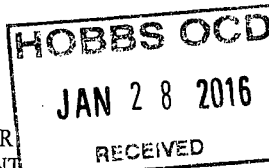


15-663

OCD Hobbs

Form 3160-3
(April 2004)FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM-2512	
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator APACHE CORPORATION (873)		7. If Unit or CA Agreement, Name and No. NMNM 072602X; NE DRINKARD	
3a. Address 303 VETERANS AIRPARK LN #3000 MIDLAND, TX 79705		8. Lease Name and Well No. <22503> NORTHEAST DRINKARD UNIT #354	
3b. Phone No. (include area code) 432-818-1167		9. API Well No. 30-025-43041	
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 1350' FSL & 1635' FEL - UL: J - NMNM-2512 At proposed prod. zone 1280' FSL & 1800' FEL - UL: O		10. Field and Pool, or Exploratory EUNICE; BLI-TU-DR, N. <22900>	
11. Sec., T. R. M. or Blk. and Survey or Area SEC: 3 T21S R37E		12. County or Parish LEA	
13. State NM		14. Distance in miles and direction from nearest town or post office* APPROX 6 MILES NORTH OF EUNICE, NM	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1280'	16. No. of acres in lease 708.67 ACRES	17. Spacing Unit dedicated to this well 80 ACRES	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. ~ 450'	19. Proposed Depth TVD ~ 7025' MD ~ 7027'	20. BLM/BIA Bond No. on file BLM-CO-1463 NATIONWIDE / NMB000736	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) GL: 3455'	22. Approximate date work will start* AS SOON AS APPROVED	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 4/30/15
Title SUPV OF DRILLING SERVICES		

Approved by (Signature) Steve Caffey	Name (Printed/Typed)	Date JAN 25 2016
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
01/29/16Approval Subject to General Requirements
& Special Stipulations AttachedSEE ATTACHED FOR
CONDITIONS OF APPROVAL

FEB 01 2016

APACHE CORPORATION

NEDU 354D

HOBBS OCD
JAN 28 2016
RECEIVED

1. Geologic Formations

TVD of target	7025'	Pilot hole depth	N/A
MD at TD:	7027'	Deepest expected fresh water:	91'

Back Reef

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Aeolian	Surf		
Rustler	1295'		
Top of Salt	1345'		
Tansil	2441'		
Yates	2586'		
Seven Rivers	2841'	Oil	
Queen	3410'	Oil	
Grayburg	3744'	Oil	
San Andres	4065'	Oil	
Glorieta	5200'		
Paddock	5269'	Oil	
Blinbry	5610'	Oil	
Tubb	6066'	Oil	
Drinkard	6515'	Oil	
ABO	6811'	Oil	

*H2S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
11"	0'	1320' / 1400'	8-5/8"	24	J-55	STC	2.1	2.1	8.8
7-7/8"	0'	7027'	5-1/2"	17	L-80	LTC	1.7	2.2	3.34
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

*All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N

APACHE CORPORATION

NEDU 354D

If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft ³ / sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf	465	13.5	1.73	9.13	9	Lead: Cl C + 4 % Bentonite + 1% CaCL ₂ + 0.25# CF (12hr-677psi; 24hr-1093psi)
	250	14.8	1.35	6.34	5	Tail: Cl C w/2% CaCL ₂ + 0.25# CF (12hr-1121psi; 24hr-1795psi)
Prod	605	12.6	1.95	10.65	8.5	Lead: Cl C 35/65 + 6% Bentonite + 0.1% R-20 + 0.25# CF + 3% Salt (12hr-671psi, 24hr-979psi)
	DV/ECP Tool: N/A					
	345	14.2	1.28	5.81	8.5	Tail: 50:50 Poz C w/2% Bentonite + 0.4% FL-12 + 0.1% R-20 + 0.25# CF + 3% Salt (12hr-910psi; 24hr-_____psii)

*If DVT used: DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

*** PRODUCTION CMT CONTINGENCY IF WATER FLOWS ENCOUNTERED*****

Casing	# Sks	Wt. lb/ gal	Yld ft ³ / sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Prod 1 st Stage	75	12.6	1.95	10.65	8.5	Lead: Cl C 35/65 + 6% Bentonite + 0.1% R-20 + 0.25# CF + 3% Salt (12hr-671psi, 24hr-979psi)
	345	14.2	1.28	5.81	8.5	Tail: Cl C 50/50 + 2% Bentonite + 0.4% FL-12 + 0.1% R-20 + 0.25# CF + 3% Salt (12hr-910psi, 24hr-16985psi)
DV/ECP Tool : 4440'						
Prod 2 nd Stage	465	12.6	1.95	10.65	8.5	Lead: Cl C 35/65 + 6% Bentonite + 0.1% R-20 + 0.25# CF + 3% Salt (12hr-671psi, 24hr-979psi)
	100	14.8	1.33	6.32	6.5	Tail: Cl C (12hr-1281psi, 24hr-1951psi)

Casing String	TOC	% Excess
Surface	0'	100%
Production	0'	30%

APACHE CORPORATION

NEDU 354D

Include Pilot Hole Cementing specs:

Pilot hole depth : N/A

KOP : N/A

Plug top	Plug Bottom	% Excess	No. Sacks	Wt. lb/gal	Yld ft ³ /sack	Water gal/sk	Slurry Description and Cement Type

4. Pressure Control Equipment

No	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
----	--

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
7-7/8"	11"	3M	Annular	x	50% of working pressure
			Blind Ram	x	must test to 3,000 psi 3M 3M
			Pipe Ram	x	
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
No	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
	NO Are anchors required by manufacturer?
No	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. • Provide description here See attached schematic.

APACHE CORPORATION

NEDU 354D

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. shoe	FW	8.7 – 9.1	32-34	N/C
Surf shoe	TD	Brine	9.8 – 10.2	32-34	N/C

**Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.*

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
---	-----------------------------

6. Logging and Testing Procedures

Logging, Coring and Testing.	
X	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned	Interval
X Resistivity	TD to Int. shoe
X Density	TD to Int. shoe
X CBL	Production casing
	Mud log
	PEX

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	3091 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe: N/A

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

Y	H2S is present
	H2S Plan attached

8. Other facets of operation

Is this a walking operation? NO

Will be pre-setting casing? NO

Attachments

YES Directional Plan

 Other, describe



Apache

Lea County, New Mexico (NAD 27)

NEDU

354

Wellbore #1

Plan: Design #1

Standard Planning Report

15 January, 2013



MS Energy Services
Planning Report



Database:	Well Planning Conroe	Local Co-ordinate Reference:	Well 354
Company:	Apache	TVD Reference:	WELL @ 3466.00usft (Capstar 120)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	WELL @ 3466.00usft (Capstar 120)
Site:	NEDU	North Reference:	Grid
Well:	354	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Lea County, New Mexico (NAD 27)		
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		

Well	354			
Well Position	+N/-S	549,213.85 usft	Northing:	549,213.85 usft
	+E/-W	865,675.64 usft	Easting:	865,675.64 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	3,455.00 usft
			Latitude:	32° 30' 15.5065 N
			Longitude:	103° 8' 49.965 W
			Ground Level:	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM_2010	01/14/13	7.23	60.47	48,669

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	246.36

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,370.00	0.00	0.00	1,370.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,461.55	1.83	246.36	1,461.54	-0.59	-1.34	2.00	2.00	-124.13	246.36	
7,027.86	1.83	246.36	7,025.00	-71.91	-164.27	0.00	0.00	0.00	0.00	PBHL v1 - NEDU 354



MS Energy Services
Planning Report



Database:	Well Planning Conroe	Local Co-ordinate Reference:	Well 354
Company:	Apache	TVD Reference:	WELL @ 3466.00usft (Capstar 120)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	WELL @ 3466.00usft (Capstar 120)
Site:	NEDU	North Reference:	Grid
Well:	354	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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,296.00	0.00	0.00	1,296.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,346.00	0.00	0.00	1,346.00	0.00	0.00	0.00	0.00	0.00	0.00
T. Salt									
1,370.00	0.00	0.00	1,370.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, 2.00°/100' Build									
1,400.00	0.60	246.36	1,400.00	-0.06	-0.14	0.16	2.00	2.00	0.00
1,461.55	1.83	246.36	1,461.54	-0.59	-1.34	1.46	2.00	2.00	0.00
Begin 1.83° Tangent									
1,500.00	1.83	246.36	1,499.96	-1.08	-2.47	2.69	0.00	0.00	0.00
1,600.00	1.83	246.36	1,599.91	-2.36	-5.39	5.89	0.00	0.00	0.00
1,700.00	1.83	246.36	1,699.86	-3.64	-8.32	9.08	0.00	0.00	0.00
1,800.00	1.83	246.36	1,799.81	-4.92	-11.25	12.28	0.00	0.00	0.00
1,900.00	1.83	246.36	1,899.76	-6.20	-14.17	15.47	0.00	0.00	0.00
2,000.00	1.83	246.36	1,999.71	-7.49	-17.10	18.67	0.00	0.00	0.00
2,100.00	1.83	246.36	2,099.66	-8.77	-20.03	21.86	0.00	0.00	0.00
2,200.00	1.83	246.36	2,199.61	-10.05	-22.96	25.06	0.00	0.00	0.00
2,300.00	1.83	246.36	2,299.56	-11.33	-25.88	28.25	0.00	0.00	0.00
2,400.00	1.83	246.36	2,399.51	-12.61	-28.81	31.45	0.00	0.00	0.00
2,442.52	1.83	246.36	2,442.00	-13.16	-30.05	32.81	0.00	0.00	0.00
Tansil									
2,500.00	1.83	246.36	2,499.45	-13.89	-31.74	34.64	0.00	0.00	0.00
2,587.59	1.83	246.36	2,587.00	-15.01	-34.30	37.44	0.00	0.00	0.00
Yates									
2,600.00	1.83	246.36	2,599.40	-15.17	-34.66	37.84	0.00	0.00	0.00
2,700.00	1.83	246.36	2,699.35	-16.46	-37.59	41.03	0.00	0.00	0.00
2,800.00	1.83	246.36	2,799.30	-17.74	-40.52	44.23	0.00	0.00	0.00
2,842.72	1.83	246.36	2,842.00	-18.28	-41.77	45.59	0.00	0.00	0.00
Seven Rivers									
2,900.00	1.83	246.36	2,899.25	-19.02	-43.44	47.43	0.00	0.00	0.00
3,000.00	1.83	246.36	2,999.20	-20.30	-46.37	50.62	0.00	0.00	0.00
3,100.00	1.83	246.36	3,099.15	-21.58	-49.30	53.82	0.00	0.00	0.00
3,200.00	1.83	246.36	3,199.10	-22.86	-52.23	57.01	0.00	0.00	0.00
3,300.00	1.83	246.36	3,299.05	-24.14	-55.15	60.21	0.00	0.00	0.00
3,400.00	1.83	246.36	3,398.99	-25.42	-58.08	63.40	0.00	0.00	0.00
3,412.01	1.83	246.36	3,411.00	-25.58	-58.43	63.79	0.00	0.00	0.00
Queen									
3,500.00	1.83	246.36	3,498.94	-26.71	-61.01	66.60	0.00	0.00	0.00
3,600.00	1.83	246.36	3,598.89	-27.99	-63.93	69.79	0.00	0.00	0.00



MS Energy Services
Planning Report



Database:	Well Planning Conroe	Local Co-ordinate Reference:	Well 354
Company:	Apache	TVD Reference:	WELL @ 3466.00usft (Capstar 120)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	WELL @ 3466.00usft (Capstar 120)
Site:	NEDU	North Reference:	Grid
Well:	354	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)
3,700.00	1.83	246.36	3,698.84	-29.27	-66.86	72.99	0.00	0.00	0.00
3,746.18	1.83	246.36	3,745.00	-29.86	-68.21	74.46	0.00	0.00	0.00
Grayburg									
3,800.00	1.83	246.36	3,798.79	-30.55	-69.79	76.18	0.00	0.00	0.00
3,900.00	1.83	246.36	3,898.74	-31.83	-72.72	79.38	0.00	0.00	0.00
4,000.00	1.83	246.36	3,998.69	-33.11	-75.64	82.57	0.00	0.00	0.00
4,067.35	1.83	246.36	4,066.00	-33.98	-77.61	84.73	0.00	0.00	0.00
San Andres									
4,100.00	1.83	246.36	4,098.64	-34.39	-78.57	85.77	0.00	0.00	0.00
4,200.00	1.83	246.36	4,198.59	-35.68	-81.50	88.96	0.00	0.00	0.00
4,300.00	1.83	246.36	4,298.54	-36.96	-84.42	92.16	0.00	0.00	0.00
4,400.00	1.83	246.36	4,398.48	-38.24	-87.35	95.35	0.00	0.00	0.00
4,500.00	1.83	246.36	4,498.43	-39.52	-90.28	98.55	0.00	0.00	0.00
4,600.00	1.83	246.36	4,598.38	-40.80	-93.21	101.75	0.00	0.00	0.00
4,700.00	1.83	246.36	4,698.33	-42.08	-96.13	104.94	0.00	0.00	0.00
4,800.00	1.83	246.36	4,798.28	-43.36	-99.06	108.14	0.00	0.00	0.00
4,900.00	1.83	246.36	4,898.23	-44.64	-101.99	111.33	0.00	0.00	0.00
5,000.00	1.83	246.36	4,998.18	-45.93	-104.91	114.53	0.00	0.00	0.00
5,100.00	1.83	246.36	5,098.13	-47.21	-107.84	117.72	0.00	0.00	0.00
5,200.00	1.83	246.36	5,198.08	-48.49	-110.77	120.92	0.00	0.00	0.00
5,202.93	1.83	246.36	5,201.00	-48.53	-110.85	121.01	0.00	0.00	0.00
Glorieta									
5,271.96	1.83	246.36	5,270.00	-49.41	-112.87	123.22	0.00	0.00	0.00
Paddock									
5,300.00	1.83	246.36	5,298.02	-49.77	-113.70	124.11	0.00	0.00	0.00
5,400.00	1.83	246.36	5,397.97	-51.05	-116.62	127.31	0.00	0.00	0.00
5,500.00	1.83	246.36	5,497.92	-52.33	-119.55	130.50	0.00	0.00	0.00
5,600.00	1.83	246.36	5,597.87	-53.61	-122.48	133.70	0.00	0.00	0.00
5,613.14	1.83	246.36	5,611.00	-53.78	-122.86	134.12	0.00	0.00	0.00
Blinberry									
5,700.00	1.83	246.36	5,697.82	-54.90	-125.40	136.89	0.00	0.00	0.00
5,800.00	1.83	246.36	5,797.77	-56.18	-128.33	140.09	0.00	0.00	0.00
5,900.00	1.83	246.36	5,897.72	-57.46	-131.26	143.28	0.00	0.00	0.00
6,000.00	1.83	246.36	5,997.67	-58.74	-134.19	146.48	0.00	0.00	0.00
6,069.37	1.83	246.36	6,067.00	-59.63	-136.22	148.70	0.00	0.00	0.00
Tubb									
6,100.00	1.83	246.36	6,097.62	-60.02	-137.11	149.67	0.00	0.00	0.00
6,200.00	1.83	246.36	6,197.57	-61.30	-140.04	152.87	0.00	0.00	0.00
6,300.00	1.83	246.36	6,297.51	-62.58	-142.97	156.06	0.00	0.00	0.00
6,400.00	1.83	246.36	6,397.46	-63.86	-145.89	159.26	0.00	0.00	0.00
6,500.00	1.83	246.36	6,497.41	-65.15	-148.82	162.46	0.00	0.00	0.00
6,518.60	1.83	246.36	6,516.00	-65.38	-149.37	163.05	0.00	0.00	0.00
Drinkard									
6,600.00	1.83	246.36	6,597.36	-66.43	-151.75	165.65	0.00	0.00	0.00
6,700.00	1.83	246.36	6,697.31	-67.71	-154.68	168.85	0.00	0.00	0.00
6,800.00	1.83	246.36	6,797.26	-68.99	-157.60	172.04	0.00	0.00	0.00
6,814.75	1.83	246.36	6,812.00	-69.18	-158.03	172.51	0.00	0.00	0.00
Abo									
6,900.00	1.83	246.36	6,897.21	-70.27	-160.53	175.24	0.00	0.00	0.00
7,000.00	1.83	246.36	6,997.16	-71.55	-163.46	178.43	0.00	0.00	0.00
7,027.86	1.83	246.36	7,025.00	-71.91	-164.27	179.32	0.00	0.00	0.00
PBHL									



MS Energy Services
Planning Report



Database:	Well Planning Conroe	Local Co-ordinate Reference:	Well 354
Company:	Apache	TVD Reference:	WELL @ 3466.00usft (Capstar 120)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	WELL @ 3466.00usft (Capstar 120)
Site:	NEDU	North Reference:	Grid
Well:	354	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets									
Target-Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
PBHL v1 - NEDU 354	0.00	0.00	7,025.00	-71.91	-164.27	549,141.94	865,511.37	32° 30' 14.8132 N	103° 8' 51.892 W
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
1,296.00	1,296.00	Rustler		0.00		
1,346.00	1,346.00	T. Salt		0.00		
2,442.52	2,442.00	Tansil		0.00		
2,587.59	2,587.00	Yates		0.00		
2,842.72	2,842.00	Seven Rivers		0.00		
3,412.01	3,411.00	Queen		0.00		
3,746.18	3,745.00	Grayburg		0.00		
4,067.35	4,066.00	San Andres		0.00		
5,202.93	5,201.00	Glorieta		0.00		
5,271.96	5,270.00	Paddock		0.00		
5,613.14	5,611.00	Blaine		0.00		
6,069.37	6,067.00	Tubb		0.00		
6,518.60	6,516.00	Drinkard		0.00		
6,814.75	6,812.00	Abo		0.00		

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
1,370.00	1,370.00	0.00	0.00	KOP, 2.00"/100' Build
1,461.55	1,461.54	-0.59	-1.34	Begin 1.83° Tangent
7,027.86	7,025.00	-71.91	-164.27	PBHL



Company: Apache
Site: NEDU
Well: 354

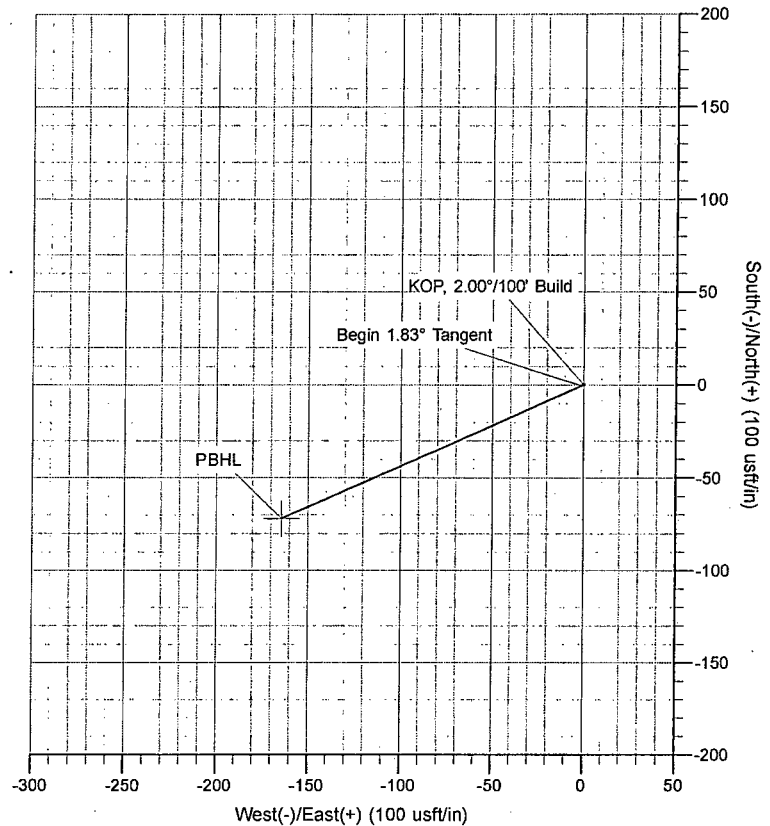
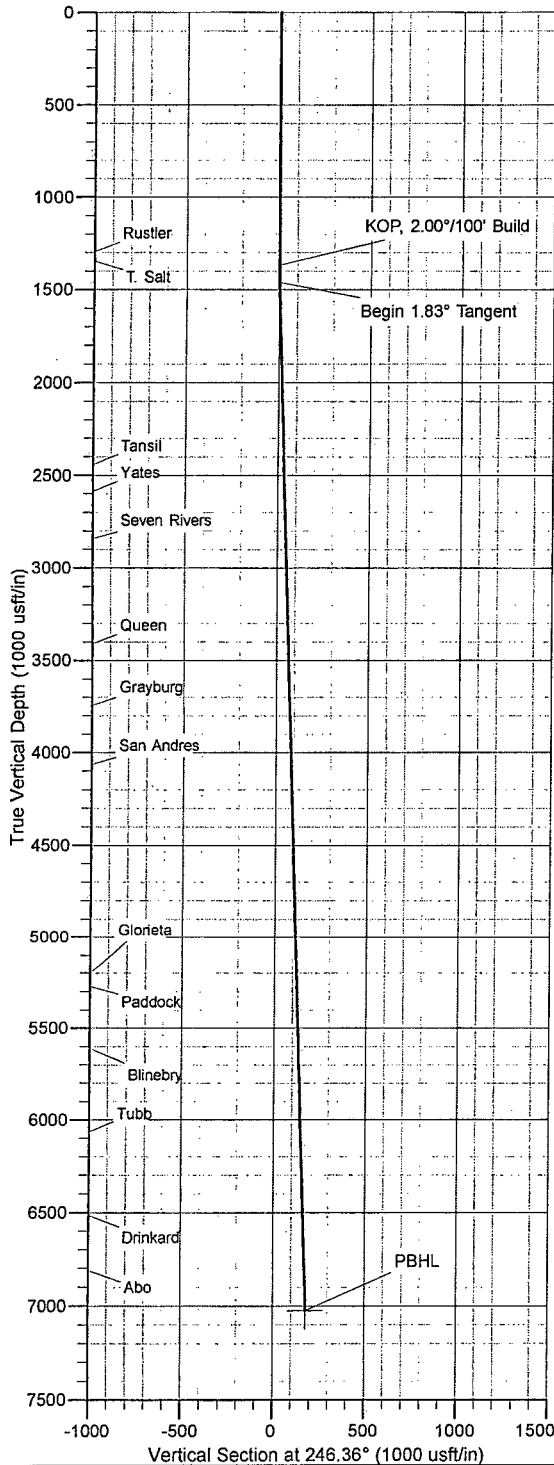
Project: Lea County, New Mexico (NAD 27)
Rig Name: Capstar 120



Planning: 936.442.2510 Fax: 936.442.2515
Operations: 936.442.2500 Fax: 936.442.2599

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	V/Sect	Departure	Annotation
1370.00	0.00	0.00	1370.00	0.00	0.00	0.00	0.00	KOP, 2.00°/100' Build
1461.55	1.83	246.36	1461.54	-0.59	-1.34	1.46	1.46	Begin 1.83° Tangent
7027.86	1.83	246.36	7025.00	-71.91	-164.27	179.32	179.32	PBHL



Azimuths to Grid North
True North: -0.64°
Magnetic North: 6.60°

Magnetic Field
Strength: 48669.0snT
Dip Angle: 60.47°
Date: 01/14/2013
Model: WMM_2010

US State Plane 1927 (Exact solution)
New Mexico East 3001

Created By: MEP
Date: 14:11, January 15 2013
Plan: Design #1

The customer should only rely on this document after independently verifying all paths, targets, coordinates, lease and hard lines represented. Any decisions made or wells drilled utilizing this or any other information supplied by MS Energy are at the sole risk and responsibility of the customer. MS Energy is not responsible for the accuracy of this schematic or the information contained herein.

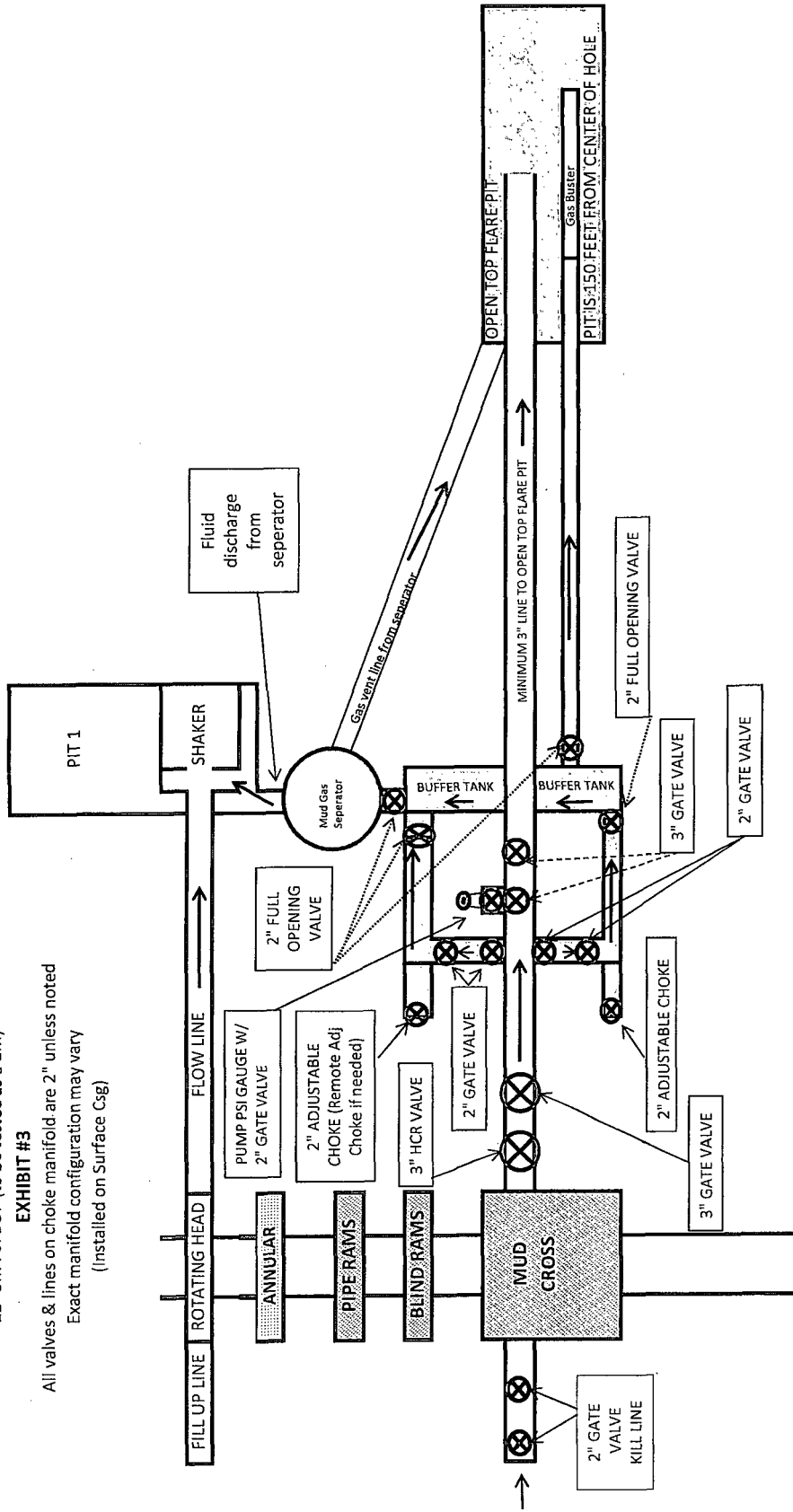
APACHE BOP AND CHOKE MANIFOLD SCHEMATIC

must test BOP to 3,000 psc

11" 3M PSI BOP (to be tested as a 21W)

EXHIBIT #3

All valves & lines on choke manifold are 2" unless noted
Exact manifold configuration may vary
(Installed on Surface Csg)



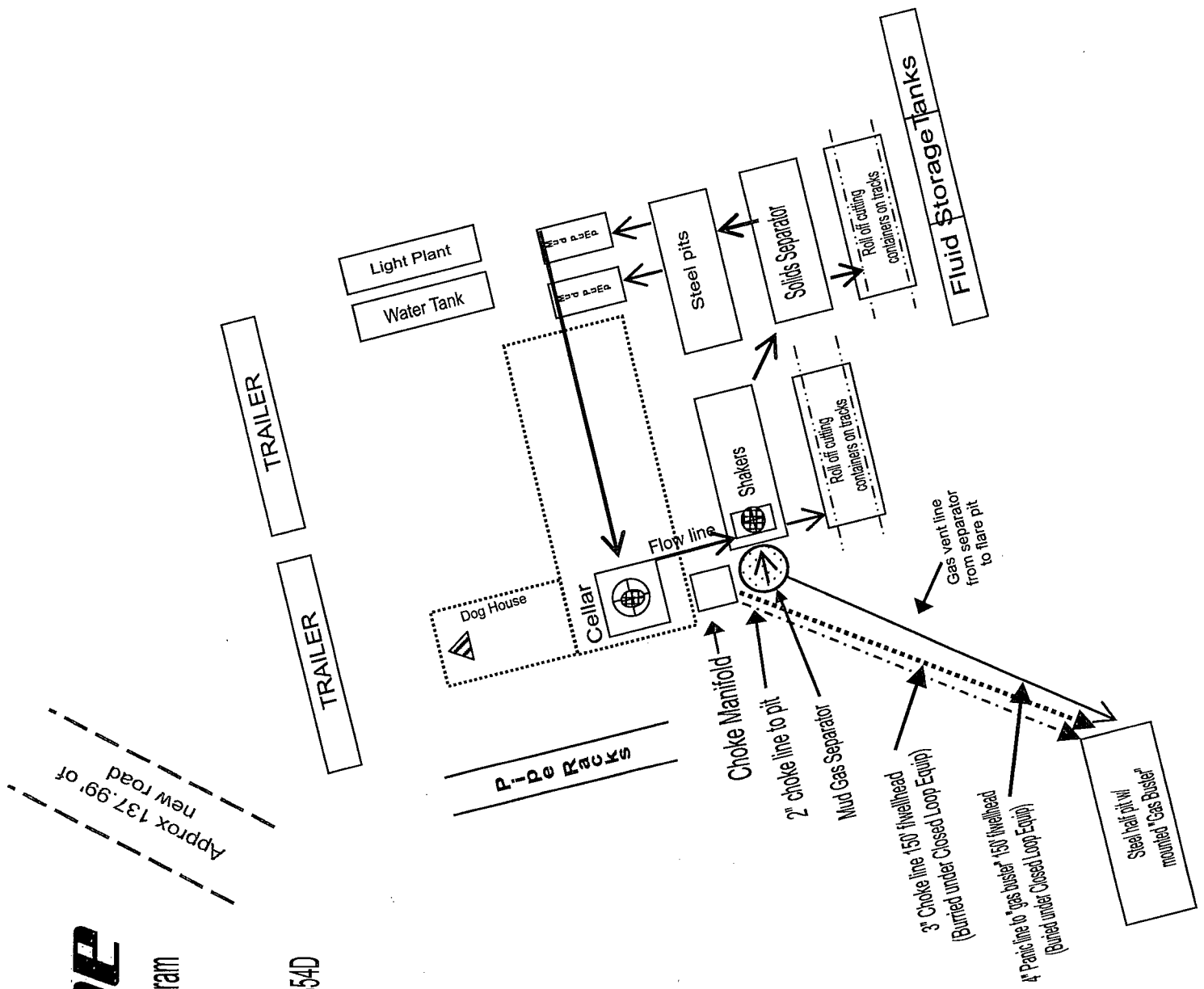
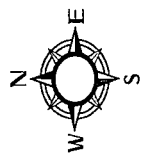
*** If H2S is encountered in quantities greater than 100ppm, Apache will shut in well & install a remote operated choke ***



Closed Loop Equipment Diagram

Exhibit 4

NORTHEAST DRINKARD UNIT 354D



**RIG ORIENTATION & LAYOUT
NORTHEAST DRINKARD UNIT #354D
EXHIBIT 5**

H2S Warning Sign
~ 200' but no
more than 500'
from well location

Approx 137.99' new road
to existing well pad

