

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:

400551023

Date Received:

05/30/2014

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:

437893

Expiration Date:

06/29/2017

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: Suden

Number: 34U-HZ Pad

County: WELD

Quarter: NENE Section: 34 Township: 5N Range: 64W Meridian: 6 Ground Elevation: 4669

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: 212 feet FNL from North or South section line

1082 feet FEL from East or West section line

Latitude: 40.362520 Longitude: -104.530230

PDOP Reading: 2.0 Date of Measurement: 12/13/2013

Instrument Operator's Name: Brian Rottinghaus

Name: Robert and Gladys Suden Phone: _____
 Address: 24515 WCR 57 Fax: _____
 Address: _____ Email: _____
 City: Kersey State: CO Zip: 80644
 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: Bond
 Surface damage assurance if no agreement is in place: Blanket Surface Surety ID: 19990086
 Date of Rule 306 surface owner consultation 12/02/2013

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: 651 Feet
Building Unit: 761 Feet
High Occupancy Building Unit: 5280 Feet
Designated Outside Activity Area: 5280 Feet
Public Road: 72 Feet
Above Ground Utility: 103 Feet
Railroad: 5280 Feet
Property Line: 77 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: 02/13/2014

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 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: 73—Vona loamy sand, 3 to 5 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: 198 Feet

water well: 1003 Feet

Estimated depth to ground water at Oil and Gas Location 15 Feet

Basis for depth to groundwater and sensitive area determination:

Water well permit #18942- - was used to find depth to ground water. Sensitive area determination based on downgradient surface water feature < 1000' from surface location.

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

The following wells will be drilled from this pad: Suden 34U-403, 34U-243, 34R-423, 34R-323. The MLVTs will be onsite for approximately 6 months and will be used to complete other nearby locations. Each MLVT will contain 53,000 bbls of fluid. PDC's two MLVT manufacturers are Industrial Systems Inc. (ISI) and PCI Manufacturing.

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

Signed: _____ Date: 05/30/2014 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: 6/30/2014

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.

<u>COA Type</u>	<u>Description</u>
	The MLVT shall be constructed and operated in accordance with a design package certified and sealed by a Licensed Professional Engineer either in Colorado or the state where the MLVT was designed or manufactured.
	MLVTs may only be utilized for the storage of freshwater. E&P wastes, including produced water, treated E&P wastes, and flowback from hydraulic fracturing operations, are not allowed.
	All MLVT liner seams shall be welded and tested in accordance with applicable ASTM international standards. Any repairs to liners shall be made using acceptable practices and applicable standards.
	COGCC Rules 605.a.(3,5,6,7, and 8), as applicable to tank setbacks at the time of installation shall apply to the siting of this MLVT.

Best Management Practices

<u>No</u>	<u>BMP/COA Type</u>	<u>Description</u>
1	Planning	604c.(2).E. Multiwell Pads: This 2A application is for a 4-well pad. No suitable existing locations are in the area. Area was reviewed and determined that this was the most suitable location. Other locations would require extensive earth work and possibly some blasting.
2	Planning	604c.(2).V. Development From Existing Well Pads: An existing pad was not available to utilize to develop these wells.
3	Planning	604.c.(2).W. Site Specific Measures: Dust abatement will be applied and properly maintained on CR 52 to minimize dust. Lights should be turned downward and away from building unit. The building unit of concern is located west of the proposed pad at a distance of approximately 805 feet.
4	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.
5	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.

6	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.
7	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.
8	Planning	<p>PDC Energy, Inc. (PDC) has developed Best Management Practices (BMPS) to prevent injuries, property damage or environmental impacts and a Contingency Plan for any Modular Large Volume Tank (MLVT) leak or catastrophic failure of the tank integrity and resulting loss of fluid. These BMPs include, but not limited, by the following:</p> <ol style="list-style-type: none"> 1) PDC determines MLVT locations based on size of location, nearby surface waters, site visibility, surrounding land use, property lines, onsite traffic, site security, tear-away tank fill connections, topography (high, low, slope, direction), nearby building units, roads, access points, and surface owner requests. 2) Signs shall be posted on each MLVT to indicate that the contents are fresh water and that no E&P waste fluids are allowed. Location and additional signage shall conform to Rule 210. 3) MLVTs will be operated with a minimum of 1 foot freeboard at all times. 4) Access to the tanks shall be limited to operational personnel. 5) Construction and installation of the tank structure, liner and sub-grade shall meet or exceed the manufacturer specifications. PDC follows manufacturer's Standard Operating Procedures (SOPs) and will provide these SOPs upon request to the COGCC. 6) PDC will conduct daily, visual inspections of the exterior wall and general area for any integrity deficiencies before, during, and after filling the MLVTs. PDC uses Construction Sign-Off, Site Preparation Sign-Off, Completion Sign-Off, Pre-Fill, and Site Visit checklists to maintain a written record of inspections. However, when the fluid level in the MLVTs is less than two (2) feet and there is no activity going on (i.e. during holidays or a small break between completions), only intermittent inspections will be conducted. Two feet is the safe volume of fluid level that is needed to hold the liner down and keep the MLVT stable. 7) Each location where MLVT's are used will have its own set of unique site-specific characteristics and associated risks (e.g., rural vs. urban setting, grade of the location, etc.) to be considered in a worst case scenario. These characteristics must be identified and addressed prior to the MLVT construction phase and should be documented in the MLVT construction checklist. Ensuring the safety of our employees, contractors, and the public are a top priority. This can be addressed with the implementation of MLVT pre-construction risk assessment measures to address safety concerns, and minimize environmental impacts and property damage in the unlikely event of a MLVT release. 8) In the event of a catastrophic MLVT failure, the Operator shall notify the COGCC as soon as practicable but not more than 24 hours after discovery, submit a Form 22-Accident Report within 10 days after discovery, conduct a "root cause analysis", and provide same to COGCC on a Form 4-Sundry Notice within 30 days of the failure.
9	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.
10	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.
11	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.

12	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.
13	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.
14	Material Handling and Spill Prevention	To prevent adverse impacts to shallow groundwater, buried produced water vault shall be constructed of fiberglass and installed above an impermeable synthetic or geosynthetic liner system which shall be tied back into the surface liner.
15	Material Handling and Spill Prevention	604c.(2).F. Leak Detection Plan: See attached.
16	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.
17	Dust control	PDC will employ practices for control of fugitive dust caused by operations include but not limited to the use of speed restrictions, regular road maintenance, restriction of construction activity during high-wind days, and silica dust controls when handling sand used in hydraulic fracturing operations. When necessary, PDC coordinates dust mitigation with the county on gravel roads, places road base where allowed by surface owner around tanks and wellheads to minimize dust, and will water the roads and locations when dry. In addition, automation is used on all new wells to minimize truck traffic.
18	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. Operator must implement site-specific best management practices in accordance with good engineering practices, including, but not limited to, construction of a berm or diversion dike, site grading, or other comparable measures, sufficient to protect the down gradient water sources (barrow ditch) located 198 and 231 feet north and (ditch) 402 feet north-west from the nearest well head.
19	Construction	604c.(2).S. Access Roads: PDC will utilize the lease access road from WCR 52 for drilling operations and maintenance equipment. The road will be properly constructed and maintained to accommodate for local emergency vehicle access.
20	Construction	604c.(2).M. Fencing Requirements: The completed wellsites will be surrounded with a fence and gate. 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.
21	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.
22	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.

23	Noise mitigation	604c.(2).A. Noise: WELL PAD: 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. A review was completed to identify potential receptors within 1000 feet of the proposed Suden 34U-HZ Pad site. The only building unit of concern is located West of the proposed pad at a distance of approximately 805 feet. As a result, noise modeling was reviewed for the proposed pad located in the NENE Section 34 – T5N – R64W. Based on the results, projected noise levels should not exceed the Light Industrial Zone standard of 65 decibels (db) at the receptor location, additional mitigation will not be necessary for the Suden 34U pad. Sound mitigation is to be installed west and south of the Suden 34R Pad, which is west of this proposed location. PRODUCTION FACILITIES: It is not anticipated that noise mitigation will be necessary at the proposed tank battery location. After construction is completed, equipment installed and production begins, noise levels will be assessed to determine if mitigation measures will be required to be compliant with Rule 802.
24	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.
25	Drilling/Completion Operations	604c.(2).O. Loadlines: All loadlines shall be bullplugged or capped.

Total: 25 comment(s)

Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
1668349	MULTI-WELL PLAN
1668350	CORRESPONDENCE
1668375	RULE 306.E. CERTIFICATION
400551023	FORM 2A SUBMITTED
400551057	LOCATION PICTURES
400551066	WASTE MANAGEMENT PLAN
400551070	OTHER
400551111	NRCS MAP UNIT DESC
400596515	ACCESS ROAD MAP
400596517	HYDROLOGY MAP
400596518	LOCATION DRAWING
400596519	OTHER
400596521	FACILITY LAYOUT DRAWING
400596523	REFERENCE AREA MAP
400596525	REFERENCE AREA PICTURES
400617380	OTHER

Total Attach: 16 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Permit	Ready to pass and Final review complete.	6/25/2014 7:53:12 AM
OGLA	Operator submitted Rule 306.e. Certification letter. No Public Comments. OGLA task passed.	6/23/2014 12:56:39 PM
OGLA	IN PROCESS - Operator provided Multi-Well Plan, a BMP on handling fugitive silica dust, and agreed to COAs for the use of MLVTs. Distance to nearest Public Road, Above Ground Utility, and Property Line are given from nearest production facility. All three of these cultural features are 200+ feet from the nearest proposed well. OGLA review complete. Waiting on Public Comment period.	5/9/2014 3:44:50 PM
OGLA	ON HOLD - Requested missing Multi-Well Plan, a BMP on handling silica dust, and COAs for the use of MLVTs. Due by 7/9/14.	5/9/2014 9:29:19 AM
Permit	Passed completeness.	5/30/2014 2:23:52 PM

Total: 5 comment(s)