

AAPD

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.***SUBMIT IN TRIPLICATE - Other instructions on reverse side.**

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM89052
2. Name of Operator DEVON ENERGY PRODUCTION CO. LP		6. If Indian, Allottee or Tribe Name
Contact: TRINA C COUCH E-Mail: trina.couch@dmv.com		7. If Unit or CA/Agreement, Name and/or No.
3a. Address DEVON ENERGY PRODUCTION CO. LP 333 WEST OKLAHOMA CITY, OK 73102-5015	3b. Phone No. (include area code) 918-248-0202	8. Well Name and No. APACHE 25 FED 18H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 25 T22S R30E 1080FNL 330FEL		9. API Well No. 30-015-41395
10. Field and Pool, or Exploratory MEDANOS; BONE SPRING		11. County or Parish, and State EDDY COUNTY COUNTY, NM

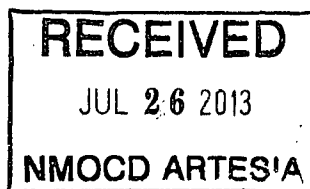
12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

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 recomplete 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 recompletion 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 Company, L.P. respectfully requests to change the casing plan on the Apache 25 Fed 18H from a three string to a four string due to information gained drilling the Apache 25 Fed 17H.

Thank you

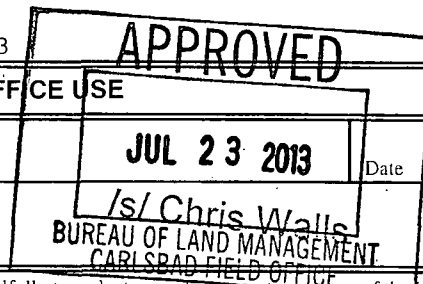
SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Accepted for record
7/31/2013
NMOC D

14. I hereby certify that the foregoing is true and correct. Electronic Submission #213410 verified by the BLM Well Information System For DEVON ENERGY PRODUCTION CO. LP, sent to the Carlsbad Committed to AFMSS for processing by JOHNNY DICKERSON on 07/18/2013 ()	
Name (Printed/Typed) TRINA C COUCH	Title REGULATORY ASSOCIATE
Signature (Electronic Submission)	Date 07/12/2013

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

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



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

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

Additional data for EC transaction #213410 that would not fit on the form

32. Additional remarks, continued

Attachments:

Drilling Plan

Directional Survey

APACHE 25 FED 18H- APD DRILLING PLAN
 SKS 6.28.12
 REVISED 7.9.13

Casing Program

Hole Size	Hole Interval	OD Csg	Casing Interval	Weight	Collar	Grade
26"	520	20"	0 to 520	94#	BTC	J-55
17.5"	3,870	13.375"	0 to 3870	68#	BTC	P-110
12.25"	7,780	9.625"	0 to 7780	40#	BTC	HCK-55
8-1/2"	10,400	5.5"	0 to 10400	17#	LTC	HCP-110
8-1/2"	15,539	5.5"	10400 to TD	17#	BTC	HCP-110

MAX TVD: 10,983 FT

Design Factors

Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
26" 94# J-55 BTC	2.00	8.13	28.68
17.5" 68# P-110 BTC	1.16	4.15	7.90
12.25" 40# HCK-55 BTC	1.16	1.08	2.98
8-1/2" 17# HCP-110 LTC	1.57	1.95	1.66
8-1/2" 17# HCP-110 BTC	1.51	1.87	6.35

Mud Program

Depth	Mud Wt.	Visc.	Fluid Loss	Type System
0 – 520	8.4 – 9.0	30 – 34	N/C	FW
520 - 3870	9.8 – 10.0	28 – 32	N/C	Brine
3870 – 7780	8.6 – 9.0	28 – 32	N/C	FW
7780 – 15769	9.0 – 10.0	28 – 32	N/C	FW

Pressure Control Equipment

The BOP system used to drill the 17-1/2" hole will consist of a 20" 2M Annular preventer. The BOP system will be tested as per BLM Onshore Oil and Gas Order 2 as a 2M system prior to drilling out the casing shoe.

The BOP system used to drill the intermediate hole will consist of a 13-5/8" 3M Double Ram and Annular preventer. The BOP system will be tested as per BLM Onshore Oil and Gas Order 2 as a 3M system prior to drilling out the surface casing shoe.

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

The pipe rams will be operated and checked as per Onshore Order 2. 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.

Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.

Devon**Apache 25 Fed 18H**

Cementing Program (cement volumes based on at least Surface 150% excess, 1st Intermediate 75% excess, 2nd Intermediate 75% and Production is 25% excess)

20" Surface	Tail: 1525 sacks Class C Cement + 1% bwoc Calcium Chloride + 0.125 lbs/sack Poly-E-Flake + 63.1% Fresh Water, 14.8 ppg Yield: 1.34 cf/sk TOC @ surface
13-3/8" 1 st Intermediate	Lead: 1835 sacks (65:35) Class C Cement: Poz (Fly Ash): + 5% bwow Sodium Chloride + 0.125 lbs/sack Poly-E-Flake + 6% bwoc Bentonite + 70.9% Fresh Water, 12.9 ppg Yield: 1.85 cf/sk TOC @ surface Tail: 945 sacks Class C Cement + 63.5% Water, 14.8 ppg Yield: 1.33 cf/sk
9-5/8" 2 nd Intermediate	1st Stage Lead: 535 sacks Tuned Light Class C Based + 3 lbs/sack Kol-Seal+ 0.125 lbs/sack Poly-E-Flake + 0.2% lb/sack HR-800 + 64 % Fresh Water, 10.2 ppg Yield: 2.94 cf/sk TOC @ 3920 Tail: 455 sacks (50:50) Class H Cement: Poz (Fly Ash) + 0.3% bwoc Halad-9 + 1 lb/sack Kol-Seal + 2% bwoc Bentonite + 60.7% Fresh Water, 14.4 ppg Yield: 1.25 cf/sk DV Tool at 3920ft 2nd Stage Lead: 595 sacks (65:35) Class H Cement:Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake + 72.2% Fresh Water, 12.7 ppg Yield: 1.94 cf/sk TOC @ surface Tail: 135 sacks Class C Cement + 63.5% Water, 14.8 ppg Yield: 1.33 cf/sk
5-1/2" Production	Lead: 415 sacks (50:50) Class H Cement:Poz (Fly Ash): + 8.4 lb/sack Bentonite + 8 lb/sack Sodium Chloride + 0.15 lbs/sack FWCA + 0.25 lbs/sack Poly-E-Flake + 0.3% bwoc HR-601+ 0.25% BWOC D-Air 5000 + 0.3% BWOC HR-800 + 0.05% SA-1015 + 3 lb/sack Kol-Seal + 75.2% Fresh Water, 11.9 ppg Yield: 2.47 cf/sk TOC @ 7200 Tail: 815 sacks (50:50) Class H Cement:Poz (Fly Ash) + 1 lb/sk Sodium Chloride + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.1% bwoc HR-601 + 2% bwoc Bentonite + 58.8% Fresh Water, 14.5 ppg Yield: 1.22 cf/sk
TOC for All Strings:	
Surface: 520ft	0ft (520 ft of fill of Tail)
1 st Intermediate: 3870ft	0ft (2870 ft of fill of Lead & 1000 ft of fill of Tail)
2 nd Intermediate: 7780ft	3920ft (1 st Stage - 2860 ft of fill of Lead & 1000 ft of fill of Tail)
	0ft (2 nd Stage - 3420 ft of fill of Lead & 500 ft of fill of Tail)
Production: 15769ft	7200ft (3306ft of fill of Lead and 5263 ft of fill of Tail)

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



Weatherford®

Drilling Services

Proposal



devon

APACHE 25 FED #18H

EDDY COUNTY, NM

WELL FILE: **PLAN 3**

JULY 9, 2013

Weatherford International, Ltd.

P.O. Box 61028

Midland, TX 79711 USA

+1.432.561.8892 Main

+1.432.561.8895 Fax

www.weatherford.com



Apache 25 Fed #18H
Eddy Co., New Mexico



KB ELEV: 3397
GL ELEV: 3372

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	180.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	10506.55	0.00	180.00	10506.55	0.00	0.00	0.00	180.00	0.00	
3	11261.13	90.55	224.55	10983.99	-343.53	-338.17	12.00	224.55	397.60	
4	12775.93	90.55	270.00	10968.66	-913.50	-1698.95	3.00	89.77	1842.24	
5	15769.72	90.55	270.00	10940.00	-913.70	-4692.60	0.00	0.00	4780.73	PBHL

WELL DETAILS

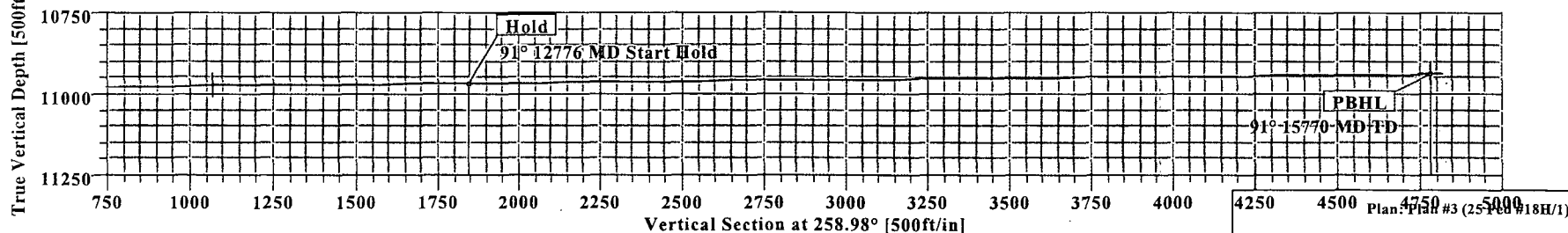
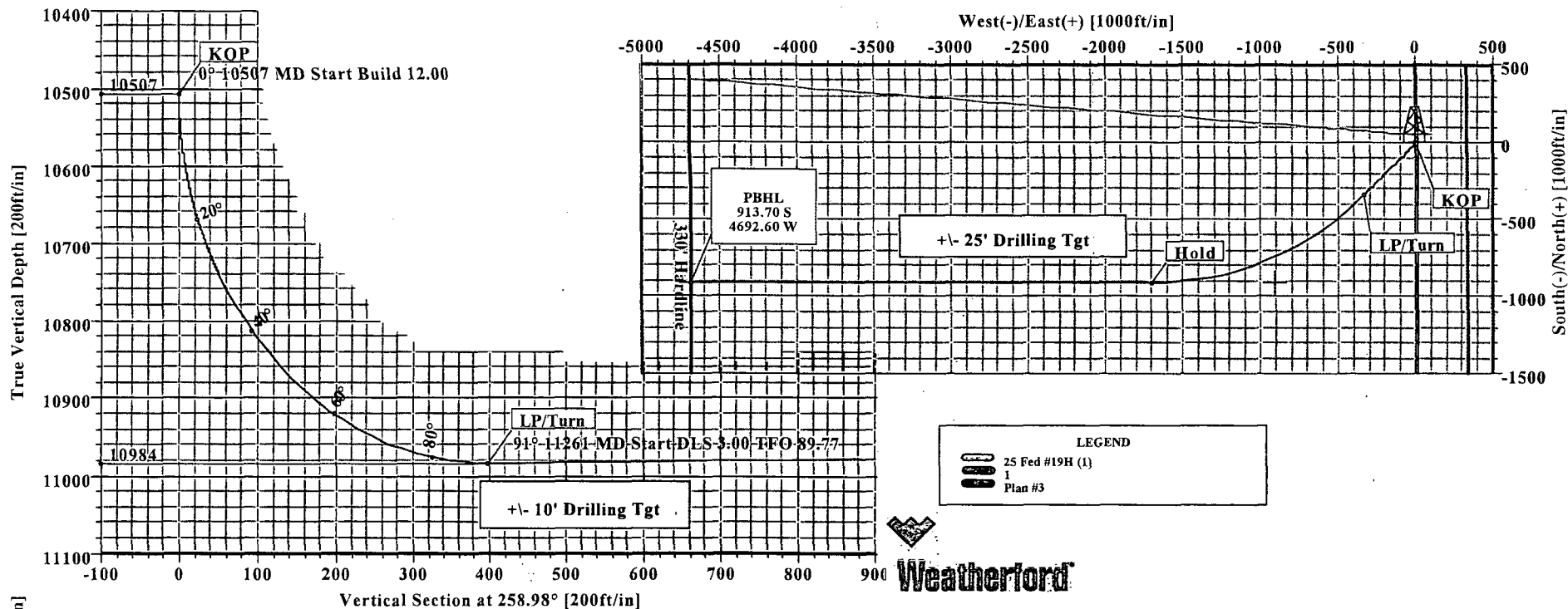
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
25 Fed #18H	0.00	0.00	497749.00	697768.40	32°22'02.501N	103°49'36.030W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	10940.00	-913.70	-4692.60	496835.30	693075.80	32°21'53.676N	103°50'30.793W	Point
LP Tgt	10976.32	-913.70	-908.40	496835.30	696860.00	32°21'53.502N	103°49'46.671W	Point

SITE DETAILS

Apache 25 Fed #18H
Site Centre Northing: 497749.00
Easting: 697768.40
Ground Level: 3372.00
Positional Uncertainty: 0.00
Convergence: 0.27





Weatherford

Wft Plan Report X Y's.



Weatherford

Company: Devon Energy Date: 7/8/2013 Time: 13:35:13 Page: 1
Field: Eddy Co. NM (NAD83) Co-ordinate (NE) Reference: Well: 25 Fed #18H Grid North
Site: Apache 25 Fed #18H Vertical (TVD) Reference: SITE 3397.0
Well: 25 Fed #18H Section (VS) Reference: Well (0.00N 0.00E 258.98Az)
Wellpath: Survey Calculation Method: Minimum Curvature Db: Sybase

Plan: Plan #3 Date Composed: 6/27/2012
Principal: Yes Version: 1
Tied-to: From Surface

Site: Apache 25 Fed #18H

Site Position: Northing: 497749.00 ft Latitude: 32 22 2.501 N
From: Map Easting: 697768.40 ft Longitude: 103 49 36.030 W
Position Uncertainty: 0.00 ft North Reference: Grid
Ground Level: 3372.00 ft Grid Convergence: 0.27 deg

Well: 25 Fed #18H Slot Name:

Well Position: +N-S 0.00 ft Northing: 497749.00 ft Latitude: 32 22 2.501 N
+E-W 0.00 ft Easting: 697768.40 ft Longitude: 103 49 36.030 W
Position Uncertainty: 0.00 ft

Wellpath: 1 Drilled From: Surface

Current Datum: SITE Tie-on Depth: 0.00 ft
Magnetic Data: 11/15/2012 Height 3397.00 ft Above System Datum: Mean Sea Level
Field Strength: 48558 nT Declination: 7.54 deg
Vertical Section: Depth From (TVD) +N-S Mag Dip Angle: 60.24 deg
ft ft +E-W Direction
deg

0.00 0.00 0.00 258.98

Plan Section Information

MD	Incl	Azim	TVD	N-S	E-W	DLS	Build	Turn	TFO	Target
ft	deg	deg	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	deg	
0.00	0.00	180.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10506.55	0.00	180.00	10506.55	0.00	0.00	0.00	0.00	0.00	180.00	
11261.13	90.55	224.55	10983.99	-343.53	-338.17	12.00	12.00	0.00	224.55	
12775.93	90.55	270.00	10968.66	-913.50	-1698.95	3.00	0.00	3.00	89.77	
15769.72	90.55	270.00	10940.00	-913.70	-4692.60	0.00	0.00	0.00	0.00	PBHL

Survey

MD	Incl	Azim	TVD	N-S	E-W	VS	DLS	MapN	MapE	Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	ft	
10500.00	0.00	180.00	10500.00	0.00	0.00	0.00	0.00	497749.00	697768.40	
10506.55	0.00	180.00	10506.55	0.00	0.00	0.00	0.00	497749.00	697768.40	KOP
10600.00	11.21	224.55	10599.40	-6.50	-6.40	7.52	12.00	497742.50	697762.00	
10700.00	23.21	224.55	10694.75	-27.55	-27.12	31.88	12.00	497721.45	697741.28	
10800.00	35.21	224.55	10781.87	-62.27	-61.30	72.07	12.00	497686.73	697707.10	
10900.00	47.21	224.55	10856.96	-109.13	-107.43	126.31	12.00	497639.87	697660.97	
11000.00	59.21	224.55	10916.73	-166.10	-163.51	192.25	12.00	497582.90	697604.89	
11100.00	71.21	224.55	10958.58	-230.68	-227.09	267.00	12.00	497518.32	697541.31	
11200.00	83.21	224.55	10980.67	-300.05	-295.38	347.29	12.00	497448.95	697473.02	
11261.13	90.55	224.55	10983.99	-343.53	-338.17	397.60	12.00	497405.47	697430.23	LP/Turn
11300.00	90.55	225.72	10983.62	-370.94	-365.72	429.88	3.00	497378.06	697402.68	
11400.00	90.57	228.72	10982.64	-438.86	-439.10	514.89	3.00	497310.14	697329.30	
11500.00	90.57	231.72	10981.65	-502.83	-515.93	602.53	3.00	497246.17	697252.47	
11600.00	90.58	234.72	10980.64	-562.70	-596.01	692.58	3.00	497186.30	697172.39	
11700.00	90.59	237.72	10979.62	-618.30	-679.11	784.78	3.00	497130.70	697089.29	
11800.00	90.59	240.72	10978.59	-669.47	-765.01	878.87	3.00	497079.53	697003.39	
11900.00	90.59	243.72	10977.55	-716.08	-853.46	974.60	3.00	497032.92	696914.94	
12000.00	90.60	246.72	10976.51	-757.99	-944.24	1071.72	3.00	496991.01	696824.16	
12100.00	90.59	249.72	10975.47	-795.09	-1037.08	1169.94	3.00	496953.91	696731.32	
12200.00	90.59	252.72	10974.44	-827.28	-1131.74	1269.01	3.00	496921.72	696636.66	
12300.00	90.59	255.72	10973.41	-854.48	-1227.95	1368.65	3.00	496894.52	696540.45	
12400.00	90.58	258.72	10972.38	-876.60	-1325.46	1468.58	3.00	496872.40	696442.94	



Weatherford

Wft Plan Report X Y's.



Weatherford

Company: Devon Energy
Field: Eddy Co. NM (NAD83)
Site: Apache 25 Fed #18H
Well: 25 Fed #18H
Wellpath: 1
Date: 7/8/2013
Time: 13:35:13
Page: 2
Co-ordinate(N/E) Reference: Well: 25 Fed #18H, Grid North
Vertical (TVD) Reference: SITE 3397.0
Section (VS) Reference: Well: (0.00N, 0.00E, 258.98Azi)
Survey/Calculation Method: Minimum Curvature
Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comments
12500.00	90.58	261.72	10971.37	-893.59	-1423.99	1568.54	3.00	496855.41	696344.41	
12600.00	90.57	264.72	10970.37	-905.39	-1523.27	1668.25	3.00	496843.61	696245.13	
12700.00	90.56	267.72	10969.39	-911.99	-1623.04	1767.44	3.00	496837.01	696145.36	
12775.93	90.55	270.00	10968.66	-913.50	-1698.95	1842.24	3.00	496835.50	696069.45	Hold
12800.00	90.55	270.00	10968.43	-913.50	-1723.01	1865.86	0.00	496835.50	696045.39	
12900.00	90.55	270.00	10967.47	-913.51	-1823.01	1964.01	0.00	496835.49	695945.39	
13000.00	90.55	270.00	10966.51	-913.52	-1923.01	2062.17	0.00	496835.48	695845.39	
13100.00	90.55	270.00	10965.56	-913.52	-2023.00	2160.32	0.00	496835.48	695745.40	
13200.00	90.55	270.00	10964.60	-913.53	-2123.00	2258.47	0.00	496835.47	695645.40	
13300.00	90.55	270.00	10963.64	-913.54	-2222.99	2356.62	0.00	496835.46	695545.41	
13400.00	90.55	270.00	10962.69	-913.54	-2322.99	2454.78	0.00	496835.46	695445.41	
13500.00	90.55	270.00	10961.73	-913.55	-2422.98	2552.93	0.00	496835.45	695345.42	
13600.00	90.55	270.00	10960.77	-913.56	-2522.98	2651.08	0.00	496835.44	695245.42	
13700.00	90.55	270.00	10959.81	-913.56	-2622.97	2749.24	0.00	496835.44	695145.43	
13800.00	90.55	270.00	10958.86	-913.57	-2722.97	2847.39	0.00	496835.43	695045.43	
13900.00	90.55	270.00	10957.90	-913.58	-2822.96	2945.54	0.00	496835.42	694945.44	
14000.00	90.55	270.00	10956.94	-913.58	-2922.96	3043.69	0.00	496835.42	694845.44	
14100.00	90.55	270.00	10955.98	-913.59	-3022.95	3141.85	0.00	496835.41	694745.45	
14200.00	90.55	270.00	10955.03	-913.60	-3122.95	3240.00	0.00	496835.40	694645.45	
14300.00	90.55	270.00	10954.07	-913.60	-3222.95	3338.15	0.00	496835.40	694545.45	
14400.00	90.55	270.00	10953.11	-913.61	-3322.94	3436.31	0.00	496835.39	694445.46	
14500.00	90.55	270.00	10952.16	-913.62	-3422.94	3534.46	0.00	496835.38	694345.46	
14600.00	90.55	270.00	10951.20	-913.62	-3522.93	3632.61	0.00	496835.38	694245.47	
14700.00	90.55	270.00	10950.24	-913.63	-3622.93	3730.76	0.00	496835.37	694145.47	
14800.00	90.55	270.00	10949.28	-913.64	-3722.92	3828.92	0.00	496835.36	694045.48	
14900.00	90.55	270.00	10948.33	-913.64	-3822.92	3927.07	0.00	496835.36	693945.48	
15000.00	90.55	270.00	10947.37	-913.65	-3922.91	4025.22	0.00	496835.35	693845.49	
15100.00	90.55	270.00	10946.41	-913.66	-4022.91	4123.38	0.00	496835.34	693745.49	
15200.00	90.55	270.00	10945.45	-913.66	-4122.90	4221.53	0.00	496835.34	693645.50	
15300.00	90.55	270.00	10944.50	-913.67	-4222.90	4319.68	0.00	496835.33	693545.50	
15400.00	90.55	270.00	10943.54	-913.68	-4322.90	4417.83	0.00	496835.32	693445.50	
15500.00	90.55	270.00	10942.58	-913.68	-4422.89	4515.99	0.00	496835.32	693345.51	
15600.00	90.55	270.00	10941.62	-913.69	-4522.89	4614.14	0.00	496835.31	693245.51	
15700.00	90.55	270.00	10940.67	-913.70	-4622.88	4712.29	0.00	496835.30	693145.52	
15769.72	90.55	270.00	10940.00	-913.70	-4692.60	4780.73	0.00	496835.30	693075.80	PBHL

Targets

Name	Description Dip.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	Latitude Deg Min Sec	Longitude Deg Min Sec
PBHL		10940.00	-913.70	-4692.60	496835.30	693075.80	32 21 53.676 N	103 50 30.793 W
LP Tgt		10976.32	-913.70	-908.40	496835.30	696860.00	32 21 53.502 N	103 49 46.671 W

Casing Points

MD	TVD	Diameter	Hole Size	Name



Weatherford

Wft Plan Report X Y's.



Company: Devon Energy	Date: 7/8/2013	Time: 13:35:13	Page: 3
Field: Eddy Co., NM (NAD 83)	Co-ordinate(NE) Reference: Well: 25 Fed #18H, Grid North		
Site: Apache:25 Fed #18H	Vertical (TVD) Reference: SITE 3397.0		
Well: 25 Fed #18H	Section (VS) Reference: Well (0.00N,0.00E,258.98Azi)		
Wellpath: 1	Survey Calculation Method: Minimum Curvature	DB: Sybase	

Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

Annotation

MD ft.	TVD ft.	
10506.55	10506.55	KOP
11261.13	10983.99	LP/Turn
12775.93	10968.66	Hold
15769.72	10940.00	PBHL



Weatherford Anticollision Report



Weatherford

Company: Devon Energy Date: 7/9/2013 Time: 09:02:59 Page: 1
Field: Eddy Co # NM (NAD 83)
Reference Site: Apache 25 Fed #18H Co-ordinate (NE) Reference: Well: 25 Fed #18H Grid North
Reference Well: 25 Fed #18H Vertical (FVD) Reference: SITE 3397.0
Reference Wellpath: Db: Sybase

NO GLOBAL SCAN: Using user defined selection & scan criteria
Interpolation Method MD + Stations Interval: 100.00 ft
Depth Range: 0.00 to 19369.32 ft
Maximum Radius 0000.00 ft

Reference: Plan: Plan #3
Error Model: ISCWSA Ellipse
Scan Method: Closest Approach 3D
Error Surface: Ellipse

Plan: Plan #3

Date Composed: 6/27/2012

Principal: No

Version: 1

Tied-to:

From Surface

Summary

Site	Offset Wellpath Well	Wellpath	Reference MD ft	Offset MD ft	Ctr-Ctr Edge Distance ft	Separation Distance ft	Factor	Warning
Apache 25 Fed #19H	25 Fed #19H	1 V0 Plan: Plan #1 V1	10400.00	10400.00	50.20	3.73	1.08	Level 2

Site: Apache 25 Fed #19H

Well: 25 Fed #19H

Wellpath: 1 V0 Plan: Plan #1 V1

Inter-Site Error: 0.00 ft

Reference MD ft	TVD ft	Offset MD ft	TVD ft	Semi-Major Axis Ref ft	Offset ft	TFO-HS deg	Offset Location North ft	East ft	Ctr-Ctr Edge Distance ft	Separation Distance ft	Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-0.11	50.20	-0.10	50.20			No Data
100.00	100.00	100.00	100.00	0.08	0.08	-0.11	50.20	-0.10	50.20	50.03	297.79	
200.00	200.00	200.00	200.00	0.31	0.31	-0.11	50.20	-0.10	50.20	49.58	81.22	
300.00	300.00	300.00	300.00	0.53	0.53	-0.11	50.20	-0.10	50.20	49.13	47.02	
400.00	400.00	400.00	400.00	0.76	0.76	-0.11	50.20	-0.10	50.20	48.68	33.09	
500.00	500.00	500.00	500.00	0.98	0.98	-0.11	50.20	-0.10	50.20	48.23	25.53	
600.00	600.00	600.00	600.00	1.21	1.21	-0.11	50.20	-0.10	50.20	47.78	20.78	
700.00	700.00	700.00	700.00	1.43	1.43	-0.11	50.20	-0.10	50.20	47.33	17.52	
800.00	800.00	800.00	800.00	1.66	1.66	-0.11	50.20	-0.10	50.20	46.88	15.14	
900.00	900.00	900.00	900.00	1.88	1.88	-0.11	50.20	-0.10	50.20	46.44	13.33	
1000.00	1000.00	1000.00	1000.00	2.11	2.11	-0.11	50.20	-0.10	50.20	45.99	11.91	
1100.00	1100.00	1100.00	1100.00	2.33	2.33	-0.11	50.20	-0.10	50.20	45.54	10.76	
1200.00	1200.00	1200.00	1200.00	2.56	2.56	-0.11	50.20	-0.10	50.20	45.09	9.82	
1300.00	1300.00	1300.00	1300.00	2.78	2.78	-0.11	50.20	-0.10	50.20	44.64	9.02	
1400.00	1400.00	1400.00	1400.00	3.01	3.01	-0.11	50.20	-0.10	50.20	44.19	8.35	
1500.00	1500.00	1500.00	1500.00	3.23	3.23	-0.11	50.20	-0.10	50.20	43.74	7.77	
1600.00	1600.00	1600.00	1600.00	3.46	3.46	-0.11	50.20	-0.10	50.20	43.29	7.26	
1700.00	1700.00	1700.00	1700.00	3.68	3.68	-0.11	50.20	-0.10	50.20	42.84	6.82	
1800.00	1800.00	1800.00	1800.00	3.91	3.91	-0.11	50.20	-0.10	50.20	42.39	6.43	
1900.00	1900.00	1900.00	1900.00	4.13	4.13	-0.11	50.20	-0.10	50.20	41.94	6.08	
2000.00	2000.00	2000.00	2000.00	4.35	4.35	-0.11	50.20	-0.10	50.20	41.49	5.76	
2100.00	2100.00	2100.00	2100.00	4.58	4.58	-0.11	50.20	-0.10	50.20	41.04	5.48	
2200.00	2200.00	2200.00	2200.00	4.80	4.80	-0.11	50.20	-0.10	50.20	40.59	5.22	
2300.00	2300.00	2300.00	2300.00	5.03	5.03	-0.11	50.20	-0.10	50.20	40.14	4.99	
2400.00	2400.00	2400.00	2400.00	5.25	5.25	-0.11	50.20	-0.10	50.20	39.69	4.78	
2500.00	2500.00	2500.00	2500.00	5.48	5.48	-0.11	50.20	-0.10	50.20	39.24	4.58	
2600.00	2600.00	2600.00	2600.00	5.70	5.70	-0.11	50.20	-0.10	50.20	38.79	4.40	
2700.00	2700.00	2700.00	2700.00	5.93	5.93	-0.11	50.20	-0.10	50.20	38.34	4.23	
2800.00	2800.00	2800.00	2800.00	6.15	6.15	-0.11	50.20	-0.10	50.20	37.89	4.08	
2900.00	2900.00	2900.00	2900.00	6.38	6.38	-0.11	50.20	-0.10	50.20	37.44	3.94	
3000.00	3000.00	3000.00	3000.00	6.60	6.60	-0.11	50.20	-0.10	50.20	37.00	3.80	
3100.00	3100.00	3100.00	3100.00	6.83	6.83	-0.11	50.20	-0.10	50.20	36.55	3.68	
3200.00	3200.00	3200.00	3200.00	7.05	7.05	-0.11	50.20	-0.10	50.20	36.10	3.56	
3300.00	3300.00	3300.00	3300.00	7.28	7.28	-0.11	50.20	-0.10	50.20	35.65	3.45	
3400.00	3400.00	3400.00	3400.00	7.50	7.50	-0.11	50.20	-0.10	50.20	35.20	3.35	
3500.00	3500.00	3500.00	3500.00	7.73	7.73	-0.11	50.20	-0.10	50.20	34.75	3.25	



Weatherford Anticollision Report



Weatherford

Company: Devon Energy
Field: Eddy Co., NM (NAD83)
Reference Site: Apache 25 Fed #18H
Reference Well: 25 Fed #18H
Reference Wellpath:
Date: 7/9/2013
Time: 09:02:59
Page: 2
Co-ordinate(NE) Reference: Well: 25 Fed #18H, Grid North
Vertical (TVD) Reference: SITE 3397.0
Db: Sybase

Site: Apache 25 Fed #19H

Well: 25 Fed #19H

Wellpath: 1 V0 Plan: Plan #1 V1

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis			Offset Location		Ctr-Ctr Edge		Separation		Warning
MD	TVD	MD	TVD	Ref	Offset	TFO-HS	North	East	Distance	Distance	Factor		
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft			
3600.00	3600.00	3600.00	3600.00	7.95	7.95	-0.11	50.20	-0.10	50.20	34.30	3.16		
3700.00	3700.00	3700.00	3700.00	8.18	8.18	-0.11	50.20	-0.10	50.20	33.85	3.07		
3800.00	3800.00	3800.00	3800.00	8.40	8.40	-0.11	50.20	-0.10	50.20	33.40	2.99		
3900.00	3900.00	3900.00	3900.00	8.63	8.63	-0.11	50.20	-0.10	50.20	32.95	2.91		
4000.00	4000.00	4000.00	4000.00	8.85	8.85	-0.11	50.20	-0.10	50.20	32.50	2.84		
4100.00	4100.00	4100.00	4100.00	9.07	9.07	-0.11	50.20	-0.10	50.20	32.05	2.77		
4200.00	4200.00	4200.00	4200.00	9.30	9.30	-0.11	50.20	-0.10	50.20	31.60	2.70		
4300.00	4300.00	4300.00	4300.00	9.52	9.52	-0.11	50.20	-0.10	50.20	31.15	2.64		
4400.00	4400.00	4400.00	4400.00	9.75	9.75	-0.11	50.20	-0.10	50.20	30.70	2.57		
4500.00	4500.00	4500.00	4500.00	9.97	9.97	-0.11	50.20	-0.10	50.20	30.25	2.52		
4600.00	4600.00	4600.00	4600.00	10.20	10.20	-0.11	50.20	-0.10	50.20	29.80	2.46		
4700.00	4700.00	4700.00	4700.00	10.42	10.42	-0.11	50.20	-0.10	50.20	29.35	2.41		
4800.00	4800.00	4800.00	4800.00	10.65	10.65	-0.11	50.20	-0.10	50.20	28.90	2.36		
4900.00	4900.00	4900.00	4900.00	10.87	10.87	-0.11	50.20	-0.10	50.20	28.45	2.31		
5000.00	5000.00	5000.00	5000.00	11.10	11.10	-0.11	50.20	-0.10	50.20	28.00	2.26		
5100.00	5100.00	5100.00	5100.00	11.32	11.32	-0.11	50.20	-0.10	50.20	27.55	2.22		
5200.00	5200.00	5200.00	5200.00	11.55	11.55	-0.11	50.20	-0.10	50.20	27.11	2.17		
5300.00	5300.00	5300.00	5300.00	11.77	11.77	-0.11	50.20	-0.10	50.20	26.66	2.13		
5400.00	5400.00	5400.00	5400.00	12.00	12.00	-0.11	50.20	-0.10	50.20	26.21	2.09		
5500.00	5500.00	5500.00	5500.00	12.22	12.22	-0.11	50.20	-0.10	50.20	25.76	2.05		
5600.00	5600.00	5600.00	5600.00	12.45	12.45	-0.11	50.20	-0.10	50.20	25.31	2.02		
5700.00	5700.00	5700.00	5700.00	12.67	12.67	-0.11	50.20	-0.10	50.20	24.86	1.98		
5800.00	5800.00	5800.00	5800.00	12.90	12.90	-0.11	50.20	-0.10	50.20	24.41	1.95		
5900.00	5900.00	5900.00	5900.00	13.12	13.12	-0.11	50.20	-0.10	50.20	23.96	1.91		
6000.00	6000.00	6000.00	6000.00	13.35	13.35	-0.11	50.20	-0.10	50.20	23.51	1.88		
6100.00	6100.00	6100.00	6100.00	13.57	13.57	-0.11	50.20	-0.10	50.20	23.06	1.85		
6200.00	6200.00	6200.00	6200.00	13.80	13.80	-0.11	50.20	-0.10	50.20	22.61	1.82		
6300.00	6300.00	6300.00	6300.00	14.02	14.02	-0.11	50.20	-0.10	50.20	22.16	1.79		
6400.00	6400.00	6400.00	6400.00	14.24	14.24	-0.11	50.20	-0.10	50.20	21.71	1.76		
6500.00	6500.00	6500.00	6500.00	14.47	14.47	-0.11	50.20	-0.10	50.20	21.26	1.73		
6600.00	6600.00	6600.00	6600.00	14.69	14.69	-0.11	50.20	-0.10	50.20	20.81	1.71		
6700.00	6700.00	6700.00	6700.00	14.92	14.92	-0.11	50.20	-0.10	50.20	20.36	1.68		
6800.00	6800.00	6800.00	6800.00	15.14	15.14	-0.11	50.20	-0.10	50.20	19.91	1.66		
6900.00	6900.00	6900.00	6900.00	15.37	15.37	-0.11	50.20	-0.10	50.20	19.46	1.63		
7000.00	7000.00	7000.00	7000.00	15.59	15.59	-0.11	50.20	-0.10	50.20	19.01	1.61		
7100.00	7100.00	7100.00	7100.00	15.82	15.82	-0.11	50.20	-0.10	50.20	18.56	1.59		
7200.00	7200.00	7200.00	7200.00	16.04	16.04	-0.11	50.20	-0.10	50.20	18.11	1.56		
7300.00	7300.00	7300.00	7300.00	16.27	16.27	-0.11	50.20	-0.10	50.20	17.67	1.54		
7400.00	7400.00	7400.00	7400.00	16.49	16.49	-0.11	50.20	-0.10	50.20	17.22	1.52		
7500.00	7500.00	7500.00	7500.00	16.72	16.72	-0.11	50.20	-0.10	50.20	16.77	1.50		
7600.00	7600.00	7600.00	7600.00	16.94	16.94	-0.11	50.20	-0.10	50.20	16.32	1.48	Level 3	
7700.00	7700.00	7700.00	7700.00	17.17	17.17	-0.11	50.20	-0.10	50.20	15.87	1.46	Level 3	
7800.00	7800.00	7800.00	7800.00	17.39	17.39	-0.11	50.20	-0.10	50.20	15.42	1.44	Level 3	
7900.00	7900.00	7900.00	7900.00	17.62	17.62	-0.11	50.20	-0.10	50.20	14.97	1.42	Level 3	
8000.00	8000.00	8000.00	8000.00	17.84	17.84	-0.11	50.20	-0.10	50.20	14.52	1.41	Level 3	
8100.00	8100.00	8100.00	8100.00	18.07	18.07	-0.11	50.20	-0.10	50.20	14.07	1.39	Level 3	
8200.00	8200.00	8200.00	8200.00	18.29	18.29	-0.11	50.20	-0.10	50.20	13.62	1.37	Level 3	
8300.00	8300.00	8300.00	8300.00	18.52	18.52	-0.11	50.20	-0.10	50.20	13.17	1.36	Level 3	
8400.00	8400.00	8400.00	8400.00	18.74	18.74	-0.11	50.20	-0.10	50.20	12.72	1.34	Level 3	
8500.00	8500.00	8500.00	8500.00	18.96	18.96	-0.11	50.20	-0.10	50.20	12.27	1.32	Level 3	
8600.00	8600.00	8600.00	8600.00	19.19	19.19	-0.11	50.20	-0.10	50.20	11.82	1.31	Level 3	



Weatherford Anticollision Report



Company: Devon Energy Date: 7/9/2013 Time: 09:02:59 Page: 3
Field: Eddy Co. NM (NAD 83)
Reference Site: Apache 25 Fed #18H Co-ordinate(NE) Reference: Well: 25 Fed #18H, Grid North
Reference Well: 25 Fed #18H Vertical (TVD) Reference: SITE 3397.0
Reference Wellpath: Db: Sybase

Site: Apache 25 Fed #19H
Well: 25 Fed #19H
Wellpath: 1 V0 Plan: Plan #1 V1

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis			Offset Location		Ctr-Ctr Edge		Separation		Warning
MD	TVD	MD	TVD	Ref	Offset	TFO-HS	North	East	Distance	Distance	Factor		
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft			
8700.00	8700.00	8700.00	8700.00	19.41	19.41	-0.11	50.20	-0.10	50.20	11.37	1.29	Level 3	
8800.00	8800.00	8800.00	8800.00	19.64	19.64	-0.11	50.20	-0.10	50.20	10.92	1.28	Level 3	
8900.00	8900.00	8900.00	8900.00	19.86	19.86	-0.11	50.20	-0.10	50.20	10.47	1.26	Level 3	
9000.00	9000.00	9000.00	9000.00	20.09	20.09	-0.11	50.20	-0.10	50.20	10.02	1.25	Level 2	
9100.00	9100.00	9100.00	9100.00	20.31	20.31	-0.11	50.20	-0.10	50.20	9.57	1.24	Level 2	
9200.00	9200.00	9200.00	9200.00	20.54	20.54	-0.11	50.20	-0.10	50.20	9.12	1.22	Level 2	
9300.00	9300.00	9300.00	9300.00	20.76	20.76	-0.11	50.20	-0.10	50.20	8.67	1.21	Level 2	
9400.00	9400.00	9400.00	9400.00	20.99	20.99	-0.11	50.20	-0.10	50.20	8.23	1.20	Level 2	
9500.00	9500.00	9500.00	9500.00	21.21	21.21	-0.11	50.20	-0.10	50.20	7.78	1.18	Level 2	
9600.00	9600.00	9600.00	9600.00	21.44	21.44	-0.11	50.20	-0.10	50.20	7.33	1.17	Level 2	
9700.00	9700.00	9700.00	9700.00	21.66	21.66	-0.11	50.20	-0.10	50.20	6.88	1.16	Level 2	
9800.00	9800.00	9800.00	9800.00	21.89	21.89	-0.11	50.20	-0.10	50.20	6.43	1.15	Level 2	
9900.00	9900.00	9900.00	9900.00	22.11	22.11	-0.11	50.20	-0.10	50.20	5.98	1.14	Level 2	
10000.00	10000.00	10000.00	10000.00	22.34	22.34	-0.11	50.20	-0.10	50.20	5.53	1.12	Level 2	
10100.00	10100.00	10100.00	10100.00	22.56	22.56	-0.11	50.20	-0.10	50.20	5.08	1.11	Level 2	
10200.00	10200.00	10200.00	10200.00	22.79	22.79	-0.11	50.20	-0.10	50.20	4.63	1.10	Level 2	
10300.00	10300.00	10300.00	10300.00	23.01	23.01	-0.11	50.20	-0.10	50.20	4.18	1.09	Level 2	
10400.00	10400.00	10400.00	10400.00	23.24	23.24	-0.11	50.20	-0.10	50.20	3.73	1.08	Level 2	
10500.00	10500.00	10498.59	10498.20	23.46	23.46	351.73	50.75	-7.37	51.31	4.41	1.09	Level 2	
10506.55	10506.55	10504.92	10504.44	23.47	23.47	350.60	50.83	-8.41	51.56	4.63	1.10	Level 2	
10525.00	10525.00	10522.65	10521.87	23.52	23.51	122.76	51.08	-11.69	52.68	5.68	1.12	Level 2	
10550.00	10549.94	10546.47	10545.10	23.57	23.56	118.57	51.47	-16.93	55.33	8.26	1.18	Level 2	
10575.00	10574.77	10570.01	10567.83	23.62	23.62	114.85	51.94	-23.05	59.20	12.08	1.26	Level 3	
10600.00	10599.40	10593.24	10589.98	23.68	23.67	111.69	52.46	-29.99	64.20	17.03	1.36	Level 3	
10625.00	10623.79	10616.11	10611.50	23.73	23.72	109.07	53.05	-37.71	70.23	23.02	1.49	Level 3	
10650.00	10647.85	10638.61	10632.36	23.79	23.78	106.94	53.68	-46.12	77.19	29.95	1.63		
10675.00	10671.53	10660.71	10652.50	23.84	23.83	105.21	54.37	-55.17	85.02	37.74	1.80		
10700.00	10694.75	10682.39	10671.91	23.90	23.88	103.80	55.10	-64.80	93.66	46.33	1.98		
10725.00	10717.46	10703.63	10690.57	23.95	23.94	102.62	55.86	-74.94	103.04	55.67	2.18		
10750.00	10739.59	10724.43	10708.45	24.01	23.99	101.61	56.67	-85.53	113.14	65.71	2.39		
10775.00	10761.08	10744.78	10725.57	24.07	24.05	100.71	57.50	-96.50	123.91	76.41	2.61		
10800.00	10781.87	10764.68	10741.91	24.14	24.11	99.88	58.35	-107.82	135.31	87.73	2.84		
10825.00	10801.91	10784.12	10757.49	24.20	24.17	99.09	59.23	-119.41	147.32	99.63	3.09		
10850.00	10821.14	10803.10	10772.31	24.28	24.23	98.30	60.13	-131.23	159.91	112.10	3.34		
10875.00	10839.51	10821.64	10786.40	24.35	24.29	97.49	61.03	-143.25	173.03	125.08	3.61		
10900.00	10856.96	10839.74	10799.78	24.43	24.36	96.65	61.96	-155.41	186.66	138.56	3.88		
10925.00	10873.45	10857.41	10812.45	24.52	24.43	95.77	62.88	-167.68	200.78	152.50	4.16		
10950.00	10888.94	10874.66	10824.46	24.62	24.50	94.84	63.82	-180.03	215.34	166.87	4.44		
10975.00	10903.38	10891.50	10835.81	24.72	24.57	93.85	64.76	-192.43	230.32	181.65	4.73		
11000.00	10916.73	10907.94	10846.54	24.83	24.65	92.80	65.70	-204.85	245.70	196.80	5.02		
11025.00	10928.96	10924.01	10856.68	24.95	24.73	91.69	66.64	-217.28	261.43	212.29	5.32		
11050.00	10940.03	10939.71	10866.24	25.08	24.81	90.51	67.58	-229.70	277.50	228.11	5.62		
11075.00	10949.91	10955.05	10875.25	25.22	24.89	89.27	68.52	-242.08	293.88	244.22	5.92		
11100.00	10958.58	10970.07	10883.74	25.37	24.98	87.97	69.45	-254.43	310.53	260.60	6.22		
11125.00	10966.01	10984.76	10891.74	25.53	25.07	86.61	70.38	-266.72	327.43	277.22	6.52		
11150.00	10972.18	10999.15	10899.26	25.69	25.15	85.20	71.31	-278.95	344.55	294.07	6.83		
11175.00	10977.07	11013.26	10906.33	25.87	25.25	83.74	72.23	-291.12	361.88	311.11	7.13		
11200.00	10980.67	11027.09	10912.97	26.06	25.35	82.24	73.14	-303.22	379.37	328.32	7.43		
11225.00	10982.97	11040.68	10919.21	26.26	25.45	80.70	74.05	-315.26	397.01	345.69	7.74		
11250.00	10983.97	11054.02	10925.05	26.46	25.55	79.13	74.96	-327.22	414.77	363.19	8.04		
11261.13	10983.99	11059.90	10927.53	26.56	25.60	78.43	75.36	-332.53	422.71	371.01	8.18		



Weatherford Anticollision Report



Weatherford

Company: Devon Energy Date: 7/9/2013 Time: 09:02:59 Page: 4
Field: Eddy Co NM (NAD:83)
Reference Site: Apache 25 Fed #18H Co-ordinate (NE) Reference: (Well: 25 Fed #18H Grid North)
Reference Well: 25 Fed #18H Vertical (TVD) Reference: SITE 3397.0
Reference Wellpath: Db: Sybase

Site: Apache 25 Fed #19H
Well: 25 Fed #19H

Wellpath: 1 V0 Plan: Plan #1 V1

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis		Offset Location			Ctr-Ctr Edge		Separation	Warning
MD ft	TVD ft	MD ft	TVD ft	Ref ft	Offset ft	TFO-HS deg	North ft	East ft	Distance ft	Distance ft	Factor	
11300.00	10983.62	11080.92	10935.97	26.88	25.77	80.72	76.81	-351.73	450.50	398.15	8.60	
11400.00	10982.64	11140.58	10956.01	27.77	26.32	85.33	81.05	-407.73	521.54	467.52	9.66	
11500.00	10981.65	11208.01	10971.49	28.82	27.04	88.14	86.00	-473.14	590.48	534.64	10.57	
11600.00	10980.64	11282.10	10979.48	29.99	27.95	89.39	91.56	-546.54	656.13	598.19	11.32	
11700.00	10979.62	11360.73	10979.54	31.29	29.04	89.56	97.49	-624.93	717.84	657.51	11.90	
11800.00	10978.59	11442.53	10978.75	32.68	30.29	89.62	103.67	-706.49	775.35	712.38	12.31	
11900.00	10977.55	11527.22	10977.93	34.15	31.70	89.68	110.06	-790.94	828.50	762.65	12.58	
12000.00	10976.51	11614.58	10977.08	35.67	33.26	89.73	116.65	-878.04	877.14	808.21	12.72	
12100.00	10975.47	11704.36	10976.21	37.24	34.96	89.78	123.43	-967.57	921.14	848.94	12.76	
12200.00	10974.44	11796.33	10975.33	38.84	36.80	89.82	130.37	-1059.26	960.39	884.75	12.70	
12300.00	10973.41	11890.22	10974.42	40.44	38.77	89.86	137.45	-1152.88	994.77	915.56	12.56	
12400.00	10972.38	11985.78	10973.49	42.04	40.84	89.90	144.67	-1248.17	1024.19	941.30	12.36	
12500.00	10971.37	12082.76	10972.56	43.62	43.01	89.94	151.98	-1344.86	1048.56	961.94	12.10	
12600.00	10970.37	12180.87	10971.61	45.16	45.25	89.97	159.39	-1442.69	1067.83	977.42	11.81	
12700.00	10969.39	12279.86	10970.65	46.65	47.57	90.00	166.86	-1541.39	1081.93	987.71	11.48	
12775.93	10968.66	12355.44	10969.92	47.75	49.37	90.03	172.56	-1616.76	1089.17	992.06	11.22	
12800.00	10968.43	12379.44	10969.69	48.31	49.94	90.02	174.38	-1640.68	1090.99	992.74	11.10	
12900.00	10967.47	12479.15	10968.73	50.69	52.35	90.02	181.90	-1740.11	1098.54	995.50	10.66	
13000.00	10966.51	12578.87	10967.76	53.10	54.80	90.02	189.43	-1839.54	1106.10	998.20	10.25	
13100.00	10965.56	12678.58	10966.80	55.54	57.27	90.02	196.95	-1938.96	1113.65	1000.84	9.87	
13200.00	10964.60	12778.30	10965.83	58.02	59.77	90.02	204.48	-2038.39	1121.21	1003.42	9.52	
13300.00	10963.64	12878.01	10964.87	60.51	62.29	90.02	212.00	-2137.81	1128.76	1005.96	9.19	
13400.00	10962.69	12977.73	10963.91	63.03	64.83	90.02	219.53	-2237.24	1136.31	1008.45	8.89	
13500.00	10961.73	13077.44	10962.94	65.57	67.39	90.02	227.05	-2336.66	1143.87	1010.91	8.60	
13600.00	10960.77	13177.15	10961.98	68.12	69.96	90.02	234.58	-2436.09	1151.42	1013.34	8.34	
13700.00	10959.81	13276.87	10961.02	70.69	72.54	90.02	242.11	-2535.51	1158.97	1015.74	8.09	
13800.00	10958.86	13376.58	10960.05	73.27	75.14	90.02	249.63	-2634.94	1166.53	1018.12	7.86	
13900.00	10957.90	13476.30	10959.09	75.87	77.75	90.02	257.16	-2734.36	1174.08	1020.47	7.64	
14000.00	10956.94	13576.01	10958.12	78.47	80.37	90.02	264.68	-2833.79	1181.63	1022.80	7.44	
14100.00	10955.98	13675.73	10957.16	81.09	82.99	90.02	272.21	-2933.21	1189.19	1025.11	7.25	
14200.00	10955.03	13775.44	10956.20	83.71	85.63	90.01	279.73	-3032.64	1196.74	1027.40	7.07	
14300.00	10954.07	13875.15	10955.23	86.34	88.27	90.01	287.26	-3132.06	1204.30	1029.68	6.90	
14400.00	10953.11	13974.87	10954.27	88.98	90.92	90.01	294.78	-3231.49	1211.85	1031.95	6.74	
14500.00	10952.16	14074.58	10953.31	91.63	93.58	90.01	302.31	-3330.91	1219.40	1034.20	6.58	
14600.00	10951.20	14174.30	10952.34	94.28	96.24	90.01	309.83	-3430.34	1226.96	1036.44	6.44	
14700.00	10950.24	14274.01	10951.38	96.94	98.91	90.01	317.36	-3529.76	1234.51	1038.67	6.30	
14800.00	10949.28	14373.73	10950.41	99.60	101.58	90.01	324.89	-3629.19	1242.06	1040.89	6.17	
14900.00	10948.33	14473.44	10949.45	102.27	104.25	90.01	332.41	-3728.62	1249.62	1043.09	6.05	
15000.00	10947.37	14573.15	10948.49	104.94	106.93	90.01	339.94	-3828.04	1257.17	1045.30	5.93	
15100.00	10946.41	14672.87	10947.52	107.62	109.62	90.01	347.46	-3927.47	1264.72	1047.49	5.82	
15200.00	10945.45	14772.58	10946.56	110.30	112.30	90.01	354.99	-4026.89	1272.28	1049.68	5.72	
15300.00	10944.50	14872.30	10945.59	112.98	114.99	90.01	362.51	-4126.32	1279.83	1051.85	5.61	
15400.00	10943.54	14972.01	10944.63	115.67	117.69	90.01	370.04	-4225.74	1287.39	1054.03	5.52	
15500.00	10942.58	15071.73	10943.67	118.36	120.38	90.01	377.56	-4325.17	1294.94	1056.19	5.42	
15600.00	10941.62	15171.44	10942.70	121.06	123.08	90.01	385.09	-4424.59	1302.49	1058.36	5.34	
15700.00	10940.67	15271.15	10941.74	123.75	125.78	90.01	392.61	-4524.02	1310.05	1060.51	5.25	
15769.72	10940.00	15340.68	10941.07	125.63	127.67	90.01	397.86	-4593.34	1315.31	1062.01	5.19	

**Weatherford****Weatherford Drilling Services**

GeoDec v5.03

Report Date: June 27, 2012

Job Number: _____

Customer: Devon Energy

Well Name: Apache 25 Fed #18H

API Number: _____

Rig Name: _____

Location: Eddy Co., NM (NAD 83)

Block: _____

Engineer: RWJ

US State Plane 1983

Geodetic Latitude / Longitude

System: New Mexico Eastern Zone

System: Latitude / Longitude

Projection: Transverse Mercator/Gauss Kruger

Projection: Geodetic Latitude and Longitude

Datum: North American Datum 1983

Datum: North American Datum 1983

Ellipsoid: GRS 1980

Ellipsoid: GRS 1980

North/South 497749.000 USFT

Latitude 32.3673640 DEG

East/West 697768.400 USFT

Longitude -103.8266704 DEG

Grid Convergence: -27°

Total Correction: +7.28°

Geodetic Location WGS84

Elevation = 0.0 Meters

Latitude = 32.36736° N 32° 22 min 2.511 sec

Longitude = 103.82667° W 103° 49 min 36.013 sec

Magnetic Declination = 7.55° [True North Offset]

Local Gravity = .9988 g CheckSum = 6599

Local Field Strength = 48563 nT Magnetic Vector X = 23894 nT

Magnetic Dip = 60.24° Magnetic Vector Y = 3168 nT

Magnetic Model = IGRF-2010g11 Magnetic Vector Z = 42159 nT

Spud Date = Oct 15, 2012 Magnetic Vector H = 24103 nT

Signed: _____

Date: _____

CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company, L.P.
LEASE NO.:	NMNM-89052
WELL NAME & NO.:	Apache 25 Fed 18H
SURFACE HOLE FOOTAGE:	1080' FNL & 0330' FEL
BOTTOM HOLE FOOTAGE:	1980' FNL & 0330' FWL
LOCATION:	Section 25, T. 22 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico

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

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

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. 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.

R-111-P Potash/WIPP HIGH CAVE/KARST

**Possible water and brine flows in the Rustler, Salado and Castile formations.
Possible lost circulation within the Rustler, Delaware and Bone Spring.**

1. The 20 inch surface casing shall be set at approximately **520** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

- b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
- 2. The minimum required fill of cement behind the **13-3/8** inch 1st intermediate casing is:
 - ☒ 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 cave/karst and potash.**
- 3. The minimum required fill of cement behind the **9-5/8** inch 2nd intermediate casing is:
 - a. First stage to DV tool, cement shall:
 - ☒ 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 shall:
 - ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Additional cement may be required – excess calculates to 2%.**
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst and potash.
- 4. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification. **Additional cement may be required – excess calculates to 4%.**
- 5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
- 6. 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.** 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 **2000 (2M)** psi.
 - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 13-3/8 inch intermediate casing shoe shall be **3000 (3M)** psi.
5. 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**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

- c. The results of the test shall be reported to the appropriate BLM office.
- d. 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.**
- e. 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.

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, L. P. 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, L. P. 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.

CRW 072313