

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMNM89051 NM LC-0648271

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

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

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other8. Well Name and No.
APACHE 24 FED 13H

2. Name of Operator

Contact: TRINA C COUCH

DEVON ENERGY PRODUCTION CO EMail: trina.couch@devn.com

9. API Well No.
30-015-42552-00-X1

3a. Address

333 WEST SHERIDAN AVE
OKLAHOMA CITY, OK 73102

3b. Phone No. (include area code)

Ph: 405-228-7203

10. Field and Pool, or Exploratory
LOS MEDANOS

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

Sec 24 T22S R30E SESE 970FSL 330FEL
32.370331 N Lat, 103.825596 W Lon

11. County or Parish, and State

EDDY COUNTY, NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

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

Devon Energy Production Corporation, L.P. respectfully requests to extend the BHL to Section 23
T22S R30E @ 660 FSL & 2310 FEL.

In doing so, Devon would also like to request the name of the well be changed to "Apache 24 Fed
Com 13H".

Devon also requests to change the target formation from a 3rd BSSS to a 2nd BSSS. This will involve
a new casing design which Devon no longer proposes to run a 2nd intermediate casing string. The new
casing design along with cement volumes are attached.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL****NM OIL CONSERVATION**
ARTESIA DISTRICT

DEC 30 2014

Accepted for record
NMOCDC 1/5/2015

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #278749 verified by the BLM Well Information System
For DEVON ENERGY PRODUCTION CO LP, sent to the Carlsbad
Committed to AFMSS for processing by JENNIFER MASON on 11/14/2014 (15JAM0079SE)

Name (Printed/Typed) TRINA C COUCH

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 11/12/2014

RECEIVED**APPROVED****THIS SPACE FOR FEDERAL OR STATE OFFICE USE DEC 19 2014**

Approved By

Title

Conditions of approval, if any, are attached. Approval of this notice does not warrant or
certify that the applicant holds legal or equitable title to those rights in the subject lease
which would entitle the applicant to conduct operations thereon.

Office

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United
States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Additional data for EC transaction #278749 that would not fit on the form

32. Additional remarks, continued

Please see attached:
Revised Drilling Plan
Revised Directional Survey
Revised C-102

Thank you

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 07 2015

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

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

RECEIVED

☐ AMENDED REPORT

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
311 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number		2 Pool Code:		3 Pool Name	
		40295		Los Medarios; Bone Spring	
4 Property Code		5 Property Name			6 Well Number
		APACHE 24-23 FED COM			13H
7 OGRID No.		8 Operator Name			9 Elevation
6137		DEVON ENERGY PRODUCTION COMPANY, L.P.			3408.9
10 Surface Location					
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the
P	24	22 S	30 E		970
					North/South line
					SOUTH
					Feet from the
					330
					East/West line
					EAST
					County
					EDDY
11 Bottom Hole Location If Different From Surface					
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the
O	23	22 S	30 E		660
					North/South line
					SOUTH
					Feet from the
					2310
					East/West line
					EAST
					County
					EDDY
12 Dedicated Acres		13 Joint or Infill		14 Consolidation Code	
240 ac					
				15 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.

		17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature: <i>Trina C. Couch</i> Date: <i>1/7/15</i> Printed Name: Trina C. Couch, Regulatory Analyst E-mail Address: trina.couch@dm.com
18 SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. OCTOBER 2014 Date of Survey: (12797) Signature and Seal of Professional Surveyor: <i>[Signature]</i> Certificate Number: FILLION F. JARAMILLO, PLS 12797 SURVEY NO. 2400C		

NM OIL CONSERVATION

ARTESIA DISTRICT

DISTRICT I

1825 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

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Frances Dr.
Santa Fe, NM 87505

JAN 07 2015

RECEIVED

Form C-102

Revised October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
Property Code	Property Name HIGH CALLING, 1821-15 STATE	Well Number 1
OGRID No.	Operator Name PARALLEL PETROLEUM LLC	Elevation 4254'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	15	18-S	21-E		1199	SOUTH	337	WEST	EDDY

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

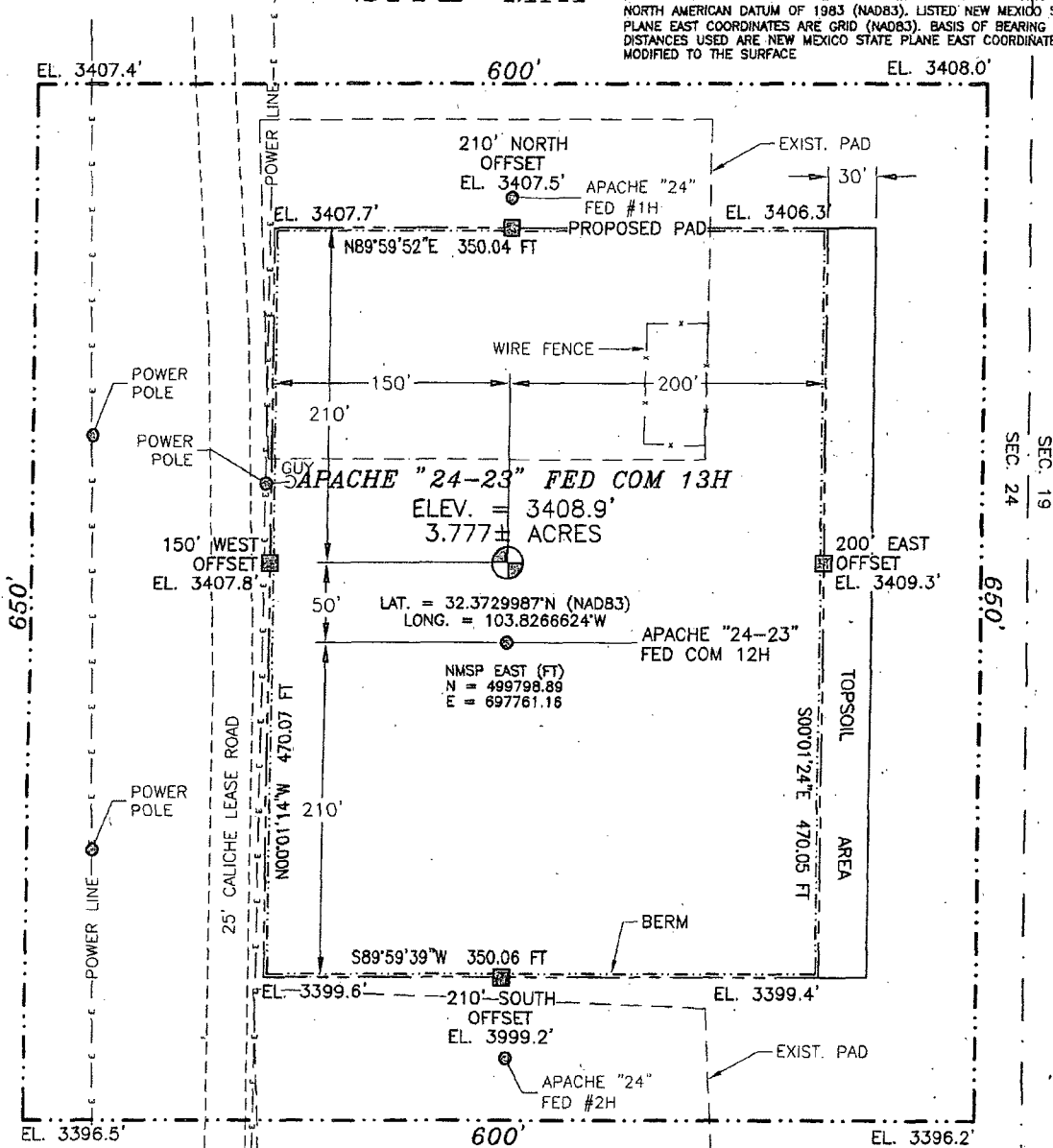
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION.

Plane Coordinate X = 359,763.0 Y = 634,570.3 #1 337' 1199' Geodetic Coordinate (NAD '27) Latitude - 32°44'37.31" N Longitude - 104°47'21.97" W	OPERATOR CERTIFICATION I hereby certify 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 approved by the division. <i>Richard Petersen</i> 1/7/2015 Signature Date Richard Petersen Printed Name	
	SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief. December 30, 2014 Date of Survey Signature & Seal of Professional Surveyor BTW W.O. Num 2014-1522 Certificate No. Macon McDonald 12185	
	NOTE: 1) Plane Coordinates shown hereon are Transverse Mercator Grid and Conform to the "New Mexico Coordinate System", New Mexico East Zone, North American Datum of 1927. Distances shown hereon are mean horizontal surface values.	

SECTION 24, TOWNSHIP 22 SOUTH, RANGE 30 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



010 50 100 200
SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF US 82-180 AND LOUIS WHITLOCK ROAD
GO SOUTH ON LOUIS WHITLOCK ROAD 11.6 MILES, TURN RIGHT ON
CALICHE LEASE ROAD GO WEST 1.8 MILES, TURN LEFT ON CALICHE
LEASE ROAD GO SOUTH 0.35 MILES. SITE IS ABOUT 150' ON LEFT.

DEVON ENERGY PRODUCTION COMPANY, L.P.
APACHE "24-23" FED COM 13H
LOCATED 970 FT. FROM THE SOUTH LINE
AND 330 FT. FROM THE EAST LINE OF
SECTION 24, TOWNSHIP 22 SOUTH,
RANGE 30 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 8, 2014

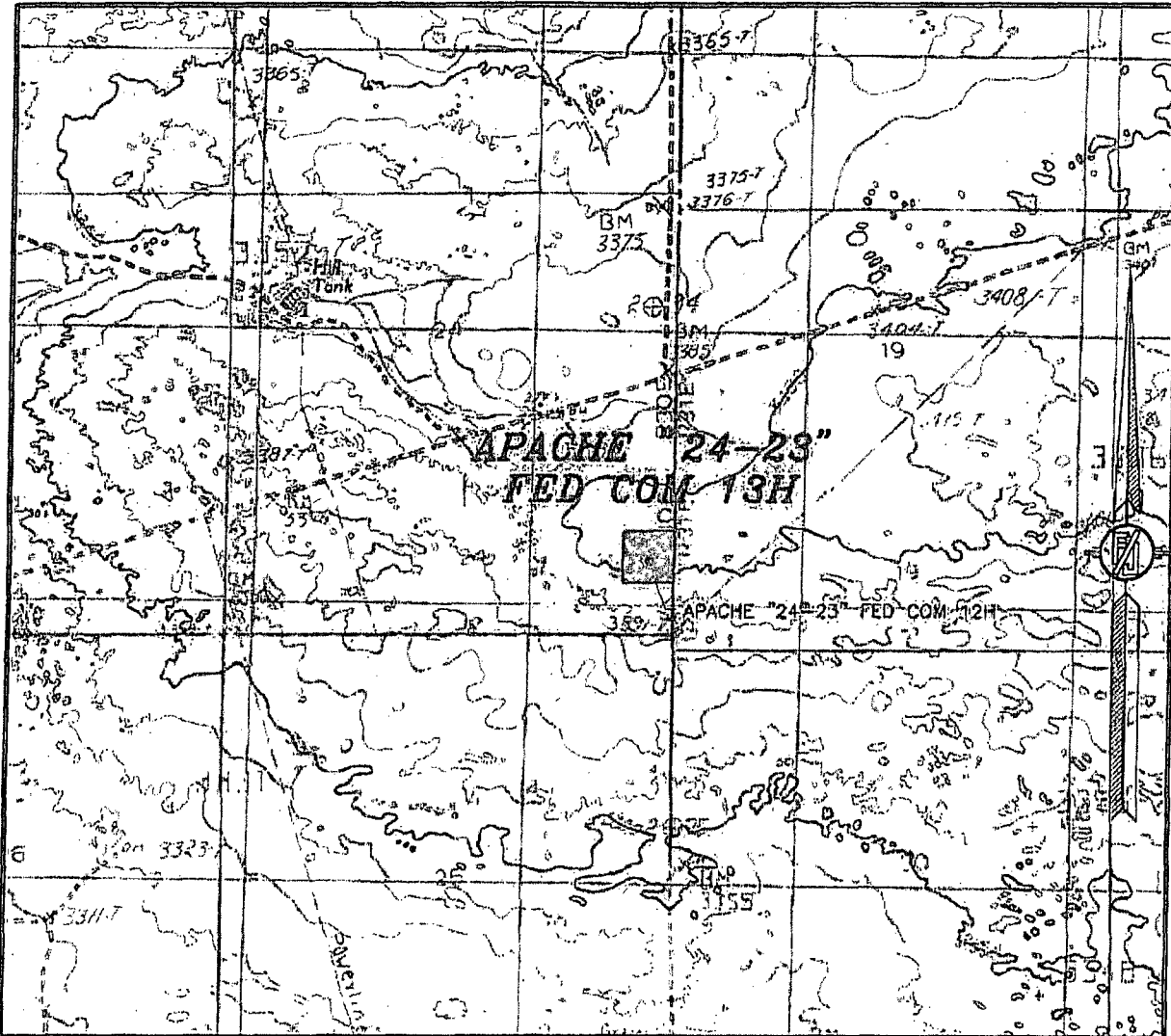
SURVEY NO. 2400C

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

SECTION 24, TOWNSHIP 22 SOUTH, RANGE 30 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
LIVINGSTON RIDGE

NOT TO SCALE

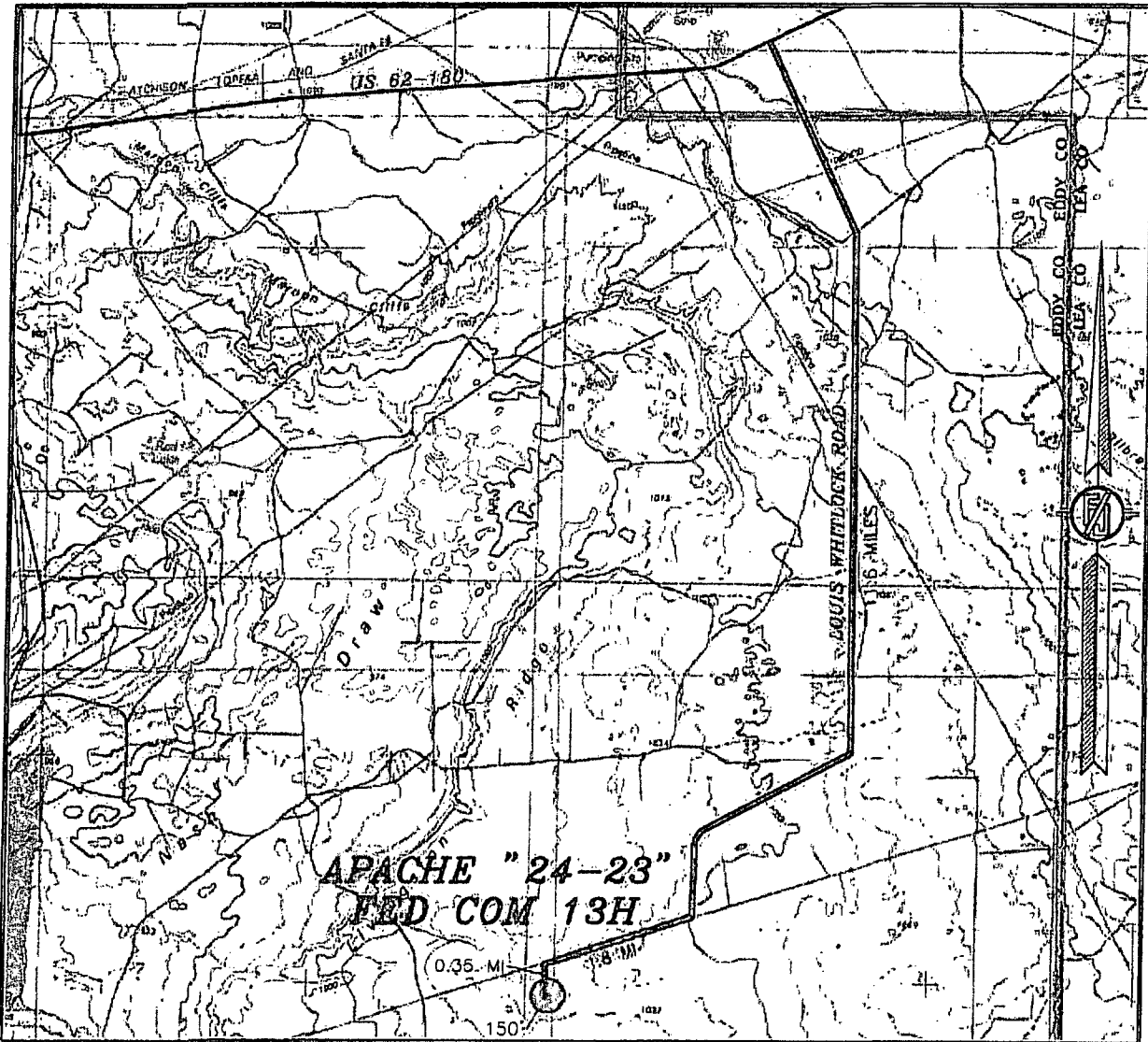
DEVON ENERGY PRODUCTION COMPANY, L.P.
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SECTION 24, TOWNSHIP 22 SOUTH,
RANGE 30 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 8, 2014

SURVEY NO. 2400C

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 24, TOWNSHIP 22 SOUTH, RANGE 30 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

APACHE "24-23" FED COM 13H

LOCATED 970 FT. FROM THE SOUTH LINE

AND 330 FT. FROM THE EAST LINE OF

SECTION 24, TOWNSHIP 22 SOUTH,

RANGE 30 EAST, N.M.P.M.

EDDY COUNTY, STATE OF NEW MEXICO

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF US 62-180 AND LOUIS WHITLOCK ROAD
GO SOUTH ON LOUIS WHITLOCK ROAD 11.6 MILES, TURN RIGHT ON
CALICHE LEASE ROAD GO WEST 1.8 MILES, TURN LEFT ON CALICHE
LEASE ROAD GO SOUTH 0.35 MILES. SITE IS ABOUT 150' ON LEFT.

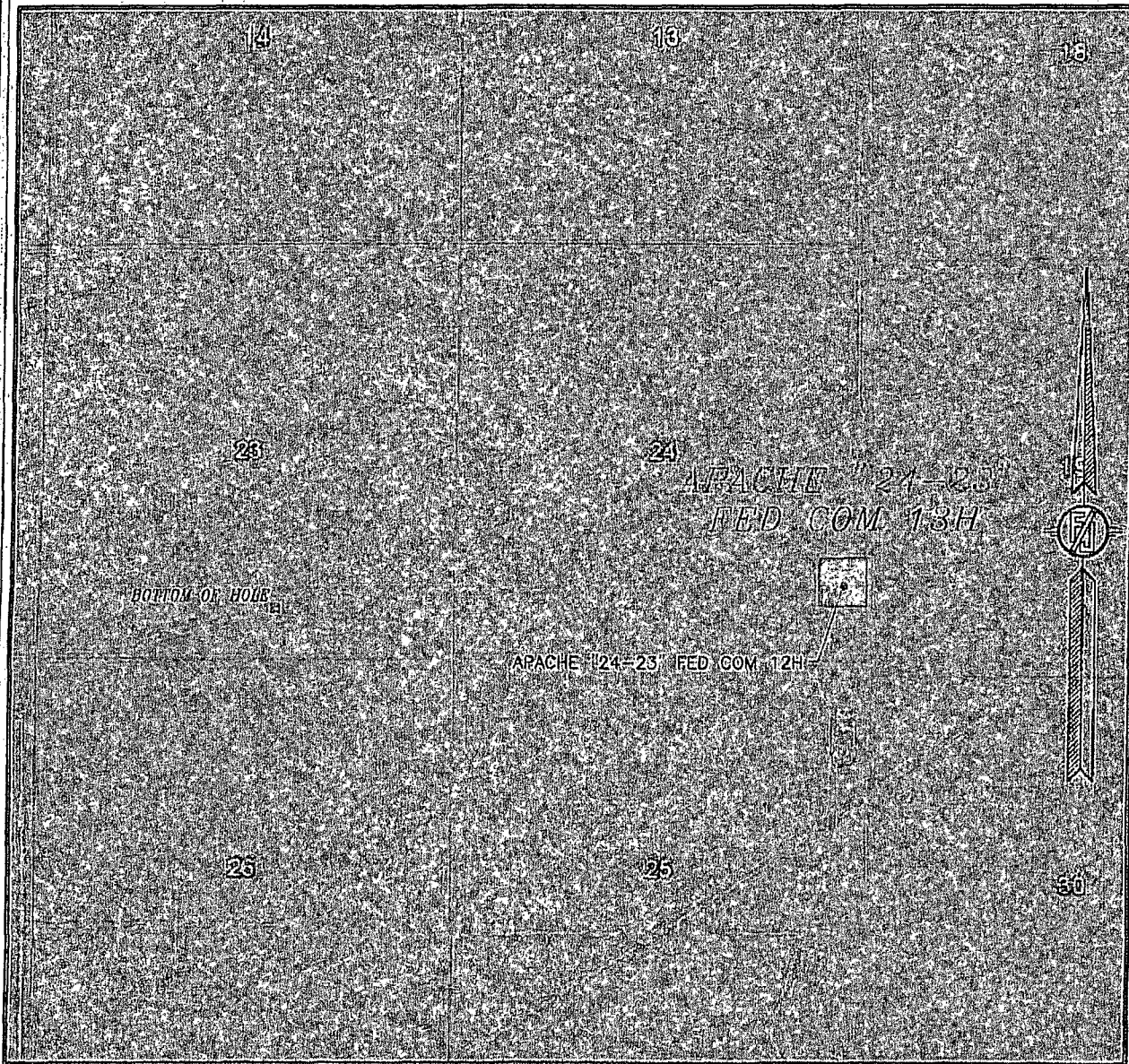
OCTOBER 8, 2014

SURVEY NO. 2400C

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341

CARLSBAD, NEW MEXICO

SECTION 24, TOWNSHIP 22 SOUTH, RANGE 30 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
FEBRUARY 2014

DEVON ENERGY PRODUCTION COMPANY, L.P.

APACHE "24-23" FED COM 13H

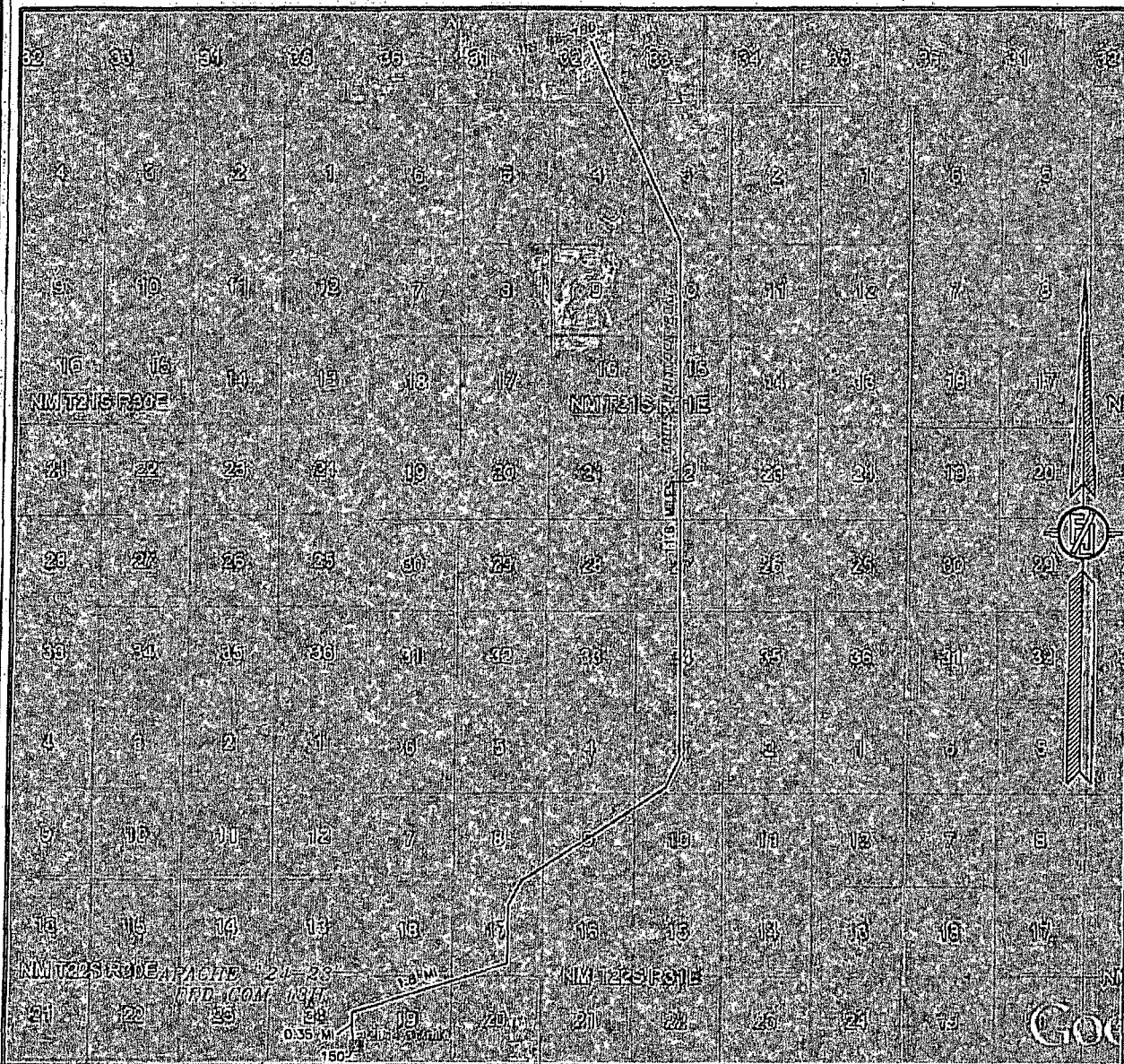
LOCATED 970 FT. FROM THE SOUTH LINE
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SECTION 24, TOWNSHIP 22 SOUTH,
RANGE 30 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 8, 2014

SURVEY NO. 2400C

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 24, TOWNSHIP 22 SOUTH, RANGE 30 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
ACCESS AERIAL ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
FEBRUARY 2014

DEVON ENERGY PRODUCTION COMPANY, L.P.

APACHE "24-23" FED COM 13H

LOCATED 970 FT. FROM THE SOUTH LINE
AND 330 FT. FROM THE EAST LINE OF
SECTION 24, TOWNSHIP 22 SOUTH,
RANGE 30 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 8, 2014

SURVEY NO. 2400C

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

DRILLING PROGRAM

Devon Energy Production Company, L.P.
Apache 24-23 Fed Com 13H

1. **Geologic Name of Surface Formation:** Quaternary

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

a. Fresh Water	200'	Fresh Water
b. Rustler	493'	Barren
c. Salado	784'	Barren
d. B/ Salt	3654'	Barren
e. Delaware	3912'	Oil/Gas
f. Bell Canyon	3956'	Oil/Gas
g. Cherry Canyon	4912'	Oil/Gas
h. Brushy Canyon	6108'	Oil/Gas
i. Bone Spring	7803'	Oil/gas
j. First Bone Spring	8850'	Oil/Gas
k. Second Bone Spring	9588'	Oil/Gas
l. Third Bone Spring	10,596'	Oil/Gas
Total Depth	9861' TVD	16964' MD

3. **Pressure Control Equipment:**

*Per Inha Couch
9 5M
2/26/2011
be wad*
5M
A 3M 13-5/8" BOP system (Double Ram and Annular preventer) will be installed and tested prior to drilling out the surface casing shoe. The BOP system used to drill the intermediate hole will be tested per BLM Onshore Oil and Gas Order 2.

5M
A 3M 13-5/8" BOP system (Double Ram and Annular preventer) will be installed and tested prior to drilling out the intermediate casing shoe. The BOP system used to drill the production hole will be tested per BLM Onshore Oil and Gas Order 2.

The pipe rams 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 annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.

5,000
Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line); **if an H&P rig drills this well. Otherwise no flex line is needed.** The line will be kept as straight as possible with minimal turns.

Auxiliary Well Control and Monitoring Equipment:

- a. A Kelly cock will be in the drill string at all times.
- b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.

4. Casing Program:

Hole Size	Hole Interval	Casing OD	Casing Interval	Weight (lb/ft)	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17-1/2"	0-580'	13-3/8"	0-580'	48	ST&C	H-40	2.91	6.54	21.27
12-1/4"	530 - 3850'	9-5/8"	0 - 3850'	40	BTC	J-55	1.26	1.93	3.38
8-3/4"	3850 -16964'	5.5"	0-16964'	17	DWC BTC	P-110	1.21	1.94	2.81

Casing Notes:

- All casing is new and API approved

Maximum Lateral TVD: 9,861'

5. Proposed mud Circulations System:

Depth	Mud Weight	Viscosity	Fluid Loss	Type System
0-580'	8.3-9.6	30-34	N/C	FW
580-3850'	10-10.2	28-32	N/C	Brine
3850-16964'	8.4-9.2	28-32	N/C	FW

The necessary mud products for weight addition and fluid loss control will be on location at all times. Visual mud monitoring equipment will be in place to detect volume changes indicating loss or gain of circulating fluid volume. If abnormal pressures are encountered, electronic/mechanical mud monitoring equipment will be installed.

6. Cementing Table:

String	Number of sx	Weight lbs/gal	Water Volume g/sx	Yield cf/sx	Stage; Lead/Tail	Slurry Description
13-3/8" Surface	640	14.8	6.32	1.33	Tail	Class C Cement + 63.5% Fresh Water
9-5/8" Intermediate #1	800	12.9	9.81	1.85	Lead	(65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake + 70.9 % Fresh Water
	430	14.8	6.32	1.33	Tail	Class C Cement + 63.5% Fresh Water
9-5/8" Intermediate #1 Two Stage Option	470	12.9	9.81	1.85	Lead	(65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake + 70.9 % Fresh Water
	140	14.8	6.32	1.33	Tail	Class C Cement + 63.5% Fresh Water
	DV Tool at 630ft					
	180	14.8	6.32	1.33	Tail	Class C Cement + 63.5% Fresh Water
	780	12.5	10.86	1.96	Lead	1 st Stage Lead: (65:35) Class H Cement: Poz (Fly Ash) + 6% BWOC Bentonite + 0.25% BWOC HR-601 + 0.125 lbs/sack Poly-E-Flake + 74.1% Fresh Water
5-1/2" Production Casing	2020	14.5	5.32	1.21	Tail	1 st Stage Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.25% bwoc CFR-3 + 0.2% bwoc HR-601 + 2% bwoc Bentonite + 58.8% Fresh Water
	DV Tool at 4500ft					
	400	11.0	14.94	2.66	Lead	Tuned Light Blend + 0.125 lb/sk Pol-E-Flake + 76.3% Fresh Water
	120	14.8	6.32	1.33	Tail	Class C Cement + 63.5% Fresh Water

TOC for all Strings:

13-3/8" Surface 0ft

9-5/8" Intermediate 0ft

9-5/8" Two Stage Option Stage #1 = 630ft
Stage #2 = 0ft

5-1/2" Production Casing Stage #1 = 4500ft
Stage #2 = 0ft

Notes:

- Cement volumes Surface 100%, Intermediate #1 75% and Production Casing based on at least 25% excess
- Actual cement volumes will be adjusted based on fluid caliper and caliper log data

- If lost circulation is encountered while drilling the production and/or the intermediate wellbores, a DV tool will be installed a minimum of 50' below the previous casing shoe and a minimum of 200' above the current shoe. If the DV tool has to be moved, the cement volumes will be adjusted proportionately.

Logging, Coring, and Testing Program:

- Drill stem tests will be based on geological sample shows.
- 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.
- No logs are planned
- No coring program is planned
- 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, and drill stem tests.

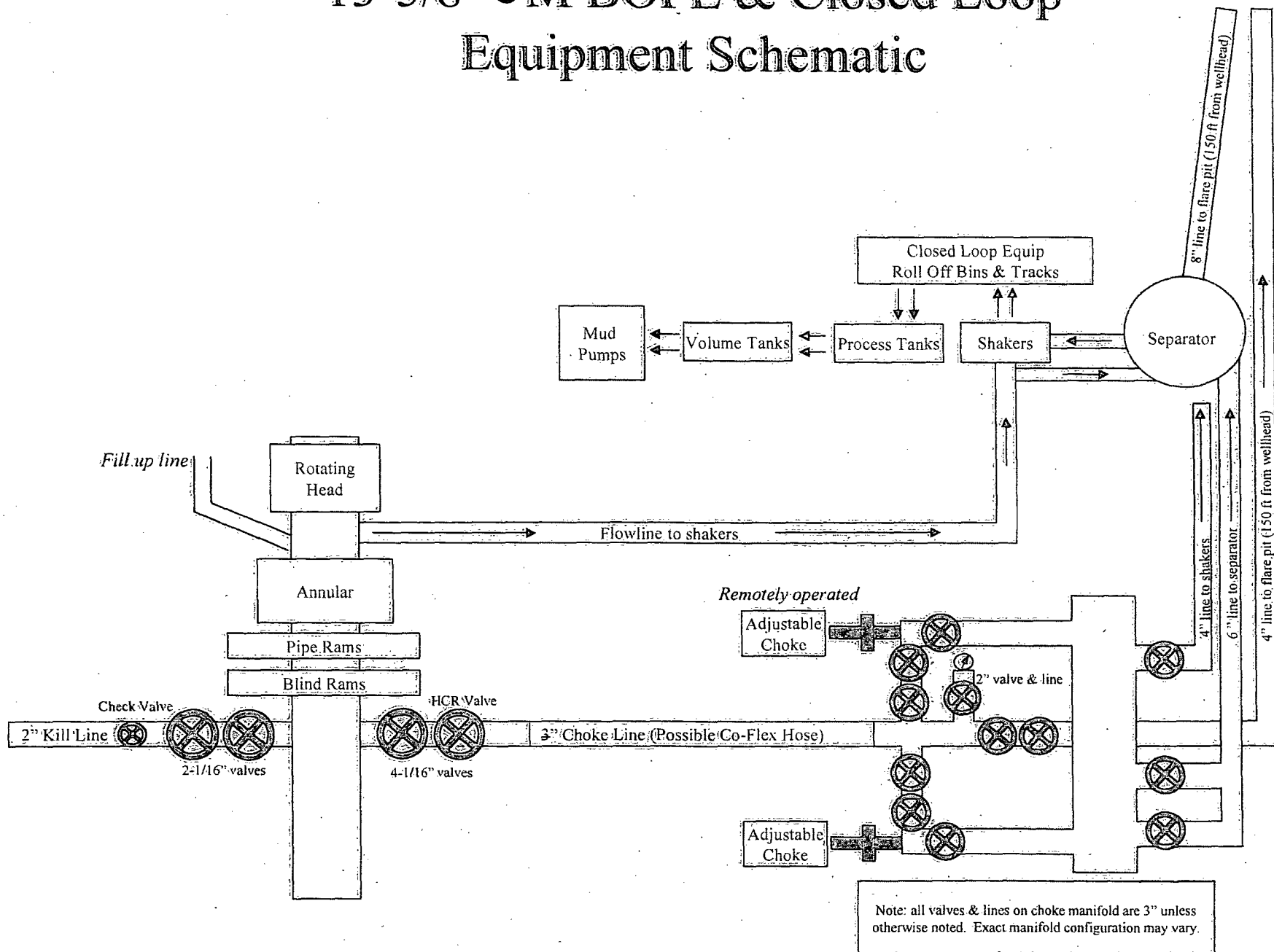
7. Potential Hazards:

- No abnormal pressures or temperatures are expected. There is no known presence of H₂S in this area, and none is anticipated to be encountered. If H₂S 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 being used to drill this well. Estimated BHP: 4437 psi, and estimated BHT: 158 degrees.
- 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. Anticipated Starting Date and Duration of Operations:

- 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.

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



DEVON ENERGY

Project: Eddy County, NM (NAD-83)
 Site: Apache 24-23 Fed Com
 Well: 13H
 Wellbore: OH
 Design: Plan #1



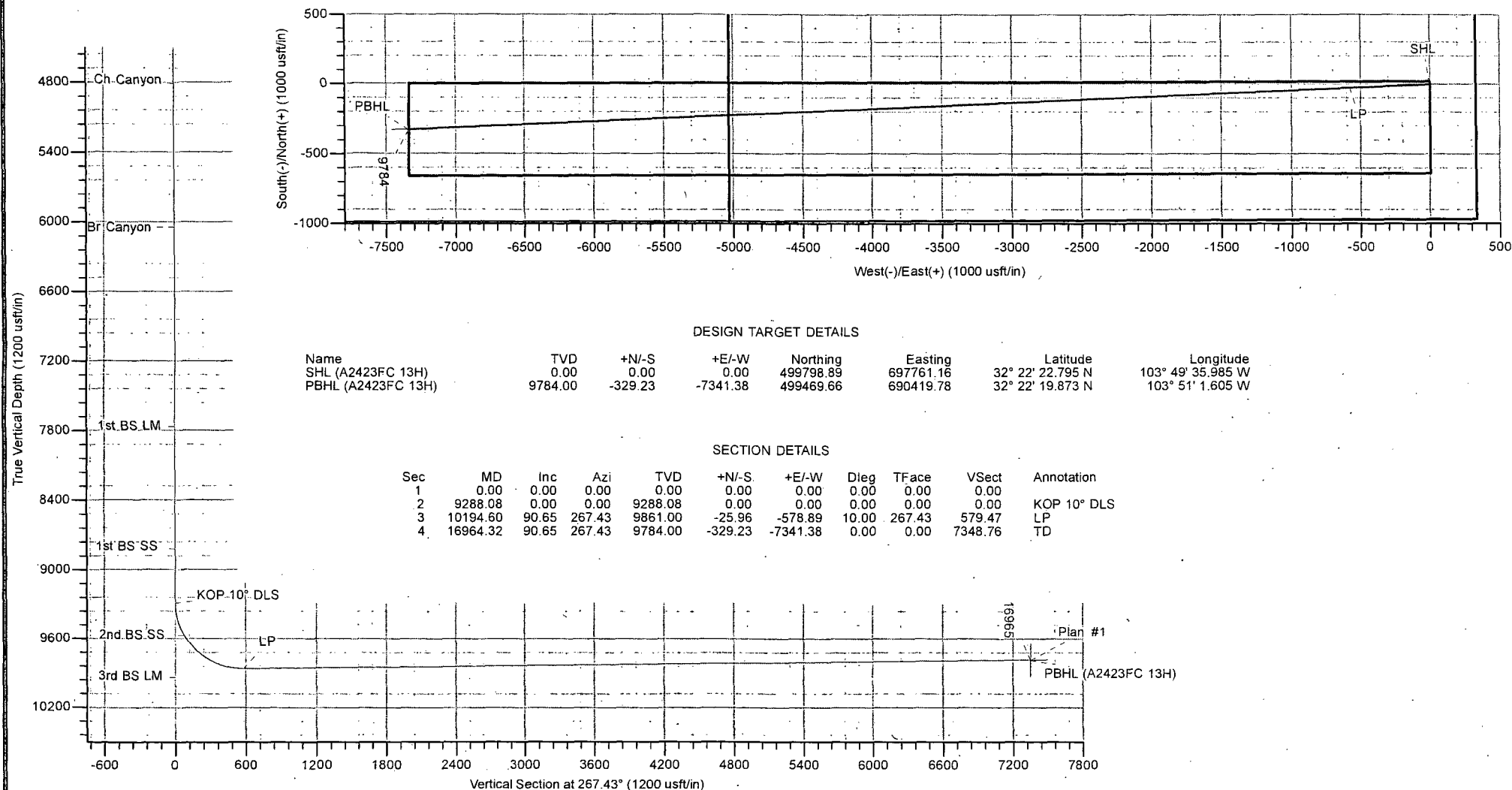
Azimuths to Grid North
 True North: -0.27°
 Magnetic North: 7.23°
 Magnetic Field
 Strength: 48391.2snT
 Dip Angle: 60.20°
 Date: 2/11/2014
 Model: BGGM2013

PROJECT DETAILS: Eddy County, NM (NAD-83)

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

devon



LEAM DRILLING SYSTEMS LLC
 2010 East Davis, Conroe, Texas 77301
 Phone: 936/756-7577, Fax 936/756-7595

Plan: Plan #1 (13H/OH)
 Apache 24-23 Fed Com
 Created By: Brady Deaver
 Date: 11/25, October 24 2014
 Approved: _____
 Date: _____

DEVON ENERGY

Eddy County, NM (NAD-83)

Apache 24-23 Fed Com

13H

OH

Plan: Plan #1

Standard Planning Report

24 October, 2014

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 13H
Company:	DEVON ENERGY	TVD Reference:	GE 3407' + KB 25" @ 3432.00usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	GE 3407' + KB 25" @ 3432.00usft
Site:	Apache 24-23 Fed Com	North Reference:	Grid
Well:	13H	Survey/Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project:	Eddy County, NM (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:	Apache 24-23 Fed Com		
Site Position:	Map	Northing:	499,748.90 usft
From:		Easting:	697,761.35 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 22' 22.301 N
		Longitude:	103° 49' 35.985 W
		Grid Convergence:	0.27 °

Well:	13H		
Well Position	+N/-S	49.99 usft	Northing:
	+E/-W	-0.19 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 22' 22.795 N
		Longitude:	103° 49' 35.985 W
		Ground Level:	3,407.00 usft

Wellbore:	OH		
Magnetics:	Model Name	Sample Date	Declination
	BGGM2013	2/11/2014	7.50
			Dip Angle
			60.20
			Field Strength
			48,391

Design:	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			267.43

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9,288.08	0.00	0.00	9,288.08	0.00	0.00	0.00	0.00	0.00	0.00	
10,194.60	90.65	267.43	9,861.00	-25.96	-578.89	10.00	10.00	-10.21	267.43	
16,964.32	90.65	267.43	9,784.00	-329.23	-7,341.38	0.00	0.00	0.00	0.00	PBHL (A2423FC 13H)

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 13H
Company:	DEVON ENERGY	TVD Reference:	GE 3407' + KB 25" @ 3432.00usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	GE 3407' + KB 25" @ 3432.00usft
Site:	Apache 24-23 Fed Com	North Reference:	Grid
Well:	13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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
SHL (A2423FC 13H)									
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
Rustler									
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
976.00	0.00	0.00	976.00	0.00	0.00	0.00	0.00	0.00	0.00
Top Salt									
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
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,608.00	0.00	0.00	2,608.00	0.00	0.00	0.00	0.00	0.00	0.00
Base Salt									
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,907.00	0.00	0.00	3,907.00	0.00	0.00	0.00	0.00	0.00	0.00
Lamar									
3,954.00	0.00	0.00	3,954.00	0.00	0.00	0.00	0.00	0.00	0.00
Bell Canyon									
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 13H
Company:	DEVON ENERGY	TVD Reference:	GE 3407' + KB 25' @ 3432.00usft.
Project:	Eddy County, NM (NAD-83)	MD Reference:	GE 3407' + KB 25' @ 3432.00usft.
Site:	Apache 24-23 Fed-Com	North Reference:	Grid
Well:	13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)	
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,810.00	0.00	0.00	4,810.00	0.00	0.00	0.00	0.00	0.00	0.00	
Cherry Canyon										
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,042.00	0.00	0.00	6,042.00	0.00	0.00	0.00	0.00	0.00	0.00	
Brushy Canyon										
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,767.00	0.00	0.00	7,767.00	0.00	0.00	0.00	0.00	0.00	0.00	
1st BS LM										
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,822.00	0.00	0.00	8,822.00	0.00	0.00	0.00	0.00	0.00	0.00	

LEAM Drilling Systems LLC

Planning Report

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Company:	DEVON ENERGY	TVD Reference:	GE 3407' + KB 25" @ 3432.00usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	GE 3407' + KB 25" @ 3432.00usft
Site:	Apache 24-23 Fed Com	North Reference:	Grid
Well:	13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)
1st BS SS									
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00
9,288.08	0.00	0.00	9,288.08	0.00	0.00	0.00	0.00	0.00	0.00
KOP 10" DLS									
9,300.00	1.19	267.43	9,300.00	-0.01	-0.12	0.12	10.00	10.00	0.00
9,350.00	6.19	267.43	9,349.88	-0.15	-3.34	3.34	10.00	10.00	0.00
9,400.00	11.19	267.43	9,399.29	-0.49	-10.89	10.90	10.00	10.00	0.00
9,450.00	16.19	267.43	9,447.85	-1.02	-22.70	22.73	10.00	10.00	0.00
9,500.00	21.19	267.43	9,495.20	-1.74	-38.71	38.75	10.00	10.00	0.00
9,550.00	26.19	267.43	9,540.97	-2.64	-58.77	58.83	10.00	10.00	0.00
9,580.54	29.25	267.43	9,568.00	-3.27	-72.96	73.03	10.00	10.00	0.00
2nd BS SS									
9,600.00	31.19	267.43	9,584.82	-3.71	-82.75	82.83	10.00	10.00	0.00
9,650.00	36.19	267.43	9,626.41	-4.95	-110.45	110.56	10.00	10.00	0.00
9,700.00	41.19	267.43	9,665.42	-6.35	-141.66	141.80	10.00	10.00	0.00
9,750.00	46.19	267.43	9,701.56	-7.90	-176.15	176.33	10.00	10.00	0.00
9,800.00	51.19	267.43	9,734.56	-9.58	-213.66	213.88	10.00	10.00	0.00
9,850.00	56.19	267.43	9,764.15	-11.39	-253.90	254.16	10.00	10.00	0.00
9,900.00	61.19	267.43	9,790.13	-13.30	-296.57	296.86	10.00	10.00	0.00
9,950.00	66.19	267.43	9,812.28	-15.31	-341.33	341.67	10.00	10.00	0.00
10,000.00	71.19	267.43	9,830.44	-17.39	-387.85	388.24	10.00	10.00	0.00
10,050.00	76.19	267.43	9,844.48	-19.54	-435.77	436.21	10.00	10.00	0.00
10,100.00	81.19	267.43	9,854.28	-21.74	-484.74	485.22	10.00	10.00	0.00
10,150.00	86.19	267.43	9,859.77	-23.96	-534.37	534.91	10.00	10.00	0.00
10,194.60	90.65	267.43	9,861.00	-25.96	-578.89	579.47	10.00	10.00	0.00
LP									
10,200.00	90.65	267.43	9,860.94	-26.20	-584.29	584.88	0.00	0.00	0.00
10,300.00	90.65	267.43	9,859.80	-30.68	-684.18	684.87	0.00	0.00	0.00
10,400.00	90.65	267.43	9,858.66	-35.16	-784.08	784.86	0.00	0.00	0.00
10,500.00	90.65	267.43	9,857.53	-39.64	-883.97	884.86	0.00	0.00	0.00
10,600.00	90.65	267.43	9,856.39	-44.12	-983.86	984.85	0.00	0.00	0.00
10,700.00	90.65	267.43	9,855.25	-48.60	-1,083.76	1,084.84	0.00	0.00	0.00
10,800.00	90.65	267.43	9,854.11	-53.08	-1,183.65	1,184.84	0.00	0.00	0.00
10,900.00	90.65	267.43	9,852.98	-57.56	-1,283.54	1,284.83	0.00	0.00	0.00
11,000.00	90.65	267.43	9,851.84	-62.04	-1,383.44	1,384.83	0.00	0.00	0.00
11,100.00	90.65	267.43	9,850.70	-66.52	-1,483.33	1,484.82	0.00	0.00	0.00
11,200.00	90.65	267.43	9,849.57	-71.00	-1,583.22	1,584.81	0.00	0.00	0.00
11,300.00	90.65	267.43	9,848.43	-75.48	-1,683.11	1,684.81	0.00	0.00	0.00
11,400.00	90.65	267.43	9,847.29	-79.96	-1,783.01	1,784.80	0.00	0.00	0.00
11,500.00	90.65	267.43	9,846.15	-84.44	-1,882.90	1,884.79	0.00	0.00	0.00
11,600.00	90.65	267.43	9,845.02	-88.92	-1,982.79	1,984.79	0.00	0.00	0.00
11,700.00	90.65	267.43	9,843.88	-93.40	-2,082.69	2,084.78	0.00	0.00	0.00
11,800.00	90.65	267.43	9,842.74	-97.88	-2,182.58	2,184.77	0.00	0.00	0.00
11,900.00	90.65	267.43	9,841.60	-102.36	-2,282.47	2,284.77	0.00	0.00	0.00
12,000.00	90.65	267.43	9,840.47	-106.84	-2,382.37	2,384.76	0.00	0.00	0.00
12,100.00	90.65	267.43	9,839.33	-111.32	-2,482.26	2,484.75	0.00	0.00	0.00
12,200.00	90.65	267.43	9,838.19	-115.80	-2,582.15	2,584.75	0.00	0.00	0.00
12,300.00	90.65	267.43	9,837.05	-120.28	-2,682.05	2,684.74	0.00	0.00	0.00
12,400.00	90.65	267.43	9,835.92	-124.76	-2,781.94	2,784.74	0.00	0.00	0.00
12,500.00	90.65	267.43	9,834.78	-129.24	-2,881.83	2,884.73	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 13H
Company:	DEVON ENERGY	TVD Reference:	GE 3407' + KB 25" @ 3432.00usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	GE 3407' + KB 25" @ 3432.00usft
Site:	Apache 24-23 Fed Com	North Reference:	Grid
Well:	13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)
12,600.00	90.65	267.43	9,833.64	-133.72	-2,981.73	2,984.72	0.00	0.00	0.00
12,700.00	90.65	267.43	9,832.50	-138.20	-3,081.62	3,084.72	0.00	0.00	0.00
12,800.00	90.65	267.43	9,831.37	-142.68	-3,181.51	3,184.71	0.00	0.00	0.00
12,900.00	90.65	267.43	9,830.23	-147.16	-3,281.40	3,284.70	0.00	0.00	0.00
13,000.00	90.65	267.43	9,829.09	-151.64	-3,381.30	3,384.70	0.00	0.00	0.00
13,100.00	90.65	267.43	9,827.95	-156.12	-3,481.19	3,484.69	0.00	0.00	0.00
13,200.00	90.65	267.43	9,826.82	-160.60	-3,581.08	3,584.68	0.00	0.00	0.00
13,300.00	90.65	267.43	9,825.68	-165.08	-3,680.98	3,684.68	0.00	0.00	0.00
13,400.00	90.65	267.43	9,824.54	-169.56	-3,780.87	3,784.67	0.00	0.00	0.00
13,500.00	90.65	267.43	9,823.40	-174.04	-3,880.76	3,884.66	0.00	0.00	0.00
13,600.00	90.65	267.43	9,822.27	-178.52	-3,980.66	3,984.66	0.00	0.00	0.00
13,700.00	90.65	267.43	9,821.13	-183.00	-4,080.55	4,084.65	0.00	0.00	0.00
13,800.00	90.65	267.43	9,819.99	-187.48	-4,180.44	4,184.64	0.00	0.00	0.00
13,900.00	90.65	267.43	9,818.85	-191.96	-4,280.34	4,284.64	0.00	0.00	0.00
14,000.00	90.65	267.43	9,817.72	-196.43	-4,380.23	4,384.63	0.00	0.00	0.00
14,100.00	90.65	267.43	9,816.58	-200.91	-4,480.12	4,484.63	0.00	0.00	0.00
14,200.00	90.65	267.43	9,815.44	-205.39	-4,580.02	4,584.62	0.00	0.00	0.00
14,300.00	90.65	267.43	9,814.30	-209.87	-4,679.91	4,684.61	0.00	0.00	0.00
14,400.00	90.65	267.43	9,813.17	-214.35	-4,779.80	4,784.61	0.00	0.00	0.00
14,500.00	90.65	267.43	9,812.03	-218.83	-4,879.69	4,884.60	0.00	0.00	0.00
14,600.00	90.65	267.43	9,810.89	-223.31	-4,979.59	4,984.59	0.00	0.00	0.00
14,700.00	90.65	267.43	9,809.76	-227.79	-5,079.48	5,084.59	0.00	0.00	0.00
14,800.00	90.65	267.43	9,808.62	-232.27	-5,179.37	5,184.58	0.00	0.00	0.00
14,900.00	90.65	267.43	9,807.48	-236.75	-5,279.27	5,284.57	0.00	0.00	0.00
15,000.00	90.65	267.43	9,806.34	-241.23	-5,379.16	5,384.57	0.00	0.00	0.00
15,100.00	90.65	267.43	9,805.21	-245.71	-5,479.05	5,484.56	0.00	0.00	0.00
15,200.00	90.65	267.43	9,804.07	-250.19	-5,578.95	5,584.55	0.00	0.00	0.00
15,300.00	90.65	267.43	9,802.93	-254.67	-5,678.84	5,684.55	0.00	0.00	0.00
15,400.00	90.65	267.43	9,801.79	-259.15	-5,778.73	5,784.54	0.00	0.00	0.00
15,500.00	90.65	267.43	9,800.66	-263.63	-5,878.63	5,884.53	0.00	0.00	0.00
15,600.00	90.65	267.43	9,799.52	-268.11	-5,978.52	5,984.53	0.00	0.00	0.00
15,700.00	90.65	267.43	9,798.38	-272.59	-6,078.41	6,084.52	0.00	0.00	0.00
15,800.00	90.65	267.43	9,797.24	-277.07	-6,178.31	6,184.52	0.00	0.00	0.00
15,900.00	90.65	267.43	9,796.11	-281.55	-6,278.20	6,284.51	0.00	0.00	0.00
16,000.00	90.65	267.43	9,794.97	-286.03	-6,378.09	6,384.50	0.00	0.00	0.00
16,100.00	90.65	267.43	9,793.83	-290.51	-6,477.98	6,484.50	0.00	0.00	0.00
16,200.00	90.65	267.43	9,792.69	-294.99	-6,577.88	6,584.49	0.00	0.00	0.00
16,300.00	90.65	267.43	9,791.56	-299.47	-6,677.77	6,684.48	0.00	0.00	0.00
16,400.00	90.65	267.43	9,790.42	-303.95	-6,777.66	6,784.48	0.00	0.00	0.00
16,500.00	90.65	267.43	9,789.28	-308.43	-6,877.56	6,884.47	0.00	0.00	0.00
16,600.00	90.65	267.43	9,788.14	-312.91	-6,977.45	6,984.46	0.00	0.00	0.00
16,700.00	90.65	267.43	9,787.01	-317.39	-7,077.34	7,084.46	0.00	0.00	0.00
16,800.00	90.65	267.43	9,785.87	-321.87	-7,177.24	7,184.45	0.00	0.00	0.00
16,900.00	90.65	267.43	9,784.73	-326.35	-7,277.13	7,284.44	0.00	0.00	0.00
16,964.32	90.65	267.43	9,784.00	-329.23	-7,341.38	7,348.76	0.00	0.00	0.00
TD - PBHL (A2423FC 13H)									

LEAM Drilling Systems LLC

Planning Report

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Project:	Eddy County, NM (NAD-83)	MD Reference:	GE 3407' + KB 25" @ 3432.00usft
Site:	Apache 24-23 Fed Com	North Reference:	Grid
Well:	13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)		
SHL (A2423FC 13H)		0.00	0.00	0.00	0.00	0.00	499,798.89	697,761.16	32° 22' 22.795 N	103° 49' 35.985 W
- plan hits target center										
- Point										
PBHL (A2423FC 13H)		0.00	0.00	9,784.00	-329.23	-7,341.38	499,469.66	690,419.78	32° 22' 19.873 N	103° 51' 1.605 W
- plan hits target center										
- Point										

Formations

Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
700.00	700.00	Rustler		0.00	
976.00	976.00	Top Salt		0.00	
2,608.00	2,608.00	Base Salt		0.00	
3,907.00	3,907.00	Lamar		0.00	
3,954.00	3,954.00	Bell Canyon		0.00	
4,810.00	4,810.00	Cherry Canyon		0.00	
6,042.00	6,042.00	Brushy Canyon		0.00	
7,767.00	7,767.00	1st BS LM		0.00	
8,822.00	8,822.00	1st BS SS		0.00	
9,580.54	9,568.00	2nd BS SS		0.00	

Plan Annotations

Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
9,288.08	9,288.08	0.00	0.00	KOP 10° DLS
10,194.60	9,861.00	-25.96	-578.89	LP
16,964.32	9,784.00	-329.23	-7,341.38	TD

**PECOS DISTRICT
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Devon Energy Production Company, L.P.
LEASE NO.:	NMLC-064827A
WELL NAME & NO.:	Apache 24-23 Fed Com 13H
SURFACE HOLE FOOTAGE:	0970' FSL & 0330' FEL
BOTTOM HOLE FOOTAGE:	0660' FSL & 2310' FWL Sec. 23, T. 22 S., R 30 E.
LOCATION:	Section 24, T. 22 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico
API:	30-015-42552

The original COAs still stand with the following drilling modifications:

Communitization Agreement

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales. In addition, the well sign shall include the surface and bottom hole lease numbers. If the Communitization Agreement number is known, it shall also be on the sign. If not, it shall be placed on the sign when the sign is replaced.

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

1. **Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.**
2. **Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

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

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

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

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

WIPP

R-111-P Potash

Possibility of water flows in the Salado and Castile.

Possibility of lost circulation in the Rustler, Red Beds, and Delaware.

Abnormal pressures may be encountered when penetrating the 3rd Bone Spring Sand and Wolfcamp.

1. The **13-3/8** inch surface casing shall be set at approximately **580** feet (**in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt**) and cemented to the surface. Fresh water mud to be used to setting depth.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Formation below the 13-3/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Option #1 (Single Stage):

- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.**

Option #2:

Operator has proposed DV tool at depth of 630', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool:

- ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage. **Excess calculates to 3% - Additional cement may be required.**

b. Second stage above DV tool:

- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash. Excess calculates to 2% - Additional cement may be required.**

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:

Operator has proposed DV tool at depth of 4500', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.

a. First stage to DV tool:

- ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Excess calculates to 5% - Additional cement may be required.**

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
5. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.

- b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
- c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- d. The results of the test shall be reported to the appropriate BLM office.
- e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

F. WIPP Requirements

The proposed well is located within 330' of the WIPP Land Withdrawal Area boundary. As a result, Devon Energy Production Company is required to submit daily drilling reports, logs and deviation survey information to the Bureau of Land Management and the Department of Energy per requirements of the Joint Powers Agreement until a total vertical depth of 7,000 feet is reached. These reports will have at a minimum the rate of penetration and a clearly marked section showing the deviation for each 500 foot interval. Operator may be required to do more frequent deviation surveys based on the daily information submitted and may be required to take other corrective measures. Information from this well will be included in the Quarterly Drilling Report. Information will also be provided to the New Mexico Oil Conservation Division after drilling activities have been completed. Upon completion of the well, the operator shall submit a complete directional survey. Any future entry into the well for purposes of completing additional drilling will require supplemental information.

Devon Energy Production Company can email the required information to Mr. Melvin Balderrama at Melvin.Balderama@wipp.ws or Mr. J. Neatherlin at Jimmy.Neatherlin@wipp.ws fax to his attention at 575-234-6062.

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