



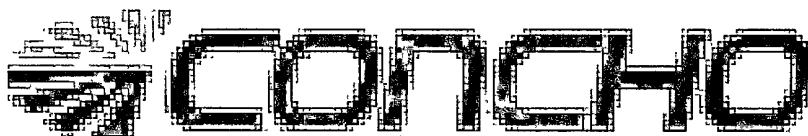
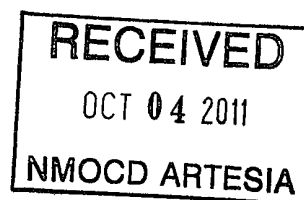
30-015-38224

Ryan Energy Directional Drilling Report

Field: Eddy Co, NM
Site: Skelly Unit 651
Well: Unit 651
Wellpath: OH

Prepared For:

COG Operating LLC



Ryan Energy Technology

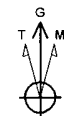
19510 Oil Center Blvd
Houston, TX 77073
Ph 281-443-1414
Fx 281-443-1676

www.ryanenergy.com

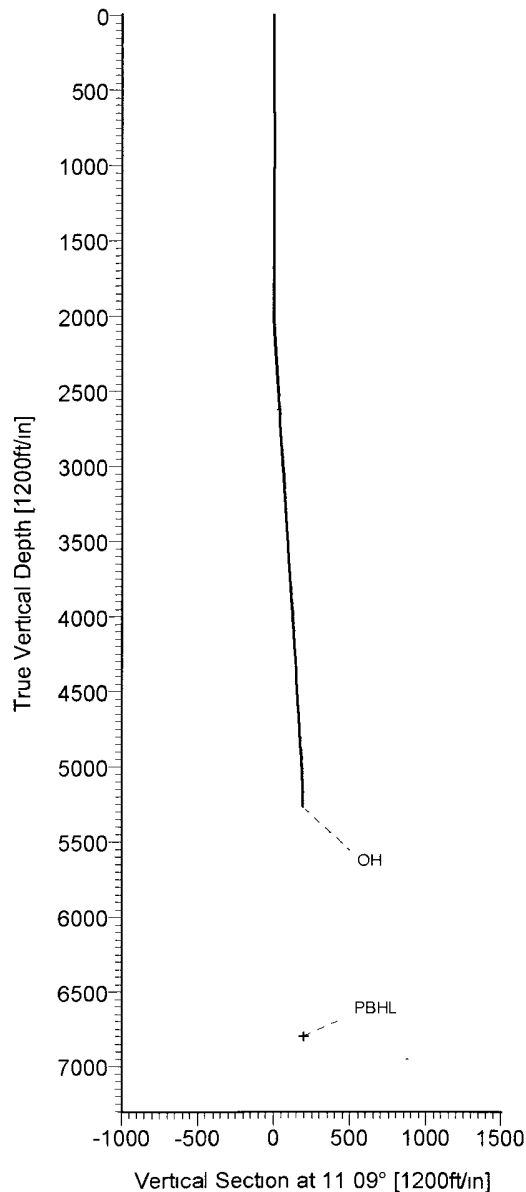


COG Operating LLC

Field: Eddy Co, NM
Site: Skelly Unit 651
Well: Unit 651
Wellpath: OH



Azimuths to Gnd North
True North -0 27'
Magnetic North 7 48'
Magnetic Field
Strength 4897nT
Dip Angle 60 71'
Date 7/8/2011
Model IGRF2010



FIELD DETAILS

Eddy Co NM
New Mexico
U S A

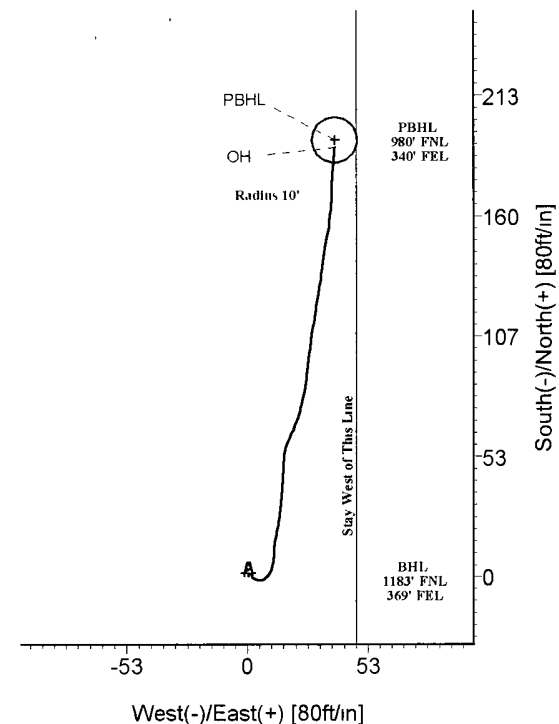
Geodetic System US State Plane Coordinate System 1927
Ellipsoid NAD27 (Clarke 1866)
Zone New Mexico Eastern Zone
Magnetic Model IGRF2010
System Datum Mean Sea Level
Local North Gnd North

WELLPATH DETAILS

OH
Rig Ref Datum SITE 3933 00ft
V Section Angle Origin +N/-S Origin +E/W Starting From TVD
11 09° 0 00 0 00 0 00

SITE DETAILS

Skelly Unit 651
Eddy Co NM
Site Centre Northing 669138 20
Easting 653858 60
Ground Level 3933 00
Positional Uncertainty 0 00
Convergence 0 27



TARGET DETAILS

Name	TVD	+N/-S	+E/W	Northing	Easting	Latitude	Longitude	Shape
PBHL	6800 00	193 30	37 90	669331 50	653896 50	32°50'20 669N	103°49'56 174W	Circle (Radius 10

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Wellpath: Unit 651 OH
Created By Erik Alberto De La Fe Date 8/1/2011
Checked _____ Date _____
Reviewed _____ Date _____
Approved _____ Date _____



Ryan Energy Technologies Survey Report



Company: COG Operating LLC	Date: 8/1/2011	Time: 10 15 16	Page: 1
Field: Eddy Co, NM	Co-ordinate(NE) Reference: Site Skelly Unit 651, Grnd North		
Site: Skelly Unit 651	Vertical (TVD) Reference: SITE 3933 0		
Well: Unit 651	Section (VS) Reference: Well (0 00N,0 00E,11 09Azi)		
Wellpath: OH	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Field Eddy Co, NM New Mexico U S A	Map Zone: New Mexico, Eastern Zone
Map System: US State Plane Coordinate System 1927	Coordinate System: Site Centre
Geo Datum: NAD27 (Clarke 1866)	Geomagnetic Model: IGRF2010
Sys Datum: Mean Sea Level	

Site: Skelly Unit 651

Eddy Co , NM

Site Position:	Northing: 669138 20 ft	Latitude: 32 50 18 758 N
From: Map	Easting: 653858 60 ft	Longitude: 103 49 56 629 W
Position Uncertainty: 0 00 ft		North Reference: Grid
Ground Level: 3933 00 ft		Grid Convergence: 0 27 deg

Well: Unit 651

Slot Name:

Well Position: +N/-S 0 00 ft	Northing: 669138 20 ft	Latitude: 32 50 18 758 N
+E/-W 0 00 ft	Easting : 653858 60 ft	Longitude: 103 49 56 629 W
Position Uncertainty: 0 00 ft		

Wellpath: OH

Current Datum: SITE	Height 3933 00 ft	Drilled From Surface
Magnetic Data: 7/8/2011		Tie-on Depth 0 00 ft
Field Strength: 48977 nT		Above System Datum Mean Sea Level
Vertical Section: Depth From (TVD)	+N/-S	Declination: 7 75 deg
ft	ft	Mag Dip Angle: 60 71 deg
		+E/-W Direction
		deg
0 00	0 00	0 00 11 09

Survey Program for Definitive Wellpath

Date: 8/1/2011	Validated: No	Version: 0
Actual From To	Survey	Toolcode Tool Name
ft ft		
100 00 1790 00	Survey #1 (100 00-1790 00)	Gyro Gyro
1900 00 5230 00	Survey #2 (1900 00-5230 00)	Ryan MWD Ryan MWD
5273 00 5273 00	Survey #3 (5273 00-5273 00)	Projection Projection

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	TIE LINE
100 00	0 17	22 01	100 00	0 14	0 06	0 15	0 17	0 17	0 00	Gyro
200 00	0 14	353 32	200 00	0 40	0 10	0 41	0 08	-0 03	-28 69	Gyro
300 00	0 12	34 08	300 00	0 60	0 14	0 62	0 09	-0 02	40 76	Gyro
400 00	0 23	350 19	400 00	0 89	0 17	0 90	0 17	0 11	-43 89	Gyro
500 00	0 33	23 46	500 00	1 35	0 25	1 37	0 19	0 10	33 27	Gyro
600 00	0 31	51 37	600 00	1 78	0 57	1 86	0 16	-0 02	27 91	Gyro
700 00	0 37	350 30	699 99	2 27	0 73	2 37	0 35	0 06	-61 07	Gyro
800 00	0 10	233 98	799 99	2 54	0 60	2 61	0 42	-0 27	-116 32	Gyro
900 00	0 28	149 17	899 99	2 28	0 66	2 36	0 29	0 18	-84 81	Gyro
1000 00	0 32	132 75	999 99	1 88	0 99	2 03	0 09	0 04	-16 42	Gyro
1100 00	0 15	164 61	1099 99	1 56	1 23	1 77	0 21	-0 17	31 86	Gyro
1200 00	0 31	176 50	1199 99	1 17	1 28	1 39	0 17	0 16	11 89	Gyro
1300 00	0 39	160 35	1299 99	0 58	1 41	0 84	0 13	0 08	-16 15	Gyro
1400 00	0 41	145 12	1399 99	-0 04	1 73	0 29	0 11	0 02	-15 23	Gyro
1500 00	0 40	141 26	1499 98	-0 60	2 15	-0 18	0 03	-0 01	-3 86	Gyro
1600 00	0 40	112 14	1599 98	-1 01	2 70	-0 47	0 20	0 00	-29 12	Gyro
1700 00	0 57	96 50	1699 98	-1 20	3 51	-0 50	0 21	0 17	-15 64	Gyro
1790 00	0 71	104 98	1789 97	-1 39	4 50	-0 50	0 19	0 16	9 42	Gyro
1900 00	0 70	86 30	1899 96	-1 52	5 83	-0 38	0 21	-0 01	-16 98	Ryan MWD
1962 00	1 10	58 50	1961 96	-1 19	6 71	0 12	0 94	0 65	-44 84	Ryan MWD



Ryan Energy Technologies Survey Report



Company: COG Operating LLC
Field: Eddy Co, NM
Site: Skelly Unit 651
Well: Unit 651
Wellpath: OH

Date: 8/1/2011 Time: 10 15 16 Page: 2
Co-ordinate(NE) Reference: Site Skelly Unit 651, Grnd North
Vertical (TVD) Reference: SITE 3933 0
Section (VS) Reference: Well (0 00N,0 00E,11 09Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
2056 00	2 10	46 50	2055 92	0 47	8 73	2 14	1 12	1 06	-12 77	Ryan MWD
2148 00	3 60	15 80	2147 81	4 41	10 74	6 39	2 27	1 63	-33 37	Ryan MWD
2241 00	3 80	359 80	2240 62	10 30	11 52	12 32	1 13	0 22	-17 20	Ryan MWD
2335 00	3 70	11 30	2334 42	16 39	12 11	18 41	0 81	-0 11	12 23	Ryan MWD
2429 00	3 30	10 50	2428 24	22 02	13 19	24 15	0 43	-0 43	-0 85	Ryan MWD
2522 00	4 40	6 30	2521 03	28 20	14 07	30 38	1 22	1 18	-4 52	Ryan MWD
2615 00	3 90	5 30	2613 79	34 90	14 76	37 08	0 54	-0 54	-1 08	Ryan MWD
2709 00	3 60	2 20	2707 58	41 03	15 16	43 18	0 39	-0 32	-3 30	Ryan MWD
2803 00	4 10	5 80	2801 37	47 32	15 62	49 44	0 59	0 53	3 83	Ryan MWD
2896 00	3 60	3 90	2894 16	53 54	16 15	55 65	0 55	-0 54	-2 04	Ryan MWD
2990 00	4 00	23 40	2987 96	59 49	17 66	61 78	1 43	0 43	20 74	Ryan MWD
3083 00	3 70	20 80	3080 75	65 28	20 01	67 91	0 37	-0 32	-2 80	Ryan MWD
3177 00	3 30	19 40	3174 57	70 66	21 98	73 57	0 44	-0 43	-1 49	Ryan MWD
3270 00	3 80	14 10	3267 39	76 18	23 62	79 30	0 64	0 54	-5 70	Ryan MWD
3363 00	3 50	9 10	3360 21	81 97	24 82	85 21	0 47	-0 32	-5 38	Ryan MWD
3456 00	3 30	7 80	3453 04	87 42	25 64	90 72	0 23	-0 22	-1 40	Ryan MWD
3550 00	3 30	3 90	3546 89	92 80	26 19	96 11	0 24	0 00	-4 15	Ryan MWD
3643 00	3 80	9 60	3639 71	98 51	26 88	101 85	0 66	0 54	6 13	Ryan MWD
3736 00	3 50	4 00	3732 52	104 38	27 60	107 74	0 50	-0 32	-6 02	Ryan MWD
3830 00	3 80	11 80	3826 33	110 30	28 43	113 71	0 62	0 32	8 30	Ryan MWD
3923 00	3 90	9 10	3919 12	116 44	29 56	119 95	0 22	0 11	-2 90	Ryan MWD
4016 00	3 50	9 00	4011 93	122 36	30 51	125 95	0 43	-0 43	-0 11	Ryan MWD
4110 00	3 60	9 50	4105 75	128 11	31 44	131 76	0 11	0 11	0 53	Ryan MWD
4203 00	3 50	6 40	4198 57	133 81	32 24	137 51	0 23	-0 11	-3 33	Ryan MWD
4296 00	3 60	6 60	4291 39	139 53	32 89	143 25	0 11	0 11	0 22	Ryan MWD
4390 00	3 70	10 40	4385 20	145 44	33 78	149 23	0 28	0 11	4 04	Ryan MWD
4483 00	3 60	11 50	4478 01	151 26	34 90	155 15	0 13	-0 11	1 18	Ryan MWD
4576 00	3 50	4 80	4570 83	156 95	35 72	160 89	0 46	-0 11	-7 20	Ryan MWD
4670 00	3 60	6 00	4664 65	162 74	36 27	166 68	0 13	0 11	1 28	Ryan MWD
4763 00	3 40	3 80	4757 48	168 40	36 76	172 32	0 26	-0 22	-2 37	Ryan MWD
4856 00	3 40	1 50	4850 31	173 90	37 02	177 78	0 15	0 00	-2 47	Ryan MWD
4950 00	3 40	4 80	4944 15	179 47	37 32	183 30	0 21	0 00	3 51	Ryan MWD
5043 00	2 40	5 40	5037 03	184 16	37 74	187 97	1 08	-1 08	0 65	Ryan MWD
5136 00	1 70	359 40	5129 97	187 47	37 90	191 26	0 79	-0 75	-6 45	Ryan MWD
5230 00	0 80	11 40	5223 95	189 51	38 02	193 28	0 99	-0 96	12 77	Ryan MWD
5273 00	0 80	11 40	5266 94	190 10	38 14	193 89	0 00	0 00	0 00	PROJECTED to TD



Ryan Energy Technologies COMPLETION REPORT



Company: COG Operating LLC	Date: 8/1/2011	Time: 10 18 02	Page: 1
Field: Eddy Co, NM	Co-ordinate(NE) Reference: Site Skelly Unit 651, Gnd North		
Site: Skelly Unit 651	Vertical (TVD) Reference: SITE 3933 0		
Well: Unit 651	Section (VS) Reference: Well (0 00N,0 00E,11 09Azi)		
Wellpath: OH	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Field: Eddy Co, NM New Mexico U S A	Map Zone: New Mexico, Eastern Zone
Map System: US State Plane Coordinate System 1927	Coordinate System: Site Centre
Geo Datum: NAD27 (Clarke 1866)	Geomagnetic Model: IGRF2010
Sys Datum: Mean Sea Level	

Site: Skelly Unit 651

Eddy Co, NM

Site Position:	Northing: 669138 20 ft	Latitude: 32 50 18 758 N
From: Map	Easting: 653858 60 ft	Longitude: 103 49 56 629 W
Position Uncertainty: 0 00 ft		North Reference: Grid
Ground Level: 3933 00 ft		Grid Convergence: 0 27 deg

Well: Unit 651

Slot Name:

Well Position: +N/-S 0 00 ft	Northing: 669138 20 ft	Latitude: 32 50 18 758 N
+E/-W 0 00 ft	Easting: 653858 60 ft	Longitude: 103 49 56 629 W
Position Uncertainty: 0 00 ft		

Wellpath: OH

Current Datum: SITE	Height: 3933 00 ft	Drilled From: Surface
Magnetic Data: 7/8/2011		Tie-on Depth: 0 00 ft
Field Strength: 48977 nT		Above System Datum: Mean Sea Level
Vertical Section: Depth From (TVD)		Declination: 7 75 deg
ft	+N/-S ft	Mag Dip Angle: 60 71 deg
		+E/-W ft
		Direction deg
0 00	0 00	0 00 11 09

Survey

MD ft	Incl deg	TVD ft	VS ft	Azim deg	N/S ft	E/W ft	Clsr Dist. ft	Clsr Azi. deg	DLS deg/100ft	Tool
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	TIE LINE
100 00	0 17	100 00	0 15	22 01	0 14	0 06	0 15	22 01	0 17	Gyro
200 00	0 14	200 00	0 41	353 32	0 40	0 10	0 41	13 75	0 08	Gyro
300 00	0 12	300 00	0 62	34 08	0 60	0 14	0 62	13 17	0 09	Gyro
400 00	0 23	400 00	0 90	350 19	0 89	0 17	0 90	10 57	0 17	Gyro
500 00	0 33	500 00	1 37	23 46	1 35	0 25	1 37	10 34	0 19	Gyro
600 00	0 31	600 00	1 86	51 37	1 78	0 57	1 87	17 79	0 16	Gyro
700 00	0 37	699 99	2 37	350 30	2 27	0 73	2 39	17 80	0 35	Gyro
800 00	0 10	799 99	2 61	233 98	2 54	0 60	2 61	13 39	0 42	Gyro
900 00	0 28	899 99	2 36	149 17	2 28	0 66	2 37	16 14	0 29	Gyro
1000 00	0 32	999 99	2 03	132 75	1 88	0 99	2 12	27 78	0 09	Gyro
1100 00	0 15	1099 99	1 77	164 61	1 56	1 23	1 99	38 20	0 21	Gyro
1200 00	0 31	1199 99	1 39	176 50	1 17	1 28	1 73	47 68	0 17	Gyro
1300 00	0 39	1299 99	0 84	160 35	0 58	1 41	1 52	67 83	0 13	Gyro
1400 00	0 41	1399 99	0 29	145 12	-0 04	1 73	1 73	91 29	0 11	Gyro
1500 00	0 40	1499 98	-0 18	141 26	-0 60	2 15	2 24	105 69	0 03	Gyro
1600 00	0 40	1599 98	-0 47	112 14	-1 01	2 70	2 88	110 52	0 20	Gyro
1700 00	0 57	1699 98	-0 50	96 50	-1 20	3 51	3 71	108 81	0 21	Gyro
1790 00	0 71	1789 97	-0 50	104 98	-1 39	4 50	4 71	107 19	0 19	Gyro
1900 00	0 70	1899 96	-0 38	86 30	-1 52	5 83	6 02	104 66	0 21	Ryan MWD
1962 00	1 10	1961 96	0 12	58 50	-1 19	6 71	6 81	100 04	0 94	Ryan MWD
2056 00	2 10	2055 92	2 14	46 50	0 47	8 73	8 74	86 93	1 12	Ryan MWD
2148 00	3 60	2147 81	6 39	15 80	4 41	10 74	11 61	67 68	2 27	Ryan MWD
2241 00	3 80	2240 62	12 32	359 80	10 30	11 52	15 45	48 21	1 13	Ryan MWD
2335 00	3 70	2334 42	18 41	11 30	16 39	12 11	20 38	36 45	0 81	Ryan MWD
2429 00	3 30	2428 24	24 15	10 50	22 02	13 19	25 67	30 92	0 43	Ryan MWD
2522 00	4 40	2521 03	30 38	6 30	28 20	14 07	31 52	26 52	1 22	Ryan MWD
2615 00	3 90	2613 79	37 08	5 30	34 90	14 76	37 89	22 92	0 54	Ryan MWD