

FORM  
2A

Rev  
08/13

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:

400482820

Date Received:

12/04/2013

Oil and Gas Location Assessment

☒ New Location    ☐ Refile    ☐ Amend Existing Location    Location#: \_\_\_\_\_

Submit signed original form. This Oil and Gas Location Assessment is to be submitted to the COGCC for approval prior to any ground disturbance activity associated with oil and gas operations. Approval of this Oil and Gas Location 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. Please see the COGCC website at <http://cogcc.state.co.us/> for all accompanying information pertinent this Oil and Gas Location Assessment.

Location ID:

**435726**

Expiration Date:

**01/02/2017**

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

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.

Operator

Operator Number: 69175

Name: PDC ENERGY INC

Address: 1775 SHERMAN STREET - STE 3000

City: DENVER    State: CO    Zip: 80203

Contact Information

Name: Liz Lindow

Phone: (303) 831-3974

Fax: ( )

email: liz.lindow@pdce.com

RECLAMATION FINANCIAL ASSURANCE

☒ Plugging and Abandonment Bond Surety ID: 20090078

☐ Gas Facility Surety ID: \_\_\_\_\_

☐ Waste Management Surety ID: \_\_\_\_\_

LOCATION IDENTIFICATION

Name: Thornton

Number: 14K-441 Pad

County: WELD

QuarterQuarter: SENW    Section: 14    Township: 7N    Range: 66W    Meridian: 6    Ground Elevation: 4925

Define a single point as a location reference for the facility location. When the location is to be used as a well site then the point shall be a well location.

Footage at surface: 2210 feet FNL from North or South section line

1899 feet FWL from East or West section line

Latitude: 40.576400    Longitude: -104.747380

PDOP Reading: 1.5    Date of Measurement: 07/20/2013

Instrument Operator's Name: Thomas Carlson

## RELATED REMOTE LOCATIONS

(Enter as many Related Locations as necessary. Enter the Form 2A document # only if there is no established COGCC Location ID#)

**This proposed Oil and Gas Location is:**

**LOCATION ID #**

**FORM 2A DOC #**

Well Site is served by Production Facilities

400486022

## FACILITIES

Indicate the number of each type of oil and gas facility planned on location

Wells	1	Oil Tanks		Condensate Tanks		Water Tanks		Buried Produced Water Vaults	
Drilling Pits		Production Pits		Special Purpose Pits		Multi-Well Pits		Temporary Large Volume Above Ground Tanks	
Pump Jacks		Separators		Injection Pumps		Cavity Pumps			
Gas or Diesel Motors		Electric Motors		Electric Generators		Fuel Tanks		Gas Compressors	
Dehydrator Units		Vapor Recovery Unit		VOC Combustor		Flare		LACT Unit	
								Pigging Station	

## OTHER FACILITIES

**Other Facility Type**

**Number**

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Per Rule 303.b.(3)C, description of all oil, gas, and/or water pipelines:

Flowline will be connected at wellsite and follow access road to production facility, approximately 850'.

## CONSTRUCTION

Date planned to commence construction: 12/26/2013      Size of disturbed area during construction in acres: 4.00  
Estimated date that interim reclamation will begin: 03/26/2014      Size of location after interim reclamation in acres: 0.50  
Estimated post-construction ground elevation: 4925

## DRILLING PROGRAM

Will a closed loop system be used for drilling fluids: Yes

Is H<sub>2</sub>S anticipated? No

Will salt sections be encountered during drilling: No

Will salt based mud (>15,000 ppm Cl) be used? No

Will oil based drilling fluids be used? No

## DRILLING WASTE MANAGEMENT PROGRAM

Drilling Fluids Disposal: OFFSITE

Drilling Fluids Disposal Method: Recycle/reuse

Cutting Disposal: OFFSITE

Cuttings Disposal Method: Beneficial reuse

Other Disposal Description:

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Beneficial reuse or land application plan submitted? Yes

Reuse Facility ID: or Document Number:

Centralized E&P Waste Management Facility ID, if applicable:

## SURFACE & MINERALS & RIGHT TO CONSTRUCT

Name: City of Thornton

Phone:

Address: 9500 Civic Center Dr.

Fax: \_\_\_\_\_

Address: \_\_\_\_\_

Email: \_\_\_\_\_

City: Thornton State: CO Zip: 80229

Surface Owner: ☒ Fee ☐ State ☐ Federal ☐ Indian

Check all that apply. The Surface Owner: ☒ is the mineral owner

☒ 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 from or produced to this Oil and Gas Location: Yes

The right to construct this Oil and Gas Location is granted by: oil and gas lease

Surface damage assurance if no agreement is in place: \_\_\_\_\_ Surface Surety ID: \_\_\_\_\_

Date of Rule 306 surface owner consultation 11/07/2013

## CURRENT AND FUTURE LAND USE

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

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

## CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 550 Feet  
Building Unit: 550 Feet  
High Occupancy Building Unit: 3800 Feet  
Designated Outside Activity Area: 5280 Feet  
Public Road: 1887 Feet  
Above Ground Utility: 418 Feet  
Railroad: 4800 Feet  
Property Line: 418 Feet

### INSTRUCTIONS:

- All measurements shall be provided from center of nearest Well or edge of nearest Production Facility to nearest of each cultural feature as described in Rule 303.b.(3)A.  
- 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: 09/20/2013

## SOIL

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.org/> 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: 32: Kim loam, 1 to 3 percent slopes

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

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

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

## WATER RESOURCES

Is this a sensitive area: ☐ No ☒ Yes

Distance to nearest

downgradient surface water feature: 400 Feet

water well: 1079 Feet

Estimated depth to ground water at Oil and Gas Location 8 Feet

Basis for depth to groundwater and sensitive area determination:

Sensitive area determination: ground water is less than 20'. Depth to ground water determination: Tenant farmer experience

Is the location in a riparian area: ☒ No ☐ Yes

Was an Army Corps of Engineers Section 404 permit filed ☒ No ☐ Yes If yes attach permit.

Is the location within a Rule 317B Surface Water Supply Area buffer No 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: \_\_\_\_\_

## GROUNDWATER BASELINE SAMPLING AND MONITORING AND WATER WELL SAMPLING

Water well sampling required per Rule 318A

## 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)

## RULE 502.b VARIANCE REQUEST

- ☐ Rule 502.b. Variance Request from COGCC Rule or Spacing Order Number \_\_\_\_\_

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

Drill cuttings will be land applied at PDC spread fields with COGCC Facility ID 425112, 429629, 430649, 431183, or 434889. This is a single well pad.

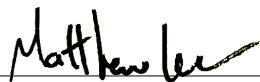
I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: \_\_\_\_\_ Date: 12/04/2013 Email: liz.lindow@pdce.com

Print Name: Liz Lindow Title: Regulatory Analyst

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: 1/3/2014

### **Conditions Of Approval**

**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.**

#### **COA Type**

#### **Description**

### **Best Management Practices**

#### **No BMP/COA Type**

#### **Description**

1	Planning	604c.(2).E. Multiwell Pads: This application is for a 1-well pad. No suitable existing locations are in the area.
2	Planning	604c.(2).I. BOPE Testing for Drilling Operations: PDC's contractors will supply a double ram-5000' PSI rated BOPE (Blinds and pipes) and always function test BOPE's prior to placement on the well head and inspect and replace all seals and ram block rubbers. After installation of the BOPE, PDCE conducts a pressure test on the BOPE at a low pressure of (200-400 psi) and a high pressure test to the maximum amount of the BOPE rating with a third party tester, all tests are digitally recorded.
3	Planning	604c.(2).J. BOPE for Well Servicing Operations: All valves will also be tested to maximum rating by a third party prior to being delivered to location. Whenever snubbing operations are being used the snubbing stack will be pressure tested at the same time the BOPE is being tested which consist of a single pipe ram and a annular bag.
4	Planning	604c.(2).L. Drill Stem Tests: PDC does not conduct drill stem tests, but will seek prior approval from the director if a drill stem test will be preformed.
5	Planning	604c.(2).U. Identification of Plugged and Abandoned Wells: Pursuant to rule 319.a. (5)., once the well has been plugged and abandoned, PDC will identify the location of the wellbore with a permanent monument that will detail the well name and date of plugging.
6	Planning	604c.(2).V. Development From Existing Well Pads: An existing pad was not available to utilize to develop these wells.
7	Traffic control	604c.(2).D. Traffic Plan: If required by the local government, a traffic plan will be coordinated with the local jurisdiction prior to commencement of operations.
8	General Housekeeping	604c.(2).N. Control of Fire Hazards: PDC will ensure that any material that might be deemed a fire hazard will be will remain no less than twenty-five (25) feet from the wellhead(s), tanks and separator(s). PDC installs automation equipment for tank level and pressure monitoring inside the bermed area that complies with API RP 500 classifications and with the current national electrical code as adopted by the State of Colorado.
9	General Housekeeping	604c.(2).P. Removal of Surface Trash: A commercial size trash bin for removing debris will be located on site. This bin will be for use by all parties affiliated with the operation.

10	General Housekeeping	604c.(2).T. Well Site Cleared: The wellsite will be cleared of all non-essential equipment within ninety (90) days after all wells associated with the pad have been plugged and abandoned.
11	Storm Water/Erosion Control	This Stormwater Management Plan contains required elements associated with PDC's construction activities for Areas 1, 2, 3, and 5, as defined in the CDPS General Permit for Stormwater Discharges Associated with Construction Activity, Authorization to Discharge Under the Colorado Discharge Permit System (Permit No. COR-030000, re-issued and effective July 1, 2007).BMPs for sediment and erosion control will be accomplished through a combination of construction techniques, vegetation and re-vegetation, administrative controls, and structural features.
12	Material Handling and Spill Prevention	604c.(2).F. Leak Detection Plan: Attached.
13	Material Handling and Spill Prevention	604c.(2).K. Pit Level Indicators: PDC uses an Electronic Drilling Recorder (EDR) with pit level monitor(s) and alarm(s) for production rigs. Basic level gages are used on steel pits utilized for the surface rig.
14	Construction	604c.(2).M. Fencing Requirements: The completed wellsite will have sufficient fencing to prevent unauthorized access to wellsite equipment. PDC personnel will monitor the wellsites regularly upon completion of the wells. Authorized representatives and/or PDC personnel shall be on-site during drilling and completion operations.
15	Construction	604c.(2).Q. Guy Line Anchors: Rig guy wires are anchored to the rig's base beam that the rig stands on, temporary and permanent anchors will not be set on this location.
16	Construction	604c.(2).S. Access Roads: PDC will utilize the lease access road from WCR 35 for drilling operations and maintenance equipment. The road will be properly constructed and maintained to accommodate for local emergency vehicle access. Dust abatement will be provided to road as necessary depending on weather and road conditions.
17	Noise mitigation	604c.(2).A. Noise: PDC has conducted baseline noise surveys for all drilling rigs that are being contracted and has also conducted a baseline noise survey for hydraulic fracture stimulation operations on a representative horizontal well. These baseline surveys are utilized for site specific noise modeling to determine if any mitigation measures are warranted. A review was conducted to identify potential receptors within 1000 feet of the proposed Thornton 14K-441 pad site. The only building unit of concern is located south-southeast of the proposed pad at a distance of approximately 550 feet. As a result, noise modeling was conducted for the proposed pad located in the SENW Section 14 – T7N – R66W. Based on the results, projected noise levels would exceed the Light Industrial Zone standard of 65 decibels (db) at the receptor location. Therefore, mitigation will be necessary for the Thornton 14K-411 pad and will be installed prior to drilling and completion operations. Methods of noise mitigation that PDC will utilize include but are not limited to hay bales, noise walls, or customized semi-trailers.
18	Emissions mitigation	604c.(2).C. Green Completions: Flowlines, 48" HLPs, sand traps all capable of supporting green completions as described in rule 805 shall be installed at any Oil and Gas location at which commercial quantities of gas and or oil are reasonable expected to be produced based on existing wells. All green flow back equipment will be able to handle more than 1.5 times the amount of any know volumes in the surrounding field. First sign of salable gas will be put into production equipment and turned down line.
19	Drilling/Completion Operations	604c.(2).O. Loadlines: All loadlines shall be bullplugged or capped.

Total: 19 comment(s)

## Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
1667991	PRE APP CERT
1668031	RULE 306.E. CERTIFICATION
1668032	CORRESPONDENCE
400482820	FORM 2A SUBMITTED
400484358	ACCESS ROAD MAP
400484361	LOCATION DRAWING
400484362	LOCATION PICTURES
400484363	OTHER
400484364	NRCS MAP UNIT DESC
400517595	OTHER
400517600	WASTE MANAGEMENT PLAN
400523069	HYDROLOGY MAP

Total Attach: 12 Files

## General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
OGLA	No Public Comments. Operator submitted letter certifying their compliance with Rule 306.e. OGLA task passed.	12/31/2013 8:04:31 AM
OGLA	IN PROCESS - Operator agreed to change of distance to nearest High Occupancy Building Unit and provided letter certifying pre-application notices were received by Building Unit owners.	12/13/2013 2:31:23 PM
OGLA	ON HOLD - Change distance to nearest High Occupancy Building Unit and requested evidence that building unit owner received the pre-application notice. Due by 1/13/14.	12/13/2013 1:06:37 PM
Permit	Ready to pass.	12/13/2013 9:53:29 AM
Permit	This form passes completeness.	12/6/2013 7:22:06 AM
Permit	Returned to draft: 1) Attachment labeled Hydrology Map does not open.	12/5/2013 10:39:32 AM

Total: 6 comment(s)