

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

RCVD DEC 22 2006  
OIL CONS. DIV.  
DIST. 3

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

|                                                                                                                              |                                                      |                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1a. Type of Work<br>DRILL                                                                                                    | 2006 NOV 15 PM 4 51<br>RECEIVED<br>070 FARMINGTON NM | 5. Lease Number<br>NMSF-078194<br>Unit Reporting Number                                                                                              |
| 1b. Type of Well<br>GAS                                                                                                      |                                                      | 6. If Indian, All. or Tribe                                                                                                                          |
| 2. Operator<br><b>ConocoPhillips</b> Oil & Gas Company                                                                       |                                                      | 7. Unit Agreement Name                                                                                                                               |
| 3. Address & Phone No. of Operator<br>PO Box 4289, Farmington, NM 87499<br>(505) 326-9700                                    |                                                      | 8. Farm or Lease Name<br>Ludwick LS<br>9. Well Number<br>#21F                                                                                        |
| 4. Location of Well<br>Unit E (SWNW), 1700' FNL, 660' FWL<br><br>Latitude 36° 46.2552'N<br>Longitude 107° 55.8545'W<br><br>H | Lot 9                                                | 10. Field, Pool, Wildcat<br>Blanco Mesaverde/ Basin Dakota<br><br>11. Sec., Twn, Rge, Mer. (NMPM)<br>Sec. 31, T30N, R10W<br>E<br>API # 30-045- 34070 |
| 14. Distance in Miles from Nearest Town<br>9 miles to Aztec, NM                                                              | 12. County<br>San Juan                               | 13. State<br>NM                                                                                                                                      |
| 15. Distance from Proposed Location to Nearest Property or Lease Line<br>660'                                                |                                                      |                                                                                                                                                      |
| 16. Acres in Lease                                                                                                           | 17. Acres Assigned to Well<br>295.98 W/2 MV/DK       |                                                                                                                                                      |
| 18. Distance from Proposed Location to Nearest Well, Drig, Compl, or Applied for on this Lease<br>940' - Ludwick LS #5       |                                                      |                                                                                                                                                      |
| 19. Proposed Depth<br>6930'                                                                                                  | 20. Rotary or Cable Tools<br>Rotary                  |                                                                                                                                                      |
| 21. Elevations (DF, FT, GR, Etc.)<br>6022' GL                                                                                | 22. Approx. Date Work will Start                     |                                                                                                                                                      |
| 23. Proposed Casing and Cementing Program<br>See Operations Plan attached                                                    |                                                      |                                                                                                                                                      |
| 24. Authorized by: <u>Amanda Sainch</u><br>Regulatory Tech                                                                   | <u>11-15-06</u><br>Date                              |                                                                                                                                                      |

PERMIT NO.

APPROVAL DATE

APPROVED BY

TITLE

DATE 12/20/06

Archaeological Report attached

Threatened and Endangered Species Report attached

NOTE: This format is issued in lieu of U.S. BLM Form 3160-3

Title 18 U.S.C. Section 1001, makes 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 presentations as to any matter within its jurisdiction.

NMOCD

12/22/06

RCVD DEC22'06  
OIL CONS. DIV.

District I  
PO Box 1980, Hobbs, NM 88241-1980

State of New Mexico  
Energy, Minerals & Natural Resources Department

Form C-102  
Revised February 21, 1994  
Instructions on back  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

District II  
PO Drawer 00, Artesia, NM 88211-0719

OIL CONSERVATION DIVISION  
PO Box 2088, Santa Fe, NM 87504-2088

District III  
J Rio Brazos Rd., Aztec, NM 87410

District IV  
PO Box 2088, Santa Fe, NM 87504-2088

RECEIVED

☐ AMENDED REPORT

070 FARMINGTON NM

### WELL LOCATION AND ACREAGE DEDICATION PLAT

|                                    |                                                 |                                    |                                                      |
|------------------------------------|-------------------------------------------------|------------------------------------|------------------------------------------------------|
| *API Number<br><b>30-045-34070</b> |                                                 | *Pool Code<br><b>72319 \ 71599</b> | *Pool Name<br><b>BLANCO MESAVERDE \ BASIN DAKOTA</b> |
| *Property Code<br><b>31823</b>     | *Property Name<br><b>LUDWICK LS</b>             |                                    | *Well Number<br><b>21F</b>                           |
| *OGRID No.<br><b>217817</b>        | *Operator Name<br><b>CONOCOPHILLIPS COMPANY</b> |                                    | *Elevation<br><b>6022'</b>                           |

#### 10 Surface Location

| UL or lot no. | Section | Township | Range | Lot 10h | Feet from the | North/South line | Feet from the | East/West line | County   |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|----------|
| E             | 31      | 30N      | 10W   | 9       | 1700          | NORTH            | 660           | WEST           | SAN JUAN |

#### 11 Bottom Hole Location If Different From Surface

| UL or lot no.           | Section | Township | Range | Lot 10h | Feet from the    | North/South line | Feet from the       | East/West line | County     |
|-------------------------|---------|----------|-------|---------|------------------|------------------|---------------------|----------------|------------|
|                         |         |          |       |         |                  |                  |                     |                |            |
| *Dedicated Acres        |         |          |       |         | *Joint or Infill |                  | *Consolidation Code |                | *Order No. |
| 295.98 Acres - W/2 (MV) |         |          |       |         |                  |                  |                     |                |            |
| 295.98 Acres - W/2 (DK) |         |          |       |         |                  |                  |                     |                |            |

1212.42'

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

|                                                        |  |  |  |          |  |  |  |          |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |        |  |        |  |  |  |
|--------------------------------------------------------|--|--|--|----------|--|--|--|----------|--|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------|--|--------|--|--|--|
| 5                                                      |  |  |  | 1303.50' |  |  |  | 2607.00' |  |  |  | <b>17 OPERATOR CERTIFICATION</b><br>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.<br><br>Signature<br><b>Virgil E. Chavez</b><br><br>Printed Name<br><b>Projects &amp; Operations Lead</b><br><br>Title<br><br><br>Date                                                                                                                                                                                                            |  |        |  |        |  |  |  |
| LOT 8                                                  |  |  |  | LOT 7    |  |  |  | LOT 6    |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | LOT 5  |  |        |  |  |  |
| 1700'                                                  |  |  |  | LOT 10   |  |  |  | LOT 11   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | LOT 12 |  |        |  |  |  |
| 2618.22'                                               |  |  |  | LOT 16   |  |  |  | LOT 15   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | LOT 14 |  |        |  |  |  |
| 660'                                                   |  |  |  | LOT 9    |  |  |  | LOT 10   |  |  |  | LOT 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |        |  | LOT 12 |  |  |  |
| LAT: 36.77093° N<br>LONG: 107.93153° W<br>DATUM: NAD83 |  |  |  | 31       |  |  |  | 5216.64' |  |  |  | <b>18 SURVEYOR CERTIFICATION</b><br>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.<br><br>Date of Survey: <b>JUNE 29, 2006</b><br><br>Signature and Seal of Professional Surveyor<br><br><br><br><b>JASON C. EDWARDS</b><br>Certificate Number 15269 |  |        |  |        |  |  |  |
| 2607.00'                                               |  |  |  | LOT 16   |  |  |  | LOT 15   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |        |  | LOT 14 |  |  |  |
| LEASE<br>SF-078194                                     |  |  |  | LOT 17   |  |  |  | LOT 18   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |        |  | LOT 19 |  |  |  |
| 1156.32'                                               |  |  |  | LOT 17   |  |  |  | LOT 18   |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |        |  | LOT 19 |  |  |  |
|                                                        |  |  |  | 1284.36' |  |  |  | 2644.62' |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |        |  |        |  |  |  |

Office

Energy, Minerals and Natural Resources

May 27, 2004

District I

1625 N. French Dr., Hobbs, NM 88240

District II

1301 W. Grand Ave., Artesia, NM 88210

District III

1000 Rio Brazos Rd., Aztec, NM 87410

District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

## OIL CONSERVATION DIVISION

1220 South St. Francis Dr.  
Santa Fe, NM 87505

WELL API NO.

30-045-34070

5. Indicate Type of Lease

STATE ☐FEE ☐

6. State Oil &amp; Gas Lease No.

SF-078194

7. Lease Name or Unit Agreement Name

Ludwick LS

8. Well Number

#21F

9. OGRID Number

217817

10. Pool name or Wildcat

MV/DK

## SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well:

Oil Well ☐Gas Well ☒

Other

2. Name of Operator

CONOCOPHILLIPS COMPANY

3. Address of Operator

3401 E. 30TH STREET, FARMINGTON, NM 87402

4. Well Location

Unit Letter E : 1700' feet from the North line and 660' feet from the West lineSection 31 Township 30N Rng 10W NMPM County San Juan

11. Elevation (Show whether DR, RKB, RT, GR, etc.)

6022'

Pit or Below-grade Tank Application

☐ or Closure ☐

Pit type

New Drill

Depth to Groundwater

&gt;100'

Distance from nearest fresh water well

&gt;1000'

Distance from nearest surface water

&gt;100'

&lt;1000'

Pit Liner Thickness:

12

mil

Below-Grade Tank:

Volume

bbls;

Construction Material

## 12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

## NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐PLUG AND ABANDON ☐TEMPORARILY ABANDON ☐CHANGE PLANS ☐PULL OR ALTER CASING ☐MULTIPLE COMPL ☐

OTHER:

New Drill

☒

## SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ALTERING CASING ☐COMMENCE DRILLING OPNS. ☐P AND A ☐CASING/CEMENT JOB ☐OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

New Drill, Lined:

ConocoPhillips proposes to construct a new drilling pit, an associated vent/flare pit and a pre-set mud pit (if required). Based on ConocoPhillips' interpretation of the Ecosphere's risk ranking criteria, the new drilling pit and pre-set mud pit will be lined pits as detailed in ConocoPhillips' General Plan dated June 2005 on file at the NMOCD office. A portion of the vent/flare pit will be designed to manage fluids and that portion will be lined as per the risk ranking criteria. ConocoPhillips anticipates closing these pits according to the November 1, 2004 Guidelines.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☒ or an (attached) alternative OCD-approved plan ☐.

SIGNATURE

TITLE

Regulatory Technician

DATE

11/15/2006

Type or print name

Amanda Sanchez

E-mail address:

asanchez@br-inc.com

Telephone No.

505-326-9891

For State Use Only

APPROVED BY

TITLE

DEPUTY OIL &amp; GAS INSPECTOR, DIST. II

DATE

DEC 22 2006

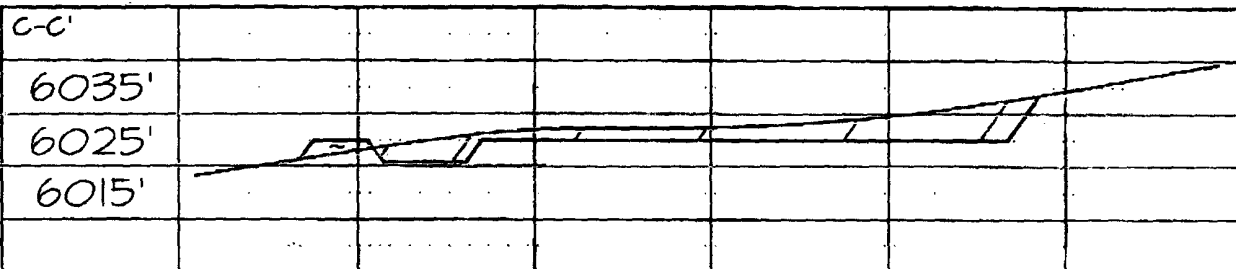
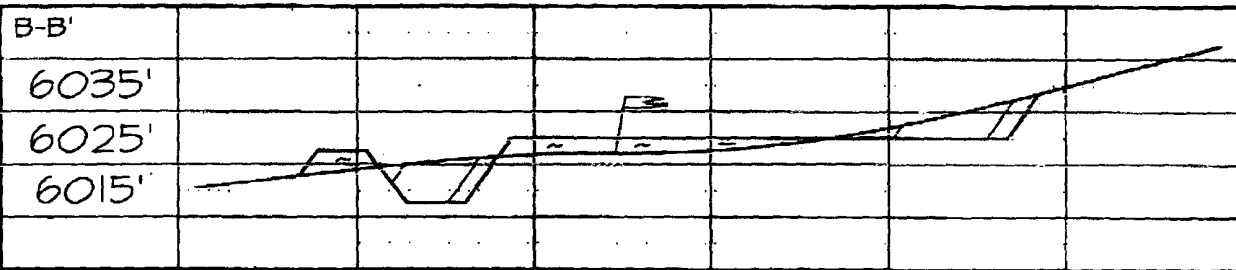
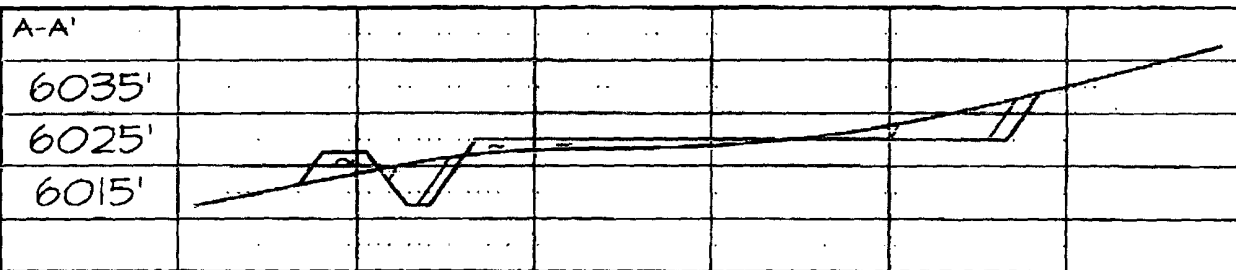
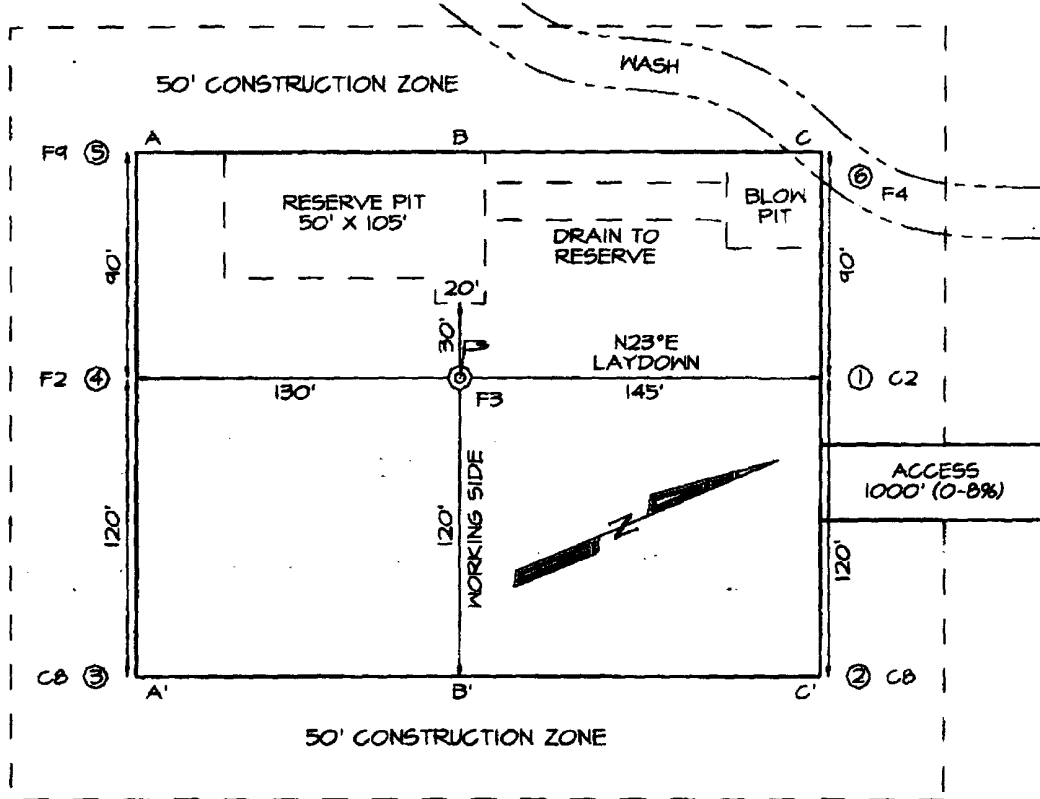
Conditions of Approval (if any):

**CONOCOPHILLIPS COMPANY LUDWICK LS #21F**  
**1700' FNL & 660' FWL, SECTION 31, T30N, R10W, NMPM**  
**SAN JUAN COUNTY, NEW MEXICO ELEVATION: 6022'**

**LATITUDE: 36.77093° N**  
**LONGITUDE: 107.93153° W**  
 DATUM: NAD1983

PLAT NOTE:

\*SURFACE OWNER\*  
 Bureau of Land  
 Management



**PROJECT PROPOSAL - New Drill / Sidetrack**  
**LUDWICK LS 21F**

| Lease:                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                          | AFE #: WAN, CNV, 6143           |                                                                                                     | AFE \$:                                                    |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------|-----------|----------------|-------------------|----------|----------------|--------------|-----------------------|--------------|--------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------|------|-----------|---------------|--|------------|--|--|--|--|--|--|--|--|--|
| Field Name: NEW MEXICO-WEST                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                          | Rip: Bickley                    |                                                                                                     | State: NM County: SAN JUAN                                 |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Geoscientist: Brain, Ted H.                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                          | Phone: 832-486-2592             |                                                                                                     | Prod. Engineer: Piotrowicz, Greg M. Phone: +1 832-486-3486 |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Res. Engineer: Harrington, Tim R.                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                          | Phone: 832-486-2207             |                                                                                                     | Proj. Field Lead: Fransen, Eric E. Phone:                  |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| <table border="1"> <tr> <th>Zone</th> <th>Zone Name</th> </tr> <tr> <td>R20002</td> <td>MESAVERDE(R20002)</td> </tr> <tr> <td>R20076</td> <td>DAKOTA(R20076)</td> </tr> </table>                                                                                                                                                                                                                                                 |                                                                                                                                          |                                 |                                                                                                     |                                                            |                                                                                                 | Zone               | Zone Name | R20002         | MESAVERDE(R20002) | R20076   | DAKOTA(R20076) |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Zone                                                                                                                                                                                                                                                                                                                                                                                                                             | Zone Name                                                                                                                                |                                 |                                                                                                     |                                                            |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| R20002                                                                                                                                                                                                                                                                                                                                                                                                                           | MESAVERDE(R20002)                                                                                                                        |                                 |                                                                                                     |                                                            |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| R20076                                                                                                                                                                                                                                                                                                                                                                                                                           | DAKOTA(R20076)                                                                                                                           |                                 |                                                                                                     |                                                            |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| <table border="1"> <tr> <th>Latitude</th> <th>36.770930</th> <th>Longitude</th> <th>-107.931530</th> <th>X:</th> <th>Y:</th> <th>Section</th> <th>31</th> <th>Range</th> <th>10W</th> </tr> <tr> <th>Footage X:</th> <td>660 FWL <th>Footage Y:</th> <td>1700 FNL <th>Elevation:</th> <td>6022 <th>(FT)</th> <th>Township:</th> <td>30N <td></td> </td></td></td></td></tr> <tr> <th colspan="10">Tolerance:</th> </tr> </table> |                                                                                                                                          |                                 |                                                                                                     |                                                            |                                                                                                 | Latitude           | 36.770930 | Longitude      | -107.931530       | X:       | Y:             | Section      | 31                    | Range        | 10W          | Footage X:                      | 660 FWL <th>Footage Y:</th> <td>1700 FNL <th>Elevation:</th> <td>6022 <th>(FT)</th> <th>Township:</th> <td>30N <td></td> </td></td></td> | Footage Y: | 1700 FNL <th>Elevation:</th> <td>6022 <th>(FT)</th> <th>Township:</th> <td>30N <td></td> </td></td> | Elevation: | 6022 <th>(FT)</th> <th>Township:</th> <td>30N <td></td> </td> | (FT) | Township: | 30N <td></td> |  | Tolerance: |  |  |  |  |  |  |  |  |  |
| Latitude                                                                                                                                                                                                                                                                                                                                                                                                                         | 36.770930                                                                                                                                | Longitude                       | -107.931530                                                                                         | X:                                                         | Y:                                                                                              | Section            | 31        | Range          | 10W               |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Footage X:                                                                                                                                                                                                                                                                                                                                                                                                                       | 660 FWL <th>Footage Y:</th> <td>1700 FNL <th>Elevation:</th> <td>6022 <th>(FT)</th> <th>Township:</th> <td>30N <td></td> </td></td></td> | Footage Y:                      | 1700 FNL <th>Elevation:</th> <td>6022 <th>(FT)</th> <th>Township:</th> <td>30N <td></td> </td></td> | Elevation:                                                 | 6022 <th>(FT)</th> <th>Township:</th> <td>30N <td></td> </td>                                   | (FT)               | Township: | 30N <td></td>  |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Tolerance:                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                          |                                 |                                                                                                     |                                                            |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Location Type: Year Round                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                          | Start Date (Est.):              |                                                                                                     | Completion Date:                                           |                                                                                                 | Date In Operation: |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Formation Data: Assume KB = 6038                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                          | Units = FT                      |                                                                                                     |                                                            |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Formation Call & Casing Points                                                                                                                                                                                                                                                                                                                                                                                                   | Depth (TVD in Ft)                                                                                                                        | SS (Yes/No)                     | BHP (PSIG)                                                                                          | BHT                                                        | Remarks                                                                                         |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Surface Casing                                                                                                                                                                                                                                                                                                                                                                                                                   | 5822                                                                                                                                     |                                 |                                                                                                     |                                                            | 12-1/4 hole. 9 5/8" 32.3 ppf, H-40, STC casing. Circulate cement to surface.                    |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| OJAM                                                                                                                                                                                                                                                                                                                                                                                                                             | 1095                                                                                                                                     |                                 |                                                                                                     |                                                            | Possible water flows.                                                                           |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| KRLD                                                                                                                                                                                                                                                                                                                                                                                                                             | 1250                                                                                                                                     |                                 |                                                                                                     |                                                            | Possible gas.                                                                                   |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| FRLD                                                                                                                                                                                                                                                                                                                                                                                                                             | 2130                                                                                                                                     |                                 |                                                                                                     |                                                            |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| PCCF                                                                                                                                                                                                                                                                                                                                                                                                                             | 2438                                                                                                                                     |                                 |                                                                                                     |                                                            |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| LEWS                                                                                                                                                                                                                                                                                                                                                                                                                             | 2638                                                                                                                                     |                                 |                                                                                                     |                                                            |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Intermediate Casing                                                                                                                                                                                                                                                                                                                                                                                                              | 2738                                                                                                                                     |                                 |                                                                                                     |                                                            | 8 3/4" Hole. 7", 20 ppf, J-55, STC Casing. Circulate cement to surface.                         |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| CLFH                                                                                                                                                                                                                                                                                                                                                                                                                             | 4098                                                                                                                                     |                                 |                                                                                                     |                                                            | Gas; possibly wet                                                                               |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| MENF                                                                                                                                                                                                                                                                                                                                                                                                                             | 4138                                                                                                                                     |                                 |                                                                                                     |                                                            | Gas.                                                                                            |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| PTLK                                                                                                                                                                                                                                                                                                                                                                                                                             | 4768                                                                                                                                     |                                 |                                                                                                     |                                                            | Gas.                                                                                            |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| GLLP                                                                                                                                                                                                                                                                                                                                                                                                                             | 6228                                                                                                                                     |                                 |                                                                                                     |                                                            | Gas. Possibly wet.                                                                              |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| GRHN                                                                                                                                                                                                                                                                                                                                                                                                                             | 6673                                                                                                                                     |                                 |                                                                                                     |                                                            | Gas possible, highly fractured                                                                  |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| TWLS                                                                                                                                                                                                                                                                                                                                                                                                                             | 6788                                                                                                                                     |                                 |                                                                                                     |                                                            | Gas                                                                                             |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| PAGU                                                                                                                                                                                                                                                                                                                                                                                                                             | 6848                                                                                                                                     |                                 |                                                                                                     |                                                            | Gas. Highly Fractured.                                                                          |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Total Depth                                                                                                                                                                                                                                                                                                                                                                                                                      | 6930                                                                                                                                     |                                 |                                                                                                     |                                                            | 6-1/4" hole possibly underreamed to 9.5". Optional Liner: 5.5", 15.5#, J-55 LTC. left unreamed. |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| <table border="1"> <tr> <th>Reference Type</th> <th>Well Name</th> <th>Comments</th> </tr> <tr> <td>Intermediate</td> <td>Sellers LS 5</td> <td>E-Log, 30-30N-10W, SW</td> </tr> <tr> <td>Intermediate</td> <td>Sellers LS 6</td> <td>Induction/E-log, 30-30N-10W, SW</td> </tr> </table>                                                                                                                                        |                                                                                                                                          |                                 |                                                                                                     |                                                            |                                                                                                 |                    |           | Reference Type | Well Name         | Comments | Intermediate   | Sellers LS 5 | E-Log, 30-30N-10W, SW | Intermediate | Sellers LS 6 | Induction/E-log, 30-30N-10W, SW |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Reference Type                                                                                                                                                                                                                                                                                                                                                                                                                   | Well Name                                                                                                                                | Comments                        |                                                                                                     |                                                            |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Intermediate                                                                                                                                                                                                                                                                                                                                                                                                                     | Sellers LS 5                                                                                                                             | E-Log, 30-30N-10W, SW           |                                                                                                     |                                                            |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |
| Intermediate                                                                                                                                                                                                                                                                                                                                                                                                                     | Sellers LS 6                                                                                                                             | Induction/E-log, 30-30N-10W, SW |                                                                                                     |                                                            |                                                                                                 |                    |           |                |                   |          |                |              |                       |              |              |                                 |                                                                                                                                          |            |                                                                                                     |            |                                                               |      |           |               |  |            |  |  |  |  |  |  |  |  |  |

# Ludwick LS #21F

## APD Cement Calculations

HOLE: 12.25"  
 CSG OD: 9.625"  
 CSG ID: 9.001"  
 WGT: 32.3 ppg  
 GRADE: H-40  
 EXCESS: 125 %  
 DEPTH: 120'

### SURFACE:

Option 1  
 79 sx  
 16.4 bbls  
 91.9 cuft  
 1.17 ft<sup>3</sup>/sx  
 15.8 ppg  
 4.973 gal/sx  
 Class G Cement  
 + 3% S001 Calcium Chloride  
 + 0.25 lb/sx D029 Cellophane Flakes

### Option 2

76 sx  
 16.4 bbls  
 91.9 cuft  
 1.21 ft<sup>3</sup>/sx  
 15.6 ppg  
 5.29 gal/sx  
 Standard Cement  
 + 3% Calcium Chloride  
 + 0.25 lb/sx Floccle

### Option 3

37 sx  
 10.6 bbls  
 59.3 cuft  
 1.61 ft<sup>3</sup>/sx  
 14.5 ppg  
 7.41 gal/sx  
 Type I-II Ready Mix  
 + 20% Fly Ash

HOLE: 8.75"  
 CSG OD: 7"  
 CSG ID: 6.456"  
 WGT: 20 ppg  
 GRADE: J-55  
 EXCESS: 50 %  
 TAIL: 547.6'  
 DEPTH: 2738'

### INTERMEDIATE LEAD:

Option 1  
 179 sx  
 86.9 bbls  
 488.0 cuft  
 2.72 ft<sup>3</sup>/sx  
 11.7 ppg  
 15.74 gal/sx  
 Class G Cement  
 + 3% D079 Extender  
 + 0.20% D046 Antifoam  
 + 10 lb/sx Phenoseal

### Option 2

188 sx  
 86.9 bbls  
 488.0 cuft  
 2.60 ft<sup>3</sup>/sx  
 11.5 ppg  
 14.82 gal/sx  
 Type III Ashgrove Cement  
 + 30 lb/sx San Juan Poz  
 + 3% Bentonite  
 + 5.0 lb/sx Phenoseal

### Option 3

186 sx  
 86.9 bbls  
 488.0 cuft  
 2.63 ft<sup>3</sup>/sx  
 11.7 ppg  
 15.92 gal/sx  
 Class G Cement  
 + 3% D079 Extender  
 + 0.20% D046 Antifoam  
 + 1.0 lb/bbl CemNet

### INTERMEDIATE TAIL:

Option 1  
 102 sx  
 23.7 bbls  
 133.1 cuft  
 1.31 ft<sup>3</sup>/sx  
 13.5 ppg  
 5.317 gal/sx  
 50/50 Poz: Class G Cement  
 + 0.25 lb/sx D029 Cellophane Flakes  
 + 3% S001 Calcium Chloride  
 + 2% D020 Bentonite  
 + 1.5 lb/sx D024 Gilsontite Extender  
 + 0.1% D046 Antifoam  
 + 6 lb/sx Phenoseal

### Option 2

100 sx  
 23.7 bbls  
 133.1 cuft  
 1.33 ft<sup>3</sup>/sx  
 13.5 ppg  
 5.52 gal/sx  
 50/50 Poz: Standard Cement  
 + 2% Bentonite  
 + 6.0 lb/sx Phenoseal

### Option 3

104 sx  
 23.7 bbls  
 133.1 cuft  
 1.28 ft<sup>3</sup>/sx  
 13.5 ppg  
 5.255 gal/sx  
 50/50 Poz: Class G Cement  
 + 2% D020 Bentonite  
 + 5.0 lb/sx D024 Gilsontite Extender  
 + 2% S001 Calcium Chloride  
 + 0.1% D046 Antifoam  
 + 0.15% D065 Dispersant  
 + 1.0 lb/bbl CemNet

### PRODUCTION:

Option 1  
 405 sx  
 103.8 bbls  
 582.8 cuft  
 1.44 ft<sup>3</sup>/sx  
 13.0 ppg  
 6.47 gal/sx  
 50/50 Poz: Class G Cement  
 + 0.25 lb/sx D029 Cellophane Flakes  
 + 3% D020 Bentonite  
 + 1.0 lb/sx D024 Gilsontite Extender  
 + 0.25% D167 Fluid Loss  
 + 0.25% D065 Dispersant  
 + 0.1% D800 Retarder  
 + 0.1% D046 Antifoam  
 + 3.5 lb/sx Phenoseal

### Option 2

402 sx  
 103.8 bbls  
 582.8 cuft  
 1.45 ft<sup>3</sup>/sx  
 13.1 ppg  
 6.55 gal/sx  
 50/50 Poz: Standard Cement  
 + 3% Bentonite  
 + 0.2% CFR-3 Friction Reducer  
 + 0.1% HR-5 Retarder  
 + 0.8% Halad-9 Fluid Loss Additive  
 + 3.5 lb/sx Phenoseal

### Option 3

Comp. Strength  
 6 hrs 250 psi  
 8 hrs 500 psi  
 12 hrs 1026 psi  
 24 hrs 2300 psi

HOLE: 6.25"  
 CSG OD: 4.5"  
 CSG ID: 4"  
 WGT: 11.6 ppg  
 GRADE: N-80  
 EXCESS: 30 %  
 DEPTH: 6930'

29-11/15/06

# Ludwick LS #21F

HOLE: 12.25"  
 CSG OD: 9.625"  
 CSG ID: 9.001"  
 WGT: 32.3 ppf  
 GRADE: H-40  
 EXCESS: 125 %  
 DEPTH: 120'

## INTERMEDIATE LEAD:

Option 4

169 sx  
 86.9 bbls  
 488.0 cuft  
 2.88 ft<sup>3</sup>/sx  
 11.5 ppg  
 16.85 gal/sx  
 Standard Cement  
 + 3% Econolite (Extender)  
 + 10 lb/sx Phenoseal

Comp. Strength  
 1:47 50 psi  
 12 hrs 350 psi  
 24 hrs 450 psi

HOLE: 8.75"  
 CSG OD: 7"  
 CSG ID: 6.456"  
 WGT: 20 ppf  
 GRADE: J-55  
 EXCESS: 50 %  
 TAIL: 547.6'  
 DEPTH: 2738'

Option 5

232 sx  
 86.9 bbls  
 488.0 cuft  
 2.10 ft<sup>3</sup>/sx  
 11.7 ppg  
 11.724 gal/sx

Comp. Strength  
 10:56 500 psi  
 42 hrs 1012 psi

75% Type XI / 25% Class G Cement  
 + 0.25 lb/sx D029 Cellophane Flakes  
 + 3% D079 Extender  
 + 0.20% D046 Antifoam

## INTERMEDIATE TAIL:

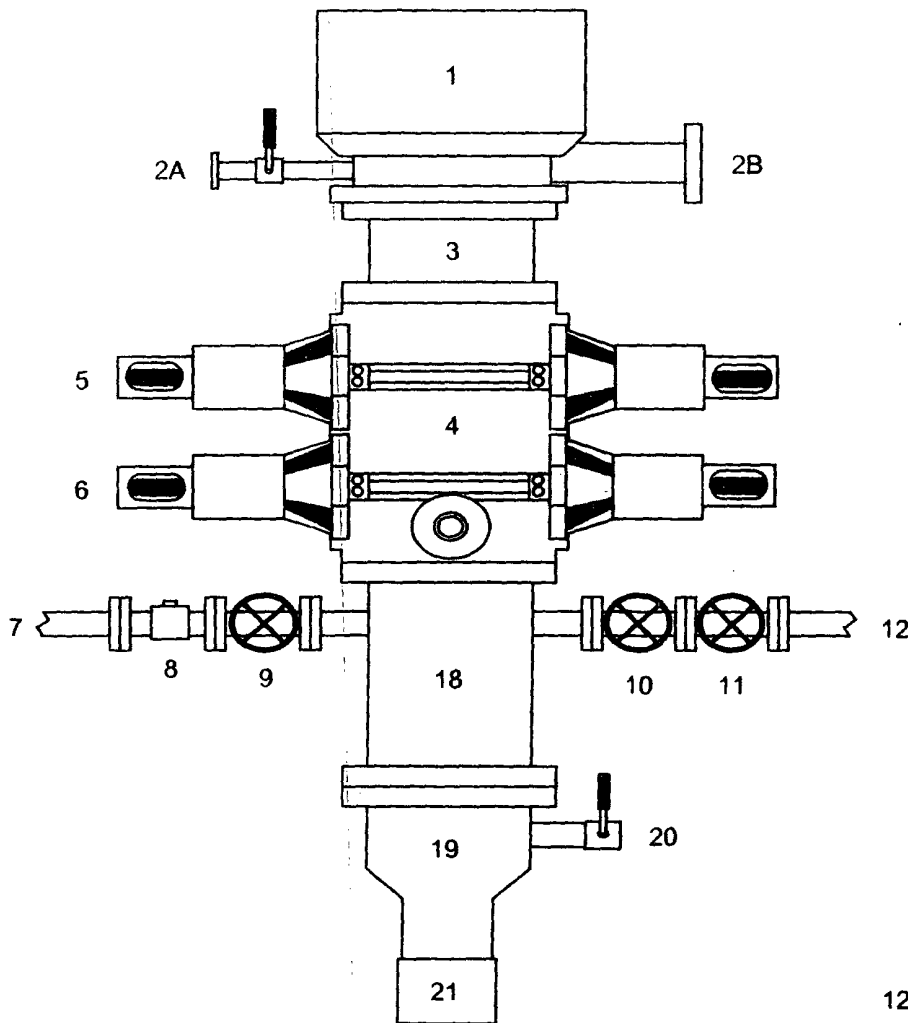
## PRODUCTION:

HOLE: 6.25"  
 CSG OD: 4.5"  
 CSG ID: 4"  
 WGT: 11.6 ppf  
 GRADE: N-80  
 EXCESS: 30 %  
 DEPTH: 6930'

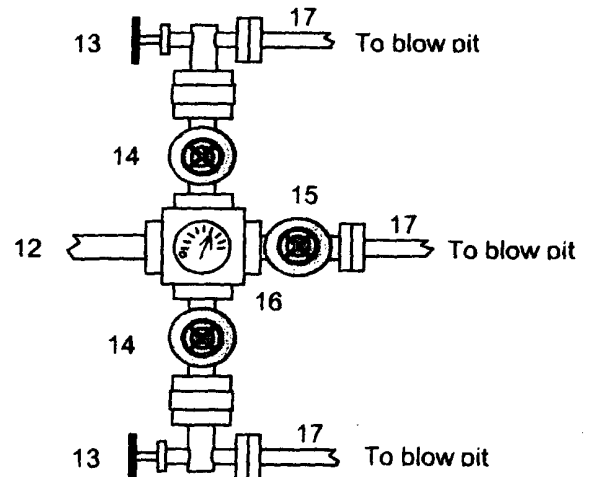
M<sup>3</sup> - 11/15/06

# BLOWOUT PREVENTER ARRANGEMENT & PROGRAM

## For Drilling to Intermediate Casing Point & Setting 7" Intermediate Casing



1. Rotating Head
- 2A. Fill-up Line & valve
- 2B. Flowline
3. Spacer Spool
4. Double Ram BOP (11", 3000 psi)
5. Pipe Rams
6. Blind Rams
7. Kill Line
8. Kill Line Check Valve
9. Kill Line Valve
10. Inner Choke Line Valve (3")
11. Outer Choke Line Valve (3")
12. Choke Line (3")
13. Variable Choke
14. Choke Line Valve (2")
15. Panic Line Valve (3")
16. Choke Manifold Pressure Gauge
17. Choke Line (2")
18. Mud Cross Spacer Spool
19. Casing Head "A" Section
20. Casing Head "A" Section 2" Valve
21. 9 5/8" Casing Collar



A 12-1/4" hole will be drilled to approximately 220' and the 9-5/8" surface casing will be run and cemented. The Casing Head "A" Section will be screwed onto the 9-5/8" surface casing stub. The BOP will be installed on the Casing Head "A" Section. A test plug will be set in the wellhead and the pipe rams and choke manifold will be tested to 200 psi to 300 psi (low pressure test) for 10 minutes and to 1000 psi (high pressure test) for 10 minutes. Then the test plug will be removed, and the **9-5/8" casing will be pressure tested** against closed blind rams to 200 psi to 300 psi for 10 minutes and to **1000 psi for 30 minutes** (this value is one 44% of the minimum internal yield pressure of the 9-5/8" casing). (Note: per regulatory requirements we will wait on cement at least 8 hrs after placement before testing the 9-5/8" surface casing). Then an 8-3/4" hole will be drilled to intermediate casing point and 7" intermediate casing will be run and cemented.

In addition to the equipment in the above diagram the following equipment will comprise the BOP system:

1. Upper Kelly cock Valve with handle
2. Stab-in TIW valve for all drillstrings in use

Revision Date: September 1, 2004

Blowout preventor equipment (BOPE) tests must be performed using an appropriately sized test plug. The BOPE test must be performed and recorded using a test pump, calibrated test gauges and a properly calibrated strip or chart recorder. The test must be recorded in the driller's log and will include a low pressure test requirement of 250 psig held for five minutes and a high pressure test requirement held for ten minutes as described in Onshore Order No. 2 or otherwise authorized in the Application for Permit to Drill (APD). A successful BOPE test using a test plug is considered when no pressure drop occurs over the duration of the test. Test gauges and recorders must be of the proper range and resolution commensurate with the authorized test pressure. Where intermediate casing strings are used, only one BOPE test will be necessary contingent upon the test being conducted to the highest approved test pressure to which the BOPE will be exposed. Casing pressure tests must be held for 30 minutes with no more than a 10 percent pressure drop during the duration of the test.