

COG OPERATING, LLC
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JUL 09 2012

ARTESIA WEST

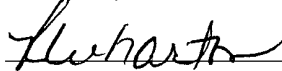
COG OPERATING

Brushy Draw
Eddy County, NM
Reposado 2 State #2H
VH - Job #32K0512538

Survey: Gyro

SDI Standard Survey Report

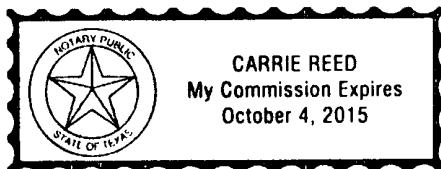
This survey is correct to the best of my knowledge and is supported by actual field data.



Notarized this date 15th of June, 2012.



Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	COG OPERATING	Local Co-ordinate Reference:	Well Reposado 2 State #2H
Project:	Brushy Draw	TVD Reference:	WELL @ 0 00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 00usft (Original Well Elev)
Well:	Reposado 2 State #2H	North Reference:	Grid
Wellbore:	VH - Job #32K0512538	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0512538	Database:	EDM-Regulatory

Project	Brushy Draw		
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	Eddy County, NM		
Site Position:		Northing:	392,220 07 usft
From:	Lat/Long	Easting:	619,011 62 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 4' 39 886 N
		Longitude:	103° 56' 56 742 W
		Grid Convergence:	0 20 °

Well	Reposado 2 State #2H, Directional (Unknown)		
Well Position	+N/-S	0 00 usft	Northing: 392,220 07 usft
	+E/-W	0 00 usft	Easting: 619,011 62 usft
Position Uncertainty	0 00 usft	Wellhead Elevation:	usft
		Latitude:	32° 4' 39 886 N
		Longitude:	103° 56' 56 742 W
		Ground Level:	0 00 usft

Wellbore	VH - Job #32K0512538		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	2012/05/09	7 64
			Dip Angle (°)
			59 96
			Field Strength (nT)
			48,422

Design	VH - Job #32K0512538		
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 (°)
			177 13

Survey Program	Date	2012/06/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100 00	9,000 00	Gyro (VH - Job #32K0512538)	Keeper	Keeper Gyro

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
100 00	0 23	127 25	100 00	-0 12	0 16	127 25	0 20
200 00	0 74	155 31	200 00	-0 83	0 59	144 62	1 02
300 00	0 70	157 31	299 99	-1 98	1 09	151 06	2 26
400 00	0 75	156 92	399 98	-3 15	1 59	153 23	3 52
500 00	0 53	129 59	499 97	-4 04	2 20	151 45	4 60
600 00	0 29	125 58	599 97	-4 48	2 76	148 37	5 27
700 00	0 12	94 42	699 97	-4 64	3 07	146 49	5 56
800 00	1 23	24 24	799 96	-3 67	3 62	135 41	5 15
900 00	1 26	32 98	899 94	-1 77	4 66	110 79	4 98
1,000 00	1 32	32 79	999 91	0 12	5 88	88 81	5 88
1,100 00	0 72	24 09	1,099 90	1 66	6 76	76 17	6 96

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	COG OPERATING	Local Co-ordinate Reference:	Well Reposado 2 State #2H
Project:	Brushy Draw	TVD Reference:	WELL @ 0 00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 00usft (Original Well Elev)
Well:	Reposado 2 State #2H	North Reference:	Grid
Wellbore:	VH - Job #32K0512538	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0512538	Database:	EDM-Regulatory

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
1,200 00	0 38	54 26	1,199 89	2 43	7 28	71 54	7 68	
1,300 00	0 53	49 24	1,299 89	2 93	7 90	69 68	8 43	
1,400 00	0 31	137 66	1,399 89	3 03	8 44	70 25	8 96	
1,500 00	0 39	153 28	1,499 89	2 53	8 77	73 94	9 13	
1,600 00	0 35	192 66	1,599 88	1 92	8 86	77 75	9 06	
1,700 00	0 21	178 50	1,699 88	1 44	8 80	80 69	8 91	
1,800 00	0 63	204 35	1,799 88	0 76	8 57	84 95	8 61	
1,900 00	0 64	220 80	1,899 87	-0 17	7 98	91 19	7 98	
2,000 00	0 89	220 89	1,999 86	-1 18	7 11	99 39	7 21	
2,100 00	0 88	221 19	2,099 85	-2 34	6 09	111 01	6 53	
2,200 00	0 93	224 06	2,199 84	-3 50	5 02	124 87	6 12	
2,300 00	0 98	235 40	2,299 83	-4 57	3 76	140 58	5 92	
2,400 00	0 58	223 45	2,399 82	-5 42	2 70	153 50	6 06	
2,500 00	0 40	125 10	2,499 82	-5 99	2 64	156 20	6 55	
2,600 00	0 98	121 52	2,599 81	-6 64	3 66	151 16	7 58	
2,700 00	1 05	109 21	2,699 79	-7 39	5 25	144 60	9 06	
2,800 00	1 46	111 62	2,799 77	-8 16	7 30	138 18	10 95	
2,900 00	1 87	105 18	2,899 73	-9 06	10 06	131 99	13 53	
3,000 00	1 89	107 81	2,999 67	-9 99	13 20	127 10	16 56	
3,100 00	1 58	110 43	3,099 63	-10 97	16 07	124 33	19 46	
3,200 00	1 40	118 94	3,199 59	-12 05	18 43	123 17	22 01	
3,300 00	1 49	111 01	3,299 56	-13 10	20 71	122 32	24 51	
3,400 00	1 28	115 59	3,399 53	-14 05	22 93	121 50	26 89	
3,500 00	1 34	118 87	3,499 50	-15 10	24 96	121 17	29 17	
3,600 00	1 52	109 20	3,599 47	-16 10	27 24	120 58	31 64	
3,700 00	0 98	111 92	3,699 45	-16 85	29 28	119 92	33 79	
3,800 00	0 96	115 03	3,799 44	-17 53	30 84	119 61	35 47	
3,900 00	0 89	106 19	3,899 42	-18 10	32 34	119 23	37 06	
4,000 00	0 91	114 92	3,999 41	-18 65	33 81	118 88	38 61	
4,100 00	0 62	108 60	4,099 40	-19 16	35 04	118 67	39 94	
4,200 00	0 57	93 61	4,199 40	-19 36	36 05	118 24	40 92	
4,300 00	0 67	91 38	4,299 39	-19 41	37 13	117 59	41 90	
4,400 00	0 74	88 93	4,399 38	-19 41	38 36	116 84	42 99	
4,500 00	0 78	78 37	4,499 37	-19 26	39 67	115 89	44 10	
4,600 00	0 54	69 14	4,599 37	-18 95	40 78	114 93	44 97	
4,700 00	0 44	46 15	4,699 36	-18 52	41 50	114 05	45 44	
4,800 00	0 42	53 40	4,799 36	-18 04	42 07	113 21	45 77	
4,900 00	0 23	100 91	4,899 36	-17 86	42 56	112 76	46 15	
5,000 00	0 19	113 48	4,999 36	-17 96	42 91	112 71	46 52	
5,100 00	0 20	89 44	5,099 36	-18 02	43 24	112 63	46 84	
5,200 00	0 20	251 97	5,199 36	-18 08	43 24	112 68	46 87	
5,300 00	0 51	223 06	5,299 36	-18 46	42 77	113 34	46 59	
5,400 00	0 70	212 87	5,399 35	-19 29	42 14	114 60	46 35	
5,500 00	0 70	206 04	5,499 34	-20 36	41 54	116 11	46 26	

Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	COG OPERATING	Local Co-ordinate Reference:	Well Reposado 2 State #2H
Project:	Brushy Draw	TVD Reference:	WELL @ 0 00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 00usft (Original Well Elev)
Well:	Reposado 2 State #2H	North Reference:	Grid
Wellbore:	VH - Job #32K0512538	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0512538	Database:	EDM-Regulatory

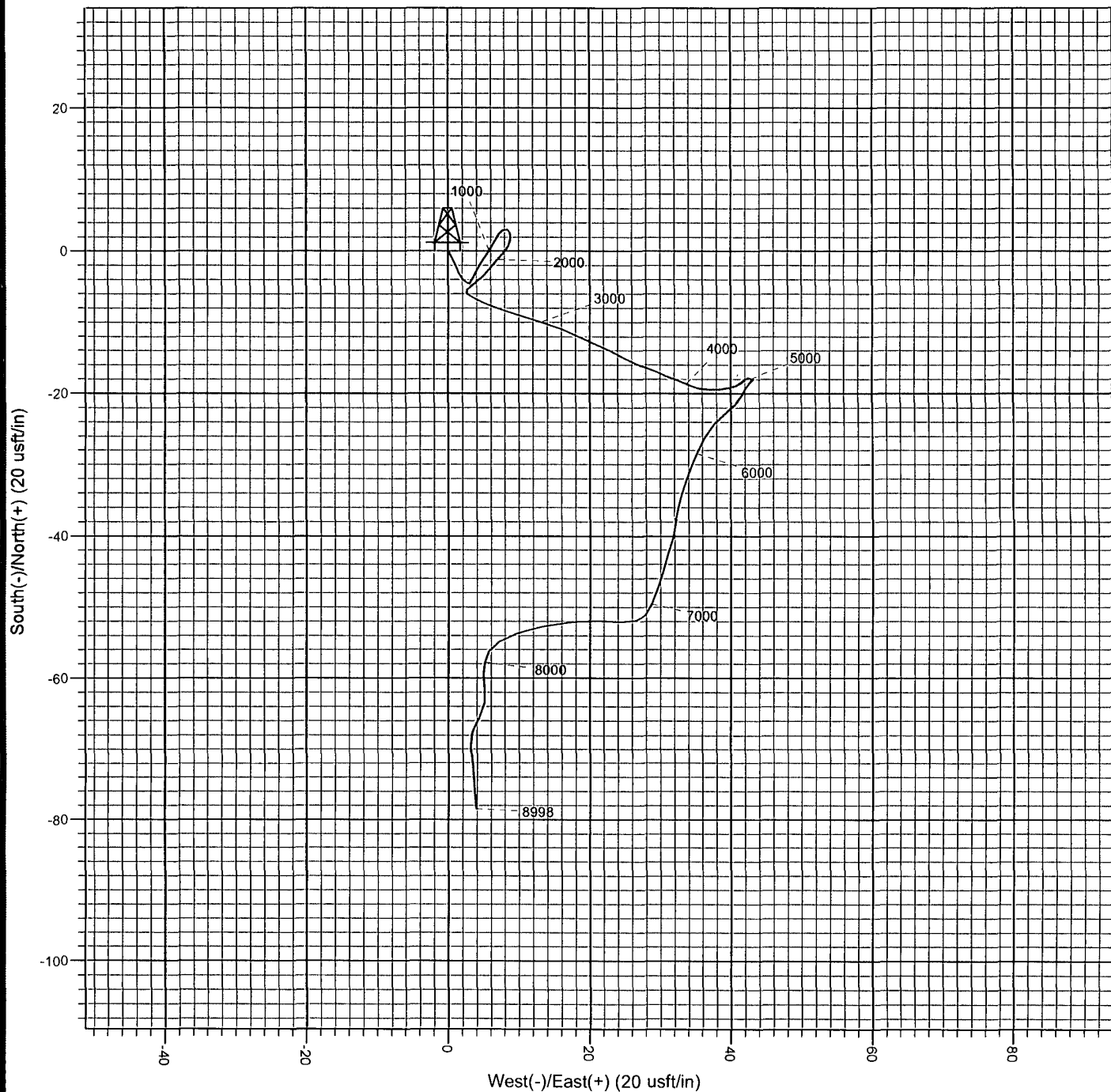
Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,600 00	0 94	224 97	5,599 33	-21 48	40 69	117 83	46 02
5,700 00	1 26	230 08	5,699 31	-22 77	39 27	120 11	45 39
5,800 00	1 37	221 71	5,799 29	-24 37	37 63	122 93	44 83
5,900 00	1 44	208 59	5,899 26	-26 36	36 23	126 04	44 81
6,000 00	1 16	200 15	5,999 23	-28 42	35 28	128 85	45 30
6,100 00	1 18	205 43	6,099 21	-30 30	34 49	131 30	45 91
6,200 00	1 14	197 83	6,199 19	-32 17	33 75	133 63	46 63
6,300 00	1 07	194 96	6,299 17	-34 02	33 20	135 70	47 54
6,400 00	1 23	195 69	6,399 15	-35 96	32 67	137 74	48 58
6,500 00	1 22	187 55	6,499 13	-38 05	32 24	139 72	49 87
6,600 00	1 20	193 45	6,599 11	-40 12	31 86	141 55	51 23
6,700 00	1 40	199 13	6,699 08	-42 29	31 21	143 57	52 56
6,800 00	1 62	194 11	6,799 05	-44 82	30 47	145 79	54 19
6,900 00	1 42	201 22	6,899 01	-47 34	29 67	147 92	55 88
7,000 00	1 24	200 67	6,998 98	-49 51	28 84	149 78	57 30
7,100 00	0 92	223 89	7,098 97	-51 10	27 90	151 36	58 23
7,200 00	0 88	254 03	7,198 95	-51 89	26 61	152 85	58 32
7,300 00	1 65	272 40	7,298 93	-52 04	24 43	154 85	57 49
7,400 00	1 95	270 89	7,398 88	-51 96	21 29	157 72	56 15
7,500 00	2 25	265 16	7,498 81	-52 10	17 64	161 30	55 00
7,600 00	2 59	259 52	7,598 72	-52 67	13 46	165 67	54 37
7,700 00	1 77	249 02	7,698 65	-53 64	9 79	169 65	54 52
7,800 00	1 49	239 79	7,798 61	-54 84	7 23	172 49	55 32
7,900 00	0 92	207 26	7,898 59	-56 21	5 74	174 17	56 50
8,000 00	0 97	193 07	7,998 58	-57 75	5 18	174 88	57 98
8,100 00	0 99	181 92	8,098 56	-59 44	4 96	175 23	59 64
8,200 00	1 18	170 76	8,198 54	-61 32	5 09	175 25	61 53
8,300 00	1 38	186 45	8,298 52	-63 53	5 12	175 39	63 74
8,400 00	1 24	213 48	8,398 49	-65 63	4 39	176 17	65 78
8,500 00	0 35	190 03	8,498 48	-66 83	3 74	176 79	66 94
8,600 00	0 77	208 60	8,598 48	-67 72	3 37	177 15	67 81
8,700 00	1 57	173 40	8,698 46	-69 67	3 20	177 37	69 75
8,800 00	1 45	176 61	8,798 42	-72 30	3 44	177 28	72 38
8,900 00	1 89	173 69	8,898 38	-75 20	3 69	177 19	75 29
9,000 00	1 90	177 65	8,998 33	-78 50	3 94	177 13	78 59



Project: Brushy Draw
Eddy County, NM
Well: Reposado 2 State #2H
Wellbore: VH - Job #32K0512538
Design: VH - Job #32K0512538

WELL DETAILS: Reposado 2 State #2H
WELL @ 0.00usft (Original Well Elev)
Ground Level: 0.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	392220.07	619011.62	32° 4' 39.886 N	103° 56' 56.742 W	



PROJECT DETAILS: Brushy Draw	SITE DETAILS: Eddy County, NM
Geodetic System: US State Plane 1927 (Exact solution)	Site Centre Latitude: 32° 4' 39.886 N
Datum: NAD 1927 (NADCON CONUS)	Longitude: 103° 56' 56.742 W
Ellipsoid: Clarke 1866	Positional Uncertainty: 0.00
Zone: New Mexico East 3001	Convergence: 0.20
System Datum: Mean Sea Level	Local North: Grid



COG Operating LLC

Eddy County(NAD27)

Reposado 2 State

#2H

OH

Design: OH

Pathfinder X & Y Report

23 May, 2012

PATHFINDER®

A Schlumberger Company



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 17' @ 3044.0usft (Original Well Elev)
Site:	Reposado 2 State	MD Reference:	KB = 17' @ 3044.0usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 1 Single User Db

Project	Eddy County(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	Reposado 2 State		
Site Position:		Northing:	392,220.000 usft
From:	Map	Easting:	619,011.500 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32.078
		Longitude:	-103.949
		Grid Convergence:	0.20 °

Well	#2H					
Well Position	+N/-S	0.0 usft	Northing:	392,220.000 usft	Latitude:	32.078
	+E/-W	0.0 usft	Easting:	619,011.500 usft	Longitude:	-103.949
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,027.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/18/2012	7.64	59.96	48,405

Design	OH			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	176.59



Pathfinder Pathfinder X & Y Report



Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Reposado 2 State
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 17' @ 3044.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3044.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey Program Date 5/22/2012

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	8,400.0	Gyro #1 (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s
8,434.0	13,310.0	MWD #2 (OH)	MWD	MWD - Standard

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-3,044.0	0.0	0.0	0.0	0.00	392,220.00	619,011.50
100.0	0.23	127.05	100.0	-2,944.0	-0.1	0.2	0.1	0.23	392,219.88	619,011.66
200.0	0.74	155.11	200.0	-2,844.0	-0.8	0.6	0.9	0.55	392,219.17	619,012.09
300.0	0.70	157.11	300.0	-2,744.0	-2.0	1.1	2.0	0.05	392,218.02	619,012.60
400.0	0.75	156.72	400.0	-2,644.0	-3.1	1.6	3.2	0.05	392,216.86	619,013.10
500.0	0.53	129.39	500.0	-2,544.0	-4.0	2.2	4.2	0.37	392,215.97	619,013.71
600.0	0.29	125.38	600.0	-2,444.0	-4.5	2.8	4.6	0.24	392,215.53	619,014.28
700.0	0.12	94.22	700.0	-2,344.0	-4.6	3.1	4.8	0.20	392,215.37	619,014.59
800.0	1.23	24.04	800.0	-2,244.0	-3.7	3.6	3.9	1.19	392,216.34	619,015.13
900.0	1.26	32.78	899.9	-2,144.1	-1.8	4.7	2.0	0.19	392,218.25	619,016.16
1,000.0	1.32	32.59	999.9	-2,044.1	0.1	5.9	0.2	0.06	392,220.14	619,017.38
1,100.0	0.72	23.89	1,099.9	-1,944.1	1.7	6.8	-1.3	0.62	392,221.69	619,018.25
1,200.0	0.38	54.06	1,199.9	-1,844.1	2.5	7.3	-2.0	0.44	392,222.46	619,018.78
1,300.0	0.53	49.04	1,299.9	-1,744.1	3.0	7.9	-2.5	0.16	392,222.95	619,019.39
1,400.0	0.31	137.46	1,399.9	-1,644.1	3.1	8.4	-2.6	0.61	392,223.06	619,019.93
1,500.0	0.39	153.08	1,499.9	-1,544.1	2.6	8.8	-2.0	0.12	392,222.56	619,020.26
1,600.0	0.35	192.46	1,599.9	-1,444.1	2.0	8.9	-1.4	0.25	392,221.95	619,020.35
1,700.0	0.21	178.30	1,699.9	-1,344.1	1.5	8.8	-0.9	0.16	392,221.47	619,020.29
1,800.0	0.63	204.15	1,799.9	-1,244.1	0.8	8.6	-0.3	0.45	392,220.79	619,020.07
1,900.0	0.64	220.60	1,899.9	-1,144.1	-0.1	8.0	0.6	0.18	392,219.86	619,019.48
2,000.0	0.89	220.69	1,999.9	-1,044.1	-1.2	7.1	1.6	0.25	392,218.85	619,018.61



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Reposado 2 State
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 17' @ 3044.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3044.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,100.0	0.88	220.99	2,099.9	-944.1	-2.3	6.1	2.7	0.01	392,217.68	619,017.60
2,200.0	0.93	223.86	2,199.8	-844.2	-3.5	5.0	3.8	0.07	392,216.52	619,016.54
2,300.0	0.98	235.20	2,299.8	-744.2	-4.6	3.8	4.8	0.20	392,215.44	619,015.27
2,400.0	0.58	223.25	2,399.8	-644.2	-5.4	2.7	5.6	0.43	392,214.59	619,014.22
2,500.0	0.40	124.90	2,499.8	-544.2	-6.0	2.7	6.1	0.75	392,214.02	619,014.16
2,600.0	0.98	121.32	2,599.8	-444.2	-6.6	3.7	6.8	0.58	392,213.37	619,015.18
2,700.0	1.05	109.01	2,699.8	-344.2	-7.4	5.3	7.7	0.23	392,212.63	619,016.78
2,800.0	1.46	111.42	2,799.8	-244.2	-8.1	7.3	8.6	0.41	392,211.87	619,018.83
2,900.0	1.87	104.98	2,899.7	-144.3	-9.0	10.1	9.6	0.45	392,210.98	619,021.59
3,000.0	1.89	107.61	2,999.7	-44.3	-9.9	13.2	10.7	0.09	392,210.06	619,024.74
3,100.0	1.58	110.23	3,099.6	55.6	-10.9	16.1	11.9	0.32	392,209.08	619,027.60
3,200.0	1.40	118.74	3,199.6	155.6	-12.0	18.5	13.1	0.28	392,208.02	619,029.97
3,300.0	1.49	110.81	3,299.6	255.6	-13.0	20.8	14.2	0.22	392,206.97	619,032.26
3,400.0	1.28	115.39	3,399.5	355.5	-14.0	23.0	15.3	0.24	392,206.03	619,034.48
3,500.0	1.34	118.67	3,499.5	455.5	-15.0	25.0	16.5	0.10	392,204.99	619,036.51
3,600.0	1.52	109.00	3,599.5	555.5	-16.0	27.3	17.6	0.30	392,204.00	619,038.79
3,700.0	0.98	111.72	3,699.4	655.4	-16.8	29.3	18.5	0.54	392,203.25	619,040.84
3,800.0	0.96	114.83	3,799.4	755.4	-17.4	30.9	19.2	0.06	392,202.58	619,042.40
3,900.0	0.89	105.99	3,899.4	855.4	-18.0	32.4	19.9	0.16	392,202.01	619,043.90
4,000.0	0.91	114.72	3,999.4	955.4	-18.5	33.9	20.5	0.14	392,201.47	619,045.37
4,100.0	0.62	108.40	4,099.4	1,055.4	-19.0	35.1	21.1	0.30	392,200.97	619,046.61
4,200.0	0.57	93.41	4,199.4	1,155.4	-19.2	36.1	21.3	0.16	392,200.77	619,047.62
4,300.0	0.67	91.18	4,299.4	1,255.4	-19.3	37.2	21.5	0.10	392,200.72	619,048.70
4,400.0	0.74	88.73	4,399.4	1,355.4	-19.3	38.4	21.5	0.08	392,200.73	619,049.93
4,500.0	0.78	78.17	4,499.4	1,455.4	-19.1	39.7	21.4	0.15	392,200.88	619,051.24
4,600.0	0.54	68.94	4,599.4	1,555.4	-18.8	40.8	21.2	0.26	392,201.19	619,052.35
4,700.0	0.44	45.95	4,699.4	1,655.4	-18.4	41.6	20.8	0.22	392,201.62	619,053.06



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Reposado 2 State
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 17' @ 3044.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3044.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
4,800.0	0.42	53.20	4,799.4	1,755.4	-17.9	42.1	20.4	0.06	392,202.11	619,053.63
4,900.0	0.23	100.71	4,899.4	1,855.4	-17.7	42.6	20.2	0.31	392,202.29	619,054.12
5,000.0	0.19	113.28	4,999.4	1,955.4	-17.8	43.0	20.3	0.06	392,202.19	619,054.47
5,100.0	0.20	89.24	5,099.4	2,055.4	-17.9	43.3	20.4	0.08	392,202.13	619,054.80
5,200.0	0.20	251.77	5,199.4	2,155.4	-17.9	43.3	20.5	0.40	392,202.08	619,054.81
5,300.0	0.51	222.86	5,299.4	2,255.4	-18.3	42.8	20.8	0.35	392,201.69	619,054.34
5,400.0	0.70	212.67	5,399.3	2,355.3	-19.1	42.2	21.6	0.22	392,200.85	619,053.71
5,500.0	0.70	205.84	5,499.3	2,455.3	-20.2	41.6	22.6	0.08	392,199.79	619,053.11
5,600.0	0.94	224.77	5,599.3	2,555.3	-21.3	40.8	23.7	0.36	392,198.66	619,052.27
5,700.0	1.26	229.88	5,699.3	2,655.3	-22.6	39.3	24.9	0.33	392,197.37	619,050.85
5,800.0	1.37	221.51	5,799.3	2,755.3	-24.2	37.7	26.4	0.22	392,195.76	619,049.21
5,900.0	1.44	208.39	5,899.3	2,855.3	-26.2	36.3	28.4	0.33	392,193.76	619,047.83
6,000.0	1.16	199.95	5,999.2	2,955.2	-28.3	35.4	30.3	0.34	392,191.71	619,046.88
6,100.0	1.18	205.23	6,099.2	3,055.2	-30.2	34.6	32.2	0.11	392,189.82	619,046.10
6,200.0	1.14	197.63	6,199.2	3,155.2	-32.1	33.9	34.0	0.16	392,187.94	619,045.36
6,300.0	1.07	194.76	6,299.2	3,255.2	-33.9	33.3	35.8	0.09	392,186.09	619,044.82
6,400.0	1.23	195.49	6,399.2	3,355.2	-35.8	32.8	37.7	0.16	392,184.16	619,044.29
6,500.0	1.22	187.35	6,499.1	3,455.1	-37.9	32.4	39.8	0.17	392,182.07	619,043.87
6,600.0	1.20	193.25	6,599.1	3,555.1	-40.0	32.0	41.8	0.13	392,179.99	619,043.50
6,700.0	1.40	198.93	6,699.1	3,655.1	-42.2	31.4	44.0	0.24	392,177.82	619,042.86
6,800.0	1.62	193.91	6,799.0	3,755.0	-44.7	30.6	46.5	0.26	392,175.29	619,042.12
6,900.0	1.42	201.02	6,899.0	3,855.0	-47.2	29.8	48.9	0.27	392,172.76	619,041.34
7,000.0	1.24	200.47	6,999.0	3,955.0	-49.4	29.0	51.0	0.18	392,170.59	619,040.52
7,100.0	0.92	223.69	7,099.0	4,055.0	-51.0	28.1	52.6	0.54	392,168.99	619,039.58
7,200.0	0.88	253.83	7,199.0	4,155.0	-51.8	26.8	53.3	0.47	392,168.20	619,038.29
7,300.0	1.65	272.20	7,298.9	4,254.9	-52.0	24.6	53.3	0.86	392,168.04	619,036.11
7,400.0	1.95	270.69	7,398.9	4,354.9	-51.9	21.5	53.1	0.30	392,168.12	619,032.97



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7,500.0	2.25	264.96	7,498.8	4,454.8	-52.0	17.8	53.0	0.37	392,167.97	619,029.32
7,600.0	2.59	259.32	7,598.7	4,554.7	-52.6	13.6	53.3	0.41	392,167.37	619,025.14
7,700.0	1.77	248.82	7,698.7	4,654.7	-53.6	10.0	54.1	0.91	392,166.40	619,021.48
7,800.0	1.49	239.59	7,798.6	4,754.6	-54.8	7.4	55.2	0.38	392,165.18	619,018.92
7,900.0	0.92	207.06	7,898.6	4,854.6	-56.2	5.9	56.4	0.87	392,163.81	619,017.43
8,000.0	0.97	192.87	7,998.6	4,954.6	-57.7	5.4	57.9	0.24	392,162.27	619,016.88
8,100.0	0.99	181.72	8,098.6	5,054.6	-59.4	5.2	59.6	0.19	392,160.58	619,016.67
8,200.0	1.18	170.56	8,198.5	5,154.5	-61.3	5.3	61.5	0.28	392,158.70	619,016.81
8,300.0	1.38	186.25	8,298.5	5,254.5	-63.5	5.3	63.7	0.40	392,156.49	619,016.85
8,400.0	1.24	213.28	8,398.5	5,354.5	-65.6	4.6	65.8	0.63	392,154.39	619,016.12
8,434.0	4.75	180.57	8,432.4	5,388.4	-67.3	4.4	67.5	11.08	392,152.67	619,015.91
KOP - 8434.0 'MD, 8432.4 'TVD, 180.57 'AZI, 4.75 'INC, -67.3 'N, 4.4 'E										
8,465.0	6.95	178.55	8,463.3	5,419.3	-70.5	4.4	70.6	7.13	392,149.51	619,015.94
8,497.0	9.67	176.88	8,494.9	5,450.9	-75.1	4.6	75.3	8.53	392,144.89	619,016.14
8,529.0	13.54	176.73	8,526.3	5,482.3	-81.5	5.0	81.7	12.09	392,138.47	619,016.50
8,561.0	17.76	178.78	8,557.1	5,513.1	-90.2	5.3	90.3	13.30	392,129.84	619,016.81
8,592.0	22.07	178.64	8,586.2	5,542.2	-100.7	5.6	100.9	13.90	392,119.29	619,017.05
8,624.0	24.80	178.03	8,615.6	5,571.6	-113.4	5.9	113.6	8.56	392,106.57	619,017.43
8,655.0	27.79	176.62	8,643.4	5,599.4	-127.1	6.6	127.3	9.85	392,092.85	619,018.08
8,687.0	32.01	175.12	8,671.1	5,627.1	-143.1	7.7	143.3	13.39	392,076.95	619,019.24
8,719.0	34.38	175.04	8,697.9	5,653.9	-160.5	9.2	160.8	7.41	392,059.49	619,020.74
8,751.0	37.46	175.57	8,723.8	5,679.8	-179.2	10.8	179.5	9.67	392,040.79	619,022.27
8,782.0	41.33	175.92	8,747.7	5,703.7	-198.8	12.2	199.2	12.50	392,021.17	619,023.73
8,814.0	44.58	175.65	8,771.2	5,727.2	-220.6	13.8	221.0	10.17	391,999.43	619,025.33
8,846.0	47.48	174.60	8,793.4	5,749.4	-243.5	15.8	244.0	9.36	391,976.48	619,027.30
8,878.0	50.47	174.33	8,814.4	5,770.4	-267.5	18.1	268.1	9.37	391,952.46	619,029.63
8,909.0	54.08	174.60	8,833.3	5,789.3	-291.9	20.5	292.6	11.67	391,928.06	619,031.99



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Survey

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8,940.0	58.39	175.21	8,850.6	5,806.6	-317.6	22.8	318.4	14.00	391,902.39	619,034.27
8,972.0	62.78	176.44	8,866.3	5,822.3	-345.4	24.8	346.3	14.12	391,874.60	619,036.30
9,003.0	65.95	176.97	8,879.7	5,835.7	-373.3	26.4	374.2	10.34	391,846.70	619,037.90
9,035.0	69.73	176.97	8,891.8	5,847.8	-402.9	28.0	403.8	11.81	391,817.11	619,039.47
9,067.0	73.51	175.04	8,901.9	5,857.9	-433.2	30.1	434.2	13.13	391,786.82	619,041.59
9,092.0	75.45	174.42	8,908.5	5,864.5	-457.2	32.3	458.3	8.12	391,762.84	619,043.80
9,123.0	78.26	173.10	8,915.6	5,871.6	-487.2	35.6	488.4	9.97	391,732.83	619,047.08
9,154.0	81.69	171.43	8,921.0	5,877.0	-517.4	39.7	518.9	12.27	391,702.59	619,051.19
9,186.0	85.74	170.64	8,924.5	5,880.5	-548.8	44.7	550.5	12.89	391,671.18	619,056.15
9,217.0	88.46	170.82	8,926.1	5,882.1	-579.4	49.6	581.3	8.79	391,640.63	619,061.14
LP - 9217.0 'MD, 8926.1 'TVD, 170.82 'AZI, 88.46 'INC, -579.4 'N, 49.6 'E										
9,249.0	89.16	170.64	8,926.7	5,882.7	-610.9	54.8	613.1	2.26	391,609.05	619,066.29
9,281.0	89.87	170.47	8,927.0	5,883.0	-642.5	60.0	644.9	2.28	391,577.49	619,071.54
9,312.0	90.40	170.38	8,926.9	5,882.9	-673.1	65.2	675.8	1.73	391,546.92	619,076.70
9,407.0	88.99	169.41	8,927.4	5,883.4	-766.6	81.9	770.1	1.80	391,453.40	619,093.37
9,503.0	90.40	170.39	8,927.9	5,883.9	-861.1	98.7	865.5	1.79	391,358.89	619,110.20
9,598.0	89.69	171.70	8,927.9	5,883.9	-955.0	113.5	960.0	1.57	391,265.05	619,124.99
9,693.0	89.09	174.95	8,928.9	5,884.9	-1,049.3	124.5	1,054.8	3.48	391,170.71	619,136.03
9,788.0	90.92	176.77	8,928.9	5,884.9	-1,144.0	131.4	1,149.8	2.72	391,075.97	619,142.89
9,883.0	91.36	176.97	8,927.0	5,883.0	-1,238.9	136.6	1,244.8	0.51	390,981.13	619,148.07
9,977.0	91.42	177.15	8,924.7	5,880.7	-1,332.7	141.4	1,338.8	0.20	390,887.28	619,152.89
10,073.0	91.36	175.57	8,922.4	5,878.4	-1,428.5	147.5	1,434.7	1.65	390,791.51	619,158.98
10,168.0	91.54	176.97	8,920.0	5,876.0	-1,523.3	153.7	1,529.7	1.49	390,696.74	619,165.16
10,263.0	89.08	177.32	8,919.5	5,875.5	-1,618.1	158.4	1,624.7	2.62	390,601.87	619,169.89
10,453.0	90.31	177.24	8,920.5	5,876.5	-1,807.9	167.4	1,814.7	0.65	390,412.09	619,178.91
10,548.0	88.72	176.44	8,921.3	5,877.3	-1,902.8	172.6	1,909.7	1.87	390,317.24	619,184.15
10,641.0	90.75	176.44	8,921.7	5,877.7	-1,995.6	178.4	2,002.7	2.18	390,224.42	619,189.92



Pathfinder
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10,736.0	89.34	177.06	8,921.6	5,877.6	-2,090.4	183.8	2,097.7	1.62	390,129.58	619,195.31
10,831.0	89.43	176.71	8,922.6	5,878.6	-2,185.3	189.0	2,192.6	0.38	390,034.72	619,200.47
10,926.0	91.71	176.27	8,921.7	5,877.7	-2,280.1	194.8	2,287.6	2.44	389,939.91	619,206.28
11,020.0	90.92	177.85	8,919.5	5,875.5	-2,373.9	199.6	2,381.6	1.88	389,846.07	619,211.10
11,115.0	91.28	178.03	8,917.7	5,873.7	-2,468.9	203.0	2,476.6	0.42	389,751.15	619,214.52
11,210.0	89.16	177.32	8,917.4	5,873.4	-2,563.8	206.9	2,571.5	2.35	389,656.23	619,218.37
11,306.0	89.52	177.32	8,918.5	5,874.5	-2,659.7	211.4	2,667.5	0.37	389,560.34	619,222.86
11,401.0	88.29	177.50	8,920.3	5,876.3	-2,754.5	215.7	2,762.5	1.31	389,465.46	619,227.15
11,496.0	88.02	176.88	8,923.3	5,879.3	-2,849.4	220.3	2,857.4	0.71	389,370.62	619,231.81
11,590.0	86.97	176.44	8,927.4	5,883.4	-2,943.1	225.8	2,951.3	1.21	389,276.87	619,237.28
11,686.0	88.72	176.79	8,931.0	5,887.0	-3,038.9	231.4	3,047.3	1.86	389,181.11	619,242.94
11,779.0	92.15	177.67	8,930.3	5,886.3	-3,131.8	235.9	3,140.2	3.81	389,088.24	619,247.43
11,874.0	92.77	177.67	8,926.3	5,882.3	-3,226.6	239.8	3,235.1	0.65	388,993.40	619,251.29
11,970.0	88.99	177.72	8,924.8	5,880.8	-3,322.5	243.7	3,331.1	3.94	388,897.51	619,255.15
12,065.0	88.81	177.36	8,926.6	5,882.6	-3,417.4	247.7	3,426.1	0.42	388,802.62	619,259.23
12,160.0	90.40	176.99	8,927.3	5,883.3	-3,512.3	252.4	3,521.1	1.72	388,707.74	619,263.91
12,255.0	91.04	176.87	8,926.1	5,882.1	-3,607.1	257.5	3,616.0	0.69	388,612.88	619,269.00
12,350.0	90.05	175.20	8,925.2	5,881.2	-3,701.9	264.1	3,711.0	2.04	388,518.12	619,275.57
12,444.0	90.22	177.67	8,925.0	5,881.0	-3,795.7	269.9	3,805.0	2.63	388,424.31	619,281.41
12,538.0	89.25	177.06	8,925.4	5,881.4	-3,889.6	274.2	3,899.0	1.22	388,330.41	619,285.73
12,633.0	89.78	177.50	8,926.2	5,882.2	-3,984.5	278.7	3,994.0	0.73	388,235.52	619,290.24
12,729.0	91.10	179.17	8,925.5	5,881.5	-4,080.4	281.5	4,090.0	2.22	388,139.57	619,293.03
12,824.0	90.13	177.67	8,924.4	5,880.4	-4,175.4	284.2	4,184.9	1.88	388,044.61	619,295.65
12,918.0	90.92	178.29	8,923.6	5,879.6	-4,269.3	287.5	4,278.9	1.07	387,950.68	619,298.96
13,013.0	90.04	178.82	8,922.8	5,878.8	-4,364.3	289.9	4,373.8	1.08	387,855.71	619,301.36
13,107.0	89.08	179.26	8,923.5	5,879.5	-4,458.3	291.4	4,467.7	1.12	387,761.73	619,302.93
13,202.0	89.87	180.05	8,924.4	5,880.4	-4,553.3	292.0	4,562.6	1.18	387,666.74	619,303.51



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Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
13,258.0	90.48	180.22	8,924.2	5,880.2	-4,609.3	291.9	4,618.5	1.13	387,610.74	619,303.37
13,310.0	90.48	180.22	8,923.8	5,879.8	-4,661.3	291.7	4,670.4	0.00	387,558.74	619,303.17

BHL - 13310.0 'MD, 8923.8 'TVD, 180.22 'AZI, 90.48 'INC, -4661.3 'N, 291.7 'E

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,434.0	8,432.4	-67.3	4.4	KOP - 8434.0 'MD, 8432.4 'TVD, 180.57 'AZI, 4.75 'INC, -67.3 'N, 4.4 'E
9,217.0	8,926.1	-579.4	49.6	LP - 9217.0 'MD, 8926.1 'TVD, 170.82 'AZI, 88.46 'INC, -579.4 'N, 49.6 'E
13,310.0	8,923.8	-4,661.3	291.7	BHL - 13310.0 'MD, 8923.8 'TVD, 180.22 'AZI, 90.48 'INC, -4661.3 'N, 291.7 'E

Checked By: _____ Approved By: _____ Date: _____



Project: Eddy County(NAD27)
Site: Reposado 2 State
Well: #2H
Wellbore: OH
Plan: Post Gyro Plan #2 (#2H/OH)



Azimuths to Grid North
True North: -0.20°
Magnetic North: 7.44°

Magnetic Field
Strength: 48404.7nT
Dip Angle: 59.96°
Date: 4/18/2012
Model: IGRF2010

PATHFINDER
A Schlumberger Company

PROJECT DETAILS: Eddy County(NAD27)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1886
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

WELL DETAILS: #2H

Ground Elevation: 3027.0
RKB Elevation KB = 17' @ 3044.0usft (Original Well Elev)
Rig Name Original Well Elev

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0 0	0.0	392220.000	619011 500	32 078	-103 949	

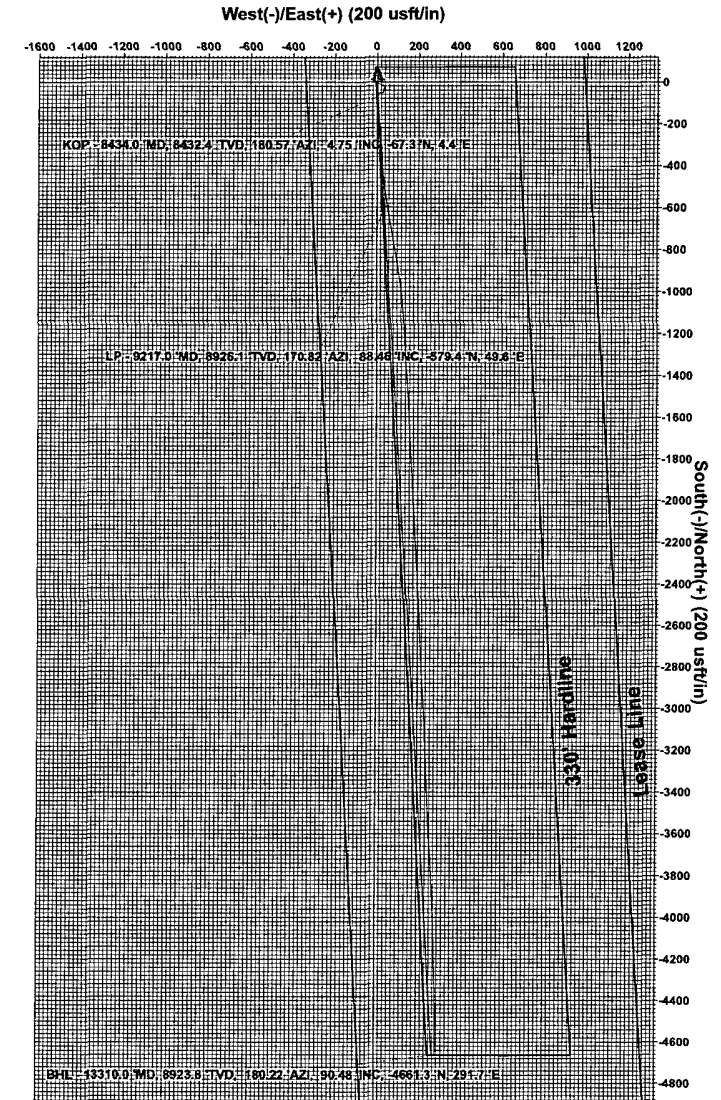
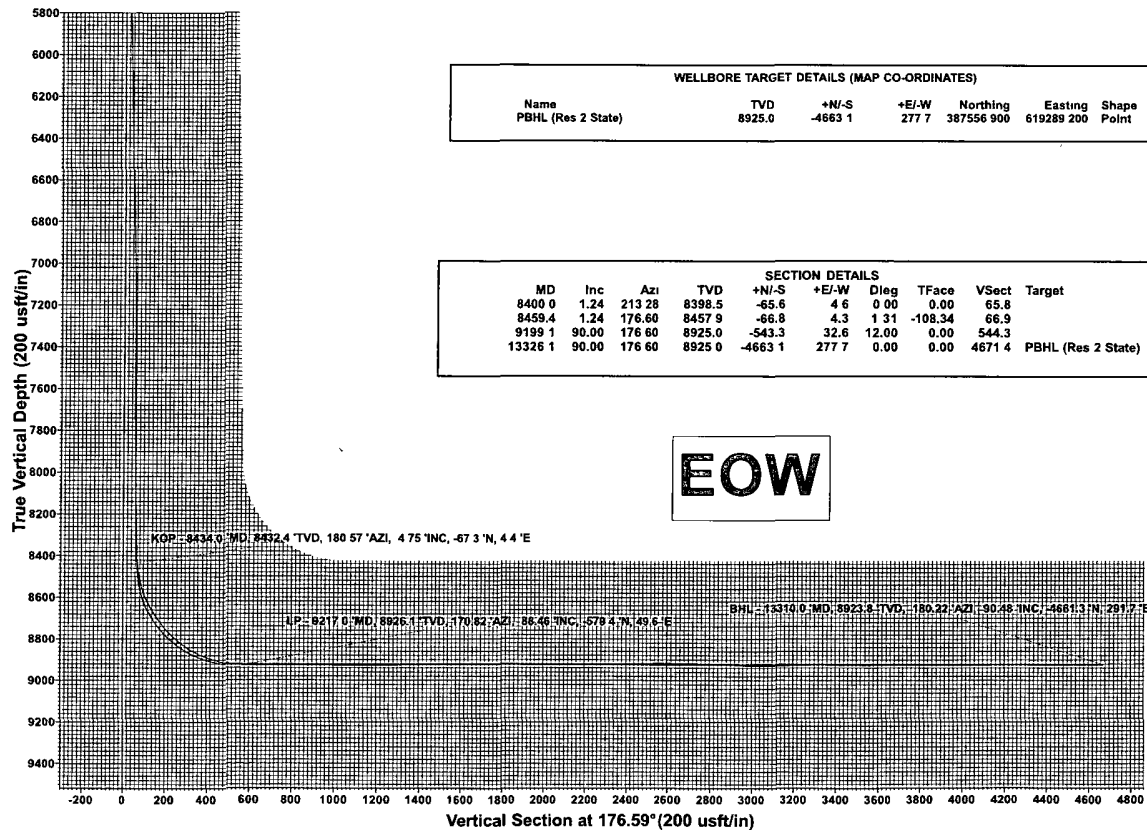
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL (Res 2 State)	8925.0	-4663 1	277 7	387556 900	619289 200	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
8400 0	1.24	213 28	8398.5	-65.6	4 6	0 00	0.00	65.8	
8459.4	1.24	176.60	8457 9	-66.8	4.3	1 31	-108.34	66.9	
9199 1	90.00	176 60	8925.0	-543.3	32.6	12.00	0.00	544.3	
13326 1	90.00	176 60	8925 0	-4663 1	277 7	0.00	0.00	4671 4	PBHL (Res 2 State)

EOW



Plan: Post Gyro Plan #2 (#2H/OH)

Created By: Michael Trout Date: 10.01, May 23 2012

Checked: _____ Date: _____

CDI Operating LLC
Eddy County(NAD27)
Reposado 2 State
#2H
Original Well Elev
OH
Post Gyro Plan #2