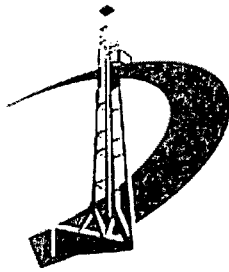


HOBBSD

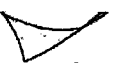
JAN 20 2015

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PRODIRECTIONAL

P.O. Box 750 | Conroe, TX 77305 | Phone: 936-441-7266
www.prodirectional.com


ConocoPhillips

Garnet Federal No. 1
Lea County, NM

August 05, 2014

30-025-41922

Job No. LNM 5112714

Survey Completion Report

FEB 24 2015

fm



PRODIRECTIONAL

Professional Directional Ltd.

P.O. Box 750 | Conroe, TX 77305 | (936) 441-7266

August 05, 2014


ConocoPhillips

ConocoPhillips

Garnet Federal No. 1

Lea County, NM

Job No. LNM 5112714

Survey Certification Form:

This is to certify surveys from **996'MD** to a depth of **7,107'MD** are true and correct MWD Surveys. These surveys were taken from **07/31/2014** through **08/03/2014**.

Sincerely,



John Jordan | Well Planning

PRODIRECTIONAL



ConocoPhillips

**Lea County, NM
Garnet Federal No. 1
OH**

Survey: ProDirectional

Survey Report

05 August, 2014





Professional Directional Wellpath Report



Company: Conoco Phillips
Project: Lea County, N.M.
Site: Garnet Federal
Well: No. 1
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well No. 1
TVD Reference: WELL @ 4046.00usft (Original Well Elev)
MD Reference: WELL @ 4046.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Well_Planner1

Project	Lea County, N.M.		
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	Garnet Federal		
Site Position:		Northing:	665,838.65 usft
From:	Map	Easting:	680,526.85 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 49' 44.750 N
		Longitude:	103° 44' 44.280 W
		Grid Convergence:	0.32 °

Well	No. 1		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 49' 44.750 N
		Longitude:	103° 44' 44.280 W
		Ground Level:	4,033.00 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	8/5/2014	7.32
			Dip Angle
			(°)
			60.64
			Field Strength
			(nT)
			48,642

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			212.52

Survey Program	Date 8/5/2014		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
996.00	7,107.00	Survey #1 (OH)	MWD
			Description
			MWD - Standard



Professional Directional Wellpath Report



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Site: Garnet Federal
Well: No. 1
Wellbore: OH
Design: OH

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TVD Reference: WELL @ 4046.00usft (Original Well Elev)
MD Reference: WELL @ 4046.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Well_Planner1

Survey												
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	TFace (°)		
976.00	0.00	0.00	976.00	0.00	0.00	0.00	0.00	665,838.65	680,526.85	0.00		
996.00	0.50	9.70	996.00	0.09	0.01	-0.08	2.50	665,838.74	680,526.86	9.70		
ProDirectional First Survey: 996' MD												
1,175.00	0.80	28.70	1,174.99	1.95	0.75	-2.05	0.20	665,840.60	680,527.60	45.45		
1,354.00	1.00	19.20	1,353.97	4.52	1.86	-4.81	0.14	665,843.17	680,528.71	-41.54		
1,532.00	1.30	7.40	1,531.93	7.99	2.63	-8.15	0.21	665,846.64	680,529.48	-44.29		
1,711.00	1.80	34.40	1,710.87	12.33	4.48	-12.80	0.49	665,850.98	680,531.33	69.60		
1,890.00	0.80	173.70	1,889.84	13.40	6.21	-14.64	1.38	665,852.05	680,533.06	167.77		
2,069.00	2.00	187.30	2,068.78	9.06	5.95	-10.84	0.69	665,847.71	680,532.80	22.35		
2,248.00	4.30	208.60	2,247.51	0.07	2.34	-1.32	1.42	665,838.72	680,529.19	37.88		
2,427.00	5.10	210.20	2,425.90	-12.70	-4.88	13.33	0.45	665,825.95	680,521.97	10.10		
2,605.00	7.50	214.80	2,602.82	-29.08	-15.49	32.84	1.38	665,809.57	680,511.36	14.17		
2,784.00	6.50	218.70	2,780.48	-46.58	-28.49	54.59	0.62	665,792.07	680,498.36	156.51		
2,962.00	6.10	216.40	2,957.41	-62.05	-40.40	74.04	0.27	665,776.60	680,486.45	-148.89		
3,141.00	8.00	222.40	3,135.05	-78.91	-54.45	95.80	1.14	665,759.74	680,472.40	24.18		
3,320.00	6.70	227.00	3,312.58	-95.23	-70.48	118.19	0.80	665,743.42	680,456.37	157.91		
3,499.00	7.90	219.30	3,490.13	-111.87	-85.91	140.51	0.86	665,726.78	680,440.94	-43.05		
3,678.00	7.80	213.20	3,667.45	-131.55	-100.36	164.88	0.47	665,707.10	680,426.49	-99.86		
3,857.00	7.50	213.20	3,844.86	-151.49	-113.40	188.70	0.17	665,687.16	680,413.45	180.00		
4,035.00	7.10	212.60	4,021.41	-170.48	-125.69	211.32	0.23	665,668.17	680,401.16	-169.51		
4,214.00	8.50	211.90	4,198.75	-191.03	-138.64	235.61	0.78	665,647.62	680,388.21	-4.23		
4,393.00	8.20	215.40	4,375.86	-212.67	-153.03	261.59	0.33	665,625.98	680,373.82	122.27		
4,571.00	8.20	206.10	4,552.05	-234.42	-165.97	286.88	0.74	665,604.23	680,360.88	-94.60		
4,750.00	7.80	206.80	4,729.30	-256.72	-177.06	311.65	0.23	665,581.93	680,349.79	166.66		
4,929.00	7.60	207.80	4,906.69	-278.03	-188.06	335.54	0.13	665,560.62	680,338.79	146.68		
5,108.00	6.20	214.80	5,084.39	-296.44	-199.09	356.99	0.91	665,542.21	680,327.76	152.45		
5,287.00	4.90	209.70	5,262.55	-311.02	-208.40	374.29	0.78	665,527.63	680,318.45	-161.75		



Professional Directional Wellpath Report



Company: Conoco Phillips
Project: Lea County, N.M.
Site: Garnet Federal
Well: No. 1
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well No. 1
TVD Reference: WELL @ 4046.00usft (Original Well Elev)
MD Reference: WELL @ 4046.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Well_Planner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	TFace (°)
5,466.00	1.90	208.20		5,441.21	-320.28	-213.59	384.88	1.68	665,518.37	680,313.26	-179.05
5,644.00	0.20	61.70		5,619.18	-322.73	-214.71	387.56	1.16	665,515.92	680,312.14	-176.94
5,823.00	0.10	37.70		5,798.18	-322.46	-214.34	387.13	0.06	665,516.19	680,312.51	-159.48
6,002.00	0.20	125.50		5,977.18	-322.52	-213.99	386.99	0.12	665,516.13	680,312.86	114.79
6,181.00	0.20	136.90		6,156.18	-322.93	-213.52	387.08	0.02	665,515.72	680,313.33	95.70
6,359.00	0.30	212.30		6,334.18	-323.55	-213.56	387.63	0.18	665,515.10	680,313.29	113.19
6,538.00	0.30	248.40		6,513.18	-324.12	-214.25	388.47	0.10	665,514.53	680,312.60	108.05
6,716.00	0.20	196.00		6,691.18	-324.59	-214.76	389.15	0.13	665,514.06	680,312.09	-138.32
6,895.00	0.50	230.10		6,870.17	-325.39	-215.45	390.19	0.20	665,513.26	680,311.40	52.64
7,059.00	0.50	235.90		7,034.17	-326.25	-216.59	391.53	0.03	665,512.40	680,310.26	92.90
Last Survey: 7,059' MD, 7,034.17' TVD											
7,107.00	0.50	235.90		7,082.17	-326.48	-216.94	391.92	0.00	665,512.17	680,309.91	0.00
PTB: 7,107' MD											

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
996.00	996.00	0.09	0.01	ProDirectional First Survey: 996' MD
7,059.00	7,034.17	-326.25	-216.59	Last Survey: 7,059' MD, 7,034.17' TVD
7,107.00	7,082.17	-326.48	-216.94	PTB: 7,107' MD