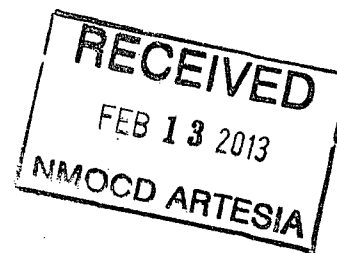




30-015. 40635



COG Operating, LLC

Eddy County, NM (NAD27)

Dodd Federal Unit #919H

SHL = 2345' FNL/330' FEL Sec. 14, T17S, R29E Unit H

BHL = 2290' FNL/340' FWL Sec. 14, T17S, R29E Unit E

Design: Surveys

Standard Survey Report

06 October, 2012





Childress Directional Drilling

Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well SHL = 2345' FNL/330' FEL Sec. 14, T17S, R29E Unit H
Project:	Eddy County, NM (NAD27)	TVD Reference:	WELL @ 3621' 10usft (Silver Oak 11)
Site:	Dodd Federal Unit #919H	MD Reference:	WELL @ 3621' 10usft (Silver Oak 11)
Well:	SHL = 2345' FNL/330' FEL Sec. 14, T17S, R29E Unit H	North Reference:	Grid
Wellbore:	BHL = 2290' FNL/340' FWL Sec. 14, T17S, R29E Unit E	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

Project	Eddy County, NM (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	Dodd Federal Unit #919H		
Site Position:		Northing:	0.00 usft
From:	Map	Easting:	0.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	30° 59' 24.512 N
		Longitude:	105° 55' 44.137 W
		Grid Convergence:	-0.82 °

Well	SHL = 2345' FNL/330' FEL Sec. 14, T17S, R29E Unit H		
Well Position	+N-S	0.00 usft	Northing:
	+E-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 50' 6.860 N
		Longitude:	104° 2' 14.700 W
		Ground Level:	3,621.10 usft

Wellbore	BHL = 2290' FNL/340' FWL Sec. 14, T17S, R29E Unit E		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	09/12/12	7.69
			Dip Angle (°)
			60.64
			Field Strength (nT)
			48,807

Design	Surveys		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)
	0.00	0.00	0.00
			Direction (°)
			270.68

Survey Program	Date 10/06/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.00	4,230.00	VES gyro surveys (BHL = 2290' FNL/340'	NS-GYRO-MS
4,373.00	9,268.00	Childress MWD (BHL = 2290' FNL/340' FW	MWD
			Description
			North sensing gyrocompassing m/s
			MWD - CHILDRESS MWD

Survey			
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)
0.00	0.00	0.00	0.00
100.00	0.26	297.03	100.00
200.00	0.24	342.97	200.00
300.00	0.34	14.00	300.00
400.00	0.20	48.38	400.00
500.00	0.31	51.63	500.00
600.00	0.44	58.08	599.99
			+N-S (usft)
			+E-W (usft)
			Vertical Section (usft)
			Dogleg Rate (°/100usft)
			Build Rate (°/100usft)
			Turn Rate (°/100usft)
			0.00
			0.10
			0.41
			0.89
			1.30
			1.58
			1.95
			-0.07
			0.11
			0.11
			3.25
			6.45



Childress Directional Drilling

Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well SHL = 2345' FNL/330' FEL Sec. 14, T17S R29E Unit H
Project:	Eddy County, NM (NAD27)	TVD Reference:	WELL @ 3621.10usft (Silver Oak 11)
Site:	Dodd Federal Unit #919H	MD Reference:	WELL @ 3621.10usft (Silver Oak 11)
Well:	SHL = 2345' FNL/330' FEL Sec. 14, T17S R29E Unit H	North Reference:	Grid
Wellbore:	BHL = 2290' FNL/340' FWL Sec. 14, T17S R29E Unit E	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

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)
700.00	1.40	62.06	699.98	2.73	2.03	-2.00	0.96	0.96	3.98
800.00	1.35	61.84	799.95	3.86	4.15	-4.10	0.05	-0.05	-0.22
900.00	1.54	63.00	899.92	5.02	6.39	-6.33	0.19	0.19	1.16
1,000.00	1.47	64.83	999.88	6.18	8.74	-8.67	0.08	-0.07	1.83
1,100.00	1.06	63.26	1,099.86	7.14	10.73	-10.65	0.41	-0.41	-1.57
1,200.00	0.84	66.85	1,199.85	7.84	12.23	-12.14	0.23	-0.22	3.59
1,300.00	0.57	75.55	1,299.84	8.26	13.39	-13.29	0.29	-0.27	8.70
1,400.00	0.44	81.52	1,399.83	8.44	14.25	-14.15	0.14	-0.13	5.97
1,500.00	0.36	99.25	1,499.83	8.44	14.94	-14.84	0.15	-0.08	17.73
1,600.00	0.58	120.37	1,599.83	8.14	15.69	-15.59	0.28	0.22	21.12
1,700.00	0.17	105.84	1,699.83	7.84	16.26	-16.17	0.42	-0.41	-14.53
1,800.00	0.09	80.87	1,799.83	7.81	16.49	-16.39	0.10	-0.08	-24.97
1,900.00	0.09	84.24	1,899.83	7.83	16.64	-16.55	0.01	0.00	3.37
2,000.00	0.26	87.59	1,999.83	7.85	16.95	-16.85	0.17	0.17	3.35
2,100.00	0.01	98.45	2,099.82	7.86	17.18	-17.09	0.25	-0.25	10.86
2,200.00	0.15	307.41	2,199.82	7.94	17.09	-16.99	0.16	0.14	-151.04
2,300.00	0.36	328.82	2,299.82	8.29	16.82	-16.72	0.23	0.21	21.41
2,400.00	0.44	326.29	2,399.82	8.87	16.44	-16.34	0.08	0.08	-2.53
2,500.00	0.22	328.03	2,499.82	9.36	16.13	-16.02	0.22	-0.22	1.74
2,600.00	0.49	323.62	2,599.82	9.86	15.77	-15.65	0.27	0.27	-4.41
2,700.00	0.61	323.35	2,699.81	10.63	15.20	-15.07	0.12	0.12	-0.27
2,800.00	0.61	328.41	2,799.81	11.51	14.61	-14.47	0.05	0.00	5.06
2,900.00	0.32	331.25	2,899.80	12.21	14.19	-14.05	0.29	-0.29	2.84
3,000.00	0.15	327.22	2,999.80	12.57	13.99	-13.84	0.17	-0.17	-4.03
3,100.00	0.33	320.70	3,099.80	12.90	13.73	-13.58	0.18	0.18	-6.52
3,200.00	0.35	330.37	3,199.80	13.39	13.40	-13.24	0.06	0.02	9.67
3,300.00	0.19	325.48	3,299.80	13.79	13.16	-12.99	0.16	-0.16	-4.89
3,400.00	0.16	324.60	3,399.80	14.04	12.98	-12.81	0.03	-0.03	-0.88
3,500.00	0.08	246.60	3,499.80	14.13	12.84	-12.67	0.16	-0.08	-78.00
3,600.00	0.17	242.92	3,599.80	14.03	12.64	-12.47	0.09	0.09	-3.68
3,700.00	0.38	256.48	3,699.80	13.89	12.18	-12.02	0.22	0.21	13.56
3,800.00	0.29	264.82	3,799.80	13.79	11.61	-11.45	0.10	-0.09	8.34
3,900.00	0.24	276.17	3,899.79	13.79	11.15	-10.99	0.07	-0.05	11.35
4,000.00	0.21	295.42	3,999.79	13.89	10.78	-10.61	0.08	-0.03	19.25
4,100.00	0.14	328.14	4,099.79	14.07	10.55	-10.38	0.12	-0.07	32.72
4,200.00	0.08	56.78	4,199.79	14.21	10.54	-10.37	0.16	-0.06	88.64
4,230.00	0.27	134.42	4,229.79	14.17	10.61	-10.44	0.88	0.63	258.80
4,373.00	0.30	122.10	4,372.79	13.74	11.17	-11.00	0.05	0.02	-8.62
4,404.00	2.80	258.70	4,403.78	13.55	10.49	-10.33	9.76	8.06	440.65
4,435.00	6.60	260.70	4,434.67	13.11	7.99	-7.83	12.27	12.26	6.45
4,466.00	10.80	264.20	4,465.31	12.53	3.34	-3.19	13.65	13.55	11.29
4,497.00	15.40	265.40	4,495.49	11.91	-3.66	3.80	14.86	14.84	3.87



Childress Directional Drilling

Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well SHL = 2345' FNL/330' FEL Sec. 14, T17S, R29E Unit H
Project:	Eddy County, NM (NAD27)	TVD Reference:	WELL @ 3621.10usft (Silver Oak 11)
Site:	Dodd Federal Unit #919H	MD Reference:	WELL @ 3621.10usft (Silver Oak 11)
Well:	SHL = 2345' FNL/330' FEL Sec. 14, T17S, R29E Unit H	North Reference:	Grid
Wellbore:	BHL = 2290' FNL/340' FWL Sec. 14, T17S, R29E Unit E	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

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)
4,528.00	18.70	265.80	4,525.13	11.21	-12.72	12.85	10.65	10.65	1.29
4,559.00	21.70	267.20	4,554.22	10.57	-23.40	23.52	9.80	9.68	4.52
4,590.00	25.40	268.40	4,582.63	10.10	-35.77	35.89	12.03	11.94	3.87
4,621.00	29.50	269.30	4,610.13	9.82	-50.06	50.17	13.29	13.23	2.90
4,652.00	33.70	270.30	4,636.53	9.77	-66.30	66.41	13.65	13.55	3.23
4,683.00	38.50	271.00	4,661.57	9.99	-84.56	84.67	15.54	15.48	2.26
4,714.00	42.40	271.00	4,685.16	10.34	-104.66	104.78	12.58	12.58	0.00
4,745.00	45.50	270.70	4,707.47	10.66	-126.17	126.29	10.02	10.00	-0.97
4,776.00	48.40	270.90	4,728.63	10.97	-148.82	148.94	9.37	9.35	0.65
4,807.00	52.00	271.70	4,748.47	11.52	-172.63	172.75	11.78	11.61	2.58
4,838.00	55.20	272.10	4,766.87	12.35	-197.56	197.69	10.37	10.32	1.29
4,869.00	58.00	272.10	4,783.93	13.30	-223.42	223.56	9.03	9.03	0.00
4,899.00	61.60	271.40	4,799.02	14.08	-249.33	249.48	12.17	12.00	-2.33
4,931.00	66.00	271.00	4,813.14	14.68	-278.03	278.19	13.80	13.75	-1.25
4,962.00	70.90	271.00	4,824.52	15.19	-306.85	307.01	15.81	15.81	0.00
4,992.00	76.00	271.20	4,833.07	15.74	-335.59	335.76	17.01	17.00	0.67
5,024.00	79.20	271.70	4,839.94	16.53	-366.83	367.00	10.12	10.00	1.56
5,055.00	81.10	271.90	4,845.24	17.49	-397.36	397.54	6.16	6.13	0.65
5,085.00	83.10	272.30	4,849.36	18.58	-427.05	427.24	6.80	6.67	1.33
5,118.00	85.80	272.40	4,852.56	19.93	-459.87	460.07	8.19	8.18	0.30
5,211.00	86.40	272.10	4,858.88	23.57	-552.58	552.82	0.72	0.65	-0.32
5,304.00	90.00	271.40	4,861.80	26.41	-645.48	645.74	3.94	3.87	-0.75
5,397.00	93.30	270.70	4,859.12	28.11	-738.41	738.69	3.63	3.55	-0.75
5,491.00	92.90	269.80	4,854.04	28.52	-832.27	832.55	1.05	-0.43	-0.96
5,584.00	92.90	269.80	4,849.34	28.20	-925.15	925.42	0.00	0.00	0.00
5,678.00	92.90	269.40	4,844.58	27.54	-1,019.03	1,019.28	0.42	0.00	-0.43
5,771.00	91.10	269.60	4,841.33	26.73	-1,111.96	1,112.20	1.95	-1.94	0.22
5,864.00	91.10	269.80	4,839.55	26.24	-1,204.94	1,205.17	0.22	0.00	0.22
5,957.00	90.70	269.30	4,838.09	25.51	-1,297.93	1,298.14	0.69	-0.43	-0.54
6,050.00	90.20	269.40	4,837.36	24.46	-1,390.92	1,391.11	0.55	-0.54	0.11
6,144.00	91.50	270.50	4,835.96	24.37	-1,484.91	1,485.09	1.81	1.38	1.17
6,239.00	91.50	270.90	4,833.48	25.54	-1,579.87	1,580.06	0.42	0.00	0.42
6,334.00	91.10	270.70	4,831.32	26.86	-1,674.83	1,675.03	0.47	-0.42	-0.21
6,427.00	91.00	271.00	4,829.62	28.24	-1,767.81	1,768.02	0.34	-0.11	0.32
6,520.00	90.40	270.30	4,828.48	29.30	-1,860.79	1,861.01	0.99	-0.65	-0.75
6,615.00	91.50	270.30	4,826.91	29.79	-1,955.78	1,955.99	1.16	1.16	0.00
6,710.00	91.70	271.00	4,824.25	30.87	-2,050.73	2,050.95	0.77	0.21	0.74
6,804.00	91.80	271.20	4,821.38	32.67	-2,144.67	2,144.91	0.24	0.11	0.21
6,900.00	91.70	271.00	4,818.45	34.52	-2,240.61	2,240.86	0.23	-0.10	-0.21
6,992.00	91.30	270.90	4,816.04	36.04	-2,332.56	2,332.83	0.45	-0.43	-0.11
7,087.00	91.10	270.90	4,814.05	37.53	-2,427.53	2,427.81	0.21	-0.21	0.00



Childress Directional Drilling

Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well SHL = 2345' FNL/330' FEL Sec. 14 T17S R29E Unit H
Project:	Eddy County, NM (NAD27)	TVD Reference:	WELL @ 3621' 10usft (Silver Oak 11)
Site:	Dodd Federal Unit #919H	MD Reference:	WELL @ 3621' 10usft (Silver Oak 11)
Well:	SHL = 2345' FNL/330' FEL Sec. 14 T17S R29E Unit H	North Reference:	Grid
Wellbore:	BHL = 2290' FNL/340' FWL Sec. 14 T17S R29E Unit E	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDM 5000.1 Single User Db

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)
7,182.00	90.80	270.70	4,812.48	38.86	-2,522.51	2,522.79	0.38	-0.32	-0.21
7,277.00	90.50	270.10	4,811.40	39.52	-2,617.50	2,617.79	0.71	-0.32	-0.63
7,372.00	91.00	271.00	4,810.16	40.43	-2,712.49	2,712.78	1.08	0.53	0.95
7,466.00	91.00	271.40	4,808.52	42.40	-2,806.45	2,806.76	0.43	0.00	0.43
7,558.00	90.80	271.00	4,807.07	44.33	-2,898.42	2,898.74	0.49	-0.22	-0.43
7,653.00	90.90	270.90	4,805.66	45.90	-2,993.40	2,993.73	0.15	0.11	-0.11
7,748.00	90.80	270.70	4,804.25	47.23	-3,088.38	3,088.72	0.24	-0.11	-0.21
7,842.00	91.00	271.00	4,802.78	48.62	-3,182.35	3,182.71	0.38	0.21	0.32
7,935.00	91.10	270.90	4,801.07	50.17	-3,275.33	3,275.69	0.15	0.11	-0.11
8,029.00	91.00	270.50	4,799.35	51.31	-3,369.30	3,369.67	0.44	-0.11	-0.43
8,123.00	91.10	270.10	4,797.63	51.81	-3,463.29	3,463.66	0.44	0.11	-0.43
8,216.00	91.00	269.60	4,795.92	51.56	-3,556.27	3,556.63	0.55	-0.11	-0.54
8,310.00	91.30	269.30	4,794.04	50.66	-3,650.25	3,650.59	0.45	0.32	-0.32
8,404.00	91.90	269.30	4,791.41	49.51	-3,744.20	3,744.53	0.64	0.64	0.00
8,499.00	91.10	269.80	4,788.92	48.77	-3,839.17	3,839.47	0.99	-0.84	0.53
8,590.00	91.60	270.00	4,786.78	48.61	-3,930.14	3,930.44	0.59	0.55	0.22
8,685.00	91.70	271.40	4,784.05	49.77	-4,025.09	4,025.40	1.48	0.11	1.47
8,780.00	90.00	271.60	4,782.64	52.25	-4,120.04	4,120.37	1.80	-1.79	0.21
8,876.00	90.20	271.20	4,782.47	54.60	-4,216.02	4,216.37	0.47	0.21	-0.42
8,971.00	91.20	271.00	4,781.31	56.42	-4,310.99	4,311.36	1.07	1.05	-0.21
9,065.00	91.90	271.40	4,778.77	58.39	-4,404.93	4,405.32	0.86	0.74	0.43
9,158.00	91.00	271.90	4,776.41	61.07	-4,497.86	4,498.27	1.11	-0.97	0.54
9,208.00	91.20	272.40	4,775.45	62.94	-4,547.82	4,548.25	1.08	0.40	1.00
9,268.00	91.20	272.40	4,774.20	65.46	-4,607.75	4,608.21	0.00	0.00	0.00

TD @ 9268' MD 91.20° INC 272.40° AZM 4774.20° TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	
		+N/-S (usft)	+E/-W (usft)
9,268.00	4,774.20	65.46	-4,607.75
TD @ 9268' MD 91.20° INC 272.40° AZM 4774.20° TVD			

Checked By: _____

Approved By: _____

Date: _____



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

October 8, 2012

COG, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

RE: Dodd Federal Unit #919H
2345' FNL & 330' FEL
Sec. 14, T17S, R29E
Eddy County, New Mexico

Dear Sir,

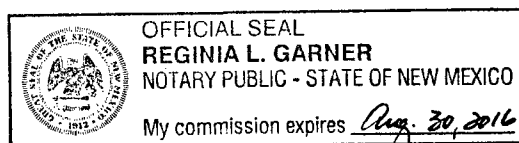
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Eddie LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 8th day of October, 2012.

Notary Public

Dodd Federal Unit #919H

Date	Depth	Deviation	Direction	TVD
9/17/2012	165	0.10		
9/18/2012	235	0.40		
9/19/2012	506	0.10		
9/22/2012	740	1.00		
9/23/2012	995	1.50		
9/23/2012	1290	0.70		
9/24/2012	1606	0.30		
9/25/2012	2040	0.10		
9/25/2012	2486	0.40		
9/25/2012	2963	0.30		
9/25/2012	3439	0.10		
9/26/2012	3941	0.20		
9/27/2012	4342	1.00		
9/27/2012	4373	0.30	122.10	
9/27/2012	4404	2.80	258.70	
9/27/2012	4435	6.60	260.70	
9/27/2012	4466	10.80	264.20	
9/27/2012	4497	15.40	265.40	
9/27/2012	4528	18.70	265.80	
9/28/2012	4559	21.70	267.20	
9/28/2012	4590	25.40	268.40	
9/28/2012	4621	29.50	269.30	
9/28/2012	4652	33.70	270.30	
9/28/2012	4683	38.50	271.00	
9/28/2012	4714	42.40	271.00	
9/28/2012	4745	45.50	270.70	
9/28/2012	4776	48.40	270.90	
9/28/2012	4807	52.00	271.70	
9/28/2012	4838	55.20	272.10	
9/28/2012	4869	58.00	272.10	
9/28/2012	4899	61.60	271.40	
9/28/2012	4931	66.00	271.00	
9/28/2012	4962	70.90	271.00	
9/29/2012	4992	76.00	271.20	
9/29/2012	5024	79.20	271.70	
9/29/2012	4956	81.10	271.90	
9/29/2012	5086	83.30	272.30	
9/29/2012	5118	85.80	272.40	
9/29/2012	5212	86.40	272.10	
9/29/2012	5304	90.00	271.40	
9/30/2012	5395	93.30	270.70	
9/30/2012	5489	92.90	269.80	
9/30/2012	5584	92.90	269.80	

Date	Depth	Deviation	Direction	TVD
9/30/2012	5678	92.90	269.40	
9/30/2012	5771	91.10	269.60	
9/30/2012	5864	90.90	269.30	
9/30/2012	5957	90.70	269.30	
9/30/2012	6050	90.20	269.40	
9/30/2012	6144	91.50	270.50	
9/30/2012	6239	91.50	270.90	
10/1/2012	6333	91.10	270.70	
10/1/2012	6426	91.00	271.00	
10/1/2012	6520	90.40	270.30	
10/1/2012	6615	91.50	270.30	
10/1/2012	6710	91.70	271.00	
10/1/2012	6804	91.80	271.20	
10/1/2012	6899	91.70	271.00	
10/1/2012	6992	91.30	270.90	
10/1/2012	7087	91.10	270.90	
10/1/2012	7182	90.80	270.70	
10/1/2012	7277	90.50	270.10	
10/2/2012	7371	91.00	271.00	
10/2/2012	7403	90.70	270.70	
10/2/2012	7434	90.70	270.70	
10/2/2012	7465	90.70	270.90	
10/3/2012	7561	90.80	270.00	
10/3/2012	7656	90.90	270.90	
10/3/2012	7750	90.80	270.70	
10/3/2012	7844	91.00	271.00	
10/3/2012	7951	91.10	270.90	
10/3/2012	8031	91.00	270.50	
10/3/2012	8125	91.10	270.10	
10/4/2012	8218	91.00	269.60	
10/4/2012	8312	91.30	269.30	
10/4/2012	8406	91.90	269.30	
10/4/2012	8501	91.10	269.80	
10/5/2012	8590	91.60	270.00	
10/5/2012	8685	91.70	271.40	
10/5/2012	8780	90.00	271.60	
10/5/2012	8905	90.00	270.50	
10/5/2012	8970	91.20	271.00	
10/5/2012	9064	91.90	271.40	
10/5/2012	9157	91.00	272.00	
10/5/2012	9204	91.20	272.40	



Company: COG Operating LLC (Concho)
Lease/Well: Dodd Federal Unit/No. 919H

Rig Name: Silver Oak 11
State/County: New Mexico/Eddy
Latitude: 32.84, Longitude: -104.04
GRID North is 0.16 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB=17 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: dodd federal unit 919h_ed.ut

Minimum Curvature Method

Report Date/Time: 10/1/2012 / 15:41

Vaughn Energy Services

Fort Worth, Texas

817-741-3610

Surveyor: Robert Hooper

Dodd Federal Unit No. 919H / API 30-015-40635

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.26	297.03	100.00	0.10	-0.20	0.23	297.03	0.26
200.00	0.24	342.97	200.00	0.41	-0.47	0.63	311.15	0.20
300.00	0.34	14.00	300.00	0.90	-0.46	1.01	332.79	0.18
400.00	0.20	48.38	400.00	1.30	-0.26	1.33	348.74	0.20
500.00	0.31	51.63	500.00	1.59	0.09	1.59	3.10	0.11
600.00	0.44	58.08	599.99	1.96	0.62	2.05	17.67	0.14
700.00	1.40	62.06	699.98	2.73	2.03	3.40	36.58	0.96
800.00	1.35	61.84	799.95	3.86	4.15	5.67	47.04	0.05
900.00	1.54	63.00	899.92	5.03	6.38	8.12	51.77	0.19
1000.00	1.47	64.83	999.88	6.18	8.74	10.71	54.73	0.08
1100.00	1.06	63.26	1099.86	7.14	10.73	12.89	56.34	0.42
1200.00	0.84	66.85	1199.85	7.85	12.23	14.53	57.30	0.22
1300.00	0.57	75.55	1299.84	8.26	13.38	15.73	58.31	0.29
1400.00	0.44	81.52	1399.83	8.44	14.24	16.55	59.34	0.14
1500.00	0.36	99.25	1499.83	8.45	14.93	17.16	60.51	0.14
1600.00	0.58	120.37	1599.83	8.14	15.68	17.67	62.56	0.27
1700.00	0.17	105.84	1699.83	7.85	16.26	18.05	64.23	0.41
1800.00	0.09	80.87	1799.83	7.82	16.47	18.23	64.61	0.10

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.11	84.24	1899.83	7.84	16.64	18.40	64.78	0.02
2000.00	0.26	87.59	1999.83	7.86	16.97	18.70	65.14	0.15
2100.00	0.01	98.45	2099.82	7.87	17.20	18.91	65.42	0.25
2200.00	0.15	307.41	2199.82	7.95	17.10	18.86	65.08	0.16
2300.00	0.36	328.82	2299.82	8.30	16.84	18.77	63.77	0.23
2400.00	0.44	326.29	2399.82	8.89	16.46	18.71	61.64	0.08
2500.00	0.22	328.03	2499.82	9.37	16.14	18.67	59.87	0.22
2600.00	0.49	323.62	2599.82	9.88	15.79	18.62	57.97	0.27
2700.00	0.61	323.35	2699.81	10.65	15.22	18.57	55.02	0.12
2800.00	0.61	328.41	2799.81	11.53	14.62	18.62	51.75	0.05
2900.00	0.32	331.25	2899.80	12.22	14.21	18.74	49.31	0.29
3000.00	0.15	327.22	2999.80	12.57	14.01	18.82	48.09	0.16
3100.00	0.33	320.70	3099.80	12.91	13.75	18.86	46.81	0.18
3200.00	0.35	330.37	3199.80	13.40	13.42	18.96	45.04	0.06
3300.00	0.19	325.48	3299.80	13.80	13.17	19.08	43.65	0.16
3400.00	0.16	324.60	3399.80	14.06	12.99	19.14	42.75	0.03
3500.00	0.08	246.60	3499.80	14.14	12.85	19.11	42.26	0.16
3600.00	0.17	242.92	3599.80	14.05	12.65	18.90	42.01	0.09
3700.00	0.38	256.48	3699.80	13.90	12.19	18.49	41.26	0.22
3800.00	0.29	264.82	3799.80	13.80	11.62	18.04	40.10	0.11
3900.00	0.24	276.17	3899.79	13.80	11.16	17.75	38.97	0.07
4000.00	0.21	295.42	3999.79	13.90	10.79	17.59	37.81	0.08
4100.00	0.14	328.14	4099.79	14.08	10.55	17.60	36.85	0.12
4200.00	0.08	56.78	4199.79	14.23	10.55	17.71	36.56	0.16
4230.00	0.27	134.42	4229.79	14.19	10.62	17.72	36.81	0.87