

# OPERATOR'S COPY

Form 3160-3  
(August 2007)

## UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

### APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED  
OMB No. 1004-0137  
Expires July 31, 2010

5 Lease Serial No  
SHL NMNM103598 BHL STNMVO5557-C

6 If Indian, Allottee or Tribe Name  
N/A

1a Type of work ☒ DRILL ☐ REENTER

7 If Unit or CA Agreement, Name and No  
N/A

1b Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

8 Lease Name and Well No  
CARBON VALLEY 25 FED COM #7H

2 Name of Operator MURCHISON OIL & GAS, INC

9 API Well No

30-015-38060

3a Address 1100 MIRA VISTA BLVD  
PLANO, TX 75093-4698

3b Phone No (include area code)  
972-931-0700

10 Field and Pool, or Exploratory  
DOG CANYON, WOLFCAMP

4 Location of Well (Report location clearly and in accordance with any State requirements \*)

At surface 950' FNL & 330' FWL (UNIT D)

At proposed prod zone 990' FNL & 330' FEL, UNIT A

11 Sec, T R M or Blk and Survey or Area  
SEC 25, T16S, R27E

14 Distance in miles and direction from nearest town or post office\*  
APPROXIMATELY 11 MILES NE OF ARTESIA, NEW MEXICO

12 County or Parish  
EDDY

13 State  
NM

15 Distance from proposed\*  
location to nearest  
property or lease line, ft  
(Also to nearest drg unit line, if any)

330' AT SURFACE  
598' AT TOP WOLFCAMP

16 No. of acres in lease  
80

17 Spacing Unit dedicated to this well  
160

18 Distance from proposed location\*  
to nearest well, drilling, completed,  
applied for, on this lease ft

N/A

19 Proposed Depth  
10,674' MD 6,328' TVD  
PILOT 6,450' TVD

20 BLM/BIA Bond No on file  
NM2163

21 Elevations (Show whether DF, KDB, RT, GL, etc.)  
3,520' GL

22 Approximate date work will start\*  
11/15/2010

23 Estimated duration  
30 DAYS

#### 24 Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No 1, must be attached to this form

1 Well plat certified by a registered surveyor

2 A Drilling Plan

3 A Surface Use Plan (if the location is on National Forest System Lands, the  
SUPO must be filed with the appropriate Forest Service Office)

4 Bond to cover the operations unless covered by an existing bond on file (see  
Item 20 above)

5 Operator certification

6 Such other site specific information and/or plans as may be required by the  
BLM

25 Signature

*Arnold Nall*

Name (Printed/Typed)

A ARNOLD NALL

Date

04/22/2010

Title

VICE PRESIDENT OPERATIONS

Approved by (Signature)

*QW*

Name (Printed/Typed)

Date

6/21/10

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to  
conduct operations thereon  
Conditions of approval, if any, are attached

APPROVAL FOR TWO YEARS

Title 18 USC Section 1001 and Title 43 USC Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United  
States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

(Continued on page 2) Subject to the approval by state, state to  
Petroleum Development Commission National Petroleum

\*(Instructions on page 2)

Approval Subject to General Requirements  
& Special Stipulations Attached

Roswell Controlled Water Basin

*KZ*

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

# State of New Mexico

DISTRICT I

1025 N. FRANK DR., HOBBBS, NM 88240

Energy, Minerals and Natural Resources Department

Form C-102

DISTRICT II

1301 W. GRAND AVENUE ARTSIA, NM 88210

## OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.

Santa Fe, New Mexico 87505

Revised October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

## WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

|                                   |   |  |
|-----------------------------------|---|--|
| API Number<br><b>30-015-38060</b> | Pool Code<br><b>17970</b>                             | Pool Name<br><b>DOG CANYON, WOLFCAMP</b> |
| Property Code<br><b>37485</b>     | Property Name<br><b>CARBON VALLEY 25 FEDERAL COM</b>  | Well Number<br><b>7H</b>                 |
| OGRID No<br><b>015363</b>         | Operator Name<br><b>MURCHISON OIL &amp; GAS, INC.</b> | Elevation<br><b>3520'</b>                |

### Surface Location

| UL or lot No | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|--------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| D            | 25      | 16-S     | 27-E  |         | 950           | NORTH            | 330           | WEST           | EDDY   |

### Bottom Hole Location If Different From Surface

| UL or lot No | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|--------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| A            | 25      | 16-S     | 27-E  |         | 990           | NORTH            | 330           | EAST           | EDDY   |

| Dedicated Acres | Joint or Infill | Consolidation Code | Order No |
|-----------------|-----------------|--------------------|----------|
| <b>160</b>      |                 |                    |          |

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

|   |  |
|---|--|
| <p>PROJECT AREA</p> <p>PRODUCING AREA</p> <p>HORZ DIST = 4334.2'</p> <p>GRID AZ = 92°15'33"</p> <p>DETAIL</p> <p>3524.1' 3528.1'</p> <p>3514.6' 3516.1'</p> <p>600'</p> <p>GLONETIC COORDINATES<br/>NAD 27 NME<br/>SURFACE LOCATION<br/>Y=690393.1 N<br/>X=528843.1 E</p> <p>LAT = 32 897935" N<br/>LONG = 104 239362" W</p> <p>BOTTOM HOLE LOCATION<br/>Y=690214.2 N<br/>X=533440.7 E<br/>LAT = 32 897431" N<br/>LONG = 104.224384" W</p> <p>PENETRATION POINT<br/>Y=690385.0 N<br/>X=529111.0 E<br/>LAT = 32 897912" N<br/>LONG = 104.238490" W</p> | <p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>[Signature]</i> 4/6/10<br/>Signature Date<br/><b>A. ARNOLD NALL</b><br/>Printed Name</p> |
|   | <p><b>SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>MARCH 11, 2010</p> <p>Date Surveyed LA</p> <p>Signature &amp; Seal of Professional Surveyor</p> <p><i>[Signature]</i> 4/6/10<br/>10.13.0484</p>   |
|   | <p>Certificate No GARY EIDSON 12041<br/>RONALD J EIDSON 3230</p>   |
|   |  |

**ATTACHMENT TO FORM 3160-3**  
**Murchison Oil & Gas, Inc.**  
**Carbon Valley 25 Fed Com #7-H**  
**SL: 950' FNL & 330' FWL, Unit D**  
**BHL: 990' FNL & 330' FEL, Unit A**  
**Sec 25, T16S, R27E**  
**Eddy County, New Mexico**

1 Proration Unit Spacing 160 acres

2 Ground Elevation 3520' Est RKB 3543'

3 ESTIMATED TOPS OF IMPORTANT GEOLOGIC MARKERS

|            | <u>DEPTH (RKB)</u> | <u>SUBSURFACE</u> |
|------------|--------------------|-------------------|
| Queen      | 804'               | +2739'            |
| Premier    | 1556'              | +1987'            |
| San Andres | 1616'              | +1927'            |
| Glorietta  | 3011'              | +532'             |
| Yeso       | 3106'              | +437'             |
| Tubb       | 4326'              | -783'             |
| Abo        | 5242'              | -1699'            |
| Wolfcamp   | 6212'              | -2669'            |

\*Pilot Hole – True Vertical Depth 6450' -2907'

PROPOSED DEPTHS TVD 6328' and MD 10674'

4 ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL, OR GAS

|             |             |                            |
|-------------|-------------|----------------------------|
| Fresh Water | 225' – 245' | Seven Rivers Carbonate     |
| Fresh Water | 400' – 425' | Bowers Sand (Seven Rivers) |
| Oil/Gas     | 1616'       | San Andres                 |
| Oil/Gas     | 3011'       | Glorietta                  |
| Oil/Gas     | 4326'       | Tubb                       |
| Oil/Gas     | 5242'       | Abo                        |
| Oil/Gas     | 6212'       | Wolfcamp                   |

5 CASING AND CEMENTING PROGRAM

| Casing Size | Hole Size | From To        | Weight | Grade   | Joint | Conditions |
|-------------|-----------|----------------|--------|---------|-------|------------|
| 9-5/8"      | 12-1/4"   | 0' - 1050'     | 36 0#  | J-55    | ST&C  | New        |
| 7"          | 8-3/4"    | 0' – 5700'     | 26 0#  | HCP-110 | LT&C  | New        |
| 4-1/2"      | 6-1/8"    | 5600' – 10674' | 11 6#  | HCP-110 | BT&C  | New        |
|             |           |                |        |         |       |            |

| Casing Size | Burst Rating, psi | Safety Factor | Collapse Rating, psi | Safety Factor | Tension Rating, 1000 lbs. | Safety Factor |
|-------------|-------------------|---------------|----------------------|---------------|---------------------------|---------------|
| 9-5/8"      | 3520              | 1 25          | 2020                 | 3 70          | 394                       | 9 95          |
| 7"          | 9950              | 3 10          | 7800                 | 2 60          | 693                       | 4 70          |
| 4-1/2"      | 10690             | 3 20          | 8650                 | 2 60          | 367                       | 30+           |
|             |                   |               |                      |               |                           |               |

Equivalent or adequate grades and weights of casing may be substituted at time casing is run, depending on availability

**Attachment to Form 3160-3  
Murchison Oil & Gas, Inc.  
Carbon Valley 25 Fed Com #7-H  
Page 2 of 3**

**6 CASING DEPTH AND CEMENTING PROGRAM**

9 625" Surface Casing - Cementing Program

Cement lead with 175 sacks of Interfill Class C + additives with yield = 2.45 cu ft /sack, tail with 175 sacks Premium Plus + additives with yield = 1.34 cu ft /sack, sufficient volume of cement will be pumped to ensure cement is circulated to surface

7" Intermediate Casing and Fiberglass Tubing - Cementing Program

Cement lead with 300 sacks of Interfill Class H + additives with yield = 2.77 cu ft /sack, tail with 300 sacks Super Class H + additives with yield = 1.61 cu ft /sack, sufficient volume of cement will be pumped to ensure cement is circulated to surface. Will cement below 7" casing via 2-7/8" fiberglass tubing stinger to adequately plug back vertical pilot hole after logging and prior to drilling curve/horizontal section of well

4 5" Production Casing - Cementing Program

Plan to utilize 4-1/2" 11 6# HCP-110 BTC Peak completion liner system from RSB packer @ 5600' to TD of 10674' MD. No cement required

1050' – 10674' 11" 3000# ram type preventers with one set blind rams and one set pipe rams and a 3000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head below 5500'. See attached Sketch of BOP Equipment

A Kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor

After setting the 9 5/8" casing, the blowout preventers and related control equipment shall be pressure tested to 3000 psi and 1500 psi respectively. Any equipment failing to test satisfactorily shall be repaired or replaced. Results of the BOP test will be recorded in the Driller's Log

The BOP's will be maintained ready for use until drilling operations are completed. Pipe and blind rams shall be activated each trip. Annular preventer shall be functionally operated at least weekly

BOP drills will be conducted as necessary to assure that equipment is operational and each crew is properly trained to carry out emergency duties

Accumulator shall maintain a pressure capacity reserve at all times to provide for the close-open-close sequence of the blind and pipe rams of the hydraulic preventers

**7 MUD PROGRAM**

0 – 1050' Fresh water / native mud Wt. 8.4 to 8.6 ppg, vis 28-34 sec, Lime for pH control. Paper for seepage. Lost circulation may be encountered

1050' – 6200' Cut brine Wt. 8.4 – 8.8 ppg, vis 28-29 sec, No control water loss, lime for pH control

6200' – 10674' Mud up with XCD Polymer mud system Wt. 9.0 – 9.5 ppg, Vis 32-40 sec, WL 8-10 cc

Sufficient mud materials will be kept on location at all times in order to combat lost circulation, or

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Murchison Oil & Gas, Inc.  
Carbon Valley 25 Fed Com #7-H  
Page 3 of 3**

unexpected kicks In order to run open-hole logs and casing, the viscosity and water loss may have to be adjusted to meet these needs

Mud system monitoring equipment with derrick floor indicators and visual / audio alarms shall be installed and operative prior to drilling into the Wolfcamp formation This equipment will remain in use until the production casing is run and cemented Monitoring equipment shall consist of the following

- A recording pit level indicator
- A pit volume totalizer
- A flowline sensor

9 TESTING, LOGGING AND CORING PROGRAM

- A Testing program None planned
  - B Mud logging program Two man unit from 1050' to TD
  - C Electric logging program CNL/LDT/CAL/GR, MSFL/HALS/GR
  - D Coring program None planned
- 10 No abnormal temperatures or pressures are anticipated Low levels of H<sub>2</sub>S have been monitored in producing wells in the area, so H<sub>2</sub>S may be present while drilling the well An H<sub>2</sub>S Plan is attached to the Drilling Program Anticipated Bottom Hole Pressure is 2700 PSI (maximum), and anticipated static Bottom Hole Temperature is 125 degrees Fahrenheit
- 11 Anticipated starting date is November 15, 2010 It should take approximately 30 days to drill the well and another 10-15 days to complete
- 12 A statement accepting responsibility for operations is attached
- 13 The Multi-Point Surface Use & Operation Plan is attached
- 14 If the Bureau of Land Management needs additional information to evaluate this application, please advise