

**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:

400486022

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:

Expiration Date:

☐ 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-TB Pad

County: WELD

Quarter: SWNE Section: 14 Township: 7N Range: 66W Meridian: 6 Ground Elevation: 4930

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: 2466 feet FNL from North or South section line

2600 feet FEL from East or West section line

Latitude: 40.575680 Longitude: -104.744230

PDOP Reading: 1.6 Date of Measurement: 07/20/2013

Instrument Operator's Name: Tom 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 #

Production Facilities Location serves Well(s)

400452820

FACILITIES

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

Wells	Oil Tanks	3	Condensate Tanks	Water Tanks	1	Buried Produced Water Vaults	1
Drilling Pits	Production Pits		Special Purpose Pits	Multi-Well Pits		Temporary Large Volume Above Ground Tanks	
Pump Jacks	Separators	3	Injection Pumps	Cavity Pumps			
Gas or Diesel Motors	Electric Motors		Electric Generators	Fuel Tanks		Gas Compressors	1
Dehydrator Units	Vapor Recovery Unit	1	VOC Combustor	Flare		LACT Unit	
						Pigging Station	

OTHER FACILITIES

Other Facility Type

Number

Meter House

1

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

Flow line 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: 1.25

Estimated date that interim reclamation will begin: 03/26/2014

Size of location after interim reclamation in acres: 0.75

Estimated post-construction ground elevation: 4930

DRILLING PROGRAM

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

Is H₂S 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:

Drilling Fluids Disposal Method:

Cutting Disposal:

Cuttings Disposal Method:

Other Disposal Description:

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 _____

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: 516 Feet
Building Unit: 744 Feet
High Occupancy Building Unit: 5280 Feet
Designated Outside Activity Area: 5280 Feet
Public Road: 2327 Feet
Above Ground Utility: 538 Feet
Railroad: 4100 Feet
Property Line: 88 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: 52: Otero sandy loam, 3 to 5 percent slopes

NRCS Map Unit Name: 32: Kim loam, 1 to 3 percent slopes

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: 993 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 based off depth to ground water less than 20'. Depth to ground water determined by tenant farmer information.

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

Land use is irrigated alfalfa hay ground.

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: _____

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

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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, 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).G. Berm Construction: A geosynthetic liner will be laid under the tanks on this location and a metal containment will be constructed.
15	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.
16	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.
17	Construction	604c.(2).R. Tank Specifications: Condensate storage tanks will be designed, constructed and maintained in accordance with National Fire Protection Association (NFPA) Code 30 (2008 version). PDC will maintain written records to verify proper design, construction and maintenance. All records will be available for inspection by the Director.
18	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.
19	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.
20	Drilling/Completion Operations	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.
21	Drilling/Completion Operations	604c.(2).O. Loadlines: All loadlines shall be bullplugged or capped.

Total: 21 comment(s)

Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
400486022	FORM 2A SUBMITTED
400486058	ACCESS ROAD MAP
400486060	HYDROLOGY MAP
400486061	LOCATION DRAWING
400486063	LOCATION PICTURES
400486064	OTHER
400486065	NRCS MAP UNIT DESC
400486066	NRCS MAP UNIT DESC
400486067	TOPO MAP
400517605	OTHER
400517606	WASTE MANAGEMENT PLAN
400519641	FACILITY LAYOUT DRAWING

Total Attach: 12 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Returned to draft: 1) Label attachments correctly: WMP, Fac. Layout 2) Drilling program specifications not applicable: mark N/A or NO.	12/5/2013 10:26:51 AM

Total: 1 comment(s)