account or liability insurance policy of sufficient monetary value to fully compensate local citizens and communities for any damage to their air, water, health, safety, environment or property values. 7. Likely abundant natural fissures, faults, and fractures in the area make for increased risk of cement casing failure (nothing to support it under high pressures). Please include stringent requirements for testing the cement prior to completion and periodically during production. 8. Huerfano County has many radioactive mineral claims in Uranium and Vanadium. Please evaluate locations for the potential to encounter these NORMs during drilling/operations, and monitor their production during operations, and make reports publicly available quickly. <p>Additional Questions/Requests of COGCC</p> <ol style="list-style-type: none"> 1. Surface casing on all 4 wells runs to exactly 815 feet. Sources indicate deeper formations can be water bearing (see McLaughlin, T.G., 1966, Ground water in Huerfano County, Colorado; U.S. Geological Survey, WaterSupply Paper 1805, TABLE 3.)How was the depth of aquifers evaluated/defined? How is it known that potentially usable water is protected? 2. Dikes, sills, faults and fractures are deep, transmissive, and the details of their connections to aquifers are not known except possibly through 3-D seismic data Shell may have collected. CHC requests COGCC examine the data to establish that there is NO possibility of connection between SWEPI well-bores or fractures and natural fractures or dikes that communicate with aquifers. 	<p>6/8/2012 12:45:27 AM</p>
--------	--	---------------------------------

Public	<p>There are many plugs, dikes, and sills in this location/area, which run both East-West and North-South. See Geology 250K map. There is a dike across the county road to the South less than 1/2 mile from the site (to the southwest), visible on the REFERENCE AREA MAP (elevation=7467). The dikes visible at the surface enclose the location in a C of about 2 miles diameter. Dikes run deep, having extruded from the magma, do not all show on the surface, and are accompanied by fractures and faults up to a mile away. Dikes are transmissive, as faults and fractures are. It has been hypothesized this occurs because of alteration of the shale alongside the dikes even in the deep shale layers. These features do pose drilling and hydrological risks. We request the COGCC take steps to proactively mitigate problems that could be caused by this feature of the unique geology of Huerfano County. Drilling and production accidents have already occurred in this basin due to lack of information on these features. SWEPI has 3D seismic data which *may or may not* be able to detect these features. Please examine the seismic data.</p> <p>Hydraulic Fracturing will only increase the risk (the potential of unintended connections) and therefore we request: Please make no fracking or additional reservoir stimulation methods a COA of the well.</p> <p>This well is pending COA correspondence. We request conditions of approval similar to the other SWEPI wells be applied.</p>	6/8/2012 12:43:41 AM
Public Room	Hydrogeological Concerns in Huerfano Park, Prepared by Citizens for Huerfano County, June 7, 2012 entered as an attachment labeled as CORRESPONDENCE.	6/7/2012 11:49:01 AM
Agency	Hydrogeological Concerns in Huerfano Park, Prepared by Citizens for Huerfano County, June 7, 2012 entered as an attachment labeled as CORRESPONDENCE.	6/7/2012 11:48:43 AM
Public	<p>The Freeman APD site is within 3/4 mile of a very visible vertical radial dike. These dikes many of which are below ground extend for miles through multiple geological strata. Dikes, sill, faults and fractures are deep and transmissive.</p> <p>I request that the COGCC examine the 3D seismic data which Shell collected for its well sites particularly the Freeman site to determine that there is NO possibility of connection between SWEPI well-bores, natural fractures or dikes that communicate with aquifers surrounding all 4 APD locations filed 5/18-21/12.</p>	3/6/2012 5:26:51 PM
Permit	Operator corrected surface and minerals information. This form has passed completeness.	5/21/2012 7:14:04 AM
Permit	Returned to draft. Missing surface and minerals information.	5/18/2012 11:32:39 AM

Total: 11 comment(s)

BMP

<u>Type</u>	<u>Comment</u>
Material Handling and Spill Prevention	Spill Prevention Control & Countermeasure Plans (SPCC) are in place to address material releases and to prescribe materials handling BMPs for the facility. "Good house-keeping" measures will be taken to ensure proper waste disposal.
Storm Water/Erosion Control	<p>Stormwater Management Plans (SWMP) are in place to comply with both Colorado Department of Public Health and Environment (CDPHE) and Colorado Oil and Gas Conservation Commission (COGCC) stormwater discharge permits. The construction layout for Freeman 3-24 details Best Management Practices (BMP) to be installed during initial construction. Note that BMPs may be removed, altered, or replaced with changing conditions in the field and the SWMP will be updated accordingly. The BMPs prescribed for the initial construction phase include, but are not limited to</p> <ul style="list-style-type: none">• Construction diversion ditch• Sediment reservoirs• Check dams• Level spreaders• Stabilized construction entrance• Slash• Sediment trap• Wattle• Terrace• Secondary containment berms• Detention ponds

Total: 2 comment(s)