

11-990

HOBBS OGD

OCD Hobbs

DEC 21 2011

SECRETARY'S POTASH

Form 3160-3  
(February 2005)

RECEIVED  
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0137  
Expires March 31, 2007

APPLICATION FOR PERMIT TO DRILL OR REENTER

|                                                                                                                                                                                                                              |                                                           |                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------|
| 1a Type of work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER <i>no nos</i>                                                                                                                     |                                                           | 5 Lease Serial No<br><b>NMNM 34850</b>                                           |
| 1b Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone         |                                                           | 6 If Indian, Allottee or Tribe Name                                              |
| 2 Name of Operator<br><b>Devon Energy Production Co., LP</b>                                                                                                                                                                 |                                                           | 7 If Unit or CA Agreement, Name and No                                           |
| 3a Address <b>20 North Broadway<br/>OKC, OK 73102</b>                                                                                                                                                                        | 3b Phone No. (include area code)<br><b>(405)-228-8973</b> | 8 Lease Name and Well No <i>&lt;38896&gt;</i><br><b>Malachite 22 Federal #2H</b> |
| 4 Location of Well (Report location clearly and in accordance with any State requirements *)<br>At surface <b>NENW 330' FNL &amp; 1465' FWL Unit C</b><br>At proposed prod. zone <b>SESW 330' FSL &amp; 1980' FWL Unit N</b> |                                                           | 9 API Well No.<br><b>2H 30-025-40389</b>                                         |
| 10 Field and Pool, or Exploratory<br><b>Bone Spring</b>                                                                                                                                                                      |                                                           | 11 Sec, T, R, M or Blk and Survey or Area<br><b>Sec 22 T19S R33E</b>             |
| 12 County or Parish<br><b>Lea</b>                                                                                                                                                                                            |                                                           | 13 State<br><b>NM</b>                                                            |
| 14 Distance in miles and direction from nearest town or post office*<br><b>Approximately 14.5 miles southeast of Maljamar, NM.</b>                                                                                           |                                                           |                                                                                  |
| 15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any)<br><b>330'</b>                                                                                            | 16 No. of acres in lease<br><b>360 ac</b>                 | 17 Spacing Unit dedicated to this well<br><b>160 acres</b>                       |
| 18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.<br><b>See attached map</b>                                                                                         | 19 Proposed Depth<br><b>TVD 9,280' MD 13,647'</b>         | 20 BLM/BIA Bond No on file<br><b>CO-1104 + AMB000801</b>                         |
| 21 Elevations (Show whether DF, KDB, RT, GL, etc.)<br><b>3644' GL</b>                                                                                                                                                        | 22 Approximate date work will start*<br><b>02/01/2012</b> | 23 Estimated duration<br><b>45 days</b>                                          |

24. Attachments

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

- |                                                                                                                                              |                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 1 Well plat certified by a registered surveyor                                                                                               | 4 Bond to cover the operations unless covered by an existing bond on file (see Item 20 above) |
| 2 A Drilling Plan                                                                                                                            | 5 Operator certification                                                                      |
| 3 A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office) | 6 Such other site specific information and/or plans as may be required by the BLM.            |

|                                    |                                             |                           |
|------------------------------------|---------------------------------------------|---------------------------|
| 25 Signature <i>Spence Laird</i>   | Name (Printed/Typed)<br><b>Spence Laird</b> | Date<br><b>08/22/2011</b> |
| Title<br><b>Regulatory Analyst</b> |                                             |                           |

|                                                          |                                                      |                            |
|----------------------------------------------------------|------------------------------------------------------|----------------------------|
| Approved by: (Signature)<br><i>151 Timothy M. Murphy</i> | Name (Printed/Typed)<br><i>151 Timothy M. Murphy</i> | Date<br><b>DEC 13 2011</b> |
| Title<br><b>STATE DIRECTOR</b>                           | Office<br><b>NM STATE OFFICE</b>                     |                            |

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon

Conditions of approval, if any, are attached

**APPROVAL FOR TWO YEARS**

Title 18 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)

*K2 12/21/11*

CAPITAN CONTROLLED WATER BASIN

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS  
AND SPECIAL STIPULATIONS  
ATTACHED

*dm*

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

HOBBS OCD

DEC 21 2011

RECEIVED

State of New Mexico  
Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised October 15, 2009  
Submit one copy to appropriate  
District Office  
☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

|                                          |                                                               |                                 |
|------------------------------------------|---------------------------------------------------------------|---------------------------------|
| API Number<br><b>30-025-40389 5 9475</b> | Pool Code<br><b>60110</b>                                     | Pool Name<br><b>BONE SPRING</b> |
| Property Code<br><b>38896</b>            | Property Name<br><b>MALACHITE "22" FEDERAL</b>                | Well Number<br><b>2H</b>        |
| OGRID No.<br><b>6137</b>                 | Operator Name<br><b>DEVON ENERGY PRODUCTION COMPANY, L.P.</b> | Elevation<br><b>3644.4</b>      |

Surface Location

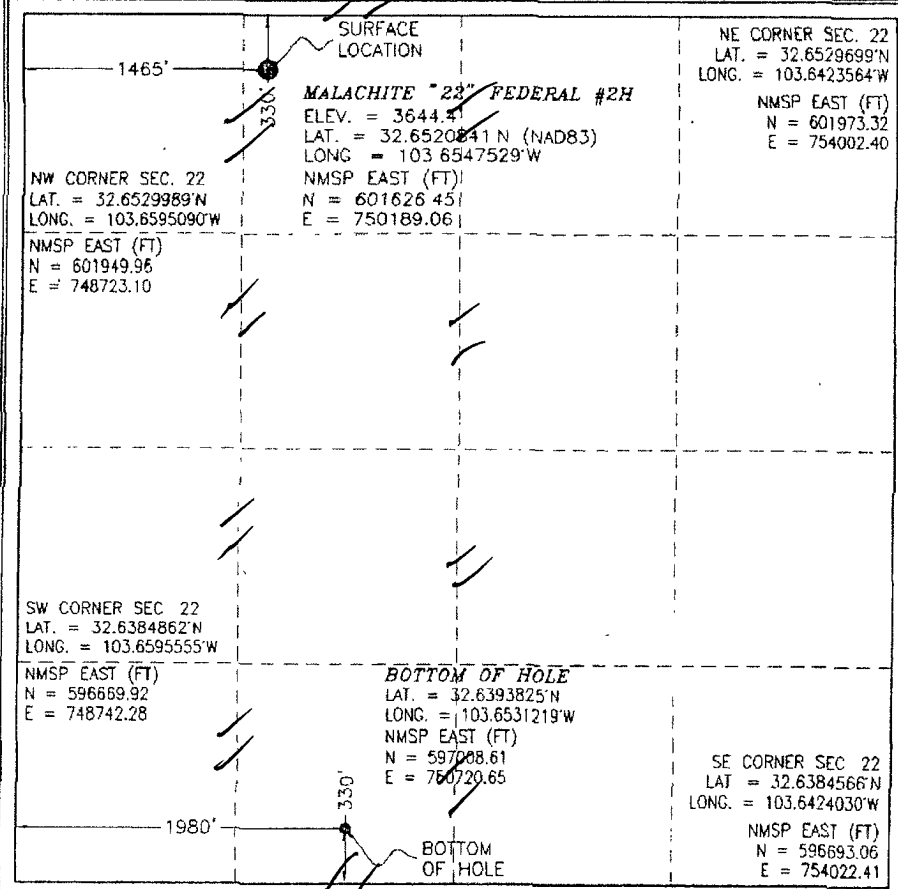
| UL or lot no. | Section   | Township    | Range       | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County     |
|---------------|-----------|-------------|-------------|---------|---------------|------------------|---------------|----------------|------------|
| <b>C</b>      | <b>22</b> | <b>19 S</b> | <b>33 E</b> |         | <b>330</b>    | <b>NORTH</b>     | <b>1465</b>   | <b>WEST</b>    | <b>LEA</b> |

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     |
|---------------|-----------|-------------|-------------|---------|---------------|------------------|---------------|----------------|------------|
| <b>N</b>      | <b>22</b> | <b>19 S</b> | <b>33 E</b> |         | <b>330</b>    | <b>SOUTH</b>     | <b>1980</b>   | <b>WEST</b>    | <b>LEA</b> |

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

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

|                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | <p><b>17 OPERATOR CERTIFICATION</b></p> <p>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 undivided 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.</p> <p>Signature: <i>Spence Laird</i> Date: <b>8/22/11</b></p> <p>Printed Name: <b>SPENCE LAIRD</b></p> <p><b>18 SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief.</p> <p>Date of Survey: <b>JUNE 12, 2011</b></p> <p>Signature and Seal of Professional Surveyor: <i>[Signature]</i></p> <p>Certificate Number: <b>EDITH M. RAMILLO PLS 12797</b></p> <p>SURVEY NO 492</p> |
|------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## DRILLING PROGRAM

Devon Energy Production Company, LP

### **Malachite 22 Federal 2H**

Surface Location: 330' FNL & 1465' FWL, Unit C, Sec 22 T19S R33E, Lea, NM

Bottom hole Location: 330' FSL & 1980' FWL, Unit N, Sec 22 T19S R33E, Lea, NM

#### **1. Geologic Name of Surface Formation**

a. Quaternary Alluvium

#### **2. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas:**

| <b>Geologic Formation</b>                | <b>Depth (TVD)</b> | <b>O/G/W</b> | <b>Penetration Point</b> |
|------------------------------------------|--------------------|--------------|--------------------------|
| a. Fresh Water                           | 300'               | Water        | 330' FNL & 330' FWL      |
| b. Rustler                               | 1410'              | Water        | 330' FNL & 330' FWL      |
| c. Base Salado Salt                      | 3100'              | Barren       | 330' FNL & 330' FWL      |
| d. Yates SS                              | 3270'              | Barren       | 330' FNL & 330' FWL      |
| e. Seven Rivers                          | 3510'              | Oil          | 330' FNL & 330' FWL      |
| f. Queen SS                              | 4265'              | Oil          | 330' FNL & 330' FWL      |
| g. Grayburg                              | 4720'              | Oil          | 330' FNL & 330' FWL      |
| h. Cherry Canyon                         | 6080'              | Oil          | 330' FNL & 330' FWL      |
| i. Brushy Canyon                         | 7500'              | Oil          | 330' FNL & 330' FWL      |
| j. 1 <sup>st</sup> Bone Spring LM        | 7910'              | Oil          | 330' FNL & 330' FWL      |
| k. 1 <sup>st</sup> Bone Spring SS        | 9160'              | Oil          |                          |
| l. 1 <sup>st</sup> Bone Spring SS Target | 9240'              | Oil          |                          |

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13 3/8" casing at 1460' and circulating cement back to surface. The fresh water sands will be protected by setting 9 5/8" casing at 5300' and circulating cement to surface. The pay intervals will be isolated by setting 5 1/2" casing to total depth and circulating cement above the base of the 9 5/8" casing. All casing is new and API approved.

#### **3. Casing Program:**

| <u>Hole Size</u> | <u>Hole Interval</u> | <u>OD Csg</u> | <u>Casing Interval</u> | <u>Weight</u> | <u>Collar</u> | <u>Grade</u> |
|------------------|----------------------|---------------|------------------------|---------------|---------------|--------------|
| 17-1/2"          | 0 - 1460 5/5         | 13-3/8"       | 0 - 1460               | 54.5#         | LTC 5/2       | K-55         |
| 12-1/4"          | 1460 - 5300          | 9-5/8"        | 0 - 5300               | 40#           | BTC           | HCK-55       |
| 8-3/4"           | 5300 - 8500          | 5-1/2"        | 0 - 8,500              | 17#           | LTC           | HCP-110      |
| 8-3/4"           | 8500 - 13,647        | 5-1/2"        | 8,500 - 13,637         | 17#           | BTC           | HCP-110      |

See  
COA

#### Design Parameter Factors:

| <u>Casing Size</u> | <u>Collapse Design Factor</u> | <u>Burst Design Factor</u> | <u>Tension Design Factor</u> |
|--------------------|-------------------------------|----------------------------|------------------------------|
| 13 3/8"            | 1.6                           | 3.8                        | 6.3                          |
| 9 5/8"             | 1.4                           | 2.3                        | 4.7                          |
| 5 1/2"             | 1.3                           | 1.7                        | 2.3                          |

#### 4. Cement Program: (Cement volumes based on at least 20% excess)

- 13 3/8" Surface      **Lead:** 850 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 5% bwow Sodium Chloride + 0.8% bwoc Sodium Metasilicate + 5% bwoc MPA-5 + 101.1% Fresh Water  
**Yield:** 1.97 cf/sack. TOC @ surface.
- Tail:** 300 sacks Premium Plus C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.3% Fresh Water  
**Yield:** 1.35 cf/sack.
- 9 5/8" Intermediate      **Lead:** 1265 sacks (50:50) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 107.8% Fresh Water  
**Yield:** 2.24 cf/sack. TOC @ surface.
- Tail:** 300 sacks (60:40) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 64.7% Water  
**Yield:** 1.38 cf/sack.
- 5 1/2" Production      **Lead:** 500 sacks (35:65) Poz + 0.2% bwoc Sodium Metasilicate + 1.4% bwoc FL-62 + 0.4% bwoc  
**Yield:** 2.01 cf/sack.
- Tail**  
**Lead:** 1315 sacks (50:50) Poz (Fly Ash):Premium Plus C Cement + 1% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 0.4% bwoc FL-52A + 0.4% bwoc R-3 + 103.1% Fresh Water  
**Yield:** 1.28 cf/sack.
- DV TOOL at ~6500'**
- 2<sup>nd</sup> Stage**
- Lead:** 210 sacks Class C+ 0.125 lbs/sack Cello Flake + 3  
6% bwoc Bentonite + 0.4% bwoc FL-52A + 99.3% Fresh Water  
**Yield:** 2.88 cf/sk

**Tail:** 100 sacks (60:40) Poz (Fly Ash):Class H Cement + 1% bwow Sodium Chloride  
+ 0.15% bwoc + 63.2% Fresh Water

**Yield:** 1.35 cf/sk

**TOC for All Strings:**

|               |       |
|---------------|-------|
| Surface:      | 0'    |
| Intermediate: | 0'    |
| Production    | 4700' |

ACTUAL CEMENT VOLUMES WILL BE ADJUSTED BASED ON FLUID CALIPER AND CALIPER LOG DATA.

**5. Pressure Control Equipment:**

The blow out prevention system will consist of a bag type (hydril) preventer, a double ram preventer stack, and a rotating head. Both the hydril and ram stack will be hydraulically operated. Both BOP systems will be rated at 5000psi. The Hydril preventer on the 13 3/8" surface casing will be tested as a 2000 psi preventer. **The hydril will be tested to 1000psi (high) and 250psi (low).** Prior to drilling out the 9 5/8" intermediate shoe, the ram stack will be nipped up with 4.5" pipe rams installed and will be used in the BOP. **Tests on the 5000psi BOP will be conducted per the BLM Drilling Operations Order #2.**

The ram system will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and hydril, other BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 5000 psi WP.

**6. Proposed Mud Circulation System**

| <u>Depth</u>                | <u>Mud Wt.</u> | <u>Visc.</u> | <u>Fluid Loss</u> | <u>Type System</u> |
|-----------------------------|----------------|--------------|-------------------|--------------------|
| 0' - <del>1460'</del> 1515' | 8.4 - 9.0      | 32 - 34      | N/C               | FW/Gel             |
| 1460' - 5300'               | 10             | 28 - 30      | N/C               | Brine              |
| 5,300' - 13,647'            | 8.6 - 9.0      | 28           | NC                | FW                 |

The necessary mud products for weight addition and fluid loss control will be on location at all times.

**7. Auxiliary Well Control and Monitoring Equipment:**

- A Kelly cock will be in the drill string at all times.
- A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

**8. Logging, Coring, and Testing Program:** *See CDA*

- Drill stem tests will be based on geological sample shows.

- b. If a drill stem test is anticipated; a procedure, equipment to be used and safety measures will be provided via sundry notice to the BLM.
- c. The open hole electrical logging program will be:
  - i. Total Depth to Intermediate Casing                      Dual Laterolog-Micro Laterolog with SP and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
  - ii. Total Depth to Surface                                      Compensated Neutron with Gamma Ray
  - iii. No coring program is planned
  - iv. Additional testing will be initiated subsequent to setting the 5 ½" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

**9. Potential Hazards:**

- a. No abnormal pressures or temperatures are expected. There is no known presence of H<sub>2</sub>S in this area; therefore, no H<sub>2</sub>S is anticipated to be encountered. If H<sub>2</sub>S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 4000 psi and Estimated BHT 175°.

**10. Anticipated Starting Date and Duration of Operations:**

- a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 32 days. If production casing is run then an additional 30 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.



Project Lee Co., New Mexico (Nad 83)  
Site Matachie 22 Fed 2H  
Well Matachie 22 Fed 2H  
Wellbore Lateral #1  
Design Design #1



| SECTION DETAILS |          |       |        |         |          |        |       |         |                    |
|-----------------|----------|-------|--------|---------|----------|--------|-------|---------|--------------------|
| Sec             | MD       | Inc   | Azi    | TVD     | +N/S     | +E/W   | Chg   | TFace   | Used Target        |
| 1               | 0.00     | 0.00  | 0.00   | 0.00    | 0.00     | 0.00   | 0.00  | 0.00    | 0.00               |
| 2               | 8672.02  | 0.00  | 0.00   | 8672.02 | 0.00     | 0.00   | 0.00  | 0.00    | 0.00               |
| 3               | 8567.03  | 88.50 | 173.43 | 8244.96 | -564.23  | 64.95  | 10.00 | 173.43  | 567.96             |
| 4               | 13647.57 | 88.50 | 173.43 | 9230.57 | -4617.85 | 531.59 | 0.00  | 4648.35 | PBHL - TD (M22F2H) |

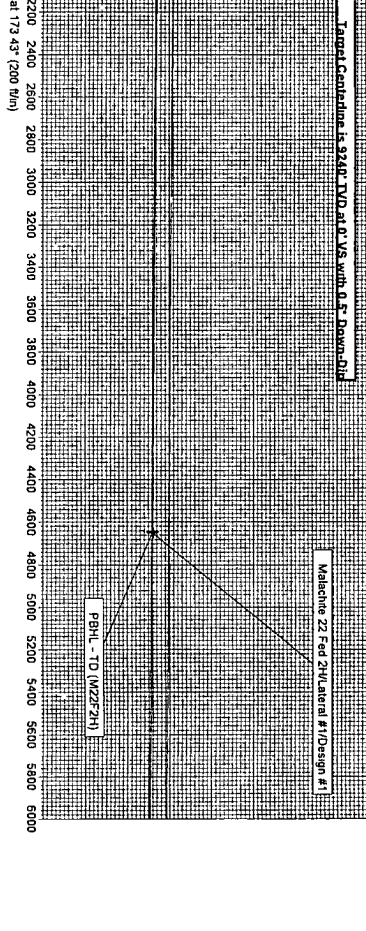
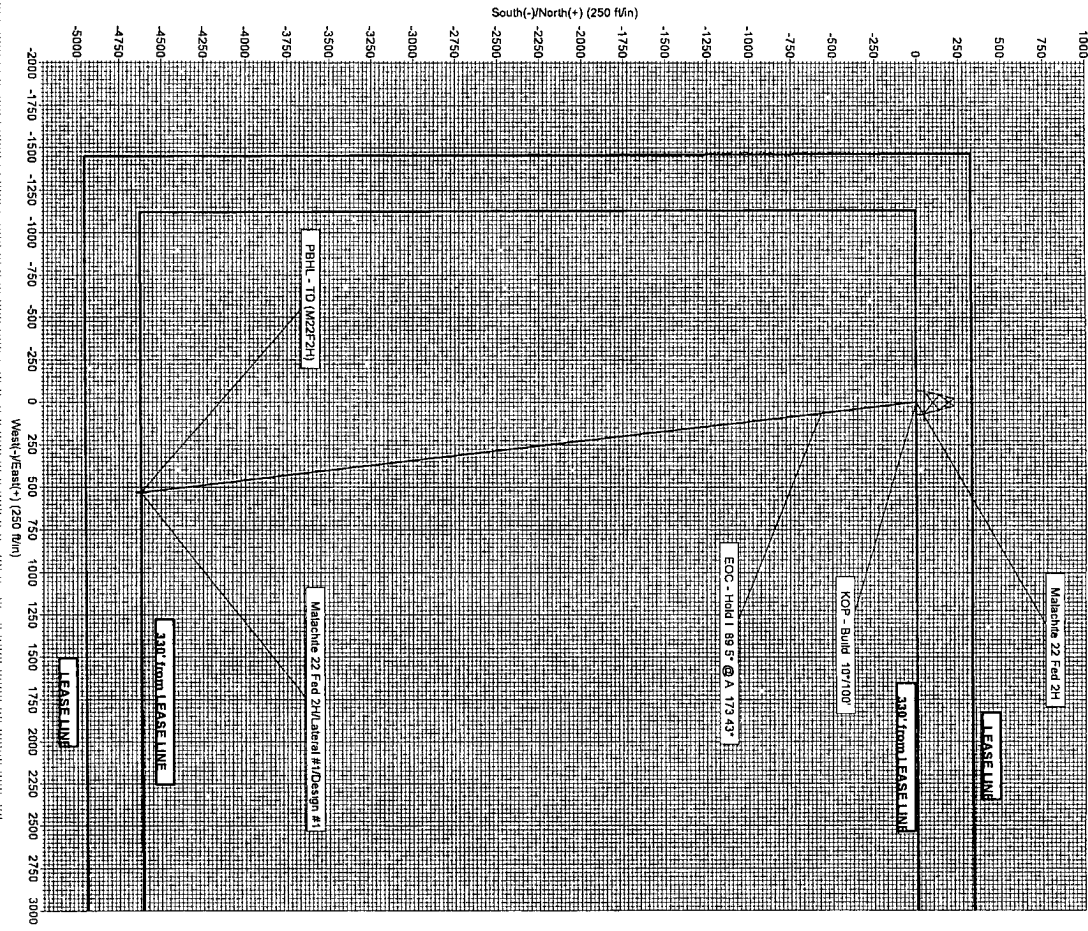
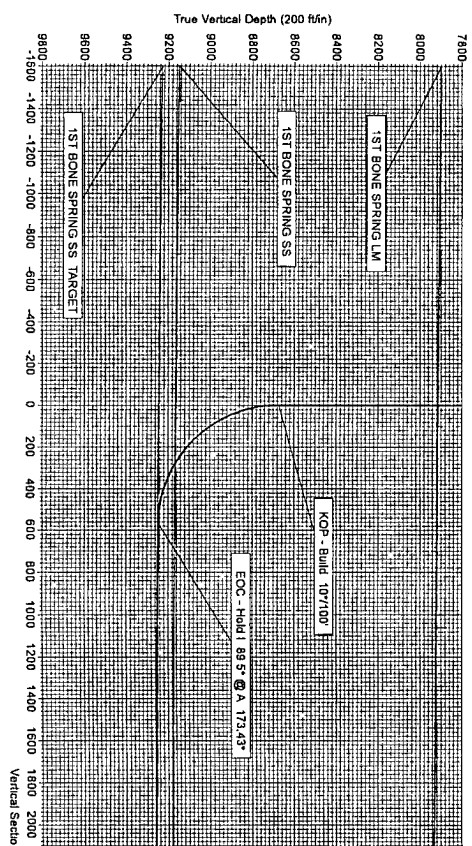
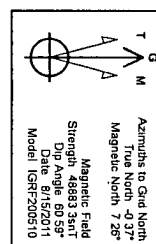
| ANNOTATIONS |                              |
|-------------|------------------------------|
| TVD         | MD Annotation                |
| 8672.02     | KOP - Build 10°/100'         |
| 8244.96     | ECC - Hold 88.5° @ A 173.43° |

| PROJECT DETAILS |                           |
|-----------------|---------------------------|
| Geodetic System | US State Plane 1983       |
| Datum           | North American Datum 1983 |
| Ellipsoid       | Geoid                     |
| Zone            | New Mexico Eastern Zone   |
| System Datum    | Mean Sea Level            |

| WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG) |         |          |        |           |           |                   |                    |       |       |
|---------------------------------------------------------|---------|----------|--------|-----------|-----------|-------------------|--------------------|-------|-------|
| Name                                                    | TVD     | +N/S     | +E/W   | Nothing   | Easting   | Latitude          | Longitude          | Shape | Point |
| PBHL - TD (M22F2H)                                      | 9280.57 | -4617.85 | 531.59 | 537008.61 | 750720.65 | 32° 38' 21.777" N | 103° 38' 11.239" W |       |       |

| WELL DETAILS                          |      |           |           |                 |                   |      |
|---------------------------------------|------|-----------|-----------|-----------------|-------------------|------|
| Maschine 22 Fed 2H                    |      |           |           |                 |                   |      |
| Ground Level                          |      |           |           |                 |                   |      |
| 3644.40                               |      |           |           |                 |                   |      |
| WELL @ 3650.00ft (Original Well Elev) |      |           |           |                 |                   |      |
| +N/S                                  | +E/W | Nothing   | Easting   | Latitude        | Longitude         | Slot |
| 0.00                                  | 0.00 | 601626.45 | 750188.06 | 32° 39' 7.503 N | 103° 38' 17.110 W |      |

| Plan Design #1 (Matachie 22 Fed 2H Lateral #1) |              |      |                        |
|------------------------------------------------|--------------|------|------------------------|
| Created By                                     | Eric Mancini | Date | 16 May, August 15 2011 |
| Checked                                        | _____        | Date | _____                  |
| Reviewed                                       | _____        | Date | _____                  |
| Approved                                       | _____        | Date | _____                  |





# **Devon Energy Production Co, LP**

**Lea Co., New Mexico (Nad 83)**

**Malachite 22 Fed 2H**

**Malachite 22 Fed 2H**

**30-025-**

**Lateral #1**

**Plan: Design #1**

## **Standard Planning Report**

**15 August, 2011**



# CUDD Drilling and Measurement Planning Report

|           |                                |                              |                                       |
|-----------|--------------------------------|------------------------------|---------------------------------------|
| Database: | EDM 5000.1 Single User Db      | Local Co-ordinate Reference: | Site Malachite 22 Fed 2H              |
| Company:  | Devon Energy Production Co, LP | TVD Reference:               | WELL @ 3660 00ft (Original Well Elev) |
| Project:  | Lea Co, New Mexico (Nad 83)    | MD Reference:                | WELL @ 3660 00ft (Original Well Elev) |
| Site:     | Malachite 22 Fed 2H            | North Reference:             | Grid                                  |
| Well:     | Malachite 22 Fed 2H            | Survey Calculation Method:   | Minimum Curvature                     |
| Wellbore: | Lateral #1                     |                              |                                       |
| Design:   | Design #1                      |                              |                                       |

|             |                             |               |                |
|-------------|-----------------------------|---------------|----------------|
| Project:    | Lea Co, New Mexico (Nad 83) |               |                |
| Map System: | US State Plane 1983         | System Datum: | Mean Sea Level |
| Geo Datum:  | North American Datum 1983   |               |                |
| Map Zone:   | New Mexico Eastern Zone     |               |                |

|                       |                                           |              |                   |
|-----------------------|-------------------------------------------|--------------|-------------------|
| Site:                 | Malachite 22 Fed 2H, Sec 22, T-19S, R-33E |              |                   |
| Site Position:        | From:                                     | Map          |                   |
| Position Uncertainty: | 0.00 ft                                   | Slot Radius: | 13-3/16 "         |
| Northing:             | 601,626.45 usft                           | Latitude:    | 32° 39' 7.503 N   |
| Easting:              | 750,189.06 usft                           | Longitude:   | 103° 39' 17.110 W |
| Grid Convergence:     |                                           |              | 0.37 °            |

|                      |                     |         |                     |                 |               |                   |
|----------------------|---------------------|---------|---------------------|-----------------|---------------|-------------------|
| Well                 | Malachite 22 Fed 2H |         |                     |                 |               |                   |
| Well Position        | +N/-S               | 0 00 ft | Northing:           | 601,626.45 usft | Latitude:     | 32° 39' 7.503 N   |
|                      | +E/-W               | 0.00 ft | Easting:            | 750,189.06 usft | Longitude:    | 103° 39' 17.110 W |
| Position Uncertainty |                     | 0 00 ft | Wellhead Elevation: | 3,660.00 ft     | Ground Level: | 3,644.40 ft       |

|           |            |
|-----------|------------|
| Wellbore: | Lateral #1 |
|-----------|------------|

| Magnetics | Model Name | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|-----------|------------|-------------|--------------------|------------------|------------------------|
|           | IGRF200510 | 8/15/2011   | 7.62               | 60.59            | 48,883                 |

|         |           |
|---------|-----------|
| Design: | Design #1 |
|---------|-----------|

|              |        |      |               |      |
|--------------|--------|------|---------------|------|
| Audit Notes: |        |      |               |      |
| Version:     | Phase: | PLAN | Tie On Depth: | 0 00 |

| Vertical Section: | Depth From (TVD)<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Direction<br>(°) |
|-------------------|--------------------------|---------------|---------------|------------------|
|                   | 0.00                     | 0.00          | 0.00          | 173.43           |

| Plan Sections             |                    |                |                           |              |              |                               |                              |                             |            |                   |
|---------------------------|--------------------|----------------|---------------------------|--------------|--------------|-------------------------------|------------------------------|-----------------------------|------------|-------------------|
| Measured<br>Depth<br>(ft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(ft) | +N/S<br>(ft) | +E/W<br>(ft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) | TFO<br>(°) | Target            |
| 0 00                      | 0 00               | 0 00           | 0 00                      | 0 00         | 0 00         | 0 00                          | 0 00                         | 0 00                        | 0 00       |                   |
| 8,672.02                  | 0 00               | 0.00           | 8,672.02                  | 0 00         | 0.00         | 0 00                          | 0.00                         | 0 00                        | 0 00       |                   |
| 9,567.03                  | 89.50              | 173.43         | 9,244.96                  | -564.23      | 64.95        | 10.00                         | 10.00                        | 0 00                        | 173.43     |                   |
| 13,647.57                 | 89.50              | 173.43         | 9,280.57                  | -4,617.85    | 531.59       | 0.00                          | 0 00                         | 0 00                        | 0.00       | PBHL - TD (M22F2) |



# CUDD Drilling and Measurement Planning Report

|           |                               |                              |                                       |
|-----------|-------------------------------|------------------------------|---------------------------------------|
| Database: | EDM:5000.1 Single User Db     | Local Co-ordinate Reference: | Site Malachite 22 Fed 2H              |
| Company:  | Devon Energy Production Co LP | TVD Reference:               | WELL @ 3660.00ft (Original Well Elev) |
| Project:  | Lea Co., New Mexico (Nad 83)  | MD Reference:                | WELL @ 3660.00ft (Original Well Elev) |
| Site:     | Malachite 22 Fed 2H           | North Reference:             | Grid                                  |
| Well:     | Malachite 22 Fed 2H           | Survey Calculation Method:   | Minimum Curvature                     |
| Wellbore: | Lateral #1                    |                              |                                       |
| Design:   | Design #1                     |                              |                                       |

| Planned Survey                          |                 |             |                     |            |            |                       |                         |                        |                       |
|-----------------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft)                     | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 8,672.02                                | 0.00            | 0.00        | 8,672.02            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| <b>KOP - Build: 10°/100'</b>            |                 |             |                     |            |            |                       |                         |                        |                       |
| 8,700.00                                | 2.80            | 173.43      | 8,699.99            | -0.68      | 0.08       | 0.68                  | 10.00                   | 10.00                  | 0.00                  |
| 8,750.00                                | 7.80            | 173.43      | 8,749.76            | -5.26      | 0.61       | 5.30                  | 10.00                   | 10.00                  | 0.00                  |
| 8,800.00                                | 12.80           | 173.43      | 8,798.94            | -14.14     | 1.63       | 14.23                 | 10.00                   | 10.00                  | 0.00                  |
| 8,850.00                                | 17.80           | 173.43      | 8,847.15            | -27.24     | 3.14       | 27.42                 | 10.00                   | 10.00                  | 0.00                  |
| 8,900.00                                | 22.80           | 173.43      | 8,894.03            | -44.47     | 5.12       | 44.76                 | 10.00                   | 10.00                  | 0.00                  |
| 8,950.00                                | 27.80           | 173.43      | 8,939.22            | -65.69     | 7.56       | 66.12                 | 10.00                   | 10.00                  | 0.00                  |
| 9,000.00                                | 32.80           | 173.43      | 8,982.38            | -90.74     | 10.45      | 91.34                 | 10.00                   | 10.00                  | 0.00                  |
| 9,050.00                                | 37.80           | 173.43      | 9,023.18            | -119.43    | 13.75      | 120.22                | 10.00                   | 10.00                  | 0.00                  |
| 9,100.00                                | 42.80           | 173.43      | 9,061.30            | -151.54    | 17.45      | 152.55                | 10.00                   | 10.00                  | 0.00                  |
| 9,150.00                                | 47.80           | 173.43      | 9,096.46            | -186.84    | 21.51      | 188.07                | 10.00                   | 10.00                  | 0.00                  |
| 9,200.00                                | 52.80           | 173.43      | 9,128.39            | -225.04    | 25.91      | 226.53                | 10.00                   | 10.00                  | 0.00                  |
| 9,250.00                                | 57.80           | 173.43      | 9,156.84            | -265.87    | 30.61      | 267.62                | 10.00                   | 10.00                  | 0.00                  |
| 9,260.61                                | 58.86           | 173.43      | 9,162.41            | -274.83    | 31.64      | 276.65                | 10.00                   | 10.00                  | 0.00                  |
| <b>1ST BONE SPRING SS:</b>              |                 |             |                     |            |            |                       |                         |                        |                       |
| 9,300.00                                | 62.80           | 173.43      | 9,181.61            | -309.00    | 35.57      | 311.04                | 10.00                   | 10.00                  | 0.00                  |
| 9,350.00                                | 67.80           | 173.43      | 9,202.50            | -354.11    | 40.76      | 356.45                | 10.00                   | 10.00                  | 0.00                  |
| 9,400.00                                | 72.80           | 173.43      | 9,219.35            | -400.86    | 46.15      | 403.51                | 10.00                   | 10.00                  | 0.00                  |
| 9,450.00                                | 77.80           | 173.43      | 9,232.04            | -448.89    | 51.67      | 451.85                | 10.00                   | 10.00                  | 0.00                  |
| 9,500.00                                | 82.80           | 173.43      | 9,240.46            | -497.84    | 57.31      | 501.12                | 10.00                   | 10.00                  | 0.00                  |
| 9,550.00                                | 87.80           | 173.43      | 9,244.56            | -547.32    | 63.01      | 550.94                | 10.00                   | 10.00                  | 0.00                  |
| 9,564.76                                | 89.27           | 173.43      | 9,244.94            | -561.98    | 64.69      | 565.69                | 10.00                   | 10.00                  | 0.00                  |
| <b>1ST BONE SPRING SS TARGET</b>        |                 |             |                     |            |            |                       |                         |                        |                       |
| 9,567.03                                | 89.50           | 173.43      | 9,244.96            | -564.24    | 64.95      | 567.96                | 9.98                    | 9.98                   | 0.00                  |
| <b>EOC - Hold 1: 89.5° @ A: 173.43°</b> |                 |             |                     |            |            |                       |                         |                        |                       |
| 9,600.00                                | 89.50           | 173.43      | 9,245.25            | -596.99    | 68.72      | 600.93                | 0.00                    | 0.00                   | 0.00                  |
| 9,700.00                                | 89.50           | 173.43      | 9,246.12            | -696.33    | 80.16      | 700.93                | 0.00                    | 0.00                   | 0.00                  |
| 9,800.00                                | 89.50           | 173.43      | 9,246.99            | -795.67    | 91.59      | 800.92                | 0.00                    | 0.00                   | 0.00                  |
| 9,900.00                                | 89.50           | 173.43      | 9,247.87            | -895.01    | 103.03     | 900.92                | 0.00                    | 0.00                   | 0.00                  |
| 10,000.00                               | 89.50           | 173.43      | 9,248.74            | -994.35    | 114.47     | 1,000.92              | 0.00                    | 0.00                   | 0.00                  |
| 10,100.00                               | 89.50           | 173.43      | 9,249.61            | -1,093.69  | 125.90     | 1,100.91              | 0.00                    | 0.00                   | 0.00                  |
| 10,200.00                               | 89.50           | 173.43      | 9,250.48            | -1,193.03  | 137.34     | 1,200.91              | 0.00                    | 0.00                   | 0.00                  |
| 10,300.00                               | 89.50           | 173.43      | 9,251.36            | -1,292.37  | 148.77     | 1,300.91              | 0.00                    | 0.00                   | 0.00                  |
| 10,400.00                               | 89.50           | 173.43      | 9,252.23            | -1,391.71  | 160.21     | 1,400.90              | 0.00                    | 0.00                   | 0.00                  |
| 10,500.00                               | 89.50           | 173.43      | 9,253.10            | -1,491.05  | 171.64     | 1,500.90              | 0.00                    | 0.00                   | 0.00                  |
| 10,600.00                               | 89.50           | 173.43      | 9,253.98            | -1,590.39  | 183.08     | 1,600.89              | 0.00                    | 0.00                   | 0.00                  |
| 10,700.00                               | 89.50           | 173.43      | 9,254.85            | -1,689.73  | 194.52     | 1,700.89              | 0.00                    | 0.00                   | 0.00                  |
| 10,800.00                               | 89.50           | 173.43      | 9,255.72            | -1,789.07  | 205.95     | 1,800.89              | 0.00                    | 0.00                   | 0.00                  |
| 10,900.00                               | 89.50           | 173.43      | 9,256.59            | -1,888.41  | 217.39     | 1,900.88              | 0.00                    | 0.00                   | 0.00                  |
| 11,000.00                               | 89.50           | 173.43      | 9,257.47            | -1,987.75  | 228.82     | 2,000.88              | 0.00                    | 0.00                   | 0.00                  |
| 11,100.00                               | 89.50           | 173.43      | 9,258.34            | -2,087.09  | 240.26     | 2,100.87              | 0.00                    | 0.00                   | 0.00                  |
| 11,200.00                               | 89.50           | 173.43      | 9,259.21            | -2,186.43  | 251.69     | 2,200.87              | 0.00                    | 0.00                   | 0.00                  |
| 11,300.00                               | 89.50           | 173.43      | 9,260.08            | -2,285.77  | 263.13     | 2,300.87              | 0.00                    | 0.00                   | 0.00                  |
| 11,400.00                               | 89.50           | 173.43      | 9,260.96            | -2,385.11  | 274.57     | 2,400.86              | 0.00                    | 0.00                   | 0.00                  |
| 11,500.00                               | 89.50           | 173.43      | 9,261.83            | -2,484.45  | 286.00     | 2,500.86              | 0.00                    | 0.00                   | 0.00                  |
| 11,600.00                               | 89.50           | 173.43      | 9,262.70            | -2,583.79  | 297.44     | 2,600.86              | 0.00                    | 0.00                   | 0.00                  |
| 11,700.00                               | 89.50           | 173.43      | 9,263.57            | -2,683.13  | 308.87     | 2,700.85              | 0.00                    | 0.00                   | 0.00                  |
| 11,800.00                               | 89.50           | 173.43      | 9,264.45            | -2,782.47  | 320.31     | 2,800.85              | 0.00                    | 0.00                   | 0.00                  |
| 11,900.00                               | 89.50           | 173.43      | 9,265.32            | -2,881.81  | 331.74     | 2,900.84              | 0.00                    | 0.00                   | 0.00                  |
| 12,000.00                               | 89.50           | 173.43      | 9,266.19            | -2,981.15  | 343.18     | 3,000.84              | 0.00                    | 0.00                   | 0.00                  |
| 12,100.00                               | 89.50           | 173.43      | 9,267.07            | -3,080.49  | 354.62     | 3,100.84              | 0.00                    | 0.00                   | 0.00                  |
| 12,200.00                               | 89.50           | 173.43      | 9,267.94            | -3,179.83  | 366.05     | 3,200.83              | 0.00                    | 0.00                   | 0.00                  |
| 12,300.00                               | 89.50           | 173.43      | 9,268.81            | -3,279.17  | 377.49     | 3,300.83              | 0.00                    | 0.00                   | 0.00                  |



# CUDD Drilling and Measurement Planning Report

|           |                                |                              |                                       |
|-----------|--------------------------------|------------------------------|---------------------------------------|
| Database: | EDM 5000.1 Single User Db      | Local Co-ordinate Reference: | Site Malachite 22 Fed 2H              |
| Company:  | Devon Energy Production Co, LP | TVD Reference:               | WELL @ 3660.00ft (Original Well Elev) |
| Project:  | Lea Co, New Mexico (Nad 83)    | MD Reference:                | WELL @ 3660.00ft (Original Well Elev) |
| Site:     | Malachite 22 Fed 2H            | North Reference:             | Grid                                  |
| Well:     | Malachite 22 Fed 2H            | Survey Calculation Method:   | Minimum Curvature                     |
| Wellbore: | Lateral #1                     |                              |                                       |
| Design:   | Design #1                      |                              |                                       |

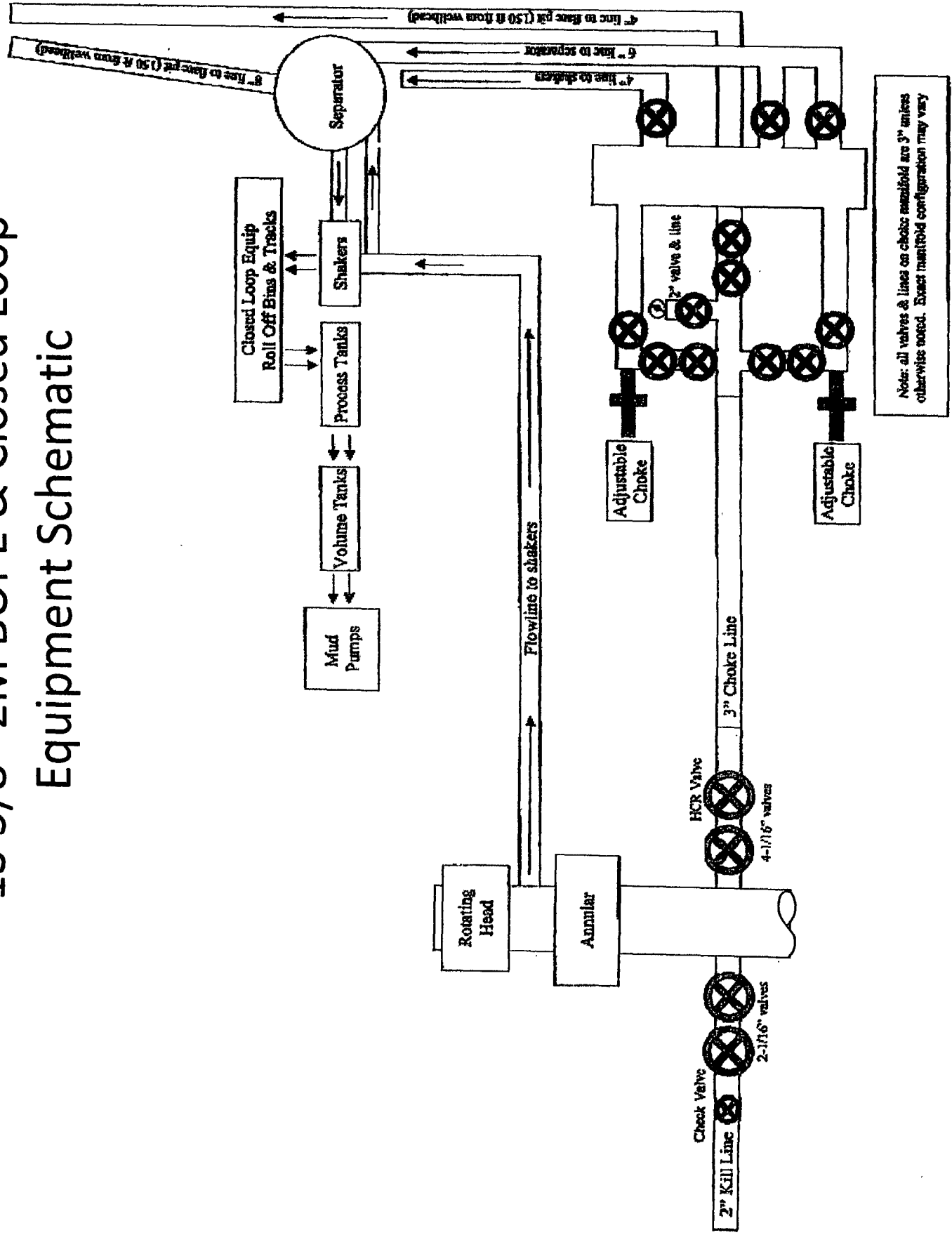
| Planned Survey      |                 |             |                     |            |            |                       |                         |                        |                       |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 12,400.00           | 89.50           | 173.43      | 9,269.68            | -3,378.51  | 388.92     | 3,400.83              | 0.00                    | 0.00                   | 0.00                  |
| 12,500.00           | 89.50           | 173.43      | 9,270.56            | -3,477.85  | 400.36     | 3,500.82              | 0.00                    | 0.00                   | 0.00                  |
| 12,600.00           | 89.50           | 173.43      | 9,271.43            | -3,577.19  | 411.79     | 3,600.82              | 0.00                    | 0.00                   | 0.00                  |
| 12,700.00           | 89.50           | 173.43      | 9,272.30            | -3,676.53  | 423.23     | 3,700.81              | 0.00                    | 0.00                   | 0.00                  |
| 12,800.00           | 89.50           | 173.43      | 9,273.17            | -3,775.87  | 434.67     | 3,800.81              | 0.00                    | 0.00                   | 0.00                  |
| 12,900.00           | 89.50           | 173.43      | 9,274.05            | -3,875.21  | 446.10     | 3,900.81              | 0.00                    | 0.00                   | 0.00                  |
| 13,000.00           | 89.50           | 173.43      | 9,274.92            | -3,974.55  | 457.54     | 4,000.80              | 0.00                    | 0.00                   | 0.00                  |
| 13,100.00           | 89.50           | 173.43      | 9,275.79            | -4,073.89  | 468.97     | 4,100.80              | 0.00                    | 0.00                   | 0.00                  |
| 13,200.00           | 89.50           | 173.43      | 9,276.66            | -4,173.23  | 480.41     | 4,200.80              | 0.00                    | 0.00                   | 0.00                  |
| 13,300.00           | 89.50           | 173.43      | 9,277.54            | -4,272.57  | 491.84     | 4,300.79              | 0.00                    | 0.00                   | 0.00                  |
| 13,400.00           | 89.50           | 173.43      | 9,278.41            | -4,371.91  | 503.28     | 4,400.79              | 0.00                    | 0.00                   | 0.00                  |
| 13,500.00           | 89.50           | 173.43      | 9,279.28            | -4,471.26  | 514.72     | 4,500.78              | 0.00                    | 0.00                   | 0.00                  |
| 13,600.00           | 89.50           | 173.43      | 9,280.16            | -4,570.60  | 526.15     | 4,600.78              | 0.00                    | 0.00                   | 0.00                  |
| 13,647.57           | 89.50           | 173.43      | 9,280.57            | -4,617.85  | 531.59     | 4,648.35              | 0.00                    | 0.00                   | 0.00                  |

| Design Targets            |               |              |          |            |            |                 |                |                  |                   |
|---------------------------|---------------|--------------|----------|------------|------------|-----------------|----------------|------------------|-------------------|
| Target Name               | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude         | Longitude         |
| - hit/miss target         |               |              |          |            |            |                 |                |                  |                   |
| - Shape                   |               |              |          |            |            |                 |                |                  |                   |
| PBHL - TD (M22F2H)        | 0.00          | 0.00         | 9,280.57 | -4,617.85  | 531.59     | 597,008.61      | 750,720.65     | 32° 38' 21.777 N | 103° 39' 11.239 W |
| - plan hits target center |               |              |          |            |            |                 |                |                  |                   |
| - Point                   |               |              |          |            |            |                 |                |                  |                   |

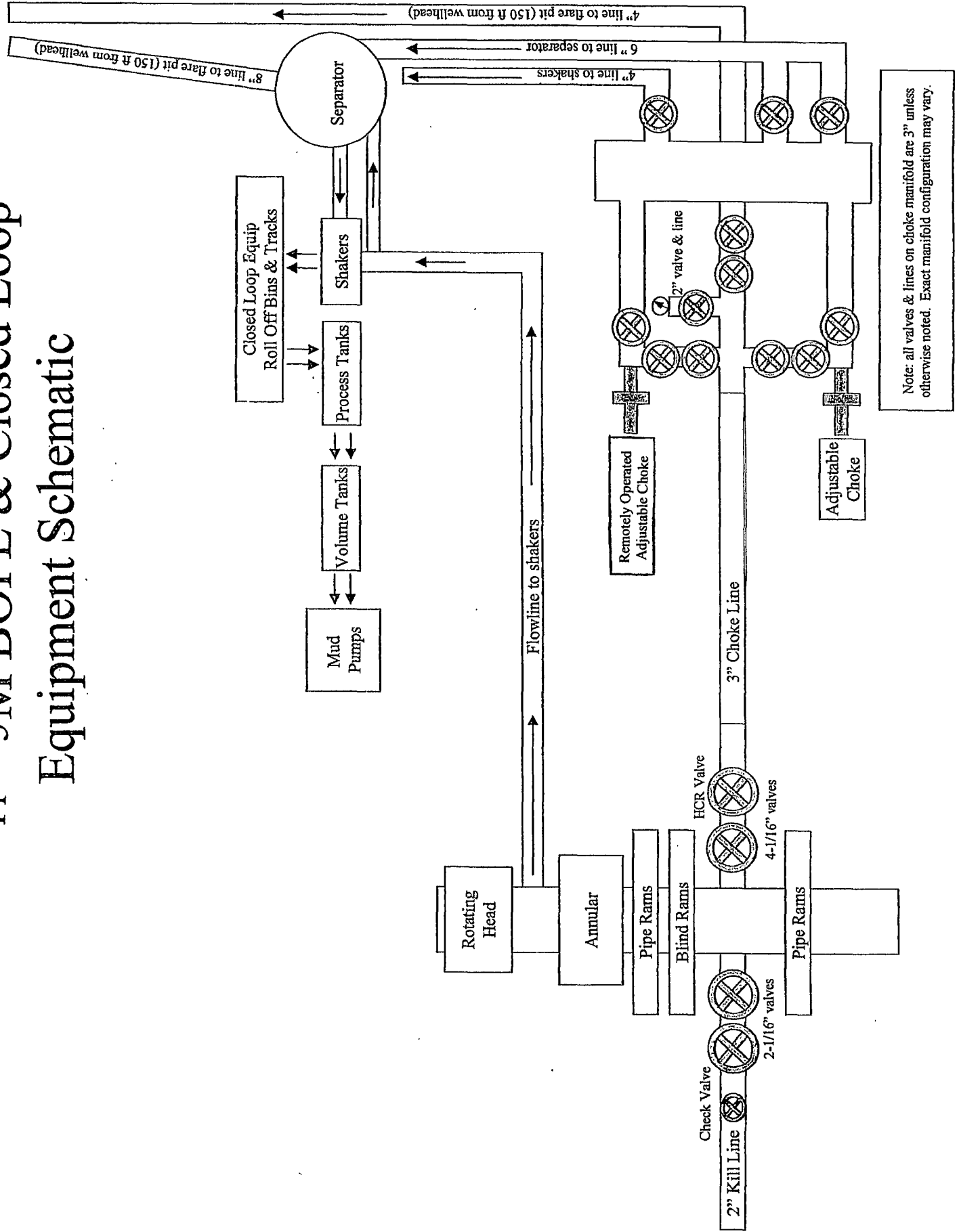
| Formations          |                     |                            |           |         |                   |  |
|---------------------|---------------------|----------------------------|-----------|---------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name                       | Lithology | Dip (°) | Dip Direction (°) |  |
| 20.00               | 20.00               | QUATERNARY                 |           | 0.50    | 173.43            |  |
| 1,410.00            | 1,410.00            | RUSTLER DOL.               |           | 0.50    | 173.43            |  |
| 3,100.00            | 3,100.00            | BASE SALADO SALT           |           | 0.50    | 173.43            |  |
| 3,270.00            | 3,270.00            | YATES SS                   |           | 0.50    | 173.43            |  |
| 3,510.00            | 3,510.00            | SEVEN RIVERS               |           | 0.50    | 173.43            |  |
| 4,265.00            | 4,265.00            | QUEEN SS.                  |           | 0.50    | 173.43            |  |
| 4,720.00            | 4,720.00            | GRAYBURG                   |           | 0.50    | 173.43            |  |
| 6,080.00            | 6,080.00            | CHERRY CANYON              |           | 0.50    | 173.43            |  |
| 7,500.00            | 7,500.00            | BRYSHY CANYON              |           | 0.50    | 173.43            |  |
| 7,910.00            | 7,910.00            | 1ST BONE SPRING LM         |           | 0.50    | 173.43            |  |
| 9,260.61            | 9,162.41            | 1ST BONE SPRING SS.        |           | 0.50    | 173.43            |  |
| 9,564.76            | 9,244.94            | 1ST BONE SPRING SS. TARGET |           | 0.50    | 173.43            |  |

| Plan Annotations    |                     |            |            |                                 |
|---------------------|---------------------|------------|------------|---------------------------------|
| Measured Depth (ft) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Comment                         |
| 8,672.02            | 8,672.02            | 0.00       | 0.00       | KOP - Build 10°/100'            |
| 9,567.03            | 9,244.96            | -564.24    | 64.95      | EOC - Hold I: 89.5° @ A 173.43° |

# 13 5/8" 2M BOPE & Closed Loop Equipment Schematic



# 11" 5M BOPE & Closed Loop Equipment Schematic



Attachment to Exhibit #1  
NOTES REGARDING BLOWOUT PREVENTERS  
Devon Energy Production Company, LP

**Malachite 22 Federal 2H**

Surface Location: 330' FNL & 1465' FWL, Unit C, Sec 22 T19S R33E, Lea, NM

Bottom hole Location: 330' FSL & 1980' FWL, Unit N, Sec 22 T19S R33E, Lea, NM

1. Drilling nipple will be constructed so it can be removed mechanically without the aid of a welder. The minimum internal diameter will equal BOP bore.
2. Wear ring will be properly installed in head.
3. Blowout preventer and all associated fittings will be in operable condition to withstand a minimum 3000 psi working pressure.
4. All fittings will be flanged.
5. A full bore safety valve tested to a minimum 3000 psi WP with proper thread connections will be available on the rotary rig floor at all times.
6. All choke lines will be anchored to prevent movement.
7. All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string.
8. Will maintain a kelly cock attached to the kelly.
9. Hand wheels and wrenches will be properly installed and tested for safe operation.
10. Hydraulic floor control for blowout preventer will be located as near in proximity to driller's controls as possible.
11. All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.

# Conventional Rig Location Layout

