

HOBBS OCD

OCD-HOBBS

12-537

Form 3160-3
(April 2004)

JUL 20 2012

UNITED STATES
RECEIVED DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM-2512
1b. Type of Well: ☐ Oil Well ☐ Gas Well ☒ Other <i>Injection</i> ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator APACHE CORPORATION		7. If Unit or CA Agreement, Name and No. NE DRINKARD <NMNM-072602>
3a. Address 303 VETERANS AIRPARK LN #3000 MIDLAND, TX 79705	3b. Phone No. (include area code) 432-818-1167	8. Lease Name and Well No. <i><22503></i> NORTHEAST DRINKARD UNIT #157
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 1855' FNL & 1570' FEL At proposed prod. zone 1980' FNL & 1400' FEL		9. API Well No. 30-025- <i>40696</i>
14. Distance in miles and direction from nearest town or post office* APPROX 5 MILES NORTH OF EUNICE, NM		10. Field and Pool, or Exploratory EUNICE; BLI-TU-DRI, NORTH <i><22900></i>
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1400'		11. Sec, T, R, M. or Blk and Survey or Area LOT 7 SEC 3 T21S R37E
16. No. of acres in lease 708.67	17. Spacing Unit dedicated to this well 40 ACRES	12. County or Parish LEA
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. ~ 500'	19. Proposed Depth TVD: ~ 7025' MD: ~ 7036'	13. State NM
20. BLM/BIA Bond No. on file BLM - CO - 1463 NATIONWIDE	21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3488'	22. Approximate date work will start* 23. Estimated duration ~ 10 DAYS
24. Attachments		

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

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

25. Signature <i>Sorina L Flores</i>	Name (Printed/Typed) SORINA L FLORES	Date <i>4/10/12</i>
Title SUPV OF DRILLING SERVICES		
Approved by (Signature) <i>James A. Ames</i>	Name (Printed/Typed)	Date JUL 18 2012
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

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

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 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)

Capitan Controlled Water Basin

KE 07/23/12

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

JUL 23 2012

DRILLING PLAN: BLM COMPLIANCE
(Supplement to BLM 3160-3)

APACHE CORPORATION (OGRID: 873) NORTHEAST DRINKARD UNIT #157

Lease #: NMNM-2512 Projected TVD: ~7025' MD: ~7036' GL: 3488'
SHL: 1855' FNL & 1570' FEL BHL: 1980' FNL & 1400' FEL LOT#: 7 SEC: 3 T21S R37E LEA COUNTY, NM

1. GEOLOGIC NAME OF SURFACE FORMATION: Quaternary Aeolian Deposits

2. ESTIMATED TOPS OF GEOLOGICAL MARKERS & DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Quaternary Aeolian	Surf	San Andres	4070'
Rustler	1350'	Glorieta	5314'
Salt Top	1438'	Blinbry	5755' (Oil)
Salt Bottom	2535'	Tubb	6245' (Oil)
Yates	2700'	Drinkard	6585' (Oil)
Seven Rivers	2920'	ABO	6820' (Oil)
Queen	3491'	TVD/MD	~ 7025' / ~ 7036'
Grayburg	3821'		

Depth to Ground Water: ~ 75'

All fresh water & prospectively valuable minerals, as described by BLM, encountered during drilling, will be recorded by depth & adequately protected. All oil & gas shows within zones of correlative rights will be tested to determine commercial potential. Surface fresh water sands will be protected by setting 8-5/8" csg @ 1410' & circ cmt back to surface. All intervals will be isolated by setting 5-1/2" csg to TD & circ cmt above the base of 8-5/8" csg. Build curve at ~ 4045', EOB +/- 4295', TVD ~ 7025', MD ~ 7036'.

3. CASING PROGRAM: All casing is new & API approved

HOLE SIZE	DEPTH	OD CSG	WEIGHT	COLLAR	GRADE	COLLAPSE	BURST	TENSION
12-1/4"	0' – 1410'	8-5/8"	24#	STC	J-55	1.125	1.0	1.8
7-7/8"	0'-7036'	5-1/2"	17#	LTC	L-80	1.125	1.0	1.8

4. CEMENT PROGRAM:

A. 8-5/8" Surface (100% excess cmt to surf). Cmt with:

Lead: 510 sx Class C w/ 2% CaCl₂ + 0.13# CF + 3# LCM1 + 0.005 gps FP-6L + 4% Bentonite
(13.5 ppg, 1.75 yld) Comp Strengths : **12 hr – 500 psi 24 hr – 782 psi**

Tail: 200 sx Class C w/ 1% CaCl₂ + 0.13 # CF + 0.005 gps FP-6L
(14.8 ppg, 1.34 yld) Comp Strengths : **12 hr – 755 psi 24 hr – 1347 psi**

B. 5-1/2" Production (30% excess cmt) Cmt with:

Lead: 600 sx (35:65) Poz Cl C w/ 5% CaCl₂ + 0.125 CF + 3# LCM1 + 0.5% FL52 + 0.005 gps FP6L + 6% Bentonite +
0.3% Sodium Metasilicate
(12.6ppg, 2.0 yld) Comp Strengths: **12 hr – 603 psi 24 hr – 850 psi**

Tail: 300 sx (50:50) Poz Cl C w/ 5% CaCl₂ + 0.13% CF + 3# LCM1 + 0.005gps FP6L + 2% Bentonite + 1% FL25 + 1% BA58 +
0.1% Sodium Metasilicate
(14.2 ppg, 1.3 yld) Comp Strengths: **12 hr – 850psi 24 hr – 1979psi**

**** The above cmt volumes could be revised pending caliper measurement from open hole logs. TOC is designed to reach surface on Surface and Production. The above slurry design may change, but will meet BLM specifications. All slurries will be tested prior to loading to confirm thickening times & a lab report furnished to Apache. Fluid loss will be tested & reported on slurries with fluid loss additives. Lab test report will be furnished prior to pumping cement.**

5. PROPOSED CONTROL EQUIPMENT

"EXHIBIT 5" shows a 900 series 11" 3M psi WP BOP consisting of an annular bag type preventer, middle blind rams, bottom pipe rams. The BOP will be nipped up on the 8-5/8" csg and utilized continuously until TD is reached. The BOP will be tested at 2000 psi, maximum surface pressure is not expected to exceed 3M psi, BHP is calculated to be approximately 3124 psi. *All BOP's and associated equipment will be tested as per BLM *Drilling Operations Order #2*. The BOP will be operated and checked each 24 hr period & the blind rams will be operated & checked when the drill pipe is out of the hole. Functional tests will be documented on the daily driller's log. "EXHIBIT 5" also shows a 3M psi choke manifold with a 4" panic line. Full opening stabbing valve & Kelly cock will be on derrick floor in case of need. No abnormal pressures or temperatures are expected in this well. No nearby wells have encountered any problems.

6. PROPOSED MUD CIRCULATION SYSTEM: (Closed Loop System)

INTERVAL	MW (ppg)	VISC (sec/qt)	FLUID LOSS (cc)	MUD TYPE
0' - 1410	8.3	28 - 32	NC	Fresh Water
1410 - 6900'	10	28 - 32	NC	Brine
6900' - TD	10.1 - 10.2	32 - 33	10 - 12	Cut Brine

**** The necessary mud products for weight addition and fluid loss control will be on location at all times. In order to run open hole logs & casing, the above mud properties may have to be altered to meet these needs.**

7. AUXILIARY WELL CONTROL EQUIPMENT / MONITORING EQUIPMENT:

11" x 3000 psi Double BOP/Blind & pipe ram (3M BOP/BOPE to be used as 2M system)
4-1/2" x 3000 psi Kelly valve
11" x 3000 psi mud cross - H2S detector on production hole
Gate-type safety valve 3" choke line from BOP to manifold
2" adjustable chokes - 4" blow down line
Fill up line as per Onshore Order 2

8. LOGGING, CORING & TESTING PROGRAM: See COA

- A. OH logs: Dual Laterolog, MSFL, CNL, Litho-Density, Spectral Gamma Ray, Caliper & Sonic from TD back to 8-5/8" csg shoe.
- B. Run CNL, Gamma Ray from 8-5/8" csg shoe back to surface.
- C. No cores or DST's are planned at this time. Mud log will be included on this well.
- D. Additional testing will be initiated subsequent to setting the 5-1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows & drill stem tests.

9. POTENTIAL HAZARDS:

No abnormal pressures or temperatures are anticipated. In the event abnormal pressures are encountered, however, the proposed mud program will be modified to increase the mud-weight. There is known presence of H₂S in this area. If H₂S is encountered the operator will comply with the provisions of *Onshore Oil & Gas Order No. 6 (SEE EXHIBIT 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: 3124 psi and estimated BHT: 115°.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

Road and location construction will begin after BLM has approved APD. Anticipated spud date will be as soon after Santa Fe and BLM approval and as soon as rig will be available. Move in operations and drilling is expected to take approx 10 days. If production casing is run then an additional .90 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.

11. OTHER FACETS OF OPERATION:

The well will be stimulated with acid to clean out scale or fill. The well will inject into the Drinkard, which is part of the Eunice; Blinbry-Tubb-Drinkard, North Pool (aka: Eunice: BLI-TU-DR, N).

NOV 9 2



Apache Corporation

Lea County, NM

Sec 3, T21-S, 37-E (3-15-12)

NEDU #157W (3-15-12)

Wellbore #1

Plan: Design #1

DDC Well Planning Report

15 March, 2012





DDC
Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well NEDU #157W (3-15-12)
Company:	Apache Corporation	TVD Reference:	WELL @ 3488.0usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3488.0usft (Original Well Elev)
Site:	Sec 3, T21-S, 37-E (3-15-12)	North Reference:	Grid
Well:	NEDU #157W (3-15-12)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Lea County, NM		
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 3, T21-S, 37-E (3-15-12)		
Site Position:	From: Map	Northing:	553,843.80 usft
		Easting:	865,691.50 usft
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 31' 1.313 N
		Longitude:	103° 8' 49.178 W
		Grid Convergence:	0.64 °

Well	NEDU #157W (3-15-12)		
Well Position	+N/-S	0 0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/15/2012	7 32	60.51	48,764

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0 0	0.0	125.67

Plan Sections										
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	
4,045 0	0.00	0 00	4,045 0	0.0	0.0	0 00	0 00	0.00	0.00	
4,294 8	5.00	125.67	4,294 5	-6 3	8.8	2.00	2.00	50.31	125.67	
6,594 1	5.00	125.67	6,585.0	-123.1	171 5	0.00	0 00	0 00	0.00	Drinkard Target NE
7,035.7	5 00	125.67	7,025 0	-145 5	202.7	0 00	0.00	0.00	0.00	PBHL NEDU #157v



DDC Well Planning Report



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Company:	Apache Corporation	TYD Reference:	WELL @ 3488.0usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3488.0usft (Original Well Elev)
Site:	Sec 3, T21-S, 37-E (3-15-12)	North Reference:	Grid
Well:	NEDU #157W (3-15-12)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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
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
Rustler									
1,360.0	0.00	0.00	1,360.0	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
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
Yates									
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
Queen									
3,491.0	0.00	0.00	3,491.0	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
Grayburg									
3,821.0	0.00	0.00	3,821.0	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
Build 2°/100' @ 4045' MD									
4,045.0	0.00	0.00	4,045.0	0.0	0.0	0.0	0.00	0.00	0.00
San Andres									
4,070.0	0.50	125.67	4,070.0	-0.1	0.1	0.1	2.00	2.00	0.00
4,100.0	1.10	125.67	4,100.0	-0.3	0.4	0.5	2.00	2.00	0.00



DDC Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well NEDU #157W (3-15-12)
Company:	Apache Corporation	TVD Reference:	WELL @ 3488.0usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3488.0usft (Original Well Elev)
Site:	Sec 3, T21-S, 37-E (3-15-12)	North Reference:	Grid
Well:	NEDU #157W (3-15-12)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
4,200.0	3.10	125.67	4,199.9	-2.4	3.4	4.2	2.00	2.00	0.00
EOB @ 4295' MD / 5° Inc / 125.67° Azm / 4295' TVD									
4,294.8	5.00	125.67	4,294.5	-6.3	8.8	10.9	2.00	2.00	0.00
4,300.0	5.00	125.67	4,299.7	-6.6	9.2	11.3	0.00	0.00	0.00
4,400.0	5.00	125.67	4,399.3	-11.7	16.3	20.0	0.00	0.00	0.00
4,500.0	5.00	125.67	4,498.9	-16.8	23.4	28.8	0.00	0.00	0.00
4,600.0	5.00	125.67	4,598.5	-21.8	30.4	37.5	0.00	0.00	0.00
4,700.0	5.00	125.67	4,698.1	-26.9	37.5	46.2	0.00	0.00	0.00
4,800.0	5.00	125.67	4,797.8	-32.0	44.6	54.9	0.00	0.00	0.00
4,900.0	5.00	125.67	4,897.4	-37.1	51.7	63.6	0.00	0.00	0.00
5,000.0	5.00	125.67	4,997.0	-42.2	58.7	72.3	0.00	0.00	0.00
5,100.0	5.00	125.67	5,096.6	-47.2	65.8	81.0	0.00	0.00	0.00
5,200.0	5.00	125.67	5,196.2	-52.3	72.9	89.7	0.00	0.00	0.00
5,300.0	5.00	125.67	5,295.9	-57.4	80.0	98.4	0.00	0.00	0.00
Glorieta									
5,318.2	5.00	125.67	5,314.0	-58.3	81.2	100.0	0.00	0.00	0.00
5,400.0	5.00	125.67	5,395.5	-62.5	87.0	107.1	0.00	0.00	0.00
5,500.0	5.00	125.67	5,495.1	-67.5	94.1	115.8	0.00	0.00	0.00
5,600.0	5.00	125.67	5,594.7	-72.6	101.2	124.5	0.00	0.00	0.00
5,700.0	5.00	125.67	5,694.3	-77.7	108.3	133.3	0.00	0.00	0.00
Blaineby Mkr									
5,760.9	5.00	125.67	5,755.0	-80.8	112.6	138.6	0.00	0.00	0.00
5,800.0	5.00	125.67	5,794.0	-82.8	115.3	142.0	0.00	0.00	0.00
5,900.0	5.00	125.67	5,893.6	-87.9	122.4	150.7	0.00	0.00	0.00
6,000.0	5.00	125.67	5,993.2	-92.9	129.5	159.4	0.00	0.00	0.00
6,100.0	5.00	125.67	6,092.8	-98.0	136.5	168.1	0.00	0.00	0.00
6,200.0	5.00	125.67	6,192.4	-103.1	143.6	176.8	0.00	0.00	0.00
Tubb									
6,252.8	5.00	125.67	6,245.0	-105.8	147.4	181.4	0.00	0.00	0.00
6,300.0	5.00	125.67	6,292.1	-108.2	150.7	185.5	0.00	0.00	0.00
6,400.0	5.00	125.67	6,391.7	-113.2	157.8	194.2	0.00	0.00	0.00
6,500.0	5.00	125.67	6,491.3	-118.3	164.8	202.9	0.00	0.00	0.00
Top of Drinkard @ 6594' MD / 6585' TVD - Drinkard									
6,594.1	5.00	125.67	6,585.0	-123.1	171.5	211.1	0.00	0.00	0.00
6,600.0	5.00	125.67	6,590.9	-123.4	171.9	211.6	0.00	0.00	0.00
6,700.0	5.00	125.67	6,690.5	-128.5	179.0	220.3	0.00	0.00	0.00
6,800.0	5.00	125.67	6,790.2	-133.6	186.1	229.0	0.00	0.00	0.00
Abo									
6,829.9	5.00	125.67	6,820.0	-135.1	188.2	231.6	0.00	0.00	0.00
6,900.0	5.00	125.67	6,889.8	-138.6	193.1	237.7	0.00	0.00	0.00
7,000.0	5.00	125.67	6,989.4	-143.7	200.2	246.5	0.00	0.00	0.00
TD @ 7036' MD / 7025' TVD									
7,035.7	5.00	125.67	7,025.0	-145.5	202.7	249.6	0.00	0.00	0.00



DDC
Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well NEDU #157W (3-15-12)
Company:	Apache Corporation	TVD Reference:	WELL @ 3488.0usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3488.0usft (Original Well Elev)
Site:	Sec 3, T21-S, 37-E (3-15-12)	North Reference:	Grid
Well:	NEDU #157W (3-15-12)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets

Target Name

- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
Drinkard Target NEDU	0.00	0 00	6,585.0	-123.1	171.5	553,720.70	865,863.00	32° 31' 0.076 N	103° 8' 47.191 W
- plan hits target center									
- Point									
PBHL NEDU #157W	0.00	0 00	7,025.0	-123.1	171.5	553,720.70	865,863.00	32° 31' 0.076 N	103° 8' 47.191 W
- plan misses target center by 38.3usft at 7032.4usft MD (7021.7 TVD, -145.4 N, 202.5 E)									
- Point									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,360.0	1,360.0	Rustler		0.00	125.67
2,700.0	2,700.0	Yates		0.00	125.67
3,491.0	3,491.0	Queen		0.00	125.67
3,821.0	3,821.0	Grayburg		0.00	125.67
4,070.0	4,070.0	San Andres		0.00	125.67
5,318.2	5,314.0	Glorieta		0.00	125.67
5,760.9	5,755.0	Blinberry Mkr		0.00	125.67
6,252.8	6,245.0	Tubb		0.00	125.67
6,594.1	6,585.0	Drinkard		0.00	125.67
6,829.9	6,820.0	Abo		0.00	125.67

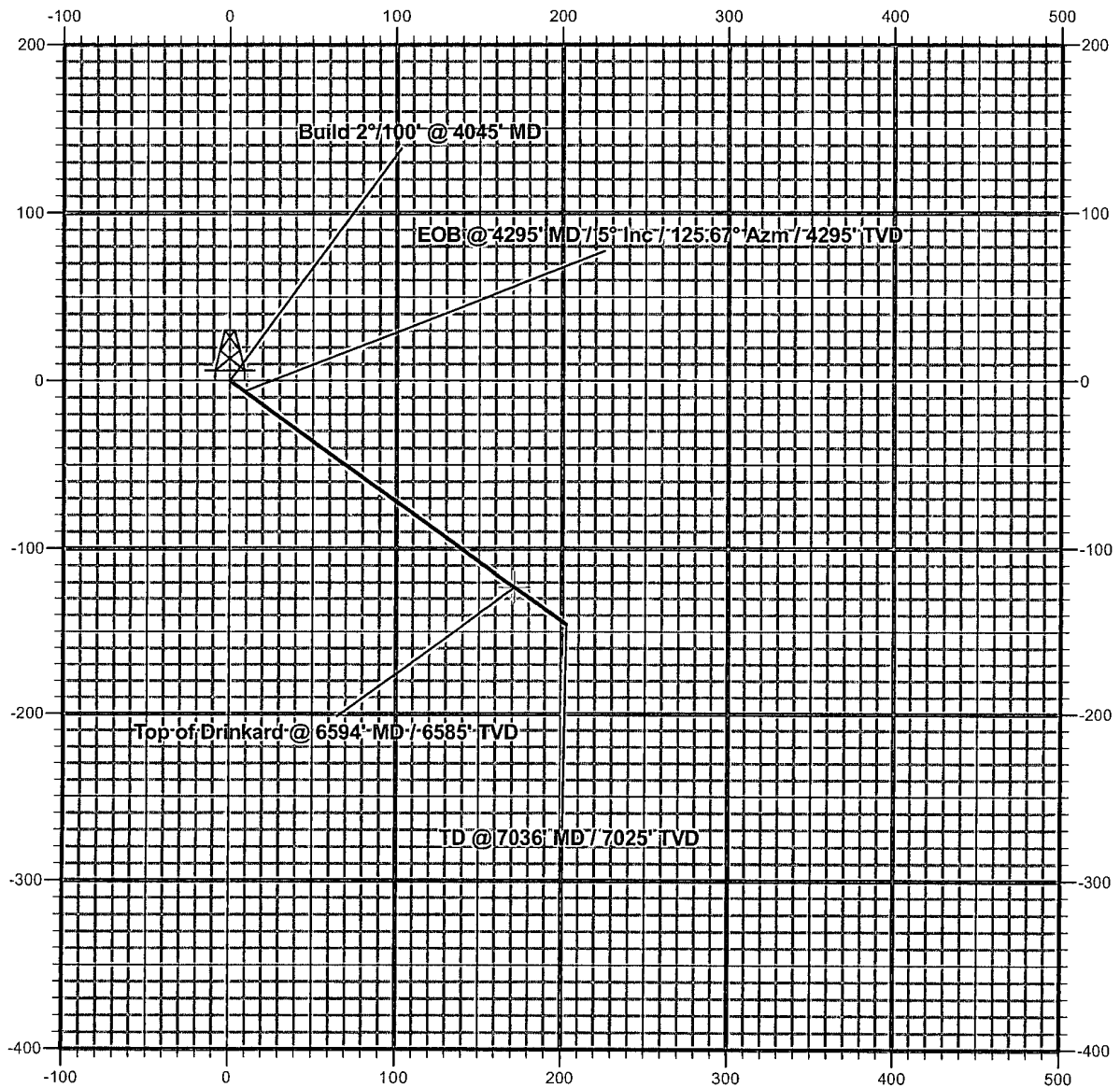
Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,045.0	4,045.0	0.0	0.0	Build 2°/100' @ 4045' MD
4,294.8	4,294.5	-6.3	8.8	EOB @ 4295' MD / 5° Inc / 125.67° Azm / 4295' TVD
6,594.1	6,585.0	-123.1	171.5	Top of Drinkard @ 6594' MD / 6585' TVD
7,035.7	7,025.0	-145.5	202.7	TD @ 7036' MD / 7025' TVD

Apache

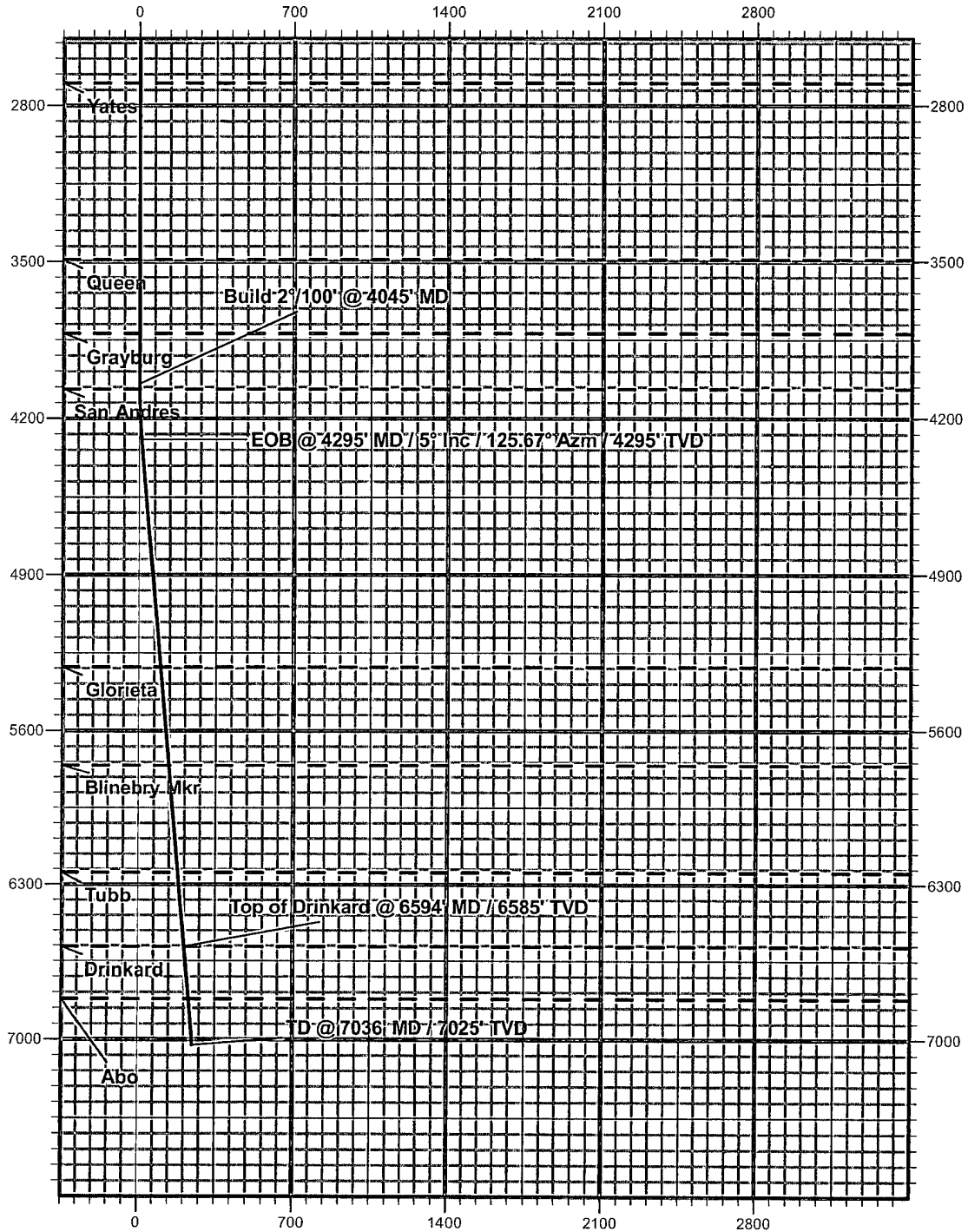


Lea County, NM
NEDU #157W (3-15-12)
Design #1

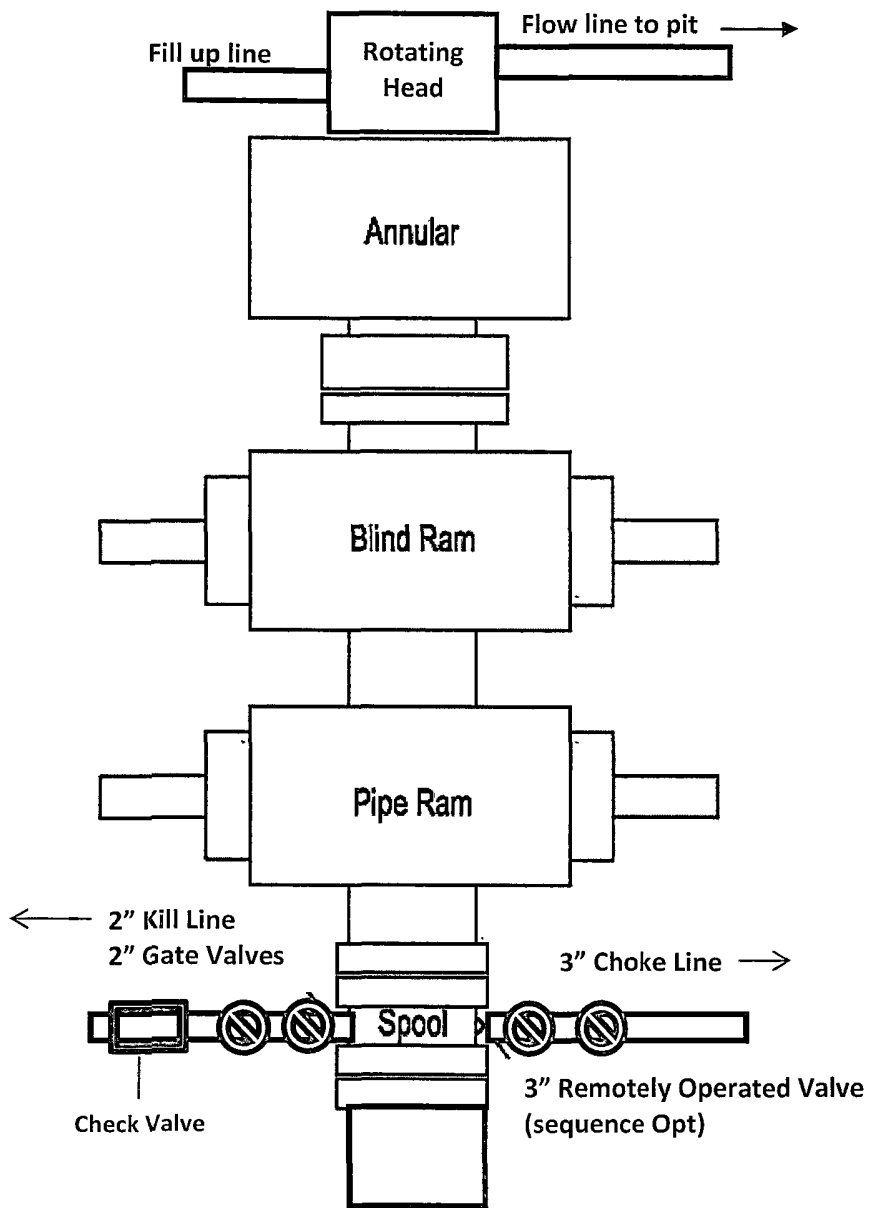


Apache

Lea County, NM
NEDU #157W (3-15-12)
Design #1



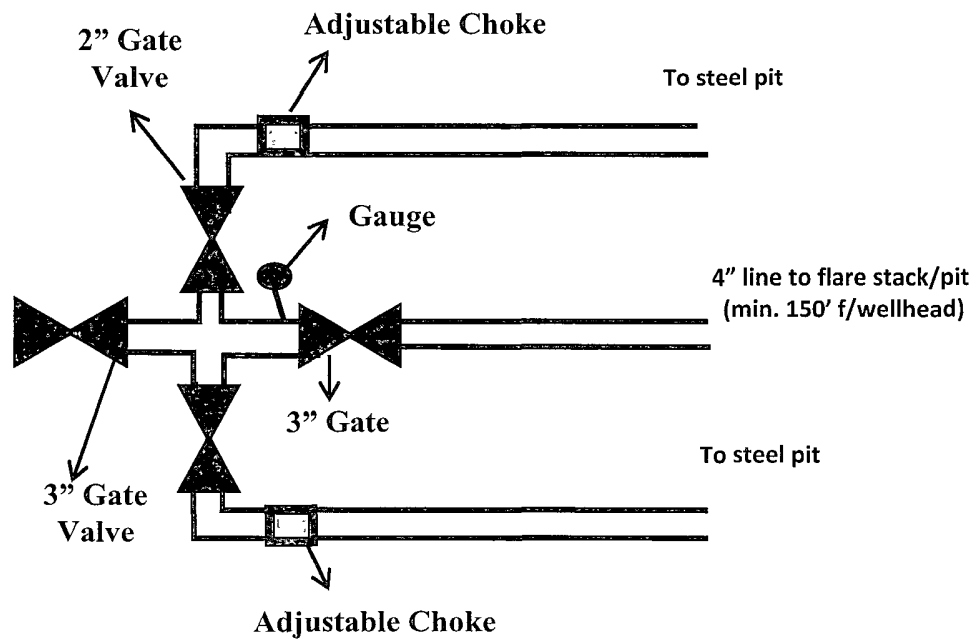
Vertical Section at 125.67° (700 usft/in)



3M psi BOPE & Choke Manifold

Exhibit 3

All valve & lines on choke manifold are 2" unless noted.
Exact manifold configuration may vary



Apache

Closed Loop Equipment Diagram

Exhibit 4

