

OGX Resources

Eddy County, New Mexico (Nad27)

Cooper 31 Federal

Cooper 31 Fed 4H

Wellbore #1

Survey: Phoenix MWD Surveys

OGX Resources Survey Report

30 October, 2011

30-015-39343

Phoenix Technology Services

OGX Resources Survey Report

Company:	OGX Resources	Local Co-ordinate Reference:	Well Cooper 31 Fed 4H
Project:	Eddy County, New Mexico (Nad27)	TVD Reference:	Well @ 2977.00usft (Original Well Elev + 18' KB)
Site:	Cooper 31 Federal	MD Reference:	Well @ 2977.00usft (Original Well Elev + 18' KB)
Well:	Cooper 31 Fed 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Project	Eddy County, New Mexico (Nad27)		
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	Cooper 31 Federal		
Site Position:		Northing:	394,372.77 usft
From:	Map	Easting:	598,010.42 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 5' 1.865 N
		Longitude:	104° 1' 0.760 W
		Grid Convergence:	0.17 °

Well	Cooper 31 Fed 4H					
Well Position	+N/-S	0.00 usft	Northing:	394,372.77 usft	Latitude:	32° 5' 1.865 N
	+E/-W	0.00 usft	Easting:	598,010.42 usft	Longitude:	104° 1' 0.760 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,959.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	08/08/11	7.76	59.98	48,470

Design		Wellbore #1		
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	269.84

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Design:	Wellbore #1	Database:	GCR DB v5000

Survey Program		Date 10/30/11		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	6,428.00	Gyro Surveys (Wellbore #1)	MWD	MWD - Standard
6,462.00	11,071.00	Phoenix MWD Surveys (Wellbore #1)	MWD	MWD - Standard

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Easting (usft)	Northing (usft)
6,428.00	0.42	184.82	-3,449.31	6,426.31	63.30	29.71	-29.89	0.00	598,040.13	394,436.07
Tie In From Survey @ 6428' MD										
6,462.00	0.60	199.90	-3,483.31	6,460.31	63.01	29.64	-29.82	0.66	598,040.06	394,435.78
First Phoenix MWD Survey @ 6462' MD										
6,494.00	0.40	192.50	-3,515.31	6,492.31	62.74	29.56	-29.74	0.66	598,039.98	394,435.51
6,526.00	1.90	254.80	-3,547.30	6,524.30	62.49	29.02	-29.20	5.47	598,039.44	394,435.26
6,558.00	6.10	260.40	-3,579.22	6,556.22	62.07	26.83	-27.01	13.17	598,037.25	394,434.84
6,590.00	10.80	263.40	-3,610.86	6,587.86	61.44	22.18	-22.35	14.75	598,032.60	394,434.21
6,622.00	15.10	265.40	-3,642.04	6,619.04	60.76	15.04	-15.21	13.51	598,025.46	394,433.53
6,654.00	19.40	267.00	-3,672.59	6,649.59	60.15	5.57	-5.74	13.52	598,015.99	394,432.92
6,686.00	23.50	267.80	-3,702.37	6,679.37	59.63	-6.11	5.95	12.84	598,004.30	394,432.39
6,717.00	27.80	267.30	-3,730.31	6,707.31	59.05	-19.52	19.35	13.89	597,990.90	394,431.82
6,748.00	31.10	268.40	-3,757.30	6,734.30	58.48	-34.74	34.58	10.79	597,975.67	394,431.25
6,780.00	34.10	270.00	-3,784.26	6,761.26	58.25	-51.98	51.82	9.75	597,958.44	394,431.02
6,811.00	36.50	271.20	-3,809.56	6,786.56	58.45	-69.89	69.73	8.06	597,940.53	394,431.21
6,842.00	39.60	271.40	-3,833.96	6,810.96	58.88	-88.99	88.83	10.01	597,921.43	394,431.65
6,874.00	42.90	271.60	-3,858.02	6,835.02	59.44	-110.08	109.91	10.32	597,900.34	394,432.20
6,906.00	45.70	270.30	-3,880.92	6,857.92	59.80	-132.42	132.26	9.20	597,878.00	394,432.57
6,937.00	48.80	269.10	-3,901.96	6,878.96	59.67	-155.18	155.02	10.40	597,855.24	394,432.44
6,968.00	52.00	268.40	-3,921.72	6,898.72	59.15	-179.06	178.89	10.47	597,831.36	394,431.92
6,999.00	54.20	267.80	-3,940.33	6,917.33	58.33	-203.83	203.67	7.26	597,806.58	394,431.09
7,031.00	57.20	267.80	-3,958.36	6,935.36	57.31	-230.25	230.09	9.37	597,780.17	394,430.08

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Site:	Cooper 31 Federal	MD Reference:	Well @ 2977.00usft (Original Well Elev + 18' KB)
Well:	Cooper 31 Fed 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Easting (usft)	Northing (usft)
7,062.00	61.00	268.40	-3,974.28	6,951.28	56.43	-256.83	256.67	12.37	597,753.59	394,429.20
7,093.00	64.70	269.50	-3,988.42	6,965.42	55.93	-284.40	284.24	12.35	597,726.02	394,428.70
7,125.00	68.60	270.50	-4,001.10	6,978.10	55.94	-313.77	313.62	12.52	597,696.64	394,428.70
7,156.00	72.80	270.10	-4,011.35	6,988.35	56.09	-343.03	342.87	13.60	597,667.39	394,428.85
7,187.00	77.60	270.00	-4,019.26	6,996.26	56.11	-372.99	372.83	15.49	597,637.43	394,428.88
7,219.00	82.30	269.90	-4,024.85	7,001.85	56.09	-404.49	404.33	14.69	597,605.93	394,428.85
7,253.00	87.40	268.50	-4,027.90	7,004.90	55.61	-438.34	438.18	15.55	597,572.08	394,428.38
7,284.00	90.90	268.90	-4,028.36	7,005.36	54.91	-469.32	469.16	11.36	597,541.10	394,427.67
7,316.00	91.30	268.70	-4,027.74	7,004.74	54.24	-501.31	501.15	1.40	597,509.11	394,427.00
7,409.00	92.50	268.80	-4,024.66	7,001.66	52.21	-594.23	594.08	1.29	597,416.19	394,424.98
7,503.00	91.90	268.10	-4,021.05	6,998.05	49.67	-688.13	687.99	0.98	597,322.29	394,422.44
7,596.00	91.60	268.30	-4,018.21	6,995.21	46.75	-781.04	780.90	0.39	597,229.38	394,419.52
7,690.00	90.90	267.90	-4,016.16	6,993.16	43.63	-874.96	874.84	0.86	597,135.46	394,416.40
7,783.00	92.40	268.40	-4,013.48	6,990.48	40.63	-967.87	967.76	1.70	597,042.55	394,413.40
7,877.00	92.40	268.00	-4,009.55	6,986.55	37.68	-1,061.74	1,061.63	0.43	596,948.67	394,410.45
7,971.00	92.20	269.40	-4,005.77	6,982.77	35.55	-1,155.64	1,155.54	1.50	596,854.78	394,408.32
8,064.00	92.00	269.50	-4,002.37	6,979.37	34.66	-1,248.57	1,248.47	0.24	596,761.84	394,407.43
8,158.00	91.80	269.30	-3,999.25	6,976.25	33.68	-1,342.52	1,342.42	0.30	596,667.90	394,406.44
8,253.00	91.20	269.10	-3,996.76	6,973.76	32.35	-1,437.48	1,437.38	0.67	596,572.94	394,405.12
8,346.00	91.20	269.90	-3,994.81	6,971.81	31.54	-1,530.45	1,530.36	0.86	596,479.97	394,404.31
8,439.00	89.40	269.70	-3,994.33	6,971.33	31.21	-1,623.45	1,623.35	1.95	596,386.97	394,403.98
8,533.00	89.70	269.50	-3,995.07	6,972.07	30.56	-1,717.44	1,717.35	0.38	596,292.98	394,403.32
8,626.00	93.20	268.90	-3,992.71	6,969.71	29.26	-1,810.39	1,810.30	3.82	596,200.03	394,402.03
8,720.00	92.60	267.90	-3,987.96	6,964.96	26.64	-1,904.23	1,904.15	1.24	596,106.19	394,399.41
8,814.00	93.60	270.20	-3,982.87	6,959.87	25.08	-1,998.07	1,997.99	2.66	596,012.35	394,397.85
8,907.00	93.40	269.20	-3,977.20	6,954.20	24.60	-2,090.89	2,090.82	1.09	595,919.52	394,397.36
9,001.00	91.20	267.70	-3,973.42	6,950.42	22.05	-2,184.77	2,184.70	2.83	595,825.64	394,394.82

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Site:	Cooper 31 Federal	MD Reference:	Well @ 2977.00usft (Original Well Elev + 18' KB)
Well:	Cooper 31 Fed 4H	North Reference:	Gnd
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Easting (usft)	Northing (usft)	
9,095.00	93.30	268.90	-3,969.73	6,946.73	19.27	-2,278.65	2,278.59	2.57	595,731.76	394,392.03	
9,189.00	91.80	268.10	-3,965.55	6,942.55	16.81	-2,372.53	2,372.47	1.81	595,637.89	394,389.58	
9,282.00	90.20	267.50	-3,963.93	6,940.93	13.24	-2,465.44	2,465.39	1.84	595,544.98	394,386.01	
9,376.00	90.20	269.20	-3,963.60	6,940.60	10.53	-2,559.40	2,559.36	1.81	595,451.02	394,383.30	
9,469.00	90.00	270.60	-3,963.44	6,940.44	10.37	-2,652.39	2,652.35	1.52	595,358.02	394,383.14	
9,563.00	91.50	271.20	-3,962.21	6,939.21	11.85	-2,746.37	2,746.33	1.72	595,264.05	394,384.61	
9,656.00	92.00	270.70	-3,959.37	6,936.37	13.39	-2,839.31	2,839.27	0.76	595,171.10	394,386.15	
9,750.00	91.70	269.90	-3,956.33	6,933.33	13.88	-2,933.26	2,933.21	0.91	595,077.16	394,386.65	
9,843.00	91.30	269.00	-3,953.90	6,930.90	12.99	-3,026.23	3,026.18	1.06	594,984.19	394,385.75	
9,937.00	90.80	268.50	-3,952.18	6,929.18	10.94	-3,120.19	3,120.14	0.75	594,890.23	394,383.70	
10,030.00	90.50	266.50	-3,951.12	6,928.12	6.88	-3,213.09	3,213.06	2.17	594,797.33	394,379.65	
10,125.00	90.40	267.00	-3,950.37	6,927.37	1.50	-3,307.93	3,307.91	0.54	594,702.49	394,374.26	
10,218.00	90.50	269.20	-3,949.64	6,926.64	-1.59	-3,400.87	3,400.86	2.37	594,609.55	394,371.18	
10,312.00	89.90	268.60	-3,949.32	6,926.32	-3.39	-3,494.85	3,494.85	0.90	594,515.56	394,369.37	
10,375.00	89.70	268.70	-3,949.54	6,926.54	-4.88	-3,557.84	3,557.83	0.35	594,452.58	394,367.89	
10,406.00	89.30	268.40	-3,949.81	6,926.81	-5.66	-3,588.82	3,588.83	1.61	594,421.59	394,367.11	
10,499.00	89.20	269.40	-3,951.02	6,928.02	-7.45	-3,681.80	3,681.80	1.08	594,328.62	394,365.32	
10,593.00	92.70	270.60	-3,949.46	6,926.46	-7.45	-3,775.77	3,775.77	3.94	594,234.65	394,365.32	
10,686.00	91.60	270.50	-3,945.98	6,922.98	-6.55	-3,868.70	3,868.70	1.19	594,141.72	394,366.21	
10,779.00	90.70	269.50	-3,944.11	6,921.11	-6.55	-3,961.68	3,961.68	1.45	594,048.74	394,366.21	
10,873.00	92.60	270.50	-3,941.40	6,918.40	-6.56	-4,055.63	4,055.63	2.28	593,954.79	394,366.21	
10,967.00	92.40	271.20	-3,937.30	6,914.30	-5.16	-4,149.53	4,149.53	0.77	593,860.89	394,367.60	
11,021.00	92.40	270.80	-3,935.04	6,912.04	-4.22	-4,203.48	4,203.47	0.74	593,806.94	394,368.55	
Last Phoenix MWD Survey @ 11021' MD											
11,071.00	92.40	270.80	-3,932.95	6,909.95	-3.52	-4,253.43	4,253.42	0.00	593,756.99	394,369.24	
Projection to TD @ 11071' MD											

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Site:	Cooper 31 Federal	MD Reference:	Well @ 2977.00usft (Original Well Elev + 18' KB)
Well:	Cooper 31 Fed 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,428.00	6,426.31	63.30	29.71	Tie In From Survey @ 6428' MD
6,462.00	6,460.31	63.01	29.64	First Phoneix MWD Survey @ 6462' MD
11,021.00	6,912.04	-4.22	-4,203.48	Last Phoenix MWD Survey @ 11021' MD
11,071.00	6,909.95	-3.52	-4,253.43	Projection to TD @ 11071' MD

Checked By: _____	Approved By: _____	Date: _____
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