

Well: Red Hills West 16 St W3 Well 9H
 Site: Red Hills West 16 State
 Project: Lea County, New Mexico
 Design: rev7
 Rig: H&P 486

OCT 14 2015

Section Details

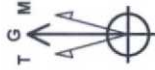
Sec	MD	Inc	Azi	TVD	+N/S	+E/W	Dip	TFace	Vsect	Annotation
1	15999.00	90.53	181.54	12905.84	-3082.16	-10.66	0.00	0.00	3082.15	Survey @ 15999.00 MD
2	16054.00	90.53	181.54	12905.33	-3137.14	-12.14	0.00	0.00	3137.14	Proj. Begin 2'100' bulkturn
3	16091.29	90.70	180.81	12904.93	-3174.42	-12.90	2.00	-76.70	3174.42	Begin 90.70 lateral section
4	17688.65	90.70	180.81	12885.40	-4769.50	-35.57	0.00	0.00	4769.63	PBHLTD

ANNOTATIONS

TVD	MD	Inc	Azi	+N/S	+E/W	Vsect	Departure	Annotation
139.00	139.00	0.50	22.50	0.48	0.20	-0.48	0.52	MWD surveys
981.90	982.00	1.17	117.39	-4.27	10.73	4.19	12.93	MWD surveys
12913.57	15235.00	94.31	174.00	-2319.96	8.22	2319.83	2941.19	330 Hard line intercept @ 15235 MD
12904.94	15685.00	89.92	183.54	-2768.89	9.45	2768.74	3390.91	330 Hard line intercept @ 15685 MD
12909.26	16278.00	88.55	177.82	-3360.73	-1.95	3360.65	3983.85	Survey @ 16278.00 MD

Surface Location: RKB-3226+27 @ 3253.00usft (H&P 486)
 US State Plane 1927 (Exact solution)
 New Mexico East 3001

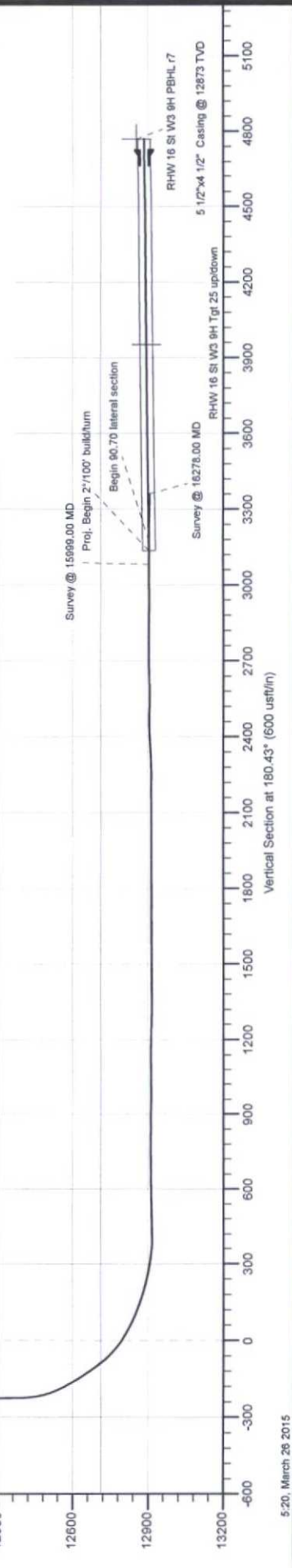
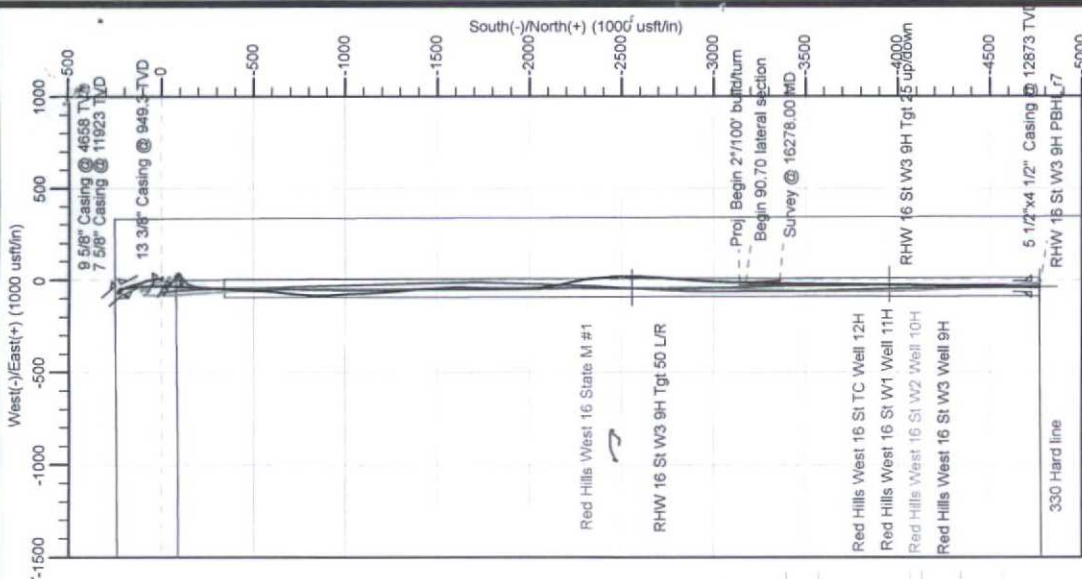
Northing: 382346.70
 Easting: 704921.29
 Latitude: 32° 2' 58.058206 N
 Longitude: 103° 40' 18.972314 W
 Total Correction (M → G): To convert a Magnetic Direction to a Grid Direction, Add 6.99°



Azimuths to Grid North
 True North: -0.35°
 Magnetic North: 6.99°
 Magnetic Field
 Strength: 48134.0nT
 Dip Angle: 59.91°
 Date: 2/10/2015
 Model: USER DEFINED

FORMATION TOP DETAILS

Formation	MDPath	Top Path
Russett	620.04	100.14
Salado	100.14	238.00
Castile	238.00	286.19
Delaware	448.00	457.12
Ramsey Sand 1	457.12	457.35
Ramsey Sand 2	457.35	458.46
Ford Shale	458.46	464.01
Olds	464.01	467.20
Cherry Canyon	467.20	546.00
Brushy Canyon	546.00	7090.20
Bone Springs	7090.20	8361.32
Bone Springs 1st carb	8361.32	8633.35
Avalon A	8633.35	8875.37
Avalon B	8875.37	8963.38
Avalon C	8963.38	9242.40
Bone Springs 1st sand	9242.40	9485.00
FBS Shale	9485.00	9788.44
Bone Springs 2nd carb	9788.44	9951.00
Bone Springs 2nd sand	9951.00	10218.47
Bone Springs 3rd carb	10218.47	10587.00
Bone Springs 3rd sand	10587.00	11310.62
Wolfcamp	11310.62	11797.00
Wolfcamp 1	11797.00	11750.70
Wolfcamp 2	11750.70	11863.00
Wolfcamp 3	11863.00	12297.00
	12297.00	12310.74
	12310.74	12712.00
	12712.00	12760.10



OCT 15 2015

Well: Red Hills West 16 St W3 Well 9H
 Site: Red Hills West 16 State HOBBS OCD
 Project: Lea County, New Mexico
 Design: rev7
 Rig: H&P 486

OCT 14 2015

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Annotation
1	15999.00	90.53	181.54	12805.84	-3062.16	-10.06	0.00	0.00	3062.15	Survey @ 15999.00 MD
2	16054.00	90.53	181.54	12805.33	-3137.14	-12.14	2.00	-76.70	3137.14	Proj. Begin 2'100' buildturm
3	16091.28	90.70	180.81	12805.93	-3150.52	-12.90	2.00	-76.70	3150.52	Begin 90.70 lateral section
4	17686.63	90.70	180.81	12885.40	-4768.36	-33.57	0.00	0.00	4768.63	PBHLTD

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
139.00	139.00	0.50	22.50	0.48	0.20	-0.48	0.52	MWD surveys
981.90	982.00	1.17	117.39	-4.27	10.73	4.19	12.93	MWD surveys
12913.57	15235.00	94.31	174.00	-2319.96	8.22	2319.83	2941.19	330 Hard line intercept @ 15235 MD
12904.84	15685.00	89.92	183.54	-2768.89	9.45	2768.74	3390.91	330 Hard line intercept @ 15685 MD
12909.26	16278.00	88.55	177.82	-3360.73	-1.95	3360.65	3883.85	Survey @ 16278.00 MD

Surface Location: RKB=3226+27 @ 3253.00usft (H&P 486)

US State Plane 1927 (Exact solution)

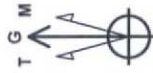
New Mexico East 3001

Easting 704821.29

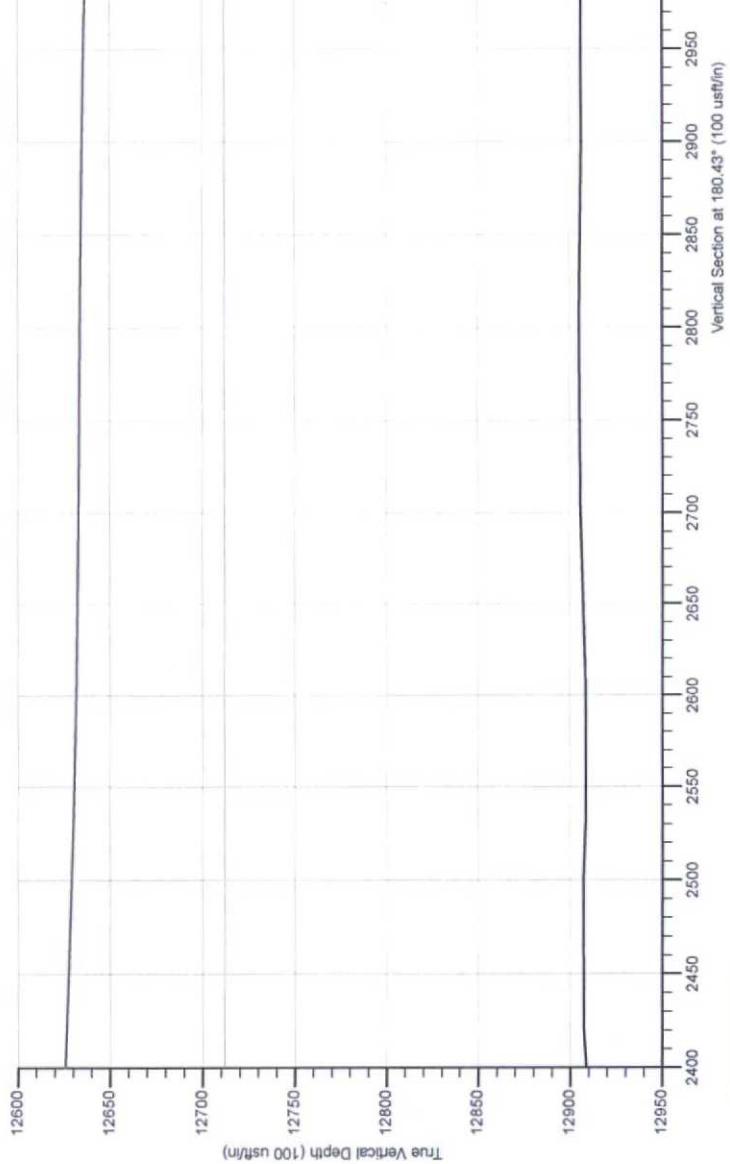
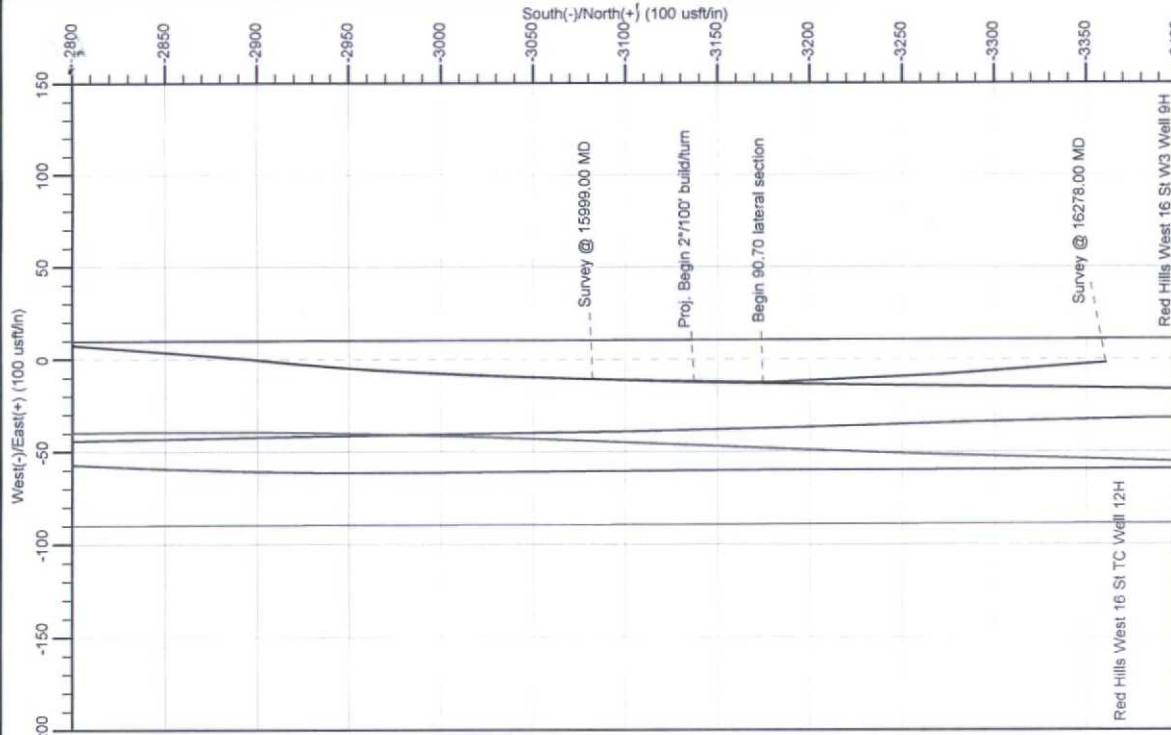
Latitude 32° 58.05205 N

Longitude 103° 40' 18.972314 W

Total Correction (M => G) To convert a Magnetic Direction to a Grid Direction, Add 8.99°



Azimuths to Grid North
 True North: -0.35°
 Magnetic North: 6.99°
 Magnetic Field
 Strength: 48134.0snT
 Dip Angle: 59.91°
 Date: 2/10/2015
 Model: USER DEFINED





Survey Report

RECEIVED

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Red Hills West 16 St W3 Well 9H
Project:	Lea County, New Mexico	TVD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Site:	Red Hills West 16 State	MD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Well:	Red Hills West 16 St W3 Well 9H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase Nov0914

Project	Lea County, New Mexico		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Red Hills West 16 State				
Site Position:		Northing:	382,247.67 usft	Latitude:	32° 2' 57.078179 N
From:	Map	Easting:	704,921.73 usft	Longitude:	103° 40' 18.974250 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.35 °

Well	Red Hills West 16 St W3 Well 9H, Surf Loc: 250 FNL 330 FEL Sect 16					
Well Position	+N/-S	0.00 usft	Northing:	382,346.70 usft	Latitude:	32° 2' 58.058206 N
	+E/-W	0.00 usft	Easting:	704,921.29 usft	Longitude:	103° 40' 18.972314 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,226.00 usft

Wellbore	Original hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	9/22/2014	7.38	59.92	48,180
	User Defined	2/10/2015	7.34	59.91	48,134

Design	Surveys Original hole				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	180.43	

Survey Program	Date	3/26/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
20.00	926.00	surf surveys RKB=27 ft (Original hole)	MWD	MWD - Standard	
982.00	16,278.00	MWD TIP=926 MD (Original hole)	MWD	MWD - Standard	

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	
20.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	
139.00	0.50	22.50	139.00	0.48	0.20	-0.48	0.42	0.42	0.00	
MWD surveys										
201.00	0.50	165.80	201.00	0.47	0.37	-0.47	1.53	0.00	231.13	
263.00	0.60	83.40	263.00	0.24	0.76	-0.25	1.17	0.16	-132.90	
325.00	0.20	93.20	324.99	0.27	1.19	-0.28	0.65	-0.65	15.81	
387.00	0.40	126.60	386.99	0.14	1.47	-0.15	0.42	0.32	53.87	

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Red Hills West 16 St W3 Well 9H
Project:	Lea County, New Mexico	TVD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Site:	Red Hills West 16 State	MD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Well:	Red Hills West 16 St W3 Well 9H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase Nov0914

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)	
450.00	1.30	102.20	449.99	-0.14	2.34	0.13	1.51	1.43	-38.73	
534.00	0.50	102.90	533.97	-0.43	3.63	0.40	0.95	-0.95	0.83	
619.00	1.30	103.90	618.96	-0.74	4.93	0.70	0.94	0.94	1.18	
703.00	1.40	129.50	702.94	-1.62	6.65	1.57	0.72	0.12	30.48	
788.00	0.80	127.70	787.92	-2.65	7.92	2.59	0.71	-0.71	-2.12	
872.00	1.10	118.00	871.91	-3.38	9.09	3.32	0.40	0.36	-11.55	
926.00	0.80	119.90	925.91	-3.81	9.88	3.74	0.56	-0.56	3.52	
982.00	1.17	117.39	981.90	-4.27	10.73	4.19	0.67	0.67	-4.48	
MWD surveys										
1,001.00	1.30	116.87	1,000.89	-4.46	11.09	4.38	0.67	0.67	-2.75	
1,064.00	1.62	102.63	1,063.87	-4.98	12.60	4.88	0.76	0.51	-22.60	
1,158.00	0.79	98.78	1,157.85	-5.37	14.54	5.26	0.89	-0.88	-4.10	
1,252.00	0.13	12.34	1,251.85	-5.36	15.20	5.25	0.84	-0.70	-91.96	
1,346.00	0.06	323.83	1,345.85	-5.22	15.19	5.10	0.11	-0.07	-51.61	
1,441.00	0.06	319.21	1,440.85	-5.14	15.13	5.03	0.01	0.00	-4.86	
1,535.00	0.11	296.35	1,534.85	-5.06	15.02	4.95	0.06	0.05	-24.32	
1,629.00	0.11	306.51	1,628.85	-4.97	14.86	4.86	0.02	0.00	10.81	
1,723.00	0.15	289.76	1,722.85	-4.87	14.68	4.76	0.06	0.04	-17.82	
1,818.00	0.23	261.74	1,817.85	-4.86	14.37	4.75	0.13	0.08	-29.49	
1,912.00	0.26	251.35	1,911.85	-4.95	13.98	4.85	0.06	0.03	-11.05	
2,006.00	0.38	256.55	2,005.84	-5.10	13.48	4.99	0.13	0.13	5.53	
2,100.00	0.41	248.02	2,099.84	-5.29	12.86	5.20	0.07	0.03	-9.07	
2,195.00	0.48	233.17	2,194.84	-5.66	12.23	5.57	0.14	0.07	-15.63	
2,289.00	0.48	278.07	2,288.84	-5.84	11.52	5.75	0.39	0.00	47.77	
2,383.00	1.54	334.23	2,382.82	-4.65	10.58	4.57	1.42	1.13	59.74	
2,477.00	3.33	346.84	2,476.73	-0.85	9.41	0.78	1.98	1.90	13.41	
2,572.00	5.10	350.20	2,571.47	6.00	8.07	-6.06	1.88	1.86	3.54	
2,666.00	5.65	351.79	2,665.06	14.69	6.69	-14.74	0.61	0.59	1.69	
2,760.00	5.77	351.62	2,758.59	23.95	5.34	-23.99	0.13	0.13	-0.18	
2,855.00	5.78	351.90	2,853.11	33.41	3.97	-33.44	0.03	0.01	0.29	
2,949.00	6.17	353.58	2,946.60	43.11	2.74	-43.13	0.45	0.41	1.79	
3,043.00	5.79	351.56	3,040.09	52.82	1.48	-52.83	0.46	-0.40	-2.15	
3,137.00	5.46	345.82	3,133.64	61.85	-0.31	-61.85	0.69	-0.35	-6.11	
3,232.00	5.23	345.51	3,228.22	70.42	-2.50	-70.40	0.24	-0.24	-0.33	
3,326.00	5.25	348.78	3,321.83	78.79	-4.41	-78.76	0.32	0.02	3.48	
3,420.00	5.19	343.19	3,415.44	87.08	-6.48	-87.03	0.54	-0.06	-5.95	
3,515.00	5.49	337.98	3,510.03	95.41	-9.42	-95.33	0.60	0.32	-5.48	
3,610.00	5.42	338.18	3,604.60	103.78	-12.79	-103.69	0.08	-0.07	0.21	
3,704.00	5.06	337.46	3,698.21	111.73	-16.03	-111.61	0.39	-0.38	-0.77	
3,799.00	5.61	342.05	3,792.80	120.02	-19.07	-119.88	0.73	0.58	4.83	
3,893.00	5.87	351.18	3,886.33	129.14	-21.22	-128.98	1.01	0.28	9.71	
3,987.00	5.36	346.17	3,979.87	138.16	-23.01	-137.98	0.75	-0.54	-5.33	
4,081.00	5.12	340.87	4,073.48	146.38	-25.43	-146.19	0.57	-0.26	-5.64	
4,176.00	4.61	344.75	4,168.14	154.07	-27.83	-153.86	0.64	-0.54	4.08	

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Red Hills West 16 St W3 Well 9H
Project:	Lea County, New Mexico	TVD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Site:	Red Hills West 16 State	MD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Well:	Red Hills West 16 St W3 Well 9H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase Nov0914

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)
4,270.00	4.45	346.28	4,261.85	161.26	-29.69	-161.03	0.21	-0.17	1.63
4,364.00	6.63	343.85	4,355.40	170.01	-32.06	-169.77	2.33	2.32	-2.59
4,459.00	7.94	342.55	4,449.63	181.54	-35.55	-181.27	1.39	1.38	-1.37
4,553.00	7.25	340.66	4,542.81	193.33	-39.46	-193.03	0.78	-0.73	-2.01
4,693.00	7.38	331.95	4,681.67	209.60	-46.62	-209.25	0.80	0.09	-6.22
4,786.00	6.35	329.93	4,774.01	219.32	-52.00	-218.93	1.14	-1.11	-2.17
4,850.00	5.06	327.67	4,837.69	224.77	-55.29	-224.35	2.05	-2.02	-3.53
4,944.00	3.36	333.81	4,931.43	230.75	-58.72	-230.30	1.87	-1.81	6.53
5,039.00	2.64	313.57	5,026.30	234.75	-61.53	-234.29	1.34	-0.76	-21.31
5,133.00	2.60	278.44	5,120.21	236.56	-65.21	-236.07	1.68	-0.04	-37.37
5,228.00	2.97	243.04	5,215.10	235.76	-69.54	-235.23	1.82	0.39	-37.26
5,322.00	1.73	222.66	5,309.02	233.61	-72.67	-233.06	1.57	-1.32	-21.68
5,416.00	0.93	149.58	5,403.00	231.91	-73.24	-231.36	1.82	-0.85	-77.74
5,511.00	0.96	139.69	5,497.99	230.64	-72.34	-230.09	0.17	0.03	-10.41
5,606.00	0.84	148.68	5,592.98	229.44	-71.46	-228.90	0.19	-0.13	9.46
5,700.00	0.89	136.74	5,686.97	228.32	-70.60	-227.78	0.20	0.05	-12.70
5,794.00	0.87	139.41	5,780.96	227.24	-69.64	-226.72	0.05	-0.02	2.84
5,889.00	0.87	140.87	5,875.95	226.14	-68.72	-225.62	0.02	0.00	1.54
5,983.00	0.92	139.86	5,969.94	225.01	-67.78	-224.49	0.06	0.05	-1.07
6,078.00	0.96	134.24	6,064.92	223.87	-66.72	-223.36	0.11	0.04	-5.92
6,172.00	0.91	136.43	6,158.91	222.78	-65.64	-222.28	0.07	-0.05	2.33
6,267.00	0.83	144.21	6,253.90	221.67	-64.72	-221.18	0.15	-0.08	8.19
6,361.00	0.85	143.22	6,347.89	220.56	-63.90	-220.08	0.03	0.02	-1.05
6,455.00	0.89	104.12	6,441.88	219.82	-62.77	-219.35	0.62	0.04	-41.60
6,549.00	0.84	100.09	6,535.87	219.53	-61.39	-219.06	0.08	-0.05	-4.29
6,644.00	0.85	105.08	6,630.86	219.22	-60.02	-218.77	0.08	0.01	5.25
6,738.00	0.92	100.25	6,724.85	218.91	-58.61	-218.46	0.11	0.07	-5.14
6,832.00	0.95	103.70	6,818.83	218.59	-57.11	-218.15	0.07	0.03	3.67
6,927.00	0.86	107.41	6,913.82	218.19	-55.66	-217.77	0.11	-0.09	3.91
7,021.00	0.98	117.27	7,007.81	217.61	-54.27	-217.20	0.21	0.13	10.49
7,116.00	0.99	122.50	7,102.80	216.79	-52.86	-216.39	0.10	0.01	5.51
7,210.00	1.16	128.05	7,196.78	215.77	-51.43	-215.38	0.21	0.18	5.90
7,305.00	0.64	162.51	7,291.77	214.67	-50.51	-214.29	0.77	-0.55	36.27
7,399.00	0.79	197.43	7,385.76	213.55	-50.54	-213.17	0.48	0.16	37.15
7,494.00	0.56	193.13	7,480.76	212.48	-50.85	-212.09	0.25	-0.24	-4.53
7,588.00	0.54	184.64	7,574.75	211.59	-50.99	-211.20	0.09	-0.02	-9.03
7,682.00	0.50	141.17	7,668.75	210.83	-50.77	-210.44	0.41	-0.04	-46.24
7,777.00	0.68	133.76	7,763.74	210.11	-50.10	-209.73	0.21	0.19	-7.80
7,871.00	0.67	141.49	7,857.74	209.30	-49.35	-208.92	0.10	-0.01	8.22
7,966.00	0.70	96.78	7,952.73	208.79	-48.43	-208.43	0.55	0.03	-47.06
8,060.00	1.06	53.04	8,046.72	209.25	-47.17	-208.89	0.78	0.38	-46.53
8,154.00	1.04	4.31	8,140.71	210.62	-46.41	-210.27	0.92	-0.02	-51.84
8,249.00	0.94	357.26	8,235.69	212.26	-46.38	-211.91	0.17	-0.11	-7.42

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Red Hills West 16 St W3 Well 9H
Project:	Lea County, New Mexico	TVD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Site:	Red Hills West 16 State	MD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Well:	Red Hills West 16 St W3 Well 9H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase Nov0914

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)	
8,343.00	0.84	348.77	8,329.68	213.71	-46.55	-213.35	0.18	-0.11	-9.03	
8,437.00	0.81	337.78	8,423.67	215.00	-46.94	-214.64	0.17	-0.03	-11.69	
8,532.00	0.81	329.23	8,518.66	216.20	-47.53	-215.84	0.13	0.00	-9.00	
8,619.00	0.84	324.17	8,605.65	217.24	-48.22	-216.88	0.09	0.03	-5.82	
8,713.00	0.92	299.02	8,699.64	218.17	-49.28	-217.79	0.42	0.09	-26.76	
8,808.00	0.77	288.51	8,794.63	218.74	-50.56	-218.36	0.23	-0.16	-11.06	
8,902.00	0.54	290.11	8,888.62	219.09	-51.57	-218.70	0.25	-0.24	1.70	
8,997.00	0.57	278.18	8,983.62	219.31	-52.46	-218.92	0.13	0.03	-12.56	
9,091.00	0.75	260.14	9,077.61	219.27	-53.53	-218.87	0.29	0.19	-19.19	
9,185.00	1.00	259.16	9,171.60	219.01	-54.94	-218.60	0.27	0.27	-1.04	
9,280.00	0.43	282.34	9,266.60	218.94	-56.10	-218.51	0.66	-0.60	24.40	
9,374.00	0.74	289.76	9,360.59	219.22	-57.02	-218.78	0.34	0.33	7.89	
9,468.00	0.86	276.60	9,454.58	219.50	-58.29	-219.06	0.23	0.13	-14.00	
9,563.00	0.63	322.69	9,549.57	220.00	-59.32	-219.55	0.65	-0.24	48.52	
9,657.00	0.84	339.88	9,643.57	221.06	-59.87	-220.60	0.32	0.22	18.29	
9,752.00	0.47	325.57	9,738.56	222.03	-60.33	-221.58	0.42	-0.39	-15.06	
9,846.00	0.48	310.16	9,832.56	222.60	-60.84	-222.14	0.14	0.01	-16.39	
9,940.00	0.53	296.54	9,926.55	223.05	-61.53	-222.59	0.14	0.05	-14.49	
10,035.00	0.61	283.12	10,021.55	223.36	-62.42	-222.89	0.16	0.08	-14.13	
10,129.00	0.71	249.32	10,115.54	223.27	-63.45	-222.79	0.42	0.11	-35.96	
10,224.00	0.77	249.18	10,210.53	222.84	-64.60	-222.35	0.06	0.06	-0.15	
10,318.00	0.50	268.01	10,304.53	222.60	-65.60	-222.10	0.36	-0.29	20.03	
10,413.00	0.34	270.73	10,399.53	222.59	-66.30	-222.09	0.17	-0.17	2.86	
10,507.00	0.14	286.20	10,493.53	222.62	-66.69	-222.12	0.22	-0.21	16.46	
10,602.00	0.43	263.64	10,588.52	222.62	-67.15	-222.11	0.32	0.31	-23.75	
10,696.00	0.19	54.66	10,682.52	222.67	-67.37	-222.16	0.64	-0.26	160.66	
10,791.00	0.34	21.47	10,777.52	223.02	-67.14	-222.51	0.22	0.16	-34.94	
10,885.00	0.23	335.33	10,871.52	223.45	-67.12	-222.94	0.26	-0.12	-49.09	
10,979.00	0.87	27.55	10,965.52	224.26	-66.87	-223.75	0.80	0.68	55.55	
11,074.00	1.64	32.06	11,060.49	226.05	-65.81	-225.55	0.82	0.81	4.75	
11,168.00	1.89	44.42	11,154.45	228.29	-64.01	-227.81	0.48	0.27	13.15	
11,262.00	1.85	63.19	11,248.40	230.09	-61.57	-229.62	0.65	-0.04	19.97	
11,357.00	1.28	79.80	11,343.36	230.97	-59.16	-230.52	0.76	-0.60	17.48	
11,451.00	1.15	85.48	11,437.34	231.23	-57.19	-230.79	0.19	-0.14	6.04	
11,545.00	0.92	96.19	11,531.33	231.22	-55.50	-230.80	0.32	-0.24	11.39	
11,640.00	0.92	135.18	11,626.32	230.60	-54.20	-230.18	0.65	0.00	41.04	
11,734.00	1.09	145.96	11,720.30	229.32	-53.17	-228.92	0.27	0.18	11.47	
11,829.00	1.03	134.52	11,815.29	227.97	-52.05	-227.58	0.23	-0.06	-12.04	
11,923.00	0.80	137.53	11,909.27	226.90	-51.01	-226.51	0.25	-0.24	3.20	
11,983.00	0.77	140.27	11,969.27	226.28	-50.47	-225.89	0.08	-0.05	4.57	
12,117.00	0.49	96.50	12,103.26	225.52	-49.32	-225.15	0.40	-0.21	-32.66	
12,211.00	0.40	81.91	12,197.26	225.52	-48.60	-225.15	0.15	-0.10	-15.52	
12,306.00	0.31	165.77	12,292.26	225.32	-48.21	-224.95	0.50	-0.09	88.27	

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Red Hills West 16 St W3 Well 9H
Project:	Lea County, New Mexico	TVD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Site:	Red Hills West 16 State	MD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Well:	Red Hills West 16 St W3 Well 9H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase Nov0914

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)
12,338.00	0.51	173.43	12,324.26	225.09	-48.17	-224.73	0.65	0.63	23.94
12,369.00	0.82	163.83	12,355.25	224.74	-48.09	-224.38	1.06	1.00	-30.97
12,401.00	0.99	157.51	12,387.25	224.27	-47.92	-223.90	0.62	0.53	-19.75
12,433.00	4.12	174.91	12,419.21	222.87	-47.72	-222.50	9.97	9.78	54.38
12,464.00	8.55	173.90	12,450.02	219.46	-47.37	-219.10	14.29	14.29	-3.26
12,496.00	13.25	169.09	12,481.43	213.49	-46.42	-213.14	14.95	14.69	-15.03
12,528.00	19.30	171.84	12,512.14	204.65	-44.98	-204.31	19.05	18.91	8.59
12,559.00	23.78	172.17	12,540.96	193.38	-43.40	-193.05	14.46	14.45	1.06
12,591.00	27.83	173.19	12,569.77	179.57	-41.63	-179.25	12.73	12.66	3.19
12,622.00	30.14	173.85	12,596.88	164.64	-39.94	-164.34	7.52	7.45	2.13
12,654.00	32.35	175.18	12,624.24	148.12	-38.36	-147.83	7.23	6.91	4.16
12,686.00	33.82	176.20	12,651.05	130.70	-37.05	-130.42	4.91	4.59	3.19
12,718.00	33.91	176.51	12,677.62	112.91	-35.92	-112.64	0.61	0.28	0.97
12,749.00	35.66	177.17	12,703.08	95.25	-34.95	-94.99	5.77	5.65	2.13
12,783.00	40.87	178.03	12,729.77	74.22	-34.07	-73.96	15.40	15.32	2.53
12,814.00	45.73	178.30	12,752.32	52.98	-33.39	-52.73	15.69	15.68	0.87
12,846.00	50.00	178.78	12,773.78	29.26	-32.79	-29.01	13.39	13.34	1.50
12,878.00	54.40	179.30	12,793.39	3.98	-32.37	-3.74	13.81	13.75	1.63
12,909.00	58.70	180.29	12,810.48	-21.87	-32.29	22.11	14.12	13.87	3.19
12,941.00	61.99	182.36	12,826.31	-49.67	-32.94	49.91	11.72	10.28	6.47
12,973.00	64.31	182.81	12,840.76	-78.19	-34.23	78.44	7.36	7.25	1.41
13,004.00	66.71	183.13	12,853.61	-106.36	-35.69	106.62	7.80	7.74	1.03
13,036.00	69.48	182.96	12,865.55	-136.00	-37.27	136.28	8.67	8.66	-0.53
13,068.00	71.67	183.29	12,876.19	-166.14	-38.91	166.42	6.91	6.84	1.03
13,099.00	74.74	182.54	12,885.15	-195.77	-40.42	196.07	10.17	9.90	-2.42
13,131.00	77.07	183.42	12,892.94	-226.76	-42.03	227.07	7.75	7.28	2.75
13,162.00	77.85	183.69	12,899.67	-256.97	-43.91	257.29	2.66	2.52	0.87
13,194.00	79.42	183.47	12,905.97	-288.28	-45.87	288.61	4.95	4.91	-0.69
13,226.00	81.98	182.90	12,911.15	-319.80	-47.62	320.15	8.19	8.00	-1.78
13,257.00	84.23	183.21	12,914.87	-350.53	-49.26	350.89	7.33	7.26	1.00
13,288.00	88.32	182.93	12,916.88	-381.42	-50.92	381.79	13.22	13.19	-0.90
13,320.00	92.12	184.71	12,916.76	-413.34	-53.05	413.72	13.11	11.88	5.56
13,352.00	91.93	184.78	12,915.63	-445.21	-55.70	445.61	0.63	-0.59	0.22
13,446.00	89.05	180.19	12,914.82	-539.08	-59.77	539.51	5.76	-3.06	-4.88
13,541.00	92.91	188.73	12,913.20	-633.68	-67.14	634.16	9.86	4.06	8.99
13,636.00	88.85	183.78	12,911.74	-728.05	-77.48	728.61	6.74	-4.27	-5.21
13,731.00	90.31	182.94	12,912.43	-822.88	-83.05	823.48	1.77	1.54	-0.88
13,825.00	88.35	176.06	12,913.53	-916.81	-82.23	917.40	7.61	-2.09	-7.32
13,920.00	90.50	177.43	12,914.49	-1,011.64	-76.84	1,012.19	2.68	2.26	1.44
14,015.00	91.15	177.59	12,913.12	-1,106.54	-72.71	1,107.06	0.70	0.68	0.17
14,110.00	88.07	175.65	12,913.76	-1,201.36	-67.11	1,201.83	3.83	-3.24	-2.04
14,205.00	89.11	175.26	12,916.10	-1,296.03	-59.59	1,296.44	1.17	1.09	-0.41
14,299.00	90.06	173.63	12,916.78	-1,389.58	-50.49	1,389.92	2.01	1.01	-1.73
14,394.00	90.62	177.78	12,916.22	-1,484.29	-43.38	1,484.58	4.41	0.59	4.37

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Red Hills West 16 St W3 Well 9H
Project:	Lea County, New Mexico	TVD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Site:	Red Hills West 16 State	MD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Well:	Red Hills West 16 St W3 Well 9H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase Nov0914

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)
14,489.00	90.67	178.11	12,915.15	-1,579.23	-39.97	1,579.48	0.35	0.05	0.35
14,584.00	89.55	182.49	12,914.97	-1,674.20	-40.47	1,674.46	4.76	-1.18	4.61
14,678.00	89.66	181.94	12,915.62	-1,768.13	-44.10	1,768.41	0.60	0.12	-0.59
14,773.00	91.34	181.42	12,914.79	-1,863.08	-46.89	1,863.38	1.85	1.77	-0.55
14,862.00	89.41	177.84	12,914.20	-1,952.06	-46.31	1,952.35	4.57	-2.17	-4.02
14,957.00	89.69	176.14	12,914.95	-2,046.92	-41.32	2,047.17	1.81	0.29	-1.79
15,052.00	91.14	169.37	12,914.26	-2,141.10	-29.35	2,141.26	7.29	1.53	-7.13
15,147.00	87.77	164.68	12,915.16	-2,233.63	-8.03	2,233.63	6.08	-3.55	-4.94
15,235.00	94.31	174.00	12,913.57	-2,319.96	8.22	2,319.83	12.93	7.43	10.59
330 Hard line intercept @ 15235 MD									
15,241.00	94.75	174.64	12,913.09	-2,325.91	8.82	2,325.78	12.93	7.39	10.64
15,336.00	92.09	176.05	12,907.43	-2,420.42	16.51	2,420.23	3.17	-2.80	1.48
15,431.00	87.41	179.21	12,907.84	-2,515.30	20.44	2,515.07	5.94	-4.93	3.33
15,525.00	91.70	182.05	12,908.57	-2,609.26	19.40	2,609.04	5.47	4.56	3.02
15,620.00	91.62	184.48	12,905.82	-2,704.05	14.00	2,703.87	2.56	-0.08	2.56
15,685.00	89.92	183.54	12,904.94	-2,768.89	9.45	2,768.74	2.98	-2.61	-1.44
330 Hard line intercept @ 15685 MD									
15,715.00	89.14	183.11	12,905.19	-2,798.83	7.71	2,798.70	2.98	-2.61	-1.44
15,810.00	89.83	185.99	12,906.04	-2,893.52	0.17	2,893.44	3.12	0.73	3.03
15,904.00	89.94	182.82	12,906.23	-2,987.23	-7.05	2,987.20	3.37	0.12	-3.37
15,999.00	90.53	181.54	12,905.84	-3,082.16	-10.66	3,082.15	1.48	0.62	-1.35
16,094.00	90.06	180.45	12,905.35	-3,177.14	-12.31	3,177.14	1.25	-0.49	-1.15
16,189.00	88.24	174.36	12,906.76	-3,271.98	-8.01	3,271.95	6.69	-1.92	-6.41
16,278.00	88.55	177.82	12,909.26	-3,360.73	-1.95	3,360.65	3.90	0.35	3.89
Survey @ 16278.00 MD									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
982.00	981.90	13 3/8" casing @ 982 MD	13-3/8	17-1/2

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
139.00	139.00	0.48	0.20	MWD surveys
982.00	981.90	-4.27	10.73	MWD surveys
15,235.00	12,913.57	-2,319.96	8.22	330 Hard line intercept @ 15235 MD
15,685.00	12,904.94	-2,768.89	9.45	330 Hard line intercept @ 15685 MD
16,278.00	12,909.26	-3,360.73	-1.95	Survey @ 16278.00 MD

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Red Hills West 16 St W3 Well 9H
Project:	Lea County, New Mexico	TVD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Site:	Red Hills West 16 State	MD Reference:	RKB=3226+27 @ 3253.00usft (H&P 486)
Well:	Red Hills West 16 St W3 Well 9H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase Nov0914