

**APPLICATION FOR PERMIT TO:**

**Drill**       Deepen       Re-enter       Recomplete and Operate

|   |  |
|---|--|
| TYPE OF WELL    OIL <input type="checkbox"/> GAS <input checked="" type="checkbox"/> COALBED <input type="checkbox"/> OTHER _____<br>ZONE TYPE       SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONES <input type="checkbox"/> COMMINGLE ZONES <input type="checkbox"/> | Refilling <input type="checkbox"/><br>Sidetrack <input type="checkbox"/> |
|---|--|

Date Received:  
06/30/2015

Well Name: THERMO      Well Number: 15C-33HZ  
 Name of Operator: KERR MCGEE OIL & GAS ONSHORE LP      COGCC Operator Number: 47120  
 Address: P O BOX 173779  
 City: DENVER      State: CO      Zip: 80217-3779  
 Contact Name: Ronett Powers      Phone: (720)929-6759      Fax: (720)929-7759  
 Email: ronett.powers@anadarko.com

**RECLAMATION FINANCIAL ASSURANCE**  
 Plugging and Abandonment Bond Surety ID: 20010124

**WELL LOCATION INFORMATION**  
 QtrQtr: SENE      Sec: 33      Twp: 2N      Rng: 66W      Meridian: 6  
 Latitude: 40.098199      Longitude: -104.776992  
 Footage at Surface: 1334 feet      FNL/FSL      FNL 1194 feet      FEL/FWL      FEL  
 Field Name: WATTENBERG      Field Number: 90750  
 Ground Elevation: 4984      County: WELD  
 GPS Data:  
 Date of Measurement: 12/04/2014      PDOP Reading: 1.4      Instrument Operator's Name: ROB WILSON  
 If well is  Directional       Horizontal (highly deviated)      **submit deviated drilling plan.**  
 Footage at Top of Prod Zone:      FNL/FSL      FEL/FWL      Bottom Hole:      FNL/FSL      FEL/FWL  
    50      FNL      2258      FEL      461      FSL      2270      FEL  
    Sec: 33      Twp: 2N      Rng: 66W      Sec: 33      Twp: 2N      Rng: 66W

**LOCATION SURFACE & MINERALS & RIGHT TO CONSTRUCT**  
 Surface Ownership:  Fee       State       Federal       Indian  
 The Surface Owner is:       is the mineral owner beneath the location.  
 (check all that apply)       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 by this Well: Yes  
 The right to construct the Oil and Gas Location is granted by: Surface Use Agreement  
 Surface damage assurance if no agreement is in place: \_\_\_\_\_      Surface Surety ID: \_\_\_\_\_

## LEASE INFORMATION

Using standard QtrQtr, Sec, Twp, Rng format, describe one entire mineral lease that will be produced by this well (Describe lease beneath surface location if produced. Attach separate description page or map if necessary.)

One Hundred Percent (100%) interest in and to the oil and gas in and under the leased premises described as follows:

Township 2 North, Range 66 West, 6th P.M.

Section 33: N/2NE/4

All depths and formations from the surface to the base of the J Sand formation, except the J Sand formation is limited to the well bore of the UPRR 42 Pan Am "AT" #1 well located in the NE/4NE/4 of Sec. 33-T2N-R66W.

Weld County, Colorado

And Ninety-One Percent (91%) interest in and to the oil and gas in and under the leased premises described as follows:

Township 2 North, Range 66 West, 6th P.M.

Section 33: N/2NE/4

Limited to the J Sand formation but excluding the well bore of the UPRR 42 Pan Am "AT" #1 well located in the NE/4NE/4 of Sec. 33-T2N-R66W.

Weld County Colorado

Total Acres in Described Lease: 80 Described Mineral Lease is:  Fee  State  Federal  Indian

Federal or State Lease # \_\_\_\_\_

Distance from Completed Portion of Wellbore to Nearest Lease Line of described lease: 0 Feet

## CULTURAL DISTANCE INFORMATION

Distance to nearest:

Building: 657 Feet

Building Unit: 657 Feet

High Occupancy Building Unit: 5280 Feet

Designated Outside Activity Area: 5280 Feet

Public Road: 442 Feet

Above Ground Utility: 701 Feet

Railroad: 5280 Feet

Property Line: 410 Feet

### INSTRUCTIONS:

- All measurements shall be provided from center of the Proposed Well to nearest of each cultural feature as described in Rule 303.a.(5).

- 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: 04/20/2015

## SPACING and UNIT INFORMATION

Distance from Completed Portion of Wellbore to Nearest Wellbore Permitted or Completed in the same formation: 334 Feet

Distance from Completed Portion of Wellbore to Nearest Unit Boundary 461 Feet (Enter 5280 for distance greater than 1 mile.)

Federal or State Unit Name (if appl): \_\_\_\_\_ Unit Number: \_\_\_\_\_

## SPACING & FORMATIONS COMMENTS

### UNIT CONFIGURATION:

02N66W SEC 28 SESW, SWSE

02N66W SEC 33 E2W2, W2E2

## OBJECTIVE FORMATIONS

| Objective Formation(s) | Formation Code | Spacing Order Number(s) | Unit Acreage Assigned to Well | Unit Configuration (N/2, SE/4, etc.) |
|------------------------|----------------|-------------------------|-------------------------------|--------------------------------------|
| CODELL                 | CODL           |                         | 400                           | GWA                                  |

## DRILLING PROGRAM

Proposed Total Measured Depth: 12925 Feet

Distance to nearest permitted or existing wellbore penetrating objective formation: 334 Feet (Including plugged wells)

Will a closed-loop drilling system be used? Yes

Is H<sub>2</sub>S gas reasonably expected to be encountered during drilling operations at concentrations greater than or equal to 100 ppm? No (If Yes, attach an H<sub>2</sub>S Drilling Operations Plan)

Will salt sections be encountered during drilling? No

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

Will oil based drilling fluids be used? Yes

BOP Equipment Type:  Annular Preventor  Double Ram  Rotating Head  None

## GROUNDWATER BASELINE SAMPLING AND MONITORING AND WATER WELL SAMPLING

Water well sampling required per Rule 318A

## DRILLING WASTE MANAGEMENT PROGRAM

Drilling Fluids Disposal: OFFSITE Drilling Fluids Disposal Methods: Commercial Disposal

Cuttings Disposal: OFFSITE Cuttings Disposal Method: Commercial Disposal

Other Disposal Description:

Please see Comments section. Disposal description will not fit in space provided.

Beneficial reuse or land application plan submitted? Yes

Reuse Facility ID: \_\_\_\_\_ or Document Number: \_\_\_\_\_

## CASING PROGRAM

| Casing Type | Size of Hole | Size of Casing | Wt/Ft | Csg/Liner Top | Setting Depth | Sacks Cmt | Cmt Btm | Cmt Top |
|-------------|--------------|----------------|-------|---------------|---------------|-----------|---------|---------|
| SURF        | 13+1/2       | 9+5/8          | 36    | 0             | 1800          | 710       | 1800    | 0       |
| 1ST         | 7+7/8        | 5+1/2          | 17    | 0             | 12915         | 1513      | 12915   | 0       |

Conductor Casing is NOT planned

## 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)

## GREATER WATTENBERG AREA LOCATION EXCEPTIONS

Check all that apply:

- Rule 318A.a. Exception Location (GWA Windows).
- Rule 318A.c. Exception Location (GWA Twinning).

## RULE 502.b VARIANCE REQUEST

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

**OTHER LOCATION EXCEPTIONS**

Check all that apply:

Rule 318.c. Exception Location from Rule or Spacing Order Number \_\_\_\_\_

Rule 603.a.(2) Exception Location (Property Line Setback).

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

**OTHER DISPOSAL DESCRIPTION:**  
Drilling fluids disposal: KMG will reuse water-based drilling fluids to the maximum extent possible, at which point they will either be land applied or taken to a licensed, commercial disposal site; the decision will be based upon laboratory analysis of fluids.  
KMG will reuse oil-based drilling fluids to the maximum extent possible, at which point they will be returned to the fluids manufacturer for reconditioning or disposal at a licensed, commercial disposal site.  
Cuttings disposal: Water-based cuttings will be disposed of using a Centralized E&P Waste Management facility or a private spread field, depending on what is feasible at the time of drilling.  
Oil-based cuttings will be disposed of offsite and at a licensed, commercial disposal site.

This application is in a Comprehensive Drilling Plan \_\_\_\_\_ CDP #: \_\_\_\_\_

Location ID: 318588

Is this application being submitted with an Oil and Gas Location Assessment application? Yes

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

Signed: \_\_\_\_\_ Print Name: Ronett Powers

Title: Regulatory Analyst II Date: 6/30/2015 Email: djregulatory@anadarko.com

Operator must have a valid water right or permit allowing for industrial use or purchased water from a seller that has a valid water right or permit allowing for industrial use, otherwise an application for a change in type of use is required under Colorado law. Operator must also use the water in the location set forth in the water right decree or well permit, otherwise an application for a change in place of use is required under Colorado law. Section 37-92-103(5), C.R.S. (2011).

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: 8/20/2015

Expiration Date: 08/19/2017

**API NUMBER**  
05 123 42058 00

## Conditions Of Approval

All representations, stipulations and conditions of approval stated in the Form 2A for this location shall constitute representations, stipulations and conditions of approval for this Form 2 Permit-to-Drill and are enforceable to the same extent as all other representations, stipulations and conditions of approval stated in this Permit-to-Drill.

| <u>COA Type</u> | <u>Description</u>   |
|-----------------|--|
|                 | <p>1) Submit Form 42 electronically to COGCC 48 hours prior to MIRU.</p> <p>2) Comply with Rule 317.j and provide cement coverage from end of 5.5" casing to a minimum of 200' above Niobrara and from 200' below the Sussex to 200' above Sussex. Verify coverage with cement bond log.</p> <p>3) Comply with Rule 321. Run and submit Directional Survey from TD to base of surface casing. Ensure that the wellbore complies with setback requirements in commission orders or rules prior to producing the well.</p>   |
|                 | <p>Operator acknowledges the proximity of the listed wells. Operator agrees to provide mitigation Option 1 or 2 (per the DJ Basin Horizontal Offset Policy), ensure all applicable documentation is submitted , and submit a Form 42(s) ("OFFSET MITIGATION COMPLETED") for the remediated wells, referencing the API Number of the proposed horizontal well(s) stating what appropriate mitigation occurred and that it has been completed, prior to the hydraulic stimulation of this well.</p> <p>UPRR 50 Pan Am C 1 (API 123-09511)<br/>UPRR 42 Pan Am Gas Unit "AT" 1 (API 123-09460)</p> |

## Best Management Practices

| <u>No</u> | <u>BMP/COA Type</u> | <u>Description</u>  |
|-----------|---------------------|---|
| 1         | Planning            | 604c.(2).E. Multi-Well Pads: In order to reduce surface impact, this application is for a nine-well pad.  |
| 2         | Planning            | 604c.(2).Q. Guy Line Anchors: Should guy line anchors be left buried for future use, they shall be identified by a bright marker greater than four (4) feet high and no more than one (1) foot east of the guy line anchor.   |
| 3         | Planning            | 604c.(2).R. Tank Specifications: A geosynthetic liner will be laid under the tanks on this location and a metal containment will be constructed. Storage tanks will be designed, constructed and maintained in accordance with National Fire Protection Association (NFPA) Code 30 (2008 version). KMG will maintain written records to verify proper design, construction and maintenance. All records will be available for inspection by the Director. |
| 4         | Planning            | 604c.(2).S. Access Roads: KMG will utilize a lease access road from Weld County Road 16 for drilling and production operations and maintenance equipment. The road will be properly constructed and maintained to accommodate for local emergency vehicle access.<br>Water will be placed on dirt access roads to mitigate dust as needed. If feasible, magnesium chloride will also be used as needed on access roads to further abate dust.             |
| 5         | Planning            | 604c.(2).V. Development From Existing Well Pads: KMG will locate the eight proposed new horizontal wells on the existing well pad with location ID #318588 to reduce the amount of surface disturbance associated with this project.  |

|    |  |  |
|----|--|--|
| 6  | Community Outreach and Notification    | <p>305.a.(2) A Notice of Intent to Conduct Operations was sent to each building unit owner within the Exception Zone or Buffer Zone Setback. Recipients did not contact KMG.</p> <p>As a part of planning this proposed location, Kerr-McGee held multi-disciplinary Surface Impact Planning Meetings regarding the impacts and mitigations associated with this proposed location. The toll-free hotline number and email for the Anadarko Colorado Response Line will be posted at the entrance to the lease access road for stakeholders during drilling and completion operations at this proposed location. Courtesy Notifications will be sent to impacted stakeholders prior to drilling operations and again prior to completions operations, providing contact information for the Anadarko Colorado Response Line and online resources.</p> <p>KMG/Anadarko hosted a community forum on June 24, 2015 from 4:00 to 7:00 pm at the Fort Lupton Recreation Center. Approximately 300 invitations were sent to nearby residents and 14 people attended. Twenty KMG/Anadarko employees were on hand to listen, answer questions and share information regarding development plans for this location and others nearby.</p> |
| 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).O. Loadlines: All loadlines shall be bullplugged or capped.   |
| 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 | Storm Water/Erosion Control            | 604c.(2).W. Site-Specific Measures: KMG maintains a Storm Water Management Plan that assesses erosion control for every KMG operated location. This location will be added to this plan once construction begins. This site will be inspected every fourteen (14) days during construction activities, every thirty (30) days after construction is completed, and after any major weather event.  |
| 11 | Material Handling and Spill Prevention | 604c.(2).F. Leak Detection Plan: Automation technology will be utilized at this facility. This technology includes the use of fluid level monitoring for the tanks and produced water sumps, high-level shut offs, and electronic sensors to monitor the interstitial space of double-walled produced water sumps. All automation is monitored by Kerr-McGee's Integrated Operations Center (IOC), which is manned 24 hours per day, 7 days per week.  |
| 12 | Material Handling and Spill Prevention | 604c.(2).N. Control of Fire Hazards: KMG and its contractors will employ best management practices during the drilling and production of its wells and facilities and will comply with appropriate COGCC rules concerning safety and fire. KMG will ensure that any material that might be deemed a fire hazard will remain no less than twenty-five (25) feet from the wellhead(s), tanks and separator(s).   |
| 13 | 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. Berms or other secondary containment devices will be constructed around crude oil, condensate, and produced water storage tanks and shall enclose an area sufficient to contain and provide secondary containment for 150% of the largest single tank.  |
| 14 | Construction                           | 604c.(2).M. Fencing Requirements: The completed wellsites will be surrounded with a fence and gate with adequate lock to restrict access to authorized personnel only. KMG personnel will monitor the wellsites regularly upon completion of the wells. Authorized representatives and/or KMG personnel shall be on-site during drilling and completion operations.  |
| 15 | Noise mitigation                       | 604c.(2).A. Noise: Sound surveys that have been conducted on each rig type are utilized to anticipate any additional noise mitigation once a drilling rig is determined.   |
| 16 | Drilling/Completion Operations         | 604c.(2).B. Closed Loop Drilling System: KMG will use a closed loop or "pitless" system for drilling and fluid management and will not construct a reserve pit.  |
| 17 | Drilling/Completion Operations         | 604c.(2).C. Green Completions: Environmental Control Devices or Volatile Organic Compound Combustors (VOC) will be used to control working and breathing vapor losses for oil and water tanks. Temporary above ground polyethylene water pipelines will deliver water to location operations from larger trunk lines to reduce truck traffic and minimize air pollution.   |
| 18 | Drilling/Completion Operations         | 604c.(2).H. BOPE: Our rigs at a minimum will have a double ram with blind and pipe ram and annular preventer.  |

|    |                                |  |
|----|--------------------------------|--|
| 19 | Drilling/Completion Operations | 604c.(2).I. BOPE Testing for Drilling Operations: Upon initial rig-up, BOPEs will be tested at a minimum of every 30 days.   |
| 20 | Drilling/Completion Operations | 604c.(2).J. BOPE for Well Servicing Operations: Blowout prevention equipment will be used on any servicing operations associated with this well. Backup stabbing valves will be used during any future servicing operations during reverse circulation. Valves shall be pressure tested before each well servicing operation using low-pressure air and high-pressure fluid.   |
| 21 | Drilling/Completion Operations | 604c.(2).K. Pit Level Indicators: All tanks (used in lieu of pits) contain pit level monitors with Electronic Drilling Recorders (EDR). KMG uses EDRs with pit level monitor(s) and alarm(s) for production rigs. Basic level gauges are used on tanks utilized for the surface rig.   |
| 22 | Drilling/Completion Operations | 604c.(2).L. Drill Stem Tests: No drill stem tests are planned and none will be performed without prior approval from the Director.   |
| 23 | Drilling/Completion Operations | Kerr McGee acknowledges and will comply with the COGCC Policy for Bradenhead Monitoring during Hydraulic Fracturing Treatments in the Greater Wattenberg Area dated May 29, 2012.  |
| 24 | Drilling/Completion Operations | Anti-Collision: Kerr-McGee will perform an anti-collision evaluation of all active (producing, shut in, or temporarily abandoned) offset wellbores that have the potential of being within one hundred fifty (150) feet of a proposed well prior to drilling operations for the proposed well. Notice shall be given to all offset operators within one hundred fifty (150) feet prior to drilling.  |
| 25 | Drilling/Completion Operations | 317.p Logging Program: One of the first wells drilled on the pad will be logged with Cased-hole Pulsed Neutron Log with Gamma Ray Log from TD into the surface casing. All wells on the pad will have a cement bond log with gamma-ray run on production casing (or on intermediate casing if production liner is run) into the surface casing. The horizontal portion of every well will be logged with a measured-while-drilling gamma-ray log. The Form 5, Completion Report, for each well on the pad will list all logs run in that well and have those logs attached. The Form 5 for each well shall clearly state "No open-hole logs were run" and shall reference the Rule 317.p Exception granted for the well. |
| 26 | Final Reclamation              | 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.  |
| 27 | Final Reclamation              | 604c.(2).U. Identification of Plugged and Abandoned Wells: Pursuant to rule 319.a.(5)., once the well has been plugged and abandoned, KMG will identify the location of the wellbore with a permanent monument that will detail the well name and date of plugging.  |

Total: 27 comment(s)

### **Applicable Policies and Notices to Operators**

Notice Concerning Operating Requirements for Wildlife Protection.

### **Attachment Check List**

| <b>Att Doc Num</b> | <b>Name</b>                 |
|--------------------|-----------------------------|
| 2483607            | SURFACE CASING CHECK        |
| 400855388          | FORM 2 SUBMITTED            |
| 400861489          | OffsetWellEvaluations Data  |
| 400861510          | DIRECTIONAL DATA            |
| 400861520          | DEVIATED DRILLING PLAN      |
| 400861527          | WELL LOCATION PLAT          |
| 400861533          | PROPOSED SPACING UNIT       |
| 400861537          | OTHER                       |
| 400861801          | OPEN HOLE LOGGING EXCEPTION |
| 400862534          | SURFACE AGRMT/SURETY        |

Total Attach: 10 Files

### General Comments

| <u>User Group</u> | <u>Comment</u>   | <u>Comment Date</u>     |
|-------------------|--|-------------------------|
| Permit            | Final Review Completed. LGD comment addressed (see BMP's on form 2A); no public comment received.  | 8/20/2015<br>3:16:29 PM |
| Engineer          | Offset wells evaluated.  | 8/14/2015<br>3:18:29 PM |
| Permit            | Permitting Review Complete.  | 3/7/2015 3:25:14<br>PM  |
| Permit            | Operator requested Exception to Open Hole Logging Rule 317.p. See attached.  | 3/7/2015 3:25:13<br>PM  |
| LGD               | <p>The City requires a traffic plan be submitted that shows the proposed haul route. The City also requires that the applicant set up a meeting to discuss potential impacts from these wells on the City.</p> <p>Also, it is noted that Kerr-McGee did hold an informative public forum to educate constituents of the fracking process. However, other than showing future well pad locations, these specific wells and their impacts were not discussed at the forum.</p> | 7/10/2015<br>9:34:51 AM |
| Permit            | Passed completeness.   | 7/2/2015<br>11:02:14 AM |

Total: 6 comment(s)