

SURVEY DATA CERTIFICATION



Job #: 10366262
Client: ConocoPhillips
County & State: Lea County, NM
Well: Red Hills West 16 State W2 10H
API No: 3002541708
Proposed Direction: 180.43

TIE-IN DATA

MD	TVD	INC	AZM	N/-S	E/-W	DATA SOURCE
928.00 ft	927.93 ft	1.1	136.4	-2.09	8.76	Gyro
Data Source Company:						Gyro Data

SURVEY DATA

First Survey Date	First Survey Depth	INC	AZM
27-Dec-14	1,074 ft	0.85°	138.48°

Last Survey Date	Last Survey Depth	INC	AZM
5-Feb-15	17,138 ft	89.33°	174.26°

Survey Instrument Type
Positive Pulse MWD

Projected TD Survey Date	Projected TD Survey Depth	INC	AZM
5-Feb-15	17,263 ft	89.33°	174.26°

CORRECTION INFORMATION

Magnetic Declination Used	7.38 degrees
Grid Convergence Used	0.35 degrees
Total Correction	7.03 degrees

Corrected to True/Grid North
Grid North

TO THE BEST OF MY KNOWLEDGE, I
CERTIFY THIS SURVEY DATA TO BE TRUE
AND CORRECT.

T. Brannen Carne
(MWD Signature)
4-1-15
Date



Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Red Hills West 16 St W2 Well 10H
Project:	Lea County, New Mexico	TVD Reference:	RKB=3224+27 @ 3251.00usft (H&P 486)
Site:	Red Hills West 16 State	MD Reference:	RKB=3224+27 @ 3251.00usft (H&P 486)
Well:	Red Hills West 16 St W2 Well 10H	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
From:	Map	Easting:	704,921.73 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 2' 57.078179 N
		Longitude:	103° 40' 18.974250 W
		Grid Convergence:	0.35 °

Well	Red Hills West 16 St W2 Well 10H, Surf Loc: 283 FNL 330 FEL Sect 16		
Well Position	+N/-S	0.00 usft	Northing: 382,313.62 usft
	+E/-W	0.00 usft	Easting: 704,921.44 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 2' 57.730838 N
		Longitude:	103° 40' 18.972926 W
		Ground Level:	3,224.00 usft

Wellbore	Original hole		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	9/25/2014	7.38	59.92	48,180

Design	Surveys Original hole		
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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	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
	20.00	928.00	Surf surveys corr RKB=27 ft (Original hole)	MWD	MWD - Standard
	1,074.00	17,263.00	MWD TIP=928 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
	138.00	0.40	20.50	138.00	0.39	0.14	-0.39	0.34	0.34	0.00
MWD surveys	201.00	0.70	96.00	201.00	0.55	0.60	-0.56	1.13	0.48	119.84
	262.00	0.20	78.30	261.99	0.53	1.08	-0.54	0.84	-0.82	-29.02
	325.00	0.90	108.30	324.99	0.40	1.66	-0.41	1.16	1.11	47.62
	387.00	0.40	90.10	386.99	0.25	2.33	-0.27	0.86	-0.81	-29.35
	449.00	1.10	83.70	448.98	0.31	3.14	-0.34	1.14	1.13	-10.32
	533.00	1.10	122.00	532.97	-0.03	4.63	-0.01	0.86	0.00	45.60

Company: ConocoPhillips
Project: Lea County, New Mexico
Site: Red Hills West 16 State
Well: Red Hills West 16 St W2 Well 10H
Wellbore: Original hole
Design: Surveys Original hole

Local Co-ordinate Reference: Well Red Hills West 16 St W2 Well 10H
TVD Reference: RKB=3224+27 @ 3251.00usft (H&P 486)
MD Reference: RKB=3224+27 @ 3251.00usft (H&P 486)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
618.00	1.00	97.40	617.95	-0.55	6.06	0.51	0.54	-0.12	-28.94
702.00	0.70	89.00	701.94	-0.64	7.30	0.58	0.39	-0.36	-10.00
787.00	0.40	146.80	786.94	-0.88	7.98	0.82	0.70	-0.35	68.00
871.00	0.50	157.00	870.94	-1.46	8.28	1.40	0.15	0.12	12.14
928.00	1.10	136.40	927.93	-2.09	8.76	2.02	1.15	1.05	-36.14
Tie into surf surveys @ 928 MD									
1,074.00	0.85	138.48	1,073.91	-3.91	10.44	3.83	0.17	-0.17	1.42
1,168.00	1.01	128.05	1,167.90	-4.94	11.55	4.86	0.25	0.17	-11.10
1,263.00	1.04	124.96	1,262.88	-5.95	12.92	5.86	0.07	0.03	-3.25
1,358.00	1.05	129.94	1,357.87	-7.01	14.29	6.90	0.10	0.01	5.24
1,452.00	1.10	132.69	1,451.85	-8.17	15.62	8.05	0.08	0.05	2.93
1,547.00	1.18	142.56	1,546.83	-9.57	16.88	9.44	0.22	0.08	10.39
1,642.00	0.53	162.96	1,641.82	-10.76	17.61	10.63	0.75	-0.68	21.47
1,737.00	0.36	223.10	1,736.82	-11.40	17.53	11.27	0.49	-0.18	63.31
1,831.00	0.61	245.48	1,830.82	-11.83	16.87	11.70	0.33	0.27	23.81
1,926.00	0.65	245.90	1,925.81	-12.26	15.92	12.14	0.04	0.04	0.44
2,021.00	0.88	235.54	2,020.80	-12.89	14.83	12.78	0.28	0.24	-10.91
2,115.00	1.09	241.04	2,114.79	-13.73	13.45	13.63	0.24	0.22	5.85
2,210.00	1.41	268.99	2,209.77	-14.19	11.49	14.10	0.71	0.34	29.42
2,305.00	2.05	283.66	2,304.72	-13.81	8.67	13.74	0.81	0.67	15.44
2,399.00	2.58	321.73	2,398.65	-11.75	5.73	11.71	1.69	0.56	40.50
2,494.00	3.83	346.01	2,493.50	-6.99	3.64	6.96	1.91	1.32	25.56
2,589.00	4.58	347.61	2,588.25	-0.21	2.06	0.19	0.80	0.79	1.68
2,683.00	4.79	345.77	2,681.93	7.26	0.29	-7.26	0.27	0.22	-1.96
2,778.00	4.71	347.40	2,776.61	14.91	-1.54	-14.90	0.17	-0.08	1.72
2,873.00	4.64	349.39	2,871.29	22.50	-3.10	-22.47	0.19	-0.07	2.09
2,968.00	4.53	344.92	2,965.99	29.90	-4.78	-29.86	0.39	-0.12	-4.71
3,062.00	4.36	337.57	3,059.71	36.78	-7.11	-36.73	0.63	-0.18	-7.82
3,157.00	4.51	341.17	3,154.42	43.66	-9.69	-43.58	0.33	0.16	3.79
3,252.00	4.32	346.62	3,249.14	50.67	-11.73	-50.58	0.48	-0.20	5.74
3,347.00	4.11	346.48	3,343.88	57.46	-13.35	-57.36	0.22	-0.22	-0.15
3,441.00	4.08	345.68	3,437.64	63.98	-14.97	-63.86	0.07	-0.03	-0.85
3,536.00	3.94	351.53	3,532.41	70.48	-16.28	-70.36	0.45	-0.15	6.16
3,631.00	3.79	336.24	3,627.20	76.58	-18.03	-76.45	1.09	-0.16	-16.09
3,725.00	3.87	320.07	3,720.99	81.86	-21.32	-81.70	1.15	0.09	-17.20
3,820.00	3.47	321.84	3,815.80	86.58	-25.15	-86.39	0.44	-0.42	1.86
3,915.00	3.03	326.23	3,910.64	90.93	-28.32	-90.71	0.53	-0.46	4.62
4,009.00	3.88	322.50	4,004.47	95.51	-31.64	-95.27	0.93	0.90	-3.97
4,104.00	4.02	324.34	4,099.25	100.77	-35.54	-100.50	0.20	0.15	1.94
4,199.00	3.17	328.45	4,194.06	105.71	-38.85	-105.42	0.93	-0.89	4.33
4,293.00	3.38	319.34	4,287.90	110.03	-42.02	-109.71	0.60	0.22	-9.69
4,388.00	4.74	322.19	4,382.66	115.26	-46.25	-114.91	1.45	1.43	3.00
4,483.00	3.92	332.51	4,477.39	121.24	-50.16	-120.86	1.19	-0.86	10.86

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Wellbore: Original hole
Design: Surveys Original hole

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MD Reference: RKB=3224+27 @ 3251.00usft (H&P 486)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
4,577.00	2.46	333.60	4,571.25	125.90	-52.54	-125.50	1.55	-1.55	1.16
4,609.00	1.95	333.44	4,603.22	127.00	-53.09	-126.60	1.59	-1.59	-0.50
4,679.00	1.79	330.45	4,673.18	129.01	-54.16	-128.60	0.27	-0.23	-4.27
4,773.00	0.81	329.54	4,767.16	130.86	-55.22	-130.45	1.04	-1.04	-0.97
4,868.00	0.70	344.56	4,862.15	132.00	-55.71	-131.58	0.24	-0.12	15.81
4,963.00	0.62	344.00	4,957.14	133.06	-56.01	-132.63	0.08	-0.08	-0.59
5,057.00	0.62	338.95	5,051.14	134.02	-56.33	-133.59	0.06	0.00	-5.37
5,152.00	0.53	334.12	5,146.13	134.89	-56.71	-134.47	0.11	-0.09	-5.08
5,247.00	0.51	341.82	5,241.13	135.69	-57.03	-135.26	0.08	-0.02	8.11
5,342.00	0.53	344.11	5,336.13	136.52	-57.28	-136.08	0.03	0.02	2.41
5,436.00	0.44	344.92	5,430.12	137.28	-57.50	-136.85	0.10	-0.10	0.86
5,531.00	0.58	343.36	5,525.12	138.10	-57.73	-137.66	0.15	0.15	-1.64
5,626.00	0.62	347.78	5,620.11	139.06	-57.98	-138.62	0.06	0.04	4.65
5,720.00	0.52	345.34	5,714.11	139.97	-58.19	-139.53	0.11	-0.11	-2.60
5,815.00	0.68	331.65	5,809.10	140.88	-58.57	-140.44	0.23	0.17	-14.41
5,910.00	0.63	346.50	5,904.10	141.89	-58.96	-141.44	0.19	-0.05	15.63
6,004.00	0.84	351.37	5,998.09	143.07	-59.18	-142.62	0.23	0.22	5.18
6,099.00	0.68	42.57	6,093.08	144.17	-58.91	-143.73	0.71	-0.17	53.89
6,194.00	0.67	65.52	6,188.08	144.82	-58.02	-144.38	0.28	-0.01	24.16
6,288.00	0.88	64.51	6,282.07	145.36	-56.87	-144.93	0.22	0.22	-1.07
6,383.00	0.91	78.36	6,377.06	145.82	-55.47	-145.40	0.23	0.03	14.58
6,478.00	0.86	76.99	6,472.05	146.14	-54.04	-145.73	0.06	-0.05	-1.44
6,572.00	0.81	88.29	6,566.04	146.31	-52.68	-145.91	0.18	-0.05	12.02
6,667.00	0.78	99.47	6,661.03	146.23	-51.38	-145.84	0.17	-0.03	11.77
6,762.00	0.95	109.87	6,756.02	145.85	-50.00	-145.47	0.24	0.18	10.95
6,856.00	0.88	120.32	6,850.00	145.22	-48.64	-144.86	0.19	-0.07	11.12
6,951.00	0.86	121.94	6,944.99	144.48	-47.41	-144.12	0.03	-0.02	1.71
7,046.00	0.95	123.22	7,039.98	143.67	-46.14	-143.32	0.10	0.09	1.35
7,140.00	0.81	128.62	7,133.97	142.83	-44.97	-142.49	0.17	-0.15	5.74
7,235.00	0.99	132.48	7,228.96	141.86	-43.84	-141.52	0.20	0.19	4.06
7,330.00	0.94	148.75	7,323.94	140.63	-42.83	-140.31	0.29	-0.05	17.13
7,424.00	0.94	148.56	7,417.93	139.32	-42.03	-139.00	0.00	0.00	-0.20
7,519.00	0.80	167.55	7,512.92	138.01	-41.48	-137.69	0.34	-0.15	19.99
7,614.00	1.01	162.35	7,607.91	136.56	-41.08	-136.25	0.24	0.22	-5.47
7,709.00	0.87	163.21	7,702.90	135.07	-40.62	-134.76	0.15	-0.15	0.91
7,803.00	1.02	171.76	7,796.88	133.56	-40.29	-133.25	0.22	0.16	9.10
7,898.00	1.12	169.74	7,891.87	131.81	-40.01	-131.51	0.11	0.11	-2.13
7,993.00	1.22	164.12	7,986.85	129.92	-39.57	-129.62	0.16	0.11	-5.92
8,088.00	1.15	165.98	8,081.83	128.03	-39.06	-127.73	0.08	-0.07	1.96
8,182.00	1.30	168.78	8,175.81	126.06	-38.62	-125.77	0.17	0.16	2.98
8,277.00	0.78	198.22	8,270.79	124.39	-38.62	-124.10	0.77	-0.55	30.99
8,372.00	0.72	237.36	8,365.78	123.46	-39.32	-123.16	0.53	-0.06	41.20
8,467.00	0.69	232.90	8,460.78	122.79	-40.28	-122.48	0.07	-0.03	-4.69
8,561.00	0.89	230.50	8,554.77	121.98	-41.29	-121.67	0.22	0.21	-2.55

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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)
8,656.00	0.91	238.00	8,649.75	121.12	-42.50	-120.79	0.13	0.02	7.89
8,751.00	1.04	249.85	8,744.74	120.42	-43.95	-120.09	0.25	0.14	12.47
8,846.00	0.85	244.05	8,839.73	119.81	-45.39	-119.47	0.22	-0.20	-6.11
8,940.00	0.62	215.42	8,933.72	119.09	-46.32	-118.74	0.45	-0.24	-30.46
9,035.00	0.59	228.75	9,028.72	118.35	-46.98	-118.00	0.15	-0.03	14.03
9,130.00	0.85	222.97	9,123.71	117.51	-47.83	-117.15	0.28	0.27	-6.08
9,224.00	1.15	226.45	9,217.69	116.35	-48.99	-115.98	0.33	0.32	3.70
9,319.00	1.14	227.80	9,312.67	115.06	-50.38	-114.68	0.03	-0.01	1.42
9,414.00	1.59	229.21	9,407.65	113.57	-52.08	-113.17	0.47	0.47	1.48
9,509.00	1.60	211.63	9,502.61	111.58	-53.77	-111.17	0.51	0.01	-18.51
9,603.00	1.20	317.58	9,596.59	111.19	-55.12	-110.77	2.39	-0.43	112.71
9,698.00	1.06	285.25	9,691.58	112.15	-56.64	-111.72	0.68	-0.15	-34.03
9,793.00	0.90	309.36	9,786.56	112.86	-58.07	-112.42	0.46	-0.17	25.38
9,888.00	0.93	276.30	9,881.55	113.41	-59.41	-112.96	0.55	0.03	-34.80
9,982.00	1.14	264.30	9,975.54	113.40	-61.10	-112.94	0.32	0.22	-12.77
10,077.00	1.32	264.13	10,070.51	113.20	-63.13	-112.72	0.19	0.19	-0.18
10,172.00	1.40	267.12	10,165.49	113.03	-65.38	-112.53	0.11	0.08	3.15
10,266.00	1.51	256.79	10,259.46	112.69	-67.73	-112.18	0.30	0.12	-10.99
10,361.00	1.25	273.31	10,354.43	112.46	-69.98	-111.93	0.50	-0.27	17.39
10,456.00	1.21	281.05	10,449.41	112.71	-72.00	-112.17	0.18	-0.04	8.15
10,550.00	1.23	285.90	10,543.39	113.18	-73.94	-112.62	0.11	0.02	5.16
10,645.00	1.57	262.34	10,638.36	113.29	-76.21	-112.71	0.70	0.36	-24.80
10,740.00	2.12	295.50	10,733.31	113.87	-79.09	-113.27	1.24	0.58	34.91
10,834.00	2.22	319.40	10,827.25	116.00	-81.84	-115.38	0.96	0.11	25.43
10,929.00	1.90	352.65	10,922.19	118.96	-83.24	-118.33	1.28	-0.34	35.00
11,024.00	1.72	357.79	11,017.14	121.95	-83.50	-121.32	0.25	-0.19	5.41
11,118.00	1.17	10.35	11,111.11	124.30	-83.38	-123.67	0.67	-0.59	13.36
11,213.00	0.59	20.35	11,206.10	125.71	-83.04	-125.09	0.63	-0.61	10.53
11,308.00	0.64	18.41	11,301.09	126.67	-82.70	-126.05	0.06	0.05	-2.04
11,402.00	0.51	53.94	11,395.09	127.42	-82.20	-126.80	0.40	-0.14	37.80
11,497.00	0.49	29.50	11,490.09	128.02	-81.65	-127.40	0.22	-0.02	-25.73
11,592.00	0.28	23.24	11,585.08	128.59	-81.36	-127.97	0.23	-0.22	-6.59
11,686.00	0.24	115.08	11,679.08	128.72	-81.09	-128.10	0.40	-0.04	97.70
11,781.00	0.26	103.84	11,774.08	128.58	-80.70	-127.97	0.06	0.02	-11.83
11,876.00	0.48	150.68	11,869.08	128.18	-80.30	-127.57	0.38	0.23	49.31
11,945.00	0.50	165.36	11,938.08	127.64	-80.08	-127.03	0.18	0.03	21.28
12,010.00	0.63	154.28	12,003.08	127.04	-79.86	-126.44	0.26	0.20	-17.05
12,083.00	0.87	165.40	12,076.07	126.14	-79.54	-125.54	0.38	0.33	15.23
12,114.00	0.73	159.09	12,107.07	125.73	-79.41	-125.13	0.53	-0.45	-20.35
12,146.00	1.40	170.55	12,139.06	125.15	-79.28	-124.56	2.19	2.09	35.81
12,177.00	2.89	193.12	12,170.04	124.02	-79.39	-123.42	5.44	4.81	72.81
12,209.00	4.58	201.78	12,201.97	122.05	-80.05	-121.44	5.55	5.28	27.06
12,241.00	9.67	192.51	12,233.71	118.24	-81.10	-117.62	16.26	15.91	-28.97

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Red Hills West 16 St W2 Well 10H
Project:	Lea County, New Mexico	TVD Reference:	RKB=3224+27 @ 3251.00usft (H&P 486)
Site:	Red Hills West 16 State	MD Reference:	RKB=3224+27 @ 3251.00usft (H&P 486)
Well:	Red Hills West 16 St W2 Well 10H	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)
12,272.00	15.92	187.28	12,263.93	111.47	-82.21	-110.85	20.48	20.16	-16.87
12,304.00	22.15	185.40	12,294.16	101.10	-83.33	-100.47	19.56	19.47	-5.88
12,335.00	27.99	182.70	12,322.23	88.00	-84.23	-87.37	19.19	18.84	-8.71
12,370.00	32.16	180.91	12,352.51	70.48	-84.76	-69.84	12.19	11.91	-5.11
12,401.00	35.82	179.21	12,378.21	53.15	-84.77	-52.51	12.20	11.81	-5.48
12,433.00	38.13	178.96	12,403.78	33.91	-84.46	-33.27	7.23	7.22	-0.78
12,465.00	41.48	178.60	12,428.36	13.43	-84.02	-12.80	10.49	10.47	-1.13
12,496.00	44.69	178.02	12,450.99	-7.73	-83.39	8.36	10.43	10.35	-1.87
12,528.00	48.99	177.39	12,472.88	-31.05	-82.45	31.67	13.51	13.44	-1.97
12,559.00	53.02	176.29	12,492.38	-55.10	-81.12	55.71	13.29	13.00	-3.55
12,591.00	57.58	175.12	12,510.59	-81.33	-79.14	81.92	14.56	14.25	-3.66
12,623.00	62.93	175.52	12,526.47	-109.01	-76.88	109.58	16.75	16.72	1.25
12,654.00	66.84	175.65	12,539.62	-136.99	-74.72	137.55	12.62	12.61	0.42
12,686.00	69.52	175.95	12,551.51	-166.61	-72.54	167.15	8.42	8.38	0.94
12,717.00	71.10	175.88	12,561.96	-195.73	-70.47	196.25	5.10	5.10	-0.23
12,749.00	72.49	176.06	12,571.96	-226.05	-68.33	226.56	4.38	4.34	0.56
12,781.00	75.61	176.68	12,580.75	-256.75	-66.38	257.24	9.93	9.75	1.94
12,812.00	78.45	177.09	12,587.70	-286.91	-64.74	287.39	9.25	9.16	1.32
12,844.00	80.58	177.88	12,593.53	-318.35	-63.36	318.81	7.09	6.66	2.47
12,875.00	83.04	178.90	12,597.94	-349.01	-62.50	349.47	8.58	7.94	3.29
12,907.00	85.66	178.95	12,601.09	-380.85	-61.90	381.30	8.19	8.19	0.16
12,970.00	88.82	177.48	12,604.13	-443.74	-59.94	444.18	5.53	5.02	-2.33
13,065.00	89.47	177.28	12,605.54	-538.63	-55.60	539.03	0.72	0.68	-0.21
13,160.00	90.31	178.60	12,605.73	-633.56	-52.19	633.94	1.65	0.88	1.39
13,254.00	89.36	179.26	12,606.00	-727.54	-50.43	727.90	1.23	-1.01	0.70
13,349.00	90.34	179.23	12,606.25	-822.53	-49.18	822.88	1.03	1.03	-0.03
13,444.00	90.42	180.52	12,605.62	-917.53	-48.97	917.87	1.36	0.08	1.36
13,539.00	89.05	179.98	12,606.06	-1,012.53	-49.39	1,012.87	1.55	-1.44	-0.57
13,629.00	88.88	179.85	12,607.68	-1,102.51	-49.25	1,102.85	0.24	-0.19	-0.14
13,724.00	88.21	179.30	12,610.09	-1,197.48	-48.55	1,197.81	0.91	-0.71	-0.58
13,819.00	88.32	179.11	12,612.97	-1,292.42	-47.23	1,292.74	0.23	0.12	-0.20
13,914.00	87.29	178.39	12,616.61	-1,387.33	-45.16	1,387.63	1.32	-1.08	-0.76
14,008.00	88.97	179.16	12,619.68	-1,481.25	-43.15	1,481.54	1.97	1.79	0.82
14,103.00	90.87	179.08	12,619.81	-1,576.24	-41.69	1,576.51	2.00	2.00	-0.08
14,198.00	93.05	179.88	12,616.56	-1,671.17	-40.83	1,671.43	2.44	2.29	0.84
14,293.00	91.45	180.35	12,612.83	-1,766.10	-41.02	1,766.35	1.76	-1.68	0.49
14,387.00	89.02	179.29	12,612.44	-1,860.09	-40.73	1,860.34	2.82	-2.59	-1.13
14,482.00	89.61	180.12	12,613.58	-1,955.08	-40.24	1,955.32	1.07	0.62	0.87
14,577.00	88.41	180.09	12,615.22	-2,050.06	-40.41	2,050.31	1.26	-1.26	-0.03
14,672.00	88.35	180.80	12,617.91	-2,145.02	-41.15	2,145.27	0.75	-0.06	0.75
14,767.00	88.66	181.06	12,620.39	-2,239.97	-42.69	2,240.23	0.43	0.33	0.27
14,862.00	88.40	180.49	12,622.82	-2,334.93	-43.98	2,335.20	0.66	-0.27	-0.60
14,957.00	87.82	179.14	12,625.96	-2,429.88	-43.67	2,430.14	1.55	-0.61	-1.42

Company: ConocoPhillips
 Project: Lea County, New Mexico
 Site: Red Hills West 16 State
 Well: Red Hills West 16 St W2 Well 10H
 Wellbore: Original hole
 Design: Surveys Original hole

Local Co-ordinate Reference: Well Red Hills West 16 St W2 Well 10H
 TVD Reference: RKB=3224+27 @ 3251.00usft (H&P 486)
 MD Reference: RKB=3224+27 @ 3251.00usft (H&P 486)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 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)
15,051.00	88.71	179.47	12,628.80	-2,523.83	-42.53	2,524.08	1.01	0.95	0.35
15,146.00	89.13	179.58	12,630.59	-2,618.81	-41.74	2,619.05	0.46	0.44	0.12
15,241.00	89.80	178.78	12,631.48	-2,713.79	-40.38	2,714.02	1.10	0.71	-0.84
15,336.00	89.33	180.04	12,632.20	-2,808.78	-39.40	2,809.00	1.42	-0.49	1.33
15,431.00	88.88	180.70	12,633.69	-2,903.77	-40.02	2,903.99	0.84	-0.47	0.69
15,526.00	88.21	182.35	12,636.10	-2,998.70	-42.54	2,998.93	1.87	-0.71	1.74
15,621.00	88.99	181.99	12,638.42	-3,093.60	-46.14	3,093.86	0.90	0.82	-0.38
15,716.00	89.47	182.42	12,639.70	-3,188.52	-49.80	3,188.81	0.68	0.51	0.45
15,811.00	87.76	181.39	12,641.99	-3,283.44	-52.95	3,283.74	2.10	-1.80	-1.08
15,906.00	88.57	182.10	12,645.03	-3,378.34	-55.84	3,378.67	1.13	0.85	0.75
16,001.00	88.01	181.91	12,647.87	-3,473.24	-59.17	3,473.59	0.62	-0.59	-0.20
16,095.00	87.54	180.55	12,651.52	-3,567.15	-61.18	3,567.51	1.53	-0.50	-1.45
16,190.00	88.13	180.51	12,655.11	-3,662.08	-62.06	3,662.44	0.62	0.62	-0.04
16,285.00	88.69	180.31	12,657.74	-3,757.04	-62.74	3,757.40	0.63	0.59	-0.21
16,380.00	87.71	179.45	12,660.73	-3,851.99	-62.54	3,852.35	1.37	-1.03	-0.91
16,474.00	87.20	178.60	12,664.90	-3,945.88	-60.94	3,946.23	1.05	-0.54	-0.90
16,569.00	88.71	177.15	12,668.29	-4,040.75	-57.42	4,041.07	2.20	1.59	-1.53
16,664.00	91.71	177.26	12,667.94	-4,135.62	-52.79	4,135.90	3.16	3.16	0.12
16,759.00	91.71	177.42	12,665.11	-4,230.48	-48.38	4,230.72	0.17	0.00	0.17
16,853.00	91.65	177.73	12,662.35	-4,324.36	-44.41	4,324.57	0.34	-0.06	0.33
16,948.00	89.30	176.21	12,661.56	-4,419.21	-39.39	4,419.38	2.95	-2.47	-1.60
17,043.00	90.14	176.03	12,662.03	-4,513.99	-32.96	4,514.11	0.90	0.88	-0.19
17,138.00	89.33	174.26	12,662.47	-4,608.64	-24.92	4,608.70	2.05	-0.85	-1.86
17,263.00	89.33	174.26	12,663.93	-4,733.01	-12.42	4,732.97	0.00	0.00	0.00

Survey projected to 17263.00 MD

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
984.00	983.92	13 3/8" Casing @ 984 MD	13-3/8	13-3/8

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
138.00	138.00	0.39	0.14	MWD surveys
928.00	927.93	-2.09	8.76	Tie into surf surveys @ 928 MD
17,263.00	12,663.93	-4,733.01	-12.42	Survey projected to 17263.00 MD