

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:

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Date Received:

09/23/2015

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:

**443574**

Expiration Date:

**10/15/2018**

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: 10459  
Name: EXTRACTION OIL & GAS LLC  
Address: 370 17TH STREET SUITE 5300  
City: DENVER    State: CO    Zip: 80202

Contact Information

Name: Jennifer Grosshans  
Phone: (303) 928-7128  
Fax: (303) 218-5678  
email: regulatory@petro-fs.com

RECLAMATION FINANCIAL ASSURANCE

Plugging and Abandonment Bond Surety ID: 20130028     Gas Facility Surety ID: \_\_\_\_\_  
 Waste Management Surety ID: \_\_\_\_\_

LOCATION IDENTIFICATION

Name: Thomas    Number: 16-C Pad

County: WELD

Quarter: NWNE    Section: 16    Township: 10N    Range: 67W    Meridian: 6    Ground Elevation: 5587

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: 345 feet FNL from North or South section line

1336 feet FEL from East or West section line

Latitude: 40.840446    Longitude: -104.891594

PDOP Reading: 1.3    Date of Measurement: 03/27/2015

Instrument Operator's Name: Ben Hardenbergh



## SURFACE & MINERALS & RIGHT TO CONSTRUCT

Name: Thomas Ranch LLC

Phone: \_\_\_\_\_

Address: 7900 County Road 120

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

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

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

City: Carr State: CO Zip: 80612

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: Surface Use Agreement

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**

Provide the distance to the nearest cultural feature as measured from Wells or Production Facilities onsite.

	<b>From WELL</b>	<b>From PRODUCTION FACILITY</b>
Building:	1742 Feet	1693 Feet
Building Unit:	1799 Feet	1734 Feet
High Occupancy Building Unit:	5280 Feet	5280 Feet
Designated Outside Activity Area:	5280 Feet	5280 Feet
Public Road:	1158 Feet	966 Feet
Above Ground Utility:	1126 Feet	929 Feet
Railroad:	5280 Feet	5280 Feet
Property Line:	345 Feet	98 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.
- For measurement purposes only, Production Facilities should only include those items with an asterisk(\*) on the Facilities Tab.

**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: \_\_\_\_\_

**FOR MULTI-WELL PADS AND PRODUCTION FACILITIES WITHIN DESIGNATED SETBACK LOCATIONS ONLY:**

- Check this box if this Oil and Gas Location has or will have Production Facilities that serve multiple wells (on or offsite) and the Production Facilities are proposed to be located less than 1,000 feet from a Building Unit. *(Pursuant to Rule 604.c.(2)E.i., the operator must evaluate alternative locations for the Production Facilities that are farther from the Building Unit, and determine whether those alternative locations were technically feasible and economically practicable for the same proposed development.)*
- By checking this box, I certify that no alternative placements for the Production Facilities, farther from the nearest Building Unit, were available based on the analysis conducted pursuant to Rule 604.c.(2)E.i.

In the space below, explain rationale for siting the multi-well Production Facility(ies) that supports your Rule 604.c.(2)E.i determination. Attach documentation that supports your determination to this Form 2A.

**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: 23 - Dacono Clay Loam - 0 to 6 percent slopes

NRCS Map Unit Name: 40 - Nunn Loam - 0 to 6 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: 03/27/2015

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: 252 Feet

water well: 2899 Feet

Estimated depth to ground water at Oil and Gas Location 10 Feet

Basis for depth to groundwater and sensitive area determination:

Distance to nearest downgradient water feature is a Creek.

Nearest water well is CDWR Permit # 266166, however nearest water well with a recorded SWL is CDWR Permit #63540 which is 3971'NE.

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 zone: No

If the location is within a Rule 317B Surface Water Supply Area buffer have all public water supply systems within 15 miles been notified:

Is the Location within a Floodplain?  No  Yes Floodplain Data Sources Reviewed (check all that apply)

Federal (FEMA)

State

County

Local

Other

**GROUNDWATER BASELINE SAMPLING AND MONITORING AND WATER WELL SAMPLING**

Water well sampling required per Rule 609

**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 SUA has a clause stating that it is binding upon any other assigns.

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

Signed: \_\_\_\_\_ Date: 09/23/2015 Email: regulatory@petro-fs.com  
 Print Name: Jennifer Grosshans 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: 10/16/2015

**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.

<b>COA Type</b>	<b>Description</b>
	Onsite treatment and reuse of drill cuttings must be successfully completed within 6-months of the completion of drilling or subsequent operations to allow Interim Reclamation to begin. In the event that treatment and reuse of drill cuttings is not completed prior to this date, Operator shall submit a 502.b Variance Request Letter to extend the time period or dispose of the drill cuttings at commercial facility.
	The Operator shall prepare and submit for prior Director approval a Form 27 Site Investigation and Remediation Workplan for the onsite land treatment of oily waste (drill cuttings that contain hydrocarbons) in accordance with Rule 909.c.(3). The Form 27 shall include a site map showing the site layout and stockpile locations, a description of the confirmation sampling program, a description of and any pertinent literature about proposed amendments to enhance remediation of the drill cuttings, and a diagram of where cuttings will be beneficially reused.
	Unnecessary or excessive flaring is prohibited. Operator shall direct all salable quality gas to a sales line as soon as practicable or be shut in and conserved per Rule 805.b.(3)B.v and Rule 912.

**Best Management Practices**

No	BMP/COA Type	Description
1	Planning	A meeting with the surface owner will determine the fencing plan.
2	Traffic control	Access Roads: The access road will be constructed to accommodate local emergency vehicles. This road will be maintained for access at all times. A traffic study is not required per Weld County Access Permit requirements. An Access Road Permit will be applied for on this site through Weld County.
3	General Housekeeping	Visual Impacts: Equipment, regardless of construction date, which are observable from any public highway shall be painted with uniform, non-contrasting, non-reflective color tones (similar to the Munsell Soil Color Coding System), and with colors matched to, but slightly darker than, the surrounding landscape.
4	Storm Water/Erosion Control	Use water bars, and other measures to prevent erosion and non-source pollution. Implement and maintain BMPs to control stormwater runoff in a manner that minimizes erosion, transport of sediment offsite, and site degradation. Co-locate gas and water gathering lines whenever feasible, and mitigate any erosion problems that arise due to the construction of any pipeline(s).
5	Dust control	Operator shall employ practices for control of fugitive dust caused by their operations. Such practices shall include but are 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. Additional management practices such as road surfacing, wind breaks and barriers may be used.
6	Construction	Guy line anchors: All guy line anchors shall be brightly marked pursuant to Rule 604.c. (2)Q.  Tank berms will be constructed of steel rings with a synthetic or engineered liner and designed to contain 150% of the capacity of the largest tank. All berms will be visually checked periodically to ensure proper working condition. Secondary containment devices will be sufficiently impervious to contain any spilled or released material.
7	Emissions mitigation	805.b.(3)A. Green completion practices are not required for this area as it is considered exploratory. If it is determined that the wells will produce gas in economic quantities, then Extraction will negotiate with nearby midstream operators to connect to their gas sales line.

8	Drilling/Completion Operations	<p>A closed –loop system will be used for drilling operations.</p> <p>Blowout Prevention Equipment (“BOPE”): A double ram and annular preventer will be used during drilling. Stabbing valves shall be installed in the event of reverse circulation and shall be prior tested with low and high pressure fluid.</p> <p>Bioremediation of Drill Cuttings</p> <p>1. Mixing and Treatment:</p> <p>A. All cuttings shall be mixed on location</p> <p>B. Cuttings shall be mixed with additives. The amount of additives shall be determined based on laboratory analysis of untreated cuttings.</p> <p>C. Mixing shall be performed with equipment to ensure contact between the cuttings and additives</p> <p>D. Additives</p> <p>i. CMC – polymer absorbent, non-toxic, non-hazardous</p> <p>ii. Oppenheimer Piranha – bioremediation of hydrocarbons</p> <p>iii. Water soluble calcium – chemical reduction of SAR</p> <p>2. Stockpile Management:</p> <p>A. Treated, solidified cuttings shall be stored on location in individual well stockpiles. One stockpile per well. Each stockpile shall be marked with the name of the well.</p> <p>B. Stockpiles shall be windrows with a height as tall as practical. Taller windrows aid in the retention of warmth increasing microbial activity</p> <p>C. Leachate shall be managed by absorbent material. The inherent properties of CMC reduces leachate levels of TDS to below standards based on laboratory analysis.</p> <p>D. An earthen berm, one foot in height, shall be constructed around the stockpile(s) to minimize storm water runoff</p> <p>E. As the solidified cuttings dry, a protective crust layer will form on the surface of the stockpile. This crust layer helps retain moisture and heat within the stockpile while also protecting the native landscape from windborne contaminated particulate. Care shall be taken by the Operator and all contractors to minimize stockpile disturbance until a properly trained soil sampling technician visits the site.</p> <p>3. Sampling &amp; Testing:</p> <p>A. The stockpile of treated cuttings will be sampled and tested according to standard laboratory and sampling protocols and COGCC table 910-1. Stockpiles will be sampled in increments no greater than 100 cubic yards. Ten samples shall be taken from each segment of the stockpile of treated drill cuttings, mixed and then one composite sample will be used for testing. Samples will be taken from the stockpile in such as way as to preserve any potential volatile organic compounds. Ten random samples shall be taken of the stockpile of subsoil for use as a source for background data.</p> <p>B. After the cuttings have achieved the threshold limits specified in table 910-1, the treated material will be thin spread on the well site and incorporated into the reclamation fill material.</p> <p>A permanent record of the laboratory analysis shall be maintained by the Operator.</p>
9	Interim Reclamation	<p>Operator shall be responsible for segregating the topsoil, backfilling, repacking, reseeding, and recontouring the surface of any disturbed area so as not to interfere with Owner’s operations and shall reclaim such area to be returned to pre-existing conditions as best as possible with control of all weeds.</p>
10	Final Reclamation	<p>Within 90 days subsequent to the time of plugging and abandonment of the entire site, superfluous debris and equipment shall be removed from the site. The Operator shall restore the surface of the Land affected by such terminated operations as near as possible to the previous state that existed prior to operations.</p>

Total: 10 comment(s)

## Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>
1009966	CORRESPONDENCE
2477719	WASTE MANAGEMENT PLAN
2477722	EXPEDITED REVIEW REQUEST
2477723	REFERENCE AREA PICTURES
2477724	CORRESPONDENCE
400828536	FORM 2A SUBMITTED
400833384	ACCESS ROAD MAP
400833385	HYDROLOGY MAP
400833386	LOCATION DRAWING
400833387	LOCATION PICTURES
400833388	REFERENCE AREA MAP
400833395	NRCS MAP UNIT DESC
400833396	NRCS MAP UNIT DESC
400903904	MULTI-WELL PLAN
400903969	SURFACE AGRMT/SURETY

Total Attach: 15 Files

## General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
OGLA	Operator withdrew request for Expedited Review	10/15/2015 5:24:21 PM
Permit	Final review completed.	10/15/2015 9:10:03 AM
OGLA	No Public Comments. OGLA task passed.	10/15/2015 8:17:25 AM
Permit	Catie Stitt, State Land Board, confirms lease & bond are in good order.	10/8/2015 9:29:02 AM
OGLA	IN PROCESS - Operator provided Expedited Review Request Letter and Waivers, Reference Area Pictures, Waste Management Plan, & agreed to a Condition of Approval concerning Onsite treatment and reuse of oily drill cuttings. OGLA review complete. Waiting on Public Comment period.	9/29/2015 2:21:17 PM
OGLA	ON HOLD - Requested operator provide missing Waste Management Plan attachment and concur with a Condition of Approval regarding onsite treatment and reuse of oil based drill cuttings. Due by 10/29/15.	9/29/2015 10:54:20 AM
Permit	Pass completeness	9/24/2015 2:37:24 PM
Permit	Return to draft Reference area photos do not follow guidance.	9/24/2015 10:24:33 AM

Total: 8 comment(s)