

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD HOBBS

FORM APPROVED  
OMB No. 1004-0137  
Expires: October 31, 2014

**SUNDRY NOTICES AND REPORTS ON WELLS**  
**Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.**

JUL 10 2012

5. Lease Serial No  
MLC068281B

6. If Indian, Allottee or Tribe Name  
N/A

**SUBMIT IN TRIPLICATE – Other instructions on page 2.**

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator  
Burlington Resources Oil & Gas Company LP

3a. Address  
P.O. Box 51810  
Midland, Tx 79710

3b. Phone No. (include area code)  
432-688-6943

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

8. Well Name and No.  
Buck Federal 20 # 3H

9. API Well No.  
30-025-40503

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

24 FNL & 246 FWL

UL: C of Section 20-26S-32E

10. Field and Pool or Exploratory Area  
Red Hill; Bone Spring

11. County or Parish, State  
Lea County, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

| TYPE OF SUBMISSION                                   | TYPE OF ACTION                                |                                           |                                                    |                                                  |
|------------------------------------------------------|-----------------------------------------------|-------------------------------------------|----------------------------------------------------|--------------------------------------------------|
| <input checked="" type="checkbox"/> Notice of Intent | <input type="checkbox"/> Acidize              | <input type="checkbox"/> Deepen           | <input type="checkbox"/> Production (Start/Resume) | <input type="checkbox"/> Water Shut-Off          |
| <input type="checkbox"/> Subsequent Report           | <input type="checkbox"/> Alter Casing         | <input type="checkbox"/> Fracture Treat   | <input type="checkbox"/> Reclamation               | <input type="checkbox"/> Well Integrity          |
| <input type="checkbox"/> Final Abandonment Notice    | <input type="checkbox"/> Casing Repair        | <input type="checkbox"/> New Construction | <input type="checkbox"/> Recomplete                | <input checked="" type="checkbox"/> Other Modify |
|                                                      | <input type="checkbox"/> Change Plans         | <input type="checkbox"/> Plug and Abandon | <input type="checkbox"/> Temporarily Abandon       | Drill Plan                                       |
|                                                      | <input type="checkbox"/> Convert to Injection | <input type="checkbox"/> Plug Back        | <input type="checkbox"/> Water Disposal            |                                                  |

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

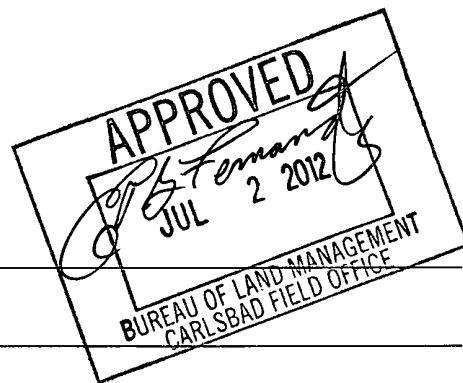
Due to an adjustment made from the approved surface location, ConocoPhillips respectfully submits and requests the following:

1. Please find attached a revised C102 indicating the change from the approved surface location as well as a change to the proposed bottomhole. Included is also the revised drill plan information related to this request.

From: 224/W & 2416/W

2. After the well currently drilling, a new rig will move into this well, Precision 827 to drill all subsequent wells in the Red Hills area. As part of this package, is a revised BOP schematic and rig layout. This rig does not use any flex hoses so no exception for their use is needed.

**SEE ATTACHED FOR  
CONDITIONS OF APPROVAL**



14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)  
Donna Williams

Title Sr. Regulatory Advisor

Signature

Date 06/20/2012

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

Title

Date

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. 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

(Instructions on page 2)

**SEE ATTACHED FOR  
CONDITIONS OF APPROVAL**

**WITNESS SURFACE CASING**

HOBBS OCD

JUL 10 2012

Form C-102

Revised August 1, 2011

DISTRICT I  
1625 N. French Dr., Hobbs, NM 88240  
Phone (505) 393-6161 Fax: (505) 393-0720

DISTRICT II  
811 S. First St., Artesia, NM 88210  
Phone (505) 748-1263 Fax: (505) 748-9720

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone (505) 334-6176 Fax: (505) 334-6170

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

RECEIVED

Submit one copy to appropriate  
District Office

## WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

|                            |                                     |                                                                                      |
|----------------------------|-------------------------------------|--------------------------------------------------------------------------------------|
| API Number<br>30-025-40503 | Pool Code<br>97838                  | Well Name<br>25C-025 6-05 5263208P;<br><del>Red Hills; Bone Spring</del> Upper Shale |
| Property Code<br>39058     | Property Name<br>BUCK, FEDERAL (20) | Well Number<br>3H                                                                    |
| GRID No.<br>217817         | Operator Name<br>CONOCO PHILLIPS    | Elevation<br>3179'                                                                   |

## Surface Location

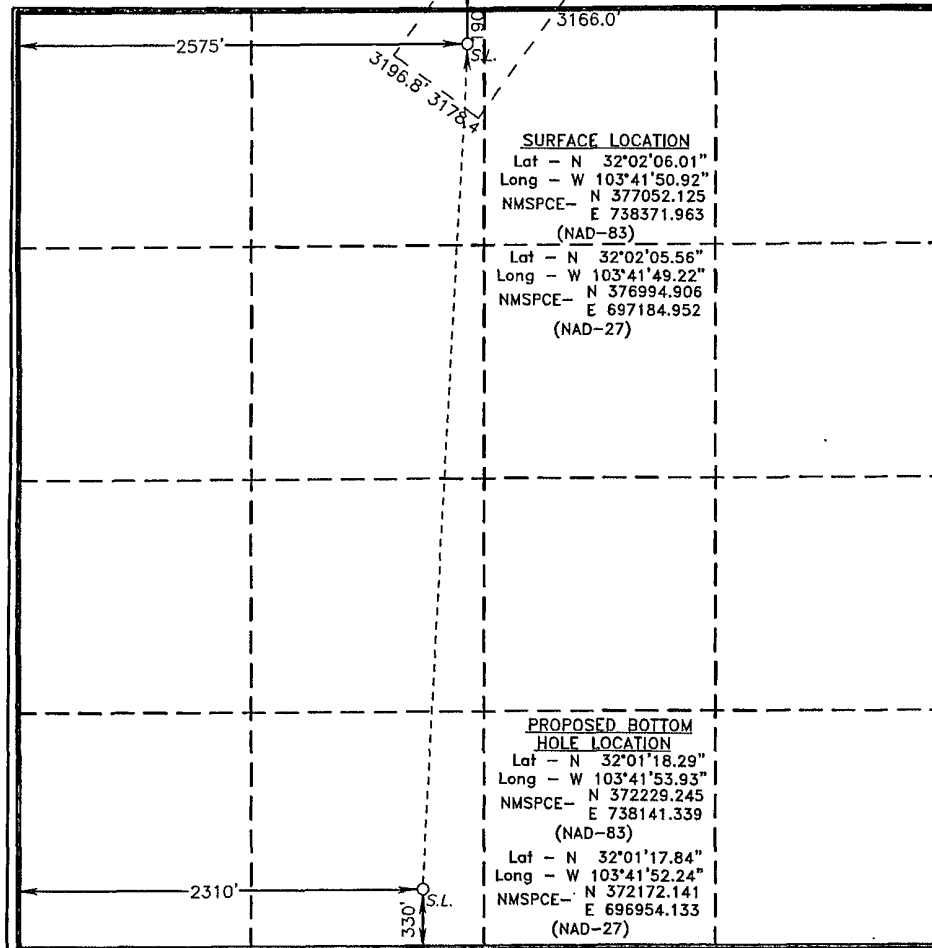
| UL or lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| C             | 20      | 26 S     | 32 E  |         | 190           | NORTH            | 2575          | WEST           | LEA    |

## 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 |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| N             | 20      | 26 S     | 32 E  |         | 330           | SOUTH            | 2310          | WEST           | LEA    |

| Dedicated Acres | Joint or Infill | Consolidation Code | Order No. |
|-----------------|-----------------|--------------------|-----------|
| 120             |                 | 3174.1'            |           |

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



## OPERATOR CERTIFICATION

I hereby certify that the information contained 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Printed Name

Donna Williams  
Donna S. Williams c Conoco  
Email Address Phillips.com

## SURVEYOR CERTIFICATION

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.

Date Surveyed

Signature &amp; Seal of Professional Surveyor

W.C. No. 46512

Certificate No. Gary L. Jones 7977

BASIN SURVEYS 26512

\* Amended

**DRILLING PLAN**

| <b>PROSPECT/FIELD</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Bonespring/Red Hills                                                                                                                                                                                                                      |         |              |                        |                   | <b>COUNTY/STATE</b>                                                                                                                                                                                                                                         | Lea County, NM |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
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| <b>OWNERS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ConocoPhillips                                                                                                                                                                                                                            |         |              |                        |                   | <b>LEASE</b>                                                                                                                                                                                                                                                |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <b>WELL NO.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Buck Federal 20 #3H                                                                                                                                                                                                                       |         |              |                        |                   | <b>FNL</b>                                                                                                                                                                                                                                                  | <b>FSL</b>     | <b>FEL</b>   |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <b>LOCATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <div style="display: flex; justify-content: space-between;"> <span>Surface Location</span> <span>190</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Bottom Hole Location</span> <span>330</span> </div> |         |              |                        |                   | <b>FWL</b>                                                                                                                                                                                                                                                  |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <b>EST. T.D.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Leg #1 - 13,772' MD                                                                                                                                                                                                                       |         |              |                        |                   | <b>GROUND ELEV.</b>                                                                                                                                                                                                                                         |                | 3,179' (est) |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <b>PROGNOSIS:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                           |         |              |                        |                   | Based on 3,195' KB (est)                                                                                                                                                                                                                                    |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Marker</th> <th>S.S. Depth</th> <th>TVD</th> </tr> </thead> <tbody> <tr><td>Quaternary</td><td></td><td>Surface</td></tr> <tr><td>Rustler</td><td>2,158</td><td>1,037</td></tr> <tr><td>Delaware Top</td><td>-1,121</td><td>4,316</td></tr> <tr><td>Bone Spring</td><td>-4,888</td><td>8,083</td></tr> <tr><td>Bone Spring 1st Carbonate Top</td><td>-5,102</td><td>8,297</td></tr> <tr><td>Bone Spring 1st Carbonate Base</td><td>-5,198</td><td>8,393</td></tr> <tr><td>KOP (est)</td><td></td><td>8,450</td></tr> <tr><td>Avalon A Shale Top</td><td>-5,508</td><td>8,703</td></tr> <tr><td>Avalon A Shale Base</td><td>-5,745</td><td>8,940</td></tr> <tr><td>Avalon B Zone Top</td><td>-5,745</td><td>8,940</td></tr> <tr><td>Avalon B Zone Base</td><td>-5,895</td><td>9,090</td></tr> <tr><td>Avalon C Shale Top</td><td>-5,895</td><td>9,090</td></tr> <tr><td>Avalon C Shale Base (Should not penetrate)</td><td>-6,128</td><td>9,323</td></tr> </tbody> </table> |                                                                                                                                                                                                                                           |         |              |                        |                   | Marker                                                                                                                                                                                                                                                      | S.S. Depth     | TVD          | Quaternary |         | Surface | Rustler          | 2,158              | 1,037        | Delaware Top | -1,121     | 4,316 | Bone Spring                       | -4,888 | 8,083   | Bone Spring 1st Carbonate Top | -5,102     | 8,297 | Bone Spring 1st Carbonate Base | -5,198    | 8,393  | KOP (est) |                        | 8,450 | Avalon A Shale Top      | -5,508    | 8,703   | Avalon A Shale Base | -5,745                                                                                    | 8,940             | Avalon B Zone Top | -5,745 | 8,940 | Avalon B Zone Base | -5,895 | 9,090 | Avalon C Shale Top | -5,895 | 9,090 | Avalon C Shale Base (Should not penetrate) | -6,128 | 9,323 | <b>LOGS:</b><br><div style="display: flex; justify-content: space-between;"> <span>Type</span> <span>Interval</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Open Hole</span> <span>8,450'</span> </div> <div style="display: flex; justify-content: space-between;"> <span>GR-MWD</span> <span>13,772'</span> </div><br><b>DEVIATION:</b><br><div style="display: flex; justify-content: space-between;"> <span>Surf</span> <span>3" max, svy every 500'</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Int 1/2</span> <span>3" max, svy every 90'</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Prod</span> <span></span> </div><br><b>DST'S:</b><br><br><br><b>CORES:</b><br>No coring |  |  |
| Marker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | S.S. Depth                                                                                                                                                                                                                                | TVD     |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Quaternary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                           | Surface |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Rustler                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2,158                                                                                                                                                                                                                                     | 1,037   |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Delaware Top                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -1,121                                                                                                                                                                                                                                    | 4,316   |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Bone Spring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -4,888                                                                                                                                                                                                                                    | 8,083   |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Bone Spring 1st Carbonate Top                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | -5,102                                                                                                                                                                                                                                    | 8,297   |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Bone Spring 1st Carbonate Base                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -5,198                                                                                                                                                                                                                                    | 8,393   |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| KOP (est)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                           | 8,450   |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Avalon A Shale Top                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | -5,508                                                                                                                                                                                                                                    | 8,703   |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Avalon A Shale Base                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | -5,745                                                                                                                                                                                                                                    | 8,940   |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Avalon B Zone Top                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -5,745                                                                                                                                                                                                                                    | 8,940   |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Avalon B Zone Base                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | -5,895                                                                                                                                                                                                                                    | 9,090   |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Avalon C Shale Top                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | -5,895                                                                                                                                                                                                                                    | 9,090   |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Avalon C Shale Base (Should not penetrate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | -6,128                                                                                                                                                                                                                                    | 9,323   |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <b>SAMPLES:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                           |         |              |                        |                   | <div style="display: flex; justify-content: space-between;"> <span>Mudlogging</span> <span>Start</span> <span>End</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Two-Man</span> <span>1180'</span> <span>TD</span> </div> |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <b>BOP:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                           |         |              |                        |                   | COP Category 3 Well Control Requirements<br>Precision 827 BOPE<br>(With Rotating Head)<br>13-5/8"-5Mpsi Annular<br>13-3/8"-5Mpsi Blind Ram<br>13-3/8"-5Mpsi Cross / Choke & Kill Lines<br>13-3/8"-5M psi Pipe Ram<br>13-3/8"-5Mpsi Spacer Spool             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Dip Rate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                           |         |              |                        |                   | Slight 0.08 Down Dip                                                                                                                                                                                                                                        |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Max. Anticipated BHP:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                           |         |              |                        |                   | 0.65 psi/ft                                                                                                                                                                                                                                                 |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <b>MUD:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                           |         |              |                        |                   | <b>Surface Formation</b>                                                                                                                                                                                                                                    |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Interval</th> <th>Type</th> <th>Max. MW</th> <th>Vis</th> <th>WL</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Surface 0'-1180'</td> <td>Aquagel - Spud Mud</td> <td>8.9</td> <td>32-36</td> <td>NC</td> <td></td> </tr> <tr> <td>Intermediate 1 1180'-4360'</td> <td>Brine</td> <td>10.1</td> <td>28-30</td> <td>5-8</td> <td></td> </tr> <tr> <td>Intermediate 2 4360'-9684'</td> <td>Cut Brine</td> <td>8.2</td> <td>30-39</td> <td>&lt;=4</td> <td></td> </tr> <tr> <td>Production 9684'-13772'</td> <td>Cut Brine</td> <td>9.2</td> <td>30-40</td> <td>&lt;=5</td> <td></td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                           |         |              |                        |                   | Interval                                                                                                                                                                                                                                                    | Type           | Max. MW      | Vis        | WL      | Remarks | Surface 0'-1180' | Aquagel - Spud Mud | 8.9          | 32-36        | NC         |       | Intermediate 1 1180'-4360'        | Brine  | 10.1    | 28-30                         | 5-8        |       | Intermediate 2 4360'-9684'     | Cut Brine | 8.2    | 30-39     | <=4                    |       | Production 9684'-13772' | Cut Brine | 9.2     | 30-40               | <=5                                                                                       |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Interval                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Type                                                                                                                                                                                                                                      | Max. MW | Vis          | WL                     | Remarks           |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Surface 0'-1180'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Aquagel - Spud Mud                                                                                                                                                                                                                        | 8.9     | 32-36        | NC                     |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Intermediate 1 1180'-4360'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Brine                                                                                                                                                                                                                                     | 10.1    | 28-30        | 5-8                    |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Intermediate 2 4360'-9684'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Cut Brine                                                                                                                                                                                                                                 | 8.2     | 30-39        | <=4                    |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Production 9684'-13772'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Cut Brine                                                                                                                                                                                                                                 | 9.2     | 30-40        | <=5                    |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <b>CASING:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                           |         |              |                        |                   | <b>WOC</b>                                                                                                                                                                                                                                                  |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Size</th> <th>Wt ppf</th> <th>Hole</th> <th>Depth</th> <th>Cement</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Surface 13-3/8"</td> <td>54.5</td> <td>17-1/2"</td> <td>1,180'</td> <td>To Surface</td> <td></td> </tr> <tr> <td>Intermediate 1 9-5/8"</td> <td>40</td> <td>12-1/4"</td> <td>4,360'</td> <td>To Surface</td> <td></td> </tr> <tr> <td>Intermediate 2 7"</td> <td>29</td> <td>8-3/4"</td> <td>9,684'</td> <td>500' into intermediate</td> <td></td> </tr> <tr> <td>Production Liner 4-1/2"</td> <td>11.6</td> <td>6"</td> <td>13,772'</td> <td>Uncemented</td> <td>Sleeves &amp; Packers</td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                           |         |              |                        |                   | Size                                                                                                                                                                                                                                                        | Wt ppf         | Hole         | Depth      | Cement  | Remarks | Surface 13-3/8"  | 54.5               | 17-1/2"      | 1,180'       | To Surface |       | Intermediate 1 9-5/8"             | 40     | 12-1/4" | 4,360'                        | To Surface |       | Intermediate 2 7"              | 29        | 8-3/4" | 9,684'    | 500' into intermediate |       | Production Liner 4-1/2" | 11.6      | 6"      | 13,772'             | Uncemented                                                                                | Sleeves & Packers |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Size                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Wt ppf                                                                                                                                                                                                                                    | Hole    | Depth        | Cement                 | Remarks           |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Surface 13-3/8"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 54.5                                                                                                                                                                                                                                      | 17-1/2" | 1,180'       | To Surface             |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Intermediate 1 9-5/8"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 40                                                                                                                                                                                                                                        | 12-1/4" | 4,360'       | To Surface             |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Intermediate 2 7"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 29                                                                                                                                                                                                                                        | 8-3/4"  | 9,684'       | 500' into intermediate |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Production Liner 4-1/2"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 11.6                                                                                                                                                                                                                                      | 6"      | 13,772'      | Uncemented             | Sleeves & Packers |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <b>DIRECTIONAL PLAN</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                           |         |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>MD</th> <th>TVD</th> <th>AZ</th> </tr> </thead> <tbody> <tr><td>Surface</td><td>N/A</td><td>N/A</td><td>0</td></tr> <tr><td>Vertical KOP</td><td>8,450'</td><td>8,450'</td><td>0.0</td></tr> <tr><td>End Build / 7" Casing (90° curve)</td><td>9,684'</td><td>9,235'</td><td>180.0</td></tr> <tr><td>Tangent</td><td>N/A</td><td>N/A</td><td>180.0</td></tr> <tr><td>Turn</td><td>N/A</td><td>N/A</td><td>180.0</td></tr> <tr><td>TD</td><td>13,772'</td><td>13,241'</td><td>180.0</td></tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                           |         |              |                        |                   |                                                                                                                                                                                                                                                             | MD             | TVD          | AZ         | Surface | N/A     | N/A              | 0                  | Vertical KOP | 8,450'       | 8,450'     | 0.0   | End Build / 7" Casing (90° curve) | 9,684' | 9,235'  | 180.0                         | Tangent    | N/A   | N/A                            | 180.0     | Turn   | N/A       | N/A                    | 180.0 | TD                      | 13,772'   | 13,241' | 180.0               | Directional Company DDC<br>Vertical Build Rate 8.0 '/100'<br>Tan Leg Turn Rate 0.0 '/100' |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | MD                                                                                                                                                                                                                                        | TVD     | AZ           |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Surface                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N/A                                                                                                                                                                                                                                       | N/A     | 0            |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Vertical KOP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8,450'                                                                                                                                                                                                                                    | 8,450'  | 0.0          |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| End Build / 7" Casing (90° curve)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9,684'                                                                                                                                                                                                                                    | 9,235'  | 180.0        |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Tangent                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N/A                                                                                                                                                                                                                                       | N/A     | 180.0        |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Turn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | N/A                                                                                                                                                                                                                                       | N/A     | 180.0        |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| TD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 13,772'                                                                                                                                                                                                                                   | 13,241' | 180.0        |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <b>Comments:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                           |         |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| INC ONLY Surveys will be taken at 90' interval below surface casing while drilling with PDC / Scout Vertical Seeking Tool/ INC ONLY Tool                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                           |         |              |                        |                   |                                                                                                                                                                                                                                                             |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| <b>Prep By:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                           |         | <b>Date:</b> |                        |                   | <b>Doc</b>                                                                                                                                                                                                                                                  |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| Katia P. Filina                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                           |         | 6/8/12       |                        |                   | REV 2                                                                                                                                                                                                                                                       |                |              |            |         |         |                  |                    |              |              |            |       |                                   |        |         |                               |            |       |                                |           |        |           |                        |       |                         |           |         |                     |                                                                                           |                   |                   |        |       |                    |        |       |                    |        |       |                                            |        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |

|                      |
|----------------------|
| Buck Federal 20 43H  |
| Surface Location     |
| Bottom Hole Location |
| 330                  |

|                     |     |
|---------------------|-----|
| SAP Network         | TBA |
| Inv. Handler ID     | TBA |
| Completion/Facility | TBA |
| Total               | \$0 |

|        |              |
|--------|--------------|
| Permit | P104353      |
| APC #  | 30-026-40503 |
| End #  | TBA          |
| AFE#   | WAS CAV 0004 |

| Directional                     | MD     | TVD   | EL ELEV | S-F-R | AZI   |
|---------------------------------|--------|-------|---------|-------|-------|
| Vertical COP                    | 9,840  | 9,235 | 0       | 0     | 0     |
| End Build 7" Casing (90° curve) | 9,840  | N/A   | 0       | 0     | 180.0 |
| Turn                            | N/A    | N/A   | 0       | 0     | 180.0 |
| TD                              | 13,772 | 9,241 | 0       | 0     | 180.0 |

# Examination

|                                            |         |
|--------------------------------------------|---------|
| Quaternary                                 | Surface |
| Quaternary Top                             | 4216    |
| Bone Spring                                | 6033    |
| Bone Spring 1st Carbonate Top              | 6237    |
| Bone Spring 1st Carbonate Base             | 6353    |
| KOP (est)                                  | 8450    |
| Avalon A Shale Top                         | 8703    |
| Avalon A Shale Base                        | 8940    |
| Avalon B Zone Top                          | 9090    |
| Avalon C Shale Top                         | 9223    |
| Avalon C Shale Base (Should not penetrate) |         |

# Casing

Surface 1180' 13-3/8" 54.56 J-55 STC

# Drill Fluids

Surf Hole  
FV gel mud  
8 sp  
w/ high vs sweeps

# Cement

Data. These numbers are only estimates.

Surface  
320 Sk Lead  
700 Sk Tail  
Based on 17-1/2" OH  
with 100% excess

Intermediate  
1,230 Sk Lead  
190 Sk Tail  
Based on 8 7/8" Hole  
with 150% excess

Prod Hole:  
Cul Bore  
9 2/3"  
26-38 Vs  
e-5 W/L  
high vs sweeps  
as required

Slurry Zone  
500 into 8 5/8"

Production  
320 Sk Lead  
135 Sk Tail  
Based on 0.00 In Hole  
with 100% excess

GR-MWD  
8450  
13772

Cased Hole Loss  
None

Completion  
Open Hole Sliding Sleeves & Packers

Production  
13,772 MD 4,102-11,688 8,110 BTC  
9,241 TVD

Landing Point @

9,684

n MD

Max Anticipated BHP

0.65 psi/ft

TD @ 13,772 MD  
9,241 TVD

Vick Harvey  
Geologist

Date  
6/8/2012

Katia P. Filina  
Drilling Engineer

Date  
6/8/2012

Bonespring/Red Hills  
ConocoPhillips  
Buck Federal 20 #3H

0

**Surface Casing:**

|                                   |            |
|-----------------------------------|------------|
| Surface Casing Depth (Ft)         | 1,180      |
| Surface Casing O.D. (In.)         | 13.375     |
| Surface Casing ID (In)            | 12.715     |
| Hole O.D. (In)                    | 17.5       |
| Excess (%)                        | 100%       |
| <b>Volume Tail (Sx)</b>           | <b>320</b> |
| Yield Tail (Cu. Ft./Sx)           | 1.33       |
| Yield Lead (Cu. Ft./Sx)           | 1.75       |
| Shoe Joint (Ft)                   | 40         |
| Shoe Volume (Cu. Ft)              | 35.3       |
| Tail feet of cement               | 300        |
| Calculated Total Volume (Cu. Ft.) | 1,675      |
| Calc. Tail Volume (Cu. Ft.)       | 417        |
| Calc. Lead Volume (Cu. Ft.)       | 1,222      |
| <b>Calc. Lead Volume (Sx)</b>     | <b>700</b> |

**Intermediate #1 Casing (Lead):**

|                                |             |
|--------------------------------|-------------|
| Intermediate Casing O.D. (In.) | 9.625       |
| Intermediate Casing ID (In)    | 8.835       |
| Hole O.D. (In)                 | 12.25       |
| Excess (%)                     | 150%        |
| cap 12-1/4 - 9-5/8"            | 0.0558      |
| Calculated fill:               | 3,860'      |
| Yield Lead (Cu. Ft./Sx)        | 2.47        |
| Calculated Total Lead (Cu. Ft) | 3,022       |
| <b>Calc. Lead Volume (Sx)</b>  | <b>1230</b> |

**Intermediate #1 Casing (Tail):**

|                                  |            |
|----------------------------------|------------|
| Intermediate Casing O.D. (In.)   | 9-5/8"     |
| Production Casing ID (In)        | 8.835      |
| Hole O.D. (In)                   | 12.25      |
| Excess (%)                       | 150%       |
| cap 12-1/4 - 9-5/8"              | 0.0558     |
| Calculated fill:                 | 500'       |
| Yield Tail (Cu. Ft./Sx)          | 1.33       |
| Shoe Joint (Ft)                  | 40         |
| Shoe Volume (Cu. Ft)             | 17.0       |
| Calc. Tail Volume (Cu. Ft.)      | 252        |
| <b>Required Tail Volume (Sx)</b> | <b>190</b> |

3850

**Intermediate #2 Casing (Lead):**

|                                     |            |
|-------------------------------------|------------|
| Intermediate Casing O.D. (In.)      | 7.000      |
| Intermediate Casing ID (In)         | 6.184      |
| Hole O.D. (In)                      | 8.75       |
| Excess (%)                          | 100%       |
| cap 5-1/2" - 8-3/4" bis/ft          | 0.0268     |
| cap 5-1/2 - 9-5/8" bis/ft           | 0.02823    |
| Calculated fill: (500' into 9-5/8") | 5,824'     |
| Yield Lead (Cu. Ft./Sx)             | 2.7        |
| Calculated Total Lead (Cu. Ft.)     | 876        |
| <b>Calc. Lead Volume (Sx)</b>       | <b>320</b> |

**Intermediate #2 Casing (Tail):**

|                                  |            |
|----------------------------------|------------|
| Intermediate Casing O.D. (In.)   | 7.000      |
| Intermediate Casing ID (In)      | 6.184      |
| Hole O.D. (In)                   | 8.75       |
| Excess (%)                       | 100%       |
| cap 5-1/2" - 8-3/4" bis/ft       | 0.0268     |
| cap 7 - 9-5/8" bis/ft            |            |
| Calculated fill:                 | 1,250'     |
| Yield Lead (Cu. Ft./Sx)          | 1.39       |
| Calculated Total Tail (Cu. Ft.)  | 188        |
| <b>Required Tail Volume (Sx)</b> | <b>135</b> |

7850

# ConocoPhillips

Red Hills  
Buck Federal 20 3H

PD 827

API # 30-025-40503

| Elevation / Depths                                     |         | Area                                             |                                               |                        |                                                                            | Geological Evaluation        |                             |                                   |                                                   |
|--------------------------------------------------------|---------|--------------------------------------------------|-----------------------------------------------|------------------------|----------------------------------------------------------------------------|------------------------------|-----------------------------|-----------------------------------|---------------------------------------------------|
| KB Elevation                                           |         | Lea County, Avalon A/Red Hills                   |                                               |                        |                                                                            | Samples                      |                             |                                   |                                                   |
| Ground Elevation                                       |         | Location                                         |                                               |                        |                                                                            | Logging                      |                             |                                   |                                                   |
| KB to GL                                               |         | (NAD 27 Coords)                                  |                                               |                        |                                                                            | Cores                        |                             |                                   |                                                   |
| OGRID NO                                               |         | Surface Coordinates N 376,994.906 E 697,184.952  |                                               |                        |                                                                            | Collision Risk               |                             |                                   |                                                   |
| AFE #                                                  |         | Bottom Hole Location N 372,172.141 E 696,954.133 |                                               |                        |                                                                            | H2S                          |                             |                                   |                                                   |
| WAS CAV 0004                                           |         |                                                  |                                               |                        |                                                                            |                              |                             |                                   |                                                   |
| Hole Size                                              | MD (ft) | TVD (ft)                                         | Drilling Fluid                                | Ditch Cuttings         | Directional BHA                                                            | Surveys                      | RISKS                       | Cement                            | Casing                                            |
| Conductor 20" #85                                      | 59'     | 59'                                              | Fresh Water                                   | None Gas Detection     | 0 - 3°                                                                     | N/A                          | None                        | NA                                | Conductor 20" Preset                              |
| Surface 17-1/2" FX65s 9x12                             |         |                                                  | Aquagel Spud Mud 8.6 - 8.9 PV/ YP 1-6         | None Gas Detection     | 0 - 3° Shock Sub Conv Pend BHA                                             | Teledrift INC ONLY           |                             | Lead 13.5ppg                      | Surface 13-3/8" 54 5# J55, BTC                    |
| Min 25' in Rustler Intermediate 12-1/4" JZ PLT516 7x13 | 1037'   | 1180'                                            | 300' Tall                                     |                        |                                                                            |                              |                             | Tail 300ft 14.8ppg                | Centralized                                       |
|                                                        |         |                                                  | 1260' Rat Hole Anhydrites Salts               | Mud Logging            |                                                                            |                              |                             | Lead 11.9ppg                      | Intermediate 9-5/8" 40# L80, LTC                  |
|                                                        |         |                                                  | Losses Lost Circ. Plastic salt                |                        |                                                                            |                              | Losses Plastic salt         | Tail 500ft 14.8ppg                |                                                   |
|                                                        |         |                                                  | TOC 500 ft                                    |                        |                                                                            |                              |                             | Ref Cmmt Program                  |                                                   |
| Delaware Sands                                         | 4316'   |                                                  | H2S Losses 500' Tall                          |                        |                                                                            | Teledrift MWD                |                             |                                   |                                                   |
|                                                        | 4360'   | 4360'                                            | Lost Returns                                  |                        | SCOUT TOOL Vertical Seeking Hunting Straight Motor                         |                              |                             |                                   | Centralized                                       |
| 8 3/4" Vertical 8-3/4"                                 | 4425'   |                                                  | Rat Hole                                      |                        | Packed Stabilized                                                          |                              |                             |                                   |                                                   |
| Cherry Canyon                                          | 6070'   |                                                  | Cut Brine 8.8 - 9.1                           | Mud Logging Unit to TD | 0 - 3°                                                                     |                              |                             |                                   |                                                   |
| Production 8-3/4" SDB FX45D 2x14 2x15                  |         |                                                  | Switch Flowzair Dnspac System                 |                        | SCOUT TOOL Vertical Seeking Hunting Straight Motor                         |                              |                             |                                   |                                                   |
|                                                        |         |                                                  | Cut Brine 8.8 - 9.1 PV 1-12 YP 1-20           |                        | Packed Stabilized                                                          | Teledrift INC ONLY Gyro @KOP |                             |                                   |                                                   |
|                                                        |         |                                                  | Slicker 555 Graphite Lubra-Beads Minimize T&D |                        | Vertical                                                                   |                              |                             |                                   |                                                   |
|                                                        |         |                                                  | Lost Returns                                  |                        |                                                                            |                              |                             |                                   |                                                   |
|                                                        |         |                                                  | Cut Brine 8.8 - 9.1 PV 1-12 YP 1-20           |                        | 0 - 89.92°                                                                 | DDC                          |                             | Lead 10.5ppg                      | Production 7" CSG 29# P-110 BTC                   |
|                                                        |         |                                                  |                                               |                        | Build DLS 8.0°                                                             | MWD D&I Gamma                |                             | Tail 1230ft 14.0ppg               |                                                   |
|                                                        |         |                                                  |                                               |                        | 6/7 5.0 Motor 2 deg Fixed 30 Jnts HWDP                                     |                              |                             | Ref Cmmt Program                  | Rigid Centralizers 1 /joint in curve 4 1/2" Liner |
| 8 3/4" Curve KOP: 8450' MD                             |         |                                                  | GYRO                                          |                        | Hold 89.92° INC Geologist GeoSteer DDC Motor 1.5 deg Fixed BH 30 Jnts HWDP | DDC MWD D&I Gamma            |                             |                                   | 11.6# P-110 BTC Uncemented                        |
| Bone Spring 1 Carbonate SDB FX D74DM 7x11              | 8297'   |                                                  | Seepage Abnormal Pr. WB Stability             |                        |                                                                            |                              | Build Rate Drop in Avalon A |                                   |                                                   |
| Avalon A 8703'                                         | 9060'   |                                                  |                                               |                        |                                                                            |                              |                             | Uncemented Liner                  | Completion                                        |
| Avalon B 8340'                                         |         |                                                  |                                               |                        |                                                                            |                              |                             |                                   | Sleeves&Packers                                   |
| Avalon C Target                                        |         |                                                  |                                               |                        |                                                                            |                              |                             |                                   | 22 Stages                                         |
| Back Up Bit JZ PLT616D6 v232                           |         |                                                  |                                               |                        |                                                                            |                              |                             |                                   |                                                   |
|                                                        |         |                                                  | Land @ 89.92° INC 9,684' MD/ 9235' TVD        |                        | ~4090ft Horizontal Leg                                                     |                              |                             | Toe/IPBHL @ 13,772' MD/ 9241' TVD |                                                   |
|                                                        |         |                                                  |                                               |                        | 6" Lateral with 4 1/2" Liner                                               |                              |                             |                                   |                                                   |

Date Prepared: June 08, 2012

Prepared By: Katia P. Filina

| Buck Federal 20 3H Proposed Tops                                                                                                                                                                                                                                                                                                                                                                                                  |  |                     |              |                 | GL 3,179             |                 | KB                   |      | 3,195 |  |                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------|--------------|-----------------|----------------------|-----------------|----------------------|------|-------|--|------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                     |              |                 | (via survey plat)    |                 |                      |      |       |  |                                                      |
| Notes:<br>No pilot hole will be drilled. This horizontal well will be drilled from N to S into the Avalon C Shale Zone. The surface location will require that the well be drilled "3D", with the borehole drilled initially SSW and then curved south in order to place the lateral portion of the borehole within the Avalon C 160 acre spacing window. The well will be drilled slightly toe down with a ~4,150' long lateral. |  |                     |              |                 | Surface Location     |                 | Sec 20               | T26S | R32E  |  | Lea Co. NM, Surface Location: 224' FNL & 2,416' FEL  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                     |              |                 | Bottom Hole Location |                 | Sec 20               | T26S | R32E  |  | Lea Co. NM, Terminus Location: 330' FSL & 2,310' FWL |
| Formation Name                                                                                                                                                                                                                                                                                                                                                                                                                    |  | Formation Top (TVD) | Subsea Depth | Gross Thickness | Gross Thickness      | Gross Thickness | Comments             |      |       |  |                                                      |
| Quaternary                                                                                                                                                                                                                                                                                                                                                                                                                        |  | Surface             |              |                 |                      |                 |                      |      |       |  |                                                      |
| Rustler                                                                                                                                                                                                                                                                                                                                                                                                                           |  | 1,037               | 2,158        |                 |                      |                 |                      |      |       |  |                                                      |
| Castile                                                                                                                                                                                                                                                                                                                                                                                                                           |  | 2,407               | 788          |                 |                      |                 |                      |      |       |  |                                                      |
| Delaware Top                                                                                                                                                                                                                                                                                                                                                                                                                      |  | 4,316               | -1,121       |                 |                      |                 |                      |      |       |  |                                                      |
| Ramsey                                                                                                                                                                                                                                                                                                                                                                                                                            |  | 4,350               | -1,155       |                 |                      |                 |                      |      |       |  |                                                      |
| Ford Sh                                                                                                                                                                                                                                                                                                                                                                                                                           |  | 4,408               | -1,213       |                 |                      |                 |                      |      |       |  |                                                      |
| Olds                                                                                                                                                                                                                                                                                                                                                                                                                              |  | 4,420               | -1,225       |                 |                      |                 |                      |      |       |  |                                                      |
| Cherry Canyon Lower Top                                                                                                                                                                                                                                                                                                                                                                                                           |  | 6,070               | -2,875       |                 |                      |                 |                      |      |       |  |                                                      |
| Bone Spring Top                                                                                                                                                                                                                                                                                                                                                                                                                   |  | 8,083               | -4,888       |                 |                      |                 |                      |      |       |  |                                                      |
| Bone Spring 1st Carbonate Top                                                                                                                                                                                                                                                                                                                                                                                                     |  | 8,297               | -5,102       |                 |                      | 96              |                      |      |       |  |                                                      |
| Bone Spring 1st Carbonate Base                                                                                                                                                                                                                                                                                                                                                                                                    |  | 8,393               | -5,198       |                 |                      |                 |                      |      |       |  |                                                      |
| KOP (est)                                                                                                                                                                                                                                                                                                                                                                                                                         |  | 8,440               |              |                 |                      |                 |                      |      |       |  |                                                      |
| Avalon A Shale Top                                                                                                                                                                                                                                                                                                                                                                                                                |  | 8,703               | -5,508       |                 |                      |                 |                      |      |       |  |                                                      |
| Avalon A Shale Base                                                                                                                                                                                                                                                                                                                                                                                                               |  | 8,940               | -5,745       |                 | 237                  |                 |                      |      |       |  |                                                      |
| Avalon B Zone Top                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 8,940               | -5,745       |                 |                      |                 |                      |      |       |  |                                                      |
| Avalon B Zone Base                                                                                                                                                                                                                                                                                                                                                                                                                |  | 9,090               | -5,895       |                 | 150                  |                 |                      |      |       |  |                                                      |
| Avalon C Shale Top                                                                                                                                                                                                                                                                                                                                                                                                                |  | 9,090               | -5,895       |                 |                      |                 |                      |      |       |  |                                                      |
| LANDING: Avalon C Shale Horizontal Upper Target Limit                                                                                                                                                                                                                                                                                                                                                                             |  | 9,210               | -6,015       |                 |                      |                 | 620                  |      |       |  |                                                      |
| LANDING: Avalon C Shale Horizontal Target Center                                                                                                                                                                                                                                                                                                                                                                                  |  | 9,235               | -6,040       |                 | 50                   |                 |                      |      |       |  |                                                      |
| LANDING: Avalon C Shale Horizontal Lower Target Limit                                                                                                                                                                                                                                                                                                                                                                             |  | 9,260               | -6,065       |                 |                      |                 | 233                  |      |       |  |                                                      |
| TERMINUS: Avalon C Shale Horizontal Upper Target Limit                                                                                                                                                                                                                                                                                                                                                                            |  | 9,216               | -6,021       |                 |                      |                 |                      |      |       |  |                                                      |
| TERMINUS: Avalon C Shale Horizontal Target Center                                                                                                                                                                                                                                                                                                                                                                                 |  | 9,241               | -6,046       |                 | 50                   |                 |                      |      |       |  |                                                      |
| TERMINUS: Avalon C Shale Horizontal Lower Target Limit                                                                                                                                                                                                                                                                                                                                                                            |  | 9,266               | -6,071       |                 |                      |                 | Not a formation top. |      |       |  |                                                      |
| Avalon C Shale Base (Should not penetrate)                                                                                                                                                                                                                                                                                                                                                                                        |  | 9,323               | -6,128       |                 |                      |                 | Not a formation top. |      |       |  |                                                      |
| Proposed total MD of well ~13,600'.                                                                                                                                                                                                                                                                                                                                                                                               |  |                     |              |                 |                      |                 |                      |      |       |  |                                                      |



## **Conoco Phillips**

**Lea County, New Mexico  
Sec 20, T26S, 32E  
Buck Federal 20 #3H**

**Wellbore #1**

**Plan: Design #2 ( NEW BHL )**

## **DDC Well Planning Report**

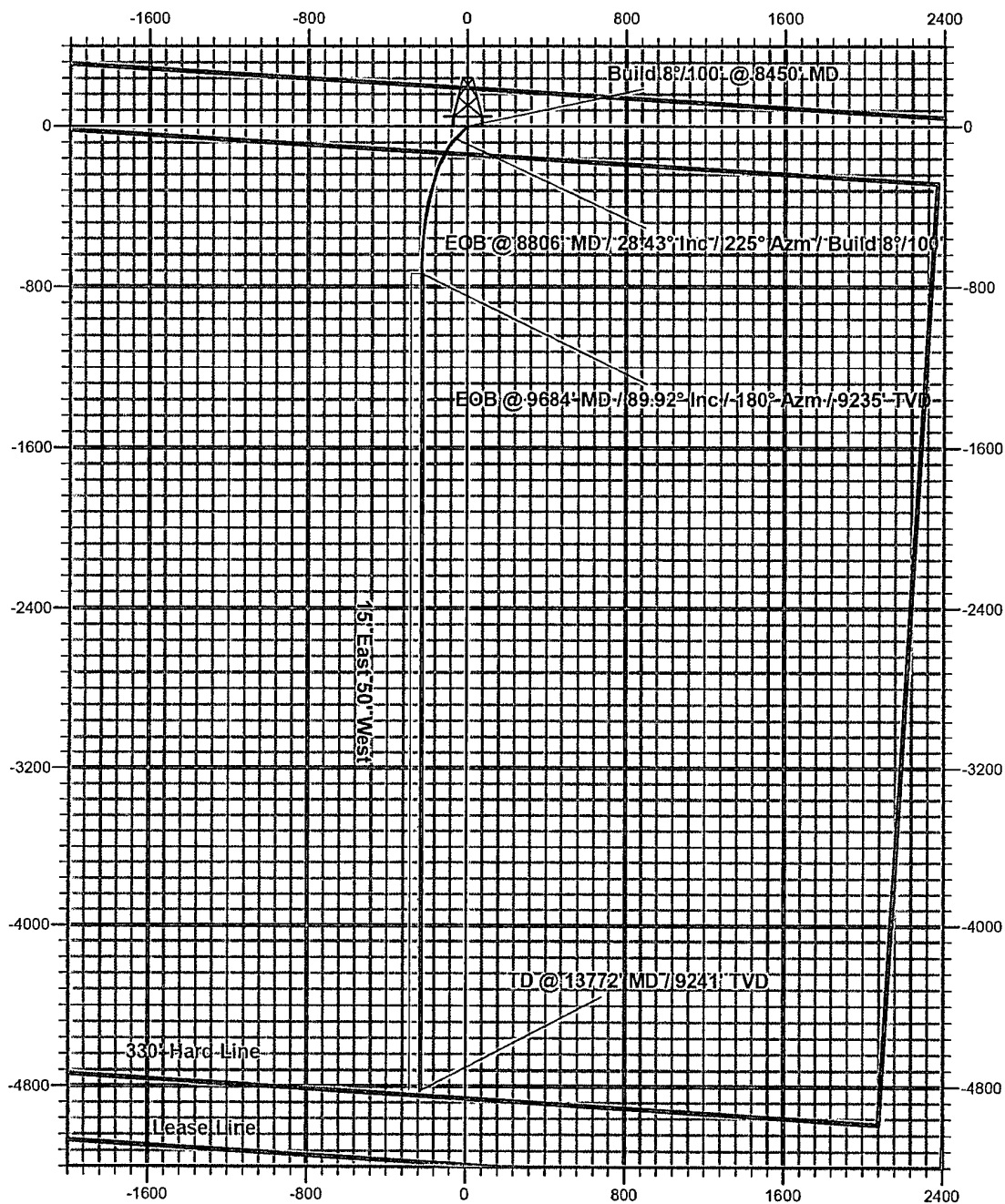
**07 June, 2012**





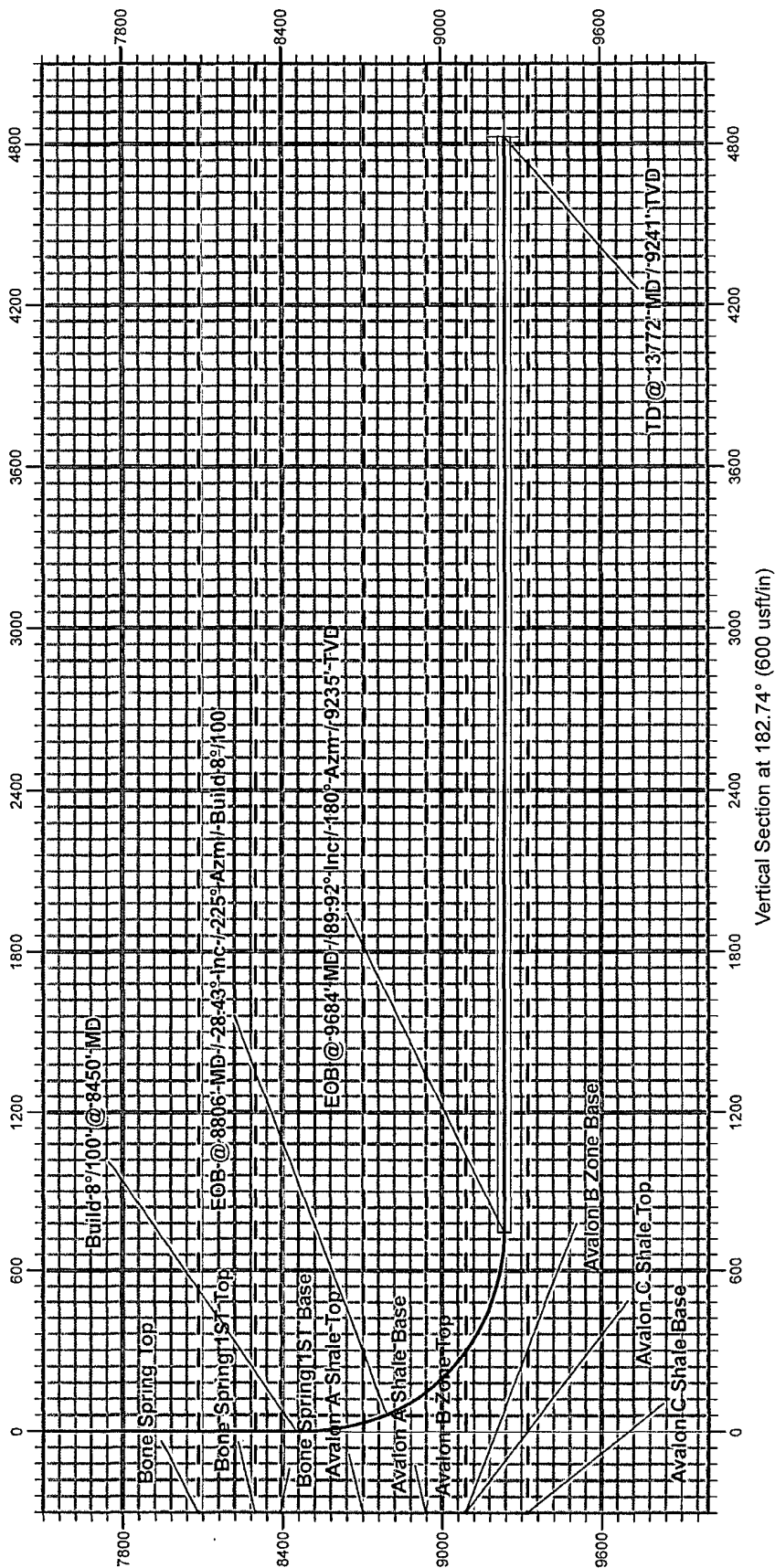
ConocoPhillips

Lea County, New Mexico  
Buck Federal 20 #3H  
Design #2 ( NEW BHL )



# ConocoPhillips

Lea County, New Mexico  
Buck Federal 20 #3H  
Design #2 ( NEW BHL )



|           |                           |                              |                                    |
|-----------|---------------------------|------------------------------|------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well Buck Federal 20 #3H           |
| Company:  | Conoco Phillips           | TVD Reference:               | WELL @ 3195.0usft (Precision #827) |
| Project:  | Lea County, New Mexico    | MD Reference:                | WELL @ 3195.0usft (Precision #827) |
| Site:     | Sec 20, T26S, 32E         | North Reference:             | Grid                               |
| Well:     | Buck Federal 20 #3H       | Survey Calculation Method:   | Minimum Curvature                  |
| Wellbore: | Wellbore #1               |                              |                                    |
| Design:   | Design #2 ( NEW BHL )     |                              |                                    |

|             |                                      |               |                |
|-------------|--------------------------------------|---------------|----------------|
| Project:    | Lea County, New Mexico               |               |                |
| Map System: | US State Plane 1927 (Exact solution) | System Datum: | Mean Sea Level |
| Geo Datum:  | NAD 1927 (NADCON CONUS)              |               |                |
| Map Zone:   | New Mexico East 3001                 |               |                |

|                       |                   |                   |                   |
|-----------------------|-------------------|-------------------|-------------------|
| Site:                 | Sec 20, T26S, 32E |                   |                   |
| Site Position:        |                   | Northing:         | 376,829.70 usft   |
| From:                 | Map               | Easting:          | 698,257.30 usft   |
| Position Uncertainty: | 0.0 usft          | Slot Radius:      | 13-3/16 "         |
|                       |                   | Latitude:         | 32° 2' 3.859 N    |
|                       |                   | Longitude:        | 103° 41' 36.778 W |
|                       |                   | Grid Convergence: | 0.34 °            |

|                      |                     |                     |                   |
|----------------------|---------------------|---------------------|-------------------|
| Well:                | Buck Federal 20 #3H |                     |                   |
| Well Position        | +N/-S 165.2 usft    | Northing:           | 376,994.90 usft   |
|                      | +E/-W -1,072.3 usft | Easting:            | 697,184.95 usft   |
| Position Uncertainty | 0.0 usft            | Wellhead Elevation: | 3,179.0 usft      |
|                      |                     | Latitude:           | 32° 2' 5.557 N    |
|                      |                     | Longitude:          | 103° 41' 49.224 W |
|                      |                     | Ground Level:       |                   |

|            |             |             |                |
|------------|-------------|-------------|----------------|
| Wellbore:  | Wellbore #1 |             |                |
| Magnetics: | Model Name  | Sample Date | Declination    |
|            | IGRF2010    | 5/21/2012   | 7.52           |
|            |             |             | Dip Angle      |
|            |             |             | 59.97          |
|            |             |             | Field Strength |
|            |             |             | 48,397         |

|                   |                       |        |               |
|-------------------|-----------------------|--------|---------------|
| Design:           | Design #2 ( NEW BHL ) |        |               |
| Audit Notes:      |                       |        |               |
| Version:          | Phase:                | PLAN   | Tie On Depth: |
|                   |                       |        | 0.0           |
| Vertical Section: | Depth From (TVD)      | +N/-S  | +E/-W         |
|                   | (usft)                | (usft) | (usft)        |
|                   | -10.0                 | 0.0    | 0.0           |
|                   |                       |        | Direction     |
|                   |                       |        | 182.74        |

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target           |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|------------------------|-----------------------|---------|------------------|
| 0.0                   | 0.00            | 0.00        | 0.0                   | 0.0          | 0.0          | 0.00                    | 0.00                   | 0.00                  | 0.00    |                  |
| 8,450.2               | 0.00            | 0.00        | 8,450.2               | 0.0          | 0.0          | 0.00                    | 0.00                   | 0.00                  | 0.00    |                  |
| 8,805.6               | 28.43           | 225.00      | 8,791.2               | -61.1        | -61.1        | 8.00                    | 8.00                   | 0.00                  | 225.00  |                  |
| 9,683.7               | 89.92           | 180.00      | 9,235.0               | -734.5       | -230.7       | 8.00                    | 7.00                   | -5.12                 | -48.70  |                  |
| 13,772.0              | 89.92           | 180.00      | 9,241.0               | -4,822.8     | -230.8       | 0.00                    | 0.00                   | 0.00                  | 0.00    | PBHL Buck Federa |

|                  |                           |                                     |                                    |
|------------------|---------------------------|-------------------------------------|------------------------------------|
| <b>Database:</b> | EDM 5000.1 Single User Db | <b>Local Co-ordinate Reference:</b> | Well Buck Federal 20 #3H           |
| <b>Company:</b>  | Conoco Phillips           | <b>TVD Reference:</b>               | WELL @ 3195.0usft (Precision #827) |
| <b>Project:</b>  | Lea County, New Mexico    | <b>MD Reference:</b>                | WELL @ 3195.0usft (Precision #827) |
| <b>Site:</b>     | Sec 20, T26S, 32E         | <b>North Reference:</b>             | Grid                               |
| <b>Well:</b>     | Buck Federal 20 #3H       | <b>Survey Calculation Method:</b>   | Minimum Curvature                  |
| <b>Wellbore:</b> | Wellbore #1               |                                     |                                    |
| <b>Design:</b>   | Design #2 ( NEW BHL )     |                                     |                                    |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 0.0                   | 0.00            | 0.00        | 0.0                   | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 100.0                 | 0.00            | 0.00        | 100.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 200.0                 | 0.00            | 0.00        | 200.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 300.0                 | 0.00            | 0.00        | 300.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 400.0                 | 0.00            | 0.00        | 400.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 500.0                 | 0.00            | 0.00        | 500.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 600.0                 | 0.00            | 0.00        | 600.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 700.0                 | 0.00            | 0.00        | 700.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 800.0                 | 0.00            | 0.00        | 800.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 900.0                 | 0.00            | 0.00        | 900.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,000.0               | 0.00            | 0.00        | 1,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| <b>Rustler</b>        |                 |             |                       |              |              |                         |                         |                        |                       |
| 1,037.0               | 0.00            | 0.00        | 1,037.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,100.0               | 0.00            | 0.00        | 1,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,200.0               | 0.00            | 0.00        | 1,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,300.0               | 0.00            | 0.00        | 1,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,400.0               | 0.00            | 0.00        | 1,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,500.0               | 0.00            | 0.00        | 1,500.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,600.0               | 0.00            | 0.00        | 1,600.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,700.0               | 0.00            | 0.00        | 1,700.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,800.0               | 0.00            | 0.00        | 1,800.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,900.0               | 0.00            | 0.00        | 1,900.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,000.0               | 0.00            | 0.00        | 2,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,100.0               | 0.00            | 0.00        | 2,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,200.0               | 0.00            | 0.00        | 2,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,300.0               | 0.00            | 0.00        | 2,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,400.0               | 0.00            | 0.00        | 2,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| <b>Castile</b>        |                 |             |                       |              |              |                         |                         |                        |                       |
| 2,407.0               | 0.00            | 0.00        | 2,407.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,500.0               | 0.00            | 0.00        | 2,500.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,600.0               | 0.00            | 0.00        | 2,600.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,700.0               | 0.00            | 0.00        | 2,700.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,800.0               | 0.00            | 0.00        | 2,800.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,900.0               | 0.00            | 0.00        | 2,900.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,000.0               | 0.00            | 0.00        | 3,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,100.0               | 0.00            | 0.00        | 3,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,200.0               | 0.00            | 0.00        | 3,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,300.0               | 0.00            | 0.00        | 3,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,400.0               | 0.00            | 0.00        | 3,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,500.0               | 0.00            | 0.00        | 3,500.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,600.0               | 0.00            | 0.00        | 3,600.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,700.0               | 0.00            | 0.00        | 3,700.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,800.0               | 0.00            | 0.00        | 3,800.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,900.0               | 0.00            | 0.00        | 3,900.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,000.0               | 0.00            | 0.00        | 4,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,100.0               | 0.00            | 0.00        | 4,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,200.0               | 0.00            | 0.00        | 4,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,300.0               | 0.00            | 0.00        | 4,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| <b>Delaware Top</b>   |                 |             |                       |              |              |                         |                         |                        |                       |
| 4,316.0               | 0.00            | 0.00        | 4,316.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| <b>Ramsey</b>         |                 |             |                       |              |              |                         |                         |                        |                       |
| 4,350.0               | 0.00            | 0.00        | 4,350.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,400.0               | 0.00            | 0.00        | 4,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| <b>Ford Shale</b>     |                 |             |                       |              |              |                         |                         |                        |                       |

|           |                           |                              |                                    |
|-----------|---------------------------|------------------------------|------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well Buck Federal 20 #3H           |
| Company:  | Conoco Phillips           | TVD Reference:               | WELL @ 3195.0usft (Precision #827) |
| Project:  | Lea County, New Mexico    | MD Reference:                | WELL @ 3195.0usft (Precision #827) |
| Site:     | Sec 20, T26S, 32E         | North Reference:             | Grid                               |
| Well:     | Buck Federal 20 #3H       | Survey Calculation Method:   | Minimum Curvature                  |
| Wellbore: | Wellbore #1               |                              |                                    |
| Design:   | Design #2 ( NEW BHL )     |                              |                                    |

| Planned Survey           |                 |             |                       |              |              |                         |                         |                        |                       |
|--------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft)    | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 4,408.0                  | 0.00            | 0.00        | 4,408.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| Olds                     |                 |             |                       |              |              |                         |                         |                        |                       |
| 4,420.0                  | 0.00            | 0.00        | 4,420.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,500.0                  | 0.00            | 0.00        | 4,500.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,600.0                  | 0.00            | 0.00        | 4,600.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,700.0                  | 0.00            | 0.00        | 4,700.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,800.0                  | 0.00            | 0.00        | 4,800.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,900.0                  | 0.00            | 0.00        | 4,900.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,000.0                  | 0.00            | 0.00        | 5,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,100.0                  | 0.00            | 0.00        | 5,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,200.0                  | 0.00            | 0.00        | 5,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,300.0                  | 0.00            | 0.00        | 5,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,400.0                  | 0.00            | 0.00        | 5,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,500.0                  | 0.00            | 0.00        | 5,500.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,600.0                  | 0.00            | 0.00        | 5,600.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,700.0                  | 0.00            | 0.00        | 5,700.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,800.0                  | 0.00            | 0.00        | 5,800.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,900.0                  | 0.00            | 0.00        | 5,900.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 6,000.0                  | 0.00            | 0.00        | 6,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| Cherry Canyon Lower Top  |                 |             |                       |              |              |                         |                         |                        |                       |
| 6,070.0                  | 0.00            | 0.00        | 6,070.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 6,100.0                  | 0.00            | 0.00        | 6,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 6,200.0                  | 0.00            | 0.00        | 6,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 6,300.0                  | 0.00            | 0.00        | 6,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 6,400.0                  | 0.00            | 0.00        | 6,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 6,500.0                  | 0.00            | 0.00        | 6,500.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 6,600.0                  | 0.00            | 0.00        | 6,600.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 6,700.0                  | 0.00            | 0.00        | 6,700.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 6,800.0                  | 0.00            | 0.00        | 6,800.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 6,900.0                  | 0.00            | 0.00        | 6,900.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 7,000.0                  | 0.00            | 0.00        | 7,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 7,100.0                  | 0.00            | 0.00        | 7,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 7,200.0                  | 0.00            | 0.00        | 7,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 7,300.0                  | 0.00            | 0.00        | 7,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 7,400.0                  | 0.00            | 0.00        | 7,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 7,500.0                  | 0.00            | 0.00        | 7,500.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 7,600.0                  | 0.00            | 0.00        | 7,600.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 7,700.0                  | 0.00            | 0.00        | 7,700.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 7,800.0                  | 0.00            | 0.00        | 7,800.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 7,900.0                  | 0.00            | 0.00        | 7,900.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 8,000.0                  | 0.00            | 0.00        | 8,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| Bone Spring Top          |                 |             |                       |              |              |                         |                         |                        |                       |
| 8,083.0                  | 0.00            | 0.00        | 8,083.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 8,100.0                  | 0.00            | 0.00        | 8,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 8,200.0                  | 0.00            | 0.00        | 8,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| Bone Spring 1ST Top      |                 |             |                       |              |              |                         |                         |                        |                       |
| 8,297.0                  | 0.00            | 0.00        | 8,297.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 8,300.0                  | 0.00            | 0.00        | 8,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| Bone Spring 1ST Base     |                 |             |                       |              |              |                         |                         |                        |                       |
| 8,393.0                  | 0.00            | 0.00        | 8,393.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 8,400.0                  | 0.00            | 0.00        | 8,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| Build 8°/100' @ 8450' MD |                 |             |                       |              |              |                         |                         |                        |                       |
| 8,450.2                  | 0.00            | 0.00        | 8,450.2               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |

Database: EDM 5000.1 Single User Db  
Company: Conoco Phillips  
Project: Lea County, New Mexico  
Site: Sec 20, T26S, 32E  
Well: Buck Federal 20 #3H  
Wellbore: Wellbore #1  
Design: Design #2 ( NEW BHL )

Local Co-ordinate Reference: Well Buck Federal 20 #3H  
TVD Reference: WELL @ 3195.0usft (Precision #827)  
MD Reference: WELL @ 3195.0usft (Precision #827)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature

## Planned Survey

| Measured Depth (usft)                                         | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---------------------------------------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 8,500.0                                                       | 3.98            | 225.00      | 8,500.0               | -1.2         | -1.2         | 1.3                     | 8.00                    | 8.00                   | 0.00                  |
| 8,600.0                                                       | 11.98           | 225.00      | 8,598.9               | -11.0        | -11.0        | 11.6                    | 8.00                    | 8.00                   | 0.00                  |
| 8,700.0                                                       | 19.98           | 225.00      | 8,695.0               | -30.5        | -30.5        | 31.9                    | 8.00                    | 8.00                   | 0.00                  |
| <b>Avalon A Shale Top</b>                                     |                 |             |                       |              |              |                         |                         |                        |                       |
| 8,708.6                                                       | 20.67           | 225.00      | 8,703.1               | -32.6        | -32.6        | 34.1                    | 8.00                    | 8.00                   | 0.00                  |
| 8,800.0                                                       | 27.98           | 225.00      | 8,786.3               | -59.2        | -59.2        | 62.0                    | 8.00                    | 8.00                   | 0.00                  |
| <b>EOB @ 8806' MD / 28.43° Inc / 225° Azm / Build 8°/100'</b> |                 |             |                       |              |              |                         |                         |                        |                       |
| 8,805.6                                                       | 28.43           | 225.00      | 8,791.2               | -61.1        | -61.1        | 63.9                    | 8.00                    | 8.00                   | 0.00                  |
| 8,900.0                                                       | 33.85           | 214.79      | 8,872.0               | -98.6        | -92.0        | 102.9                   | 8.00                    | 5.74                   | -10.81                |
| <b>Avalon A Shale Base - Avalon B Zone Top</b>                |                 |             |                       |              |              |                         |                         |                        |                       |
| 8,984.9                                                       | 39.28           | 207.90      | 8,940.2               | -141.9       | -118.1       | 147.4                   | 8.00                    | 6.38                   | -8.11                 |
| 9,000.0                                                       | 40.28           | 206.84      | 8,951.8               | -150.4       | -122.6       | 156.1                   | 8.00                    | 6.63                   | -6.99                 |
| 9,100.0                                                       | 47.11           | 200.81      | 9,024.1               | -213.6       | -150.2       | 220.5                   | 8.00                    | 6.84                   | -6.03                 |
| 9,200.0                                                       | 54.20           | 196.01      | 9,087.5               | -287.0       | -174.4       | 295.0                   | 8.00                    | 7.09                   | -4.81                 |
| <b>Avalon B Zone Base - Avalon C Shale Top</b>                |                 |             |                       |              |              |                         |                         |                        |                       |
| 9,205.1                                                       | 54.57           | 195.78      | 9,090.5               | -291.0       | -175.6       | 299.0                   | 8.00                    | 7.18                   | -4.33                 |
| 9,300.0                                                       | 61.45           | 192.00      | 9,140.7               | -369.0       | -194.8       | 377.9                   | 8.00                    | 7.25                   | -3.99                 |
| 9,400.0                                                       | 68.80           | 188.51      | 9,182.8               | -458.2       | -210.9       | 467.8                   | 8.00                    | 7.35                   | -3.48                 |
| 9,500.0                                                       | 76.21           | 185.36      | 9,212.8               | -552.8       | -222.3       | 562.8                   | 8.00                    | 7.41                   | -3.15                 |
| 9,600.0                                                       | 83.67           | 182.41      | 9,230.3               | -651.0       | -228.9       | 661.2                   | 8.00                    | 7.45                   | -2.96                 |
| <b>EOB @ 9684' MD / 89.92° Inc / 180° Azm / 9235' TVD</b>     |                 |             |                       |              |              |                         |                         |                        |                       |
| 9,683.7                                                       | 89.92           | 180.00      | 9,235.0               | -734.5       | -230.7       | 744.7                   | 8.00                    | 7.47                   | -2.87                 |
| 9,700.0                                                       | 89.92           | 180.00      | 9,235.0               | -750.8       | -230.7       | 761.0                   | 0.00                    | 0.00                   | 0.00                  |
| 9,800.0                                                       | 89.92           | 180.00      | 9,235.1               | -850.8       | -230.7       | 860.9                   | 0.00                    | 0.00                   | 0.00                  |
| 9,900.0                                                       | 89.92           | 180.00      | 9,235.3               | -950.8       | -230.7       | 960.7                   | 0.00                    | 0.00                   | 0.00                  |
| 10,000.0                                                      | 89.92           | 180.00      | 9,235.4               | -1,050.8     | -230.7       | 1,060.6                 | 0.00                    | 0.00                   | 0.00                  |
| 10,100.0                                                      | 89.92           | 180.00      | 9,235.6               | -1,150.8     | -230.7       | 1,160.5                 | 0.00                    | 0.00                   | 0.00                  |
| 10,200.0                                                      | 89.92           | 180.00      | 9,235.7               | -1,250.8     | -230.7       | 1,260.4                 | 0.00                    | 0.00                   | 0.00                  |
| 10,300.0                                                      | 89.92           | 180.00      | 9,235.9               | -1,350.8     | -230.7       | 1,360.3                 | 0.00                    | 0.00                   | 0.00                  |
| 10,400.0                                                      | 89.92           | 180.00      | 9,236.0               | -1,450.8     | -230.7       | 1,460.2                 | 0.00                    | 0.00                   | 0.00                  |
| 10,500.0                                                      | 89.92           | 180.00      | 9,236.2               | -1,550.8     | -230.7       | 1,560.1                 | 0.00                    | 0.00                   | 0.00                  |
| 10,600.0                                                      | 89.92           | 180.00      | 9,236.3               | -1,650.8     | -230.7       | 1,659.9                 | 0.00                    | 0.00                   | 0.00                  |
| 10,700.0                                                      | 89.92           | 180.00      | 9,236.5               | -1,750.8     | -230.7       | 1,759.8                 | 0.00                    | 0.00                   | 0.00                  |
| 10,800.0                                                      | 89.92           | 180.00      | 9,236.6               | -1,850.8     | -230.7       | 1,859.7                 | 0.00                    | 0.00                   | 0.00                  |
| 10,900.0                                                      | 89.92           | 180.00      | 9,236.8               | -1,950.8     | -230.7       | 1,959.6                 | 0.00                    | 0.00                   | 0.00                  |
| 11,000.0                                                      | 89.92           | 180.00      | 9,236.9               | -2,050.8     | -230.7       | 2,059.5                 | 0.00                    | 0.00                   | 0.00                  |
| 11,100.0                                                      | 89.92           | 180.00      | 9,237.0               | -2,150.8     | -230.7       | 2,159.4                 | 0.00                    | 0.00                   | 0.00                  |
| 11,200.0                                                      | 89.92           | 180.00      | 9,237.2               | -2,250.8     | -230.7       | 2,259.3                 | 0.00                    | 0.00                   | 0.00                  |
| 11,300.0                                                      | 89.92           | 180.00      | 9,237.3               | -2,350.8     | -230.7       | 2,359.1                 | 0.00                    | 0.00                   | 0.00                  |
| 11,400.0                                                      | 89.92           | 180.00      | 9,237.5               | -2,450.8     | -230.7       | 2,459.0                 | 0.00                    | 0.00                   | 0.00                  |
| 11,500.0                                                      | 89.92           | 180.00      | 9,237.6               | -2,550.8     | -230.7       | 2,558.9                 | 0.00                    | 0.00                   | 0.00                  |
| 11,600.0                                                      | 89.92           | 180.00      | 9,237.8               | -2,650.8     | -230.8       | 2,658.8                 | 0.00                    | 0.00                   | 0.00                  |
| 11,700.0                                                      | 89.92           | 180.00      | 9,237.9               | -2,750.8     | -230.8       | 2,758.7                 | 0.00                    | 0.00                   | 0.00                  |
| 11,800.0                                                      | 89.92           | 180.00      | 9,238.1               | -2,850.8     | -230.8       | 2,858.6                 | 0.00                    | 0.00                   | 0.00                  |
| 11,900.0                                                      | 89.92           | 180.00      | 9,238.2               | -2,950.8     | -230.8       | 2,958.5                 | 0.00                    | 0.00                   | 0.00                  |
| 12,000.0                                                      | 89.92           | 180.00      | 9,238.4               | -3,050.8     | -230.8       | 3,058.3                 | 0.00                    | 0.00                   | 0.00                  |
| 12,100.0                                                      | 89.92           | 180.00      | 9,238.5               | -3,150.8     | -230.8       | 3,158.2                 | 0.00                    | 0.00                   | 0.00                  |
| 12,200.0                                                      | 89.92           | 180.00      | 9,238.7               | -3,250.8     | -230.8       | 3,258.1                 | 0.00                    | 0.00                   | 0.00                  |
| 12,300.0                                                      | 89.92           | 180.00      | 9,238.8               | -3,350.8     | -230.8       | 3,358.0                 | 0.00                    | 0.00                   | 0.00                  |
| 12,400.0                                                      | 89.92           | 180.00      | 9,239.0               | -3,450.8     | -230.8       | 3,457.9                 | 0.00                    | 0.00                   | 0.00                  |
| 12,500.0                                                      | 89.92           | 180.00      | 9,239.1               | -3,550.8     | -230.8       | 3,557.8                 | 0.00                    | 0.00                   | 0.00                  |
| 12,600.0                                                      | 89.92           | 180.00      | 9,239.3               | -3,650.8     | -230.8       | 3,657.7                 | 0.00                    | 0.00                   | 0.00                  |
| 12,700.0                                                      | 89.92           | 180.00      | 9,239.4               | -3,750.8     | -230.8       | 3,757.5                 | 0.00                    | 0.00                   | 0.00                  |
| 12,800.0                                                      | 89.92           | 180.00      | 9,239.6               | -3,850.8     | -230.8       | 3,857.4                 | 0.00                    | 0.00                   | 0.00                  |

|           |                           |                              |                                    |
|-----------|---------------------------|------------------------------|------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well Buck Federal 20 #3H           |
| Company:  | Conoco Phillips           | TVD Reference:               | WELL @ 3195.0usft (Precision #827) |
| Project:  | Lea County, New Mexico    | MD Reference:                | WELL @ 3195.0usft (Precision #827) |
| Site:     | Sec 20, T26S, 32E         | North Reference:             | Grid                               |
| Well:     | Buck Federal 20 #3H       | Survey Calculation Method:   | Minimum Curvature                  |
| Wellbore: | Wellbore #1               |                              |                                    |
| Design:   | Design #2 ( NEW BHL )     |                              |                                    |

## Planned Survey

| Measured Depth (usft)      | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|----------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 12,900.0                   | 89.92           | 180.00      | 9,239.7               | -3,950.8     | -230.8       | 3,957.3                 | 0.00                    | 0.00                   | 0.00                  |
| 13,000.0                   | 89.92           | 180.00      | 9,239.9               | -4,050.8     | -230.8       | 4,057.2                 | 0.00                    | 0.00                   | 0.00                  |
| 13,100.0                   | 89.92           | 180.00      | 9,240.0               | -4,150.8     | -230.8       | 4,157.1                 | 0.00                    | 0.00                   | 0.00                  |
| 13,200.0                   | 89.92           | 180.00      | 9,240.2               | -4,250.8     | -230.8       | 4,257.0                 | 0.00                    | 0.00                   | 0.00                  |
| 13,300.0                   | 89.92           | 180.00      | 9,240.3               | -4,350.8     | -230.8       | 4,356.9                 | 0.00                    | 0.00                   | 0.00                  |
| 13,400.0                   | 89.92           | 180.00      | 9,240.4               | -4,450.8     | -230.8       | 4,456.7                 | 0.00                    | 0.00                   | 0.00                  |
| 13,500.0                   | 89.92           | 180.00      | 9,240.6               | -4,550.8     | -230.8       | 4,556.6                 | 0.00                    | 0.00                   | 0.00                  |
| 13,600.0                   | 89.92           | 180.00      | 9,240.7               | -4,650.8     | -230.8       | 4,656.5                 | 0.00                    | 0.00                   | 0.00                  |
| 13,700.0                   | 89.92           | 180.00      | 9,240.9               | -4,750.8     | -230.8       | 4,756.4                 | 0.00                    | 0.00                   | 0.00                  |
| TD @ 13772' MD / 9241' TVD |                 |             |                       |              |              |                         |                         |                        |                       |
| 13,772.0                   | 89.92           | 180.00      | 9,241.0               | -4,822.8     | -230.8       | 4,828.3                 | 0.00                    | 0.00                   | 0.00                  |

## Design Targets

| Target Name                              | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude        | Longitude         |
|------------------------------------------|---------------|--------------|------------|--------------|--------------|-----------------|----------------|-----------------|-------------------|
| - hit/miss target                        |               |              |            |              |              |                 |                |                 |                   |
| - Shape                                  |               |              |            |              |              |                 |                |                 |                   |
| PBHL Buck Federal 2                      | 90.09         | 180.00       | 9,241.0    | -4,822.8     | -230.8       | 372,172.14      | 696,954.13     | 32° 1' 17.844 N | 103° 41' 52.235 W |
| - plan hits target center                |               |              |            |              |              |                 |                |                 |                   |
| - Rectangle (sides W65.0 H50.0 D4,088.3) |               |              |            |              |              |                 |                |                 |                   |

## Formations

| Measured Depth (usft) | Vertical Depth (usft) | Name                    | Lithology | Dip (°) | Dip Direction (°) |
|-----------------------|-----------------------|-------------------------|-----------|---------|-------------------|
| 1,037.0               | 1,037.0               | Rustler                 |           | 0.09    | 186.63            |
| 2,407.0               | 2,407.0               | Castile                 |           | 0.09    | 186.63            |
| 4,316.0               | 4,316.0               | Delaware Top            |           | 0.09    | 186.63            |
| 4,350.0               | 4,350.0               | Ramsey                  |           | 0.09    | 186.63            |
| 4,408.0               | 4,408.0               | Ford Shale              |           | 0.09    | 186.63            |
| 4,420.0               | 4,420.0               | Olds                    |           | 0.09    | 186.63            |
| 6,070.0               | 6,070.0               | Cherry Canyon Lower Top |           | 0.09    | 186.63            |
| 8,083.0               | 8,083.0               | Bone Spring Top         |           | 0.09    | 186.63            |
| 8,297.0               | 8,297.0               | Bone Spring 1ST Top     |           | 0.09    | 186.63            |
| 8,393.0               | 8,393.0               | Bone Spring 1ST Base    |           | 0.09    | 186.63            |
| 8,708.6               | 8,703.1               | Avalon A Shale Top      |           | 0.09    | 186.63            |
| 8,984.9               | 8,940.2               | Avalon A Shale Base     |           | 0.09    | 186.63            |
| 8,984.9               | 8,940.2               | Avalon B Zone Top       |           | 0.09    | 186.63            |
| 9,205.1               | 9,090.5               | Avalon B Zone Base      |           | 0.09    | 186.63            |
| 9,205.1               | 9,090.5               | Avalon C Shale Top      |           | 0.09    | 186.63            |

|           |                           |                              |                                    |
|-----------|---------------------------|------------------------------|------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well Buck Federal 20 #3H           |
| Company:  | Conoco Phillips           | TVD Reference:               | WELL @ 3195.0usft (Precision #827) |
| Project:  | Lea County, New Mexico    | MD Reference:                | WELL @ 3195.0usft (Precision #827) |
| Site:     | Sec 20, T26S, 32E         | North Reference:             | Grid                               |
| Well:     | Buck Federal 20 #3H       | Survey Calculation Method:   | Minimum Curvature                  |
| Wellbore: | Wellbore #1               |                              |                                    |
| Design:   | Design #2 ( NEW BHL )     |                              |                                    |

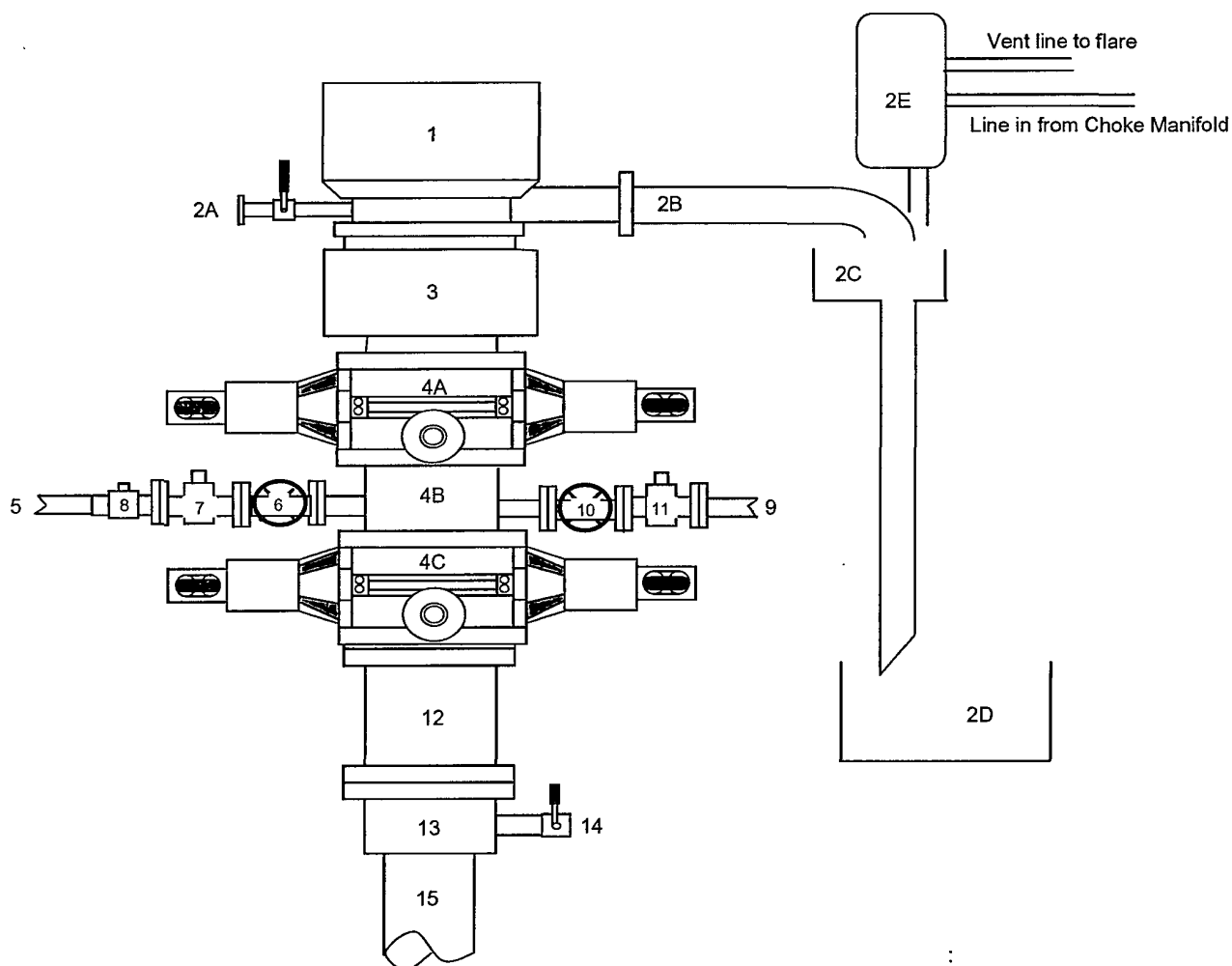
Plan Annotations

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment                                                |
|-----------------------------|-----------------------------|-------------------|-----------------|--------------------------------------------------------|
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |                                                        |
| 8,450.2                     | 8,450.2                     | 0.0               | 0.0             | Build 8"/100' @ 8450' MD                               |
| 8,805.6                     | 8,791.2                     | -61.1             | -61.1           | EOB @ 8806' MD / 28.43° Inc / 225° Azm / Build 8"/100' |
| 9,683.7                     | 9,235.0                     | -734.5            | -230.7          | EOB @ 9684' MD / 89.92° Inc / 180° Azm / 9235' TVD     |
| 13,772.0                    | 9,241.0                     | -4,822.8          | -230.8          | TD @ 13772' MD / 9241' TVD                             |



# BLOWOUT PREVENTER ARRANGEMENT

3M System per Onshore Oil and Gas Order No. 2 utilizing 5M Rated Equipment

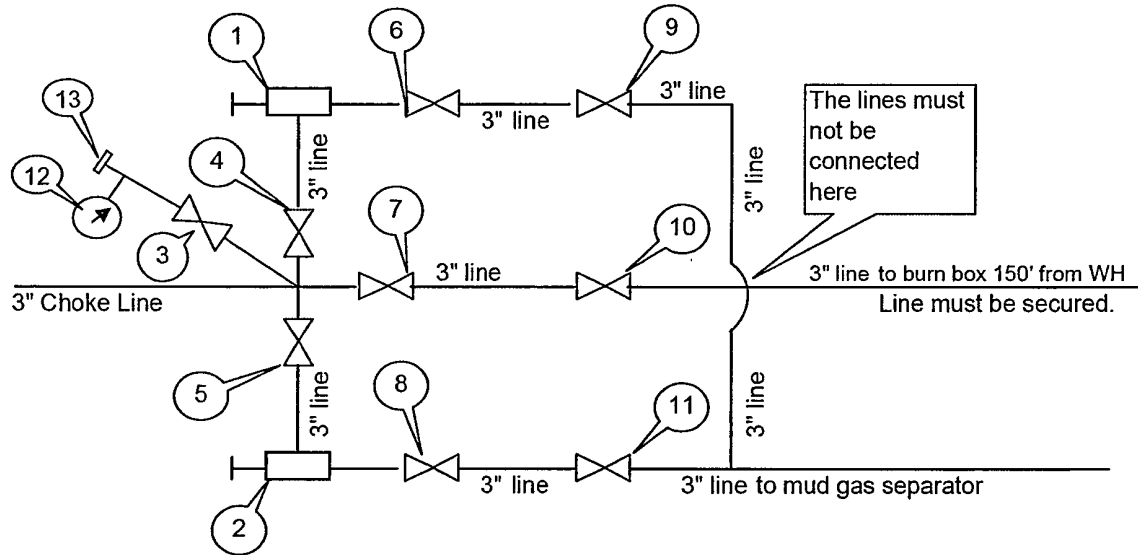


| Item | Description                                                             |
|------|-------------------------------------------------------------------------|
| 1    | Rotating Head, 13-5/8"                                                  |
| 2A   | Fill up Line and Valve                                                  |
| 2B   | Flow Line (10")                                                         |
| 2C   | Shale Shakers and Solids Settling Tank                                  |
| 2D   | Cuttings Bins for Zero Discharge                                        |
| 2E   | Mud Gas Separator with vent line to flare and return line to mud system |
| 3    | Annular BOP (13-5/8", 5M)                                               |
| 4A   | Single Ram (13-3/8", 5M, equipped with Blind Rams)                      |
| 4B   | Drilling Spool (13-3/8" 5M)                                             |
| 4C   | Single Ram (13-3/8", 5M, equipped with Pipe Rams)                       |
| 5    | Kill Line (3", 5000 psi WP, steel line) (not a flexible line)           |
| 6    | Kill Line Valve, Inner (3-1/8", 5000 psi WP)                            |
| 7    | Kill Line Valve, Outer (3-1/8", 5000 psi WP, Hydraulically Operated)    |
| 8    | Kill Line Check Valve (3-1/8", 5000 psi WP)                             |
| 9    | Choke Line (3", 5000 psi WP, steel line) (not a flexible line)          |
| 10   | Choke Line Valve, Inner (3-1/8", 5000 psi WP)                           |
| 11   | Choke Line Valve, Outer, (Hydraulically operated, 3-1/8", 5000 psi WP)  |
| 12   | Spacer Spool (13-3/8", 5M, with rotating bottom flange)                 |
| 13   | Casing Head (11", 5M)                                                   |
| 14   | Ball Valve and Threaded Nipple on Casing Head Outlet, 2" 5M             |
| 15   | Surface Casing                                                          |

*Flow Line To Shakers per operator*

## CHOKE MANIFOLD ARRANGEMENT

3M System per Onshore Oil and Gas Order No. 2 utilizing 5M Equipment



All Tees must be targeted

| Item | Description                                 |
|------|---------------------------------------------|
| 1    | Manual Adjustable Choke, 3-1/8", 5M         |
| 2    | Manual Adjustable Choke, 3-1/8", 5M         |
| 3    | Gate Valve, 2-1/16" 5M                      |
| 4    | Gate Valve, 3-1/8" 5M                       |
| 5    | Gate Valve, 3-1/8" 5M                       |
| 6    | Gate Valve, 3-1/8" 5M                       |
| 7    | Gate Valve, 3-1/8" 5M                       |
| 8    | Gate Valve, 3-1/8" 5M                       |
| 9    | Gate Valve, 3-1/8" 5M                       |
| 10   | Gate Valve, 3-1/8" 5M                       |
| 11   | Gate Valve, 3-1/8" 5M                       |
| 12   | Pressure Gauge                              |
| 13   | 2" hammer union tie-in point for BOP Tester |

We will test each valve to 3000 psi from the upstream side.

Drawn by:

Steven O. Moore

Chief Drilling Engineer, Mid-Continent Business Unit, ConocoPhillips Company

Date: 29-May-2012



## CONDITIONS OF APPROVAL

Sundry Dated 6/20/2012

|                       |                                    |
|-----------------------|------------------------------------|
| OPERATOR'S NAME:      | CONOCOPHILLIPS                     |
| LEASE NO.:            | NMLC068281B                        |
| WELL NAME & NO.:      | 3H BUCK FEDERAL 20                 |
| SURFACE HOLE FOOTAGE: | <b>190' FNL &amp; 2575' FWL</b>    |
| BOTTOM HOLE FOOTAGE:  | 330' FSL & 2416' FWL               |
| LOCATION:             | Section 20, T.26 S., R.32 E., NMPM |
| COUNTY:               | Lea County, New Mexico             |

### I. DRILLING

Original COA still applies with the following changes:

#### A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 24 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Lea County**

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,  
(575) 393-3612

1. A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan should be activated 500 feet prior to drilling into the **Delaware** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation. This will also be applicable if an un-cemented completion liner is run and a liner top seal, or equivalent, has not been established before the rig move.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. The record of the drilling rate along with the GR/N well log run from TD of the vertical portion of hole to surface shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

## **B. CASING**

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

**Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

**Possible lost circulation in the Red Beds, Delaware, and Bone Spring formations. Possible brine and fresh water flows in the Salado, Castile, Delaware and Bone Spring.**

1. The 13-3/8 inch surface casing shall be set at approximately 1180 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial action will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:  
**(Ensure casing is set in the Lamar at approximately 4360')**
- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.
3. The minimum required fill of cement behind the 7 inch casing is:
- ☒ Cement should tie-back at least **500** feet into previous casing string. Operator shall provide method of verification. **Additional cement will be required as excess calculates to 18%.**
4. The minimum required fill of cement behind the 4-1/2 inch production liner is:
- ☒ No cement required on the 4-1/2" segment as it utilizes a packer system.
5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

**EGF 062712**