



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

15-39860

April 5, 2012

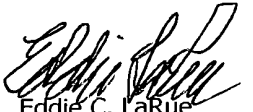
COG, LLC
Fasken Center, Tower II
550 West Texas Ave, Suite 1300
Midland, TX 79701

RE: Raptor 12 State Com #2H
1800' FSL & 1590' FWL
Sec. 11, T16S, R28E
Eddy County, New Mexico

Dear Sir,

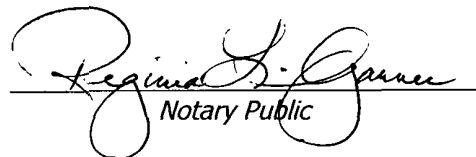
The attached is the Deviation Survey for the above captioned well.

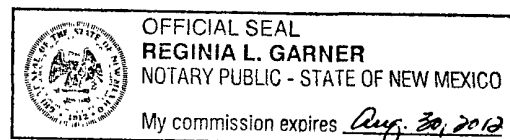
Very truly yours,


Eddie C. LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 5th day of April, 2012.

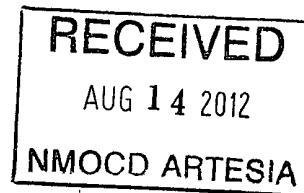

Notary Public



Raptor 12 State Com #2H

Date	Depth	Deviation	Inclination
3/4/2012	149	0.30	
3/4/2012	270	0.20	
3/5/2012	570	0.80	
3/6/2012	916	0.70	
3/6/2012	1327	0.40	
3/6/2012	1769	0.80	
3/6/2012	2110	0.70	
3/7/2012	2561	0.10	
3/7/2012	2972	0.30	
3/7/2012	3445	0.40	
3/8/2012	3888	0.40	
3/8/2012	4332	1.20	
3/9/2012	4773	1.00	
3/10/2012	5215	1.10	
3/10/2012	5657	0.50	
3/11/2012	6005	0.50	
3/14/2012	6247	0.70	
3/14/2012	6757	0.80	
3/18/2012	6234	6.20	249.30
3/18/2012	6265	11.00	250.80
3/19/2012	6297	15.40	256.30
3/19/2012	6360	19.50	258.70
3/19/2012	6392	21.50	262.60
3/19/2012	6424	23.80	263.00
3/19/2012	6456	25.40	265.90
3/19/2012	6488	27.40	269.50
3/19/2012	6519	29.80	270.50
3/20/2012	6551	33.50	270.40
3/20/2012	6583	36.60	270.20
3/20/2012	6615	39.90	271.20
3/20/2012	6647	42.20	273.00
3/21/2012	6674	45.00	274.00
3/21/2012	6722	48.00	274.10
3/21/2012	6743	51.90	274.30
3/21/2012	6774	55.10	274.30
3/21/2012	6806	58.90	274.10
3/21/2012	6837	63.60	273.20
3/21/2012	6870	67.10	272.50
3/22/2012	6901	71.30	271.70
3/22/2012	6933	74.70	271.80
3/22/2012	6965	79.10	271.90
3/22/2012	6997	81.30	272.00
3/22/2012	7029	84.80	272.30

Date	Depth	Deviation	Inclination
3/22/2012	7060	88.60	272.40
3/22/2012	7092	90.60	272.20
3/22/2012	7124	91.30	272.20
3/24/2012	7219	90.30	271.20
3/24/2012	7251	91.00	271.20
3/24/2012	7282	91.80	271.70
3/25/2012	7378	92.70	270.80
3/26/2012	7473	93.00	269.70
3/26/2012	7664	92.50	270.50
3/26/2012	7792	92.00	271.20
3/26/2012	7855	91.30	271.60
3/26/2012	7951	90.50	272.80
3/27/2012	8045	89.80	272.60
3/27/2012	8140	90.20	272.50
3/27/2012	8233	89.50	272.00
3/27/2012	8331	88.10	271.40
3/28/2012	8394	88.20	270.90
3/28/2012	8427	88.50	271.30
3/28/2012	8522	88.40	271.10
3/29/2012	8617	86.40	271.20
3/29/2012	8808	86.50	270.30
3/29/2012	8935	86.50	270.00
3/29/2012	8954	86.50	270.00
3/29/2012	8971	86.30	269.90
3/29/2012	8998	86.50	270.00
3/29/2012	9095	87.50	270.30
3/30/2012	9382	89.50	271.70
3/30/2012	9764	92.70	272.80
3/30/2012	9860	92.30	272.30
3/31/2012	9924	92.60	271.70
3/31/2012	10243	94.10	271.70
3/31/2012	10339	94.20	271.70
3/31/2012	10439	94.50	271.50
3/31/2012	10466	94.40	271.10
3/31/2012	10625	94.00	270.50
4/1/2012	10816	93.50	270.70
4/1/2012	10950	93.30	271.30
4/1/2012	10975	93.50	271.60



COG Operating, LLC

Eddy County, NM

Raptor 12 State Com #2H

Raptor 12 State Com #2H

15 - 3986 0

Lateral #1

Survey: MWD Survey #1

Standard Survey Report

02 April, 2012





Black Viper Energy Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Site Raptor 12 State Com #2H
Project:	Eddy County, NM	TVD Reference:	WELL @ 3589 00ft (Original Well Elev)
Site:	Raptor 12 State Com #2H	MD Reference:	WELL @ 3589 00ft (Original Well Elev)
Well:	Raptor 12 State Com #2H	North Reference:	Grd
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM-5000.1 Single User Db

Project:	Eddy County, NM		
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	Raptor 12 State Com #2H, Sec 12 T-16-S R-28-E				
Site Position:		Northing:	704,250 60 ft	Latitude:	32° 56' 9 158 N
From:	Map	Easting:	564,904 00 ft	Longitude:	104° 7' 18 441 W
Position Uncertainty:	0 00 ft	Slot Radius:	13 200 in	Grid Convergence:	0 12 °

Well Raptor 12 State Com #2H						
Well Position	+N/-S	0 00 ft	Northing:	704,250 60 ft	Latitude:	32° 56' 9 158 N
	+E/-W	0 00 ft	Easting:	564,904.00 ft	Longitude:	104° 7' 18 441 W
Position Uncertainty		0 00 ft	Wellhead Elevation:	ft	Ground Level:	3,589 00 ft

Wellbore	Lateral #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/29/2012	7 81	60 73	48,911

Design: Lateral #1				
Audit Notes:				
Version:	1 0	Phase:	ACTUAL	Tie On Depth: 6,200 00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0 00	0 00	0 00	261 24

Survey Program		Date	4/2/2012		
From	To	Survey (Wellbore)	Tool Name	Description	
(ft)	(ft)				
100 00	6,200 00	Gyro Survey #1 (OH)			
6,200 00	11,025 00	MWD Survey #1 (Lateral #1)			

Survey	Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)
	6,200.00	0 72	242.95	6,199.59	-4 01	-45 39	45 47	0 00	0 00	0 00
	6,234 00	6 20	249.30	6,233 52	-4 76	-47 30	47 47	16 13	16.12	18 68
	6,265 00	11 00	250 80	6,264 16	-6 32	-51 66	52 02	15 50	15 48	4 84
	6,297 00	15 40	256 30	6,295 31	-8 33	-58 68	59 26	14 28	13 75	17 19
	6,329 00	19 50	258.70	6,325 83	-10 39	-68 05	68.83	13 01	12.81	7 50
	6,360 00	19 50	262 60	6,355 05	-12 07	-78 25	79 18	4 20	0 00	12 58
	6,392 00	21 50	262.60	6,385 02	-13 51	-89 36	90 38	6 25	6 25	0 00
	6,424 00	23 80	263 00	6,414 55	-15 05	-101 59	102 70	7 20	7 19	1 25
	6,456 00	25 40	265 90	6,443 65	-16 33	-114 84	115 99	6 26	5 00	9 06
	6,488 00	27 40	269 50	6,472 31	-16 89	-129 05	130 12	8 00	6 25	11 25



Black Viper Energy
Survey Report



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Project:	Eddy County, NM	TVD Reference:	WELL @ 3589 00ft (Original Well Elev)
Site:	Raptor 12 State Com #2H	MD Reference:	WELL @ 3589 00ft (Original Well Elev)
Well:	Raptor 12 State Com #2H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 5000 1 Single User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,519 00	29 80	270 50	6,499 53	-16 88	-143 89	144 78	7 89	7 74	3 23
6,551 00	33 50	270 40	6,526 76	-16 75	-160 68	161 36	11 56	11 56	-0 31
6,583 00	36 60	270 20	6,552 96	-16 65	-179 05	179 50	9 69	9 69	-0 63
6,615 00	39 90	271 20	6,578 08	-16 41	-198 86	199 04	10 49	10 31	3 13
6,647 00	42 20	273 00	6,602 21	-15 63	-219 86	219 67	8 08	7 19	5 63
6,679 00	45 00	274 00	6,625 39	-14 28	-241 88	241 23	9 01	8 75	3 13
6,711 00	48 00	274 10	6,647 41	-12 64	-265 03	263 87	9 38	9 38	0 31
6,743 00	51 90	274 30	6,668 00	-10 84	-289 46	287 73	12 20	12 19	0 63
6,774 00	55 10	274 30	6,686 43	-8 97	-314 30	312 00	10 32	10 32	0 00
6,806 00	58 90	274 10	6,703 86	-7 01	-341 06	338 15	11 89	11 88	-0 63
6,838 00	63 60	273 20	6,719 25	-5 23	-369 06	365 54	14 89	14 69	-2 81
6,870 00	67 10	272 50	6,732 59	-3 79	-398 10	394 03	11 12	10 94	-2 19
6,901 00	71 30	271 70	6,743 60	-2 73	-427 05	422 48	13 76	13 55	-2 58
6,933 00	74 70	271 80	6,752 95	-1 79	-457 63	452 57	10 63	10 63	0 31
6,965 00	79 10	271 90	6,760 20	-0 79	-488 78	483 19	13 75	13 75	0 31
6,997 00	81 30	272 00	6,765 65	0 29	-520 29	514 17	6 88	6 88	0 31
7,029 00	84 80	272 30	6,769 52	1 48	-552 03	545 36	10 98	10 94	0 94
7,060 00	88 60	272 40	6,771 31	2 75	-582 95	575 72	12 26	12 26	0 32
7,092 00	90 60	272 20	6,771 53	4 03	-614 92	607 13	6 28	6 25	-0 63
7,124 00	91 30	272 20	6,771 00	5 26	-646 89	638 54	2 19	2 19	0 00
7,156 00	90 80	272 30	6,770 41	6 52	-678 86	669 94	1 59	-1 56	0 31
7,219 00	90 30	271 20	6,769 81	8 44	-741 83	731 88	1 92	-0 79	-1 75
7,282 00	91 80	271 10	6,768 65	9 70	-804 80	793 93	2 39	2 38	-0 16
7,378 00	92 70	270 80	6,764 88	11 29	-900 71	888 48	0 99	0 94	-0 31
7,473 00	93 00	269 70	6,760 16	11 71	-995 59	982 19	1 20	0 32	-1 16
7,568 00	92 40	269 90	6,755 69	11 38	-1,090 49	1,076 03	0 67	-0 63	0 21
7,664 00	92 50	270 50	6,751 58	11 71	-1,186 40	1,170 77	0 63	0 10	0 63
7,760 00	92 00	271 20	6,747 81	13 14	-1,282 31	1,265 34	0 90	-0 52	0 73
7,855 00	91 30	271 60	6,745 08	15 46	-1,377 24	1,358 81	0 85	-0 74	0 42
7,950 00	90 50	272 80	6,743 58	19 10	-1,472 16	1,452 07	1 52	-0 84	1 26
8,045 00	89 80	272 60	6,743 34	23 58	-1,567 05	1,545 17	0 77	-0 74	-0 21
8,141 00	90 20	272 50	6,743 34	27 85	-1,662 96	1,639 31	0 43	0 42	-0 10
8,237 00	89 50	272 00	6,743 59	31 62	-1,758 88	1,733 54	0 90	-0 73	-0 52
8,331 00	88 10	271 40	6,745 56	34 40	-1,852 82	1,825 95	1 62	-1 49	-0 64
8,426 00	88 50	271 30	6,748 37	36 64	-1,947 75	1,919 43	0 43	0 42	-0 11
8,522 00	88 40	271 10	6,750 97	38 65	-2,043 69	2,013 95	0 23	-0 10	-0 21
8,617 00	86 40	271 20	6,755 28	40 56	-2,138 57	2,107 43	2 11	-2 11	0 11
8,713 00	86 10	270 80	6,761 56	42 23	-2,234 35	2,201 84	0 52	-0 31	-0 42
8,809 00	86 50	270 30	6,767 75	43 15	-2,330 15	2,296 38	0 67	0 42	-0 52
8,904 00	86 50	270 00	6,773 55	43 40	-2,424 97	2,390 05	0 32	0 00	-0 32
8,999 00	86 50	270 10	6,779 35	43 48	-2,519 79	2,483 76	0 11	0 00	0 11
9,095 00	87 50	270 30	6,784 38	43 81	-2,615 66	2,578 45	1 06	1 04	0 21
9,191 00	88 00	272 00	6,788 15	45 74	-2,711 56	2,672 94	1 84	0 52	1 77



Black Viper Energy
Survey Report



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Project:	Eddy County, NM	TVD Reference:	WELL @ 3589 00ft (Original Well Elev)
Site:	Raptor 12 State Com #2H	MD Reference:	WELL @ 3589 00ft (Original Well Elev)
Well:	Raptor 12 State Com #2H	North Reference:	Gnd
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Lateral #1	Database:	EDM 5000 1 Single User Db

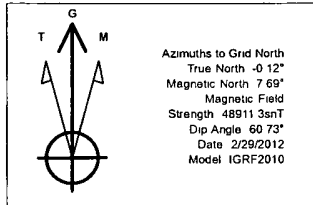
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,286 00	88 10	271 50	6,791 38	48 64	-2,806 46	2,766 30	0 54	0 11	-0 53
9,382 00	89 50	271 70	6,793 39	51 32	-2,902 40	2,860 71	1 47	1 46	0 21
9,477 00	91 60	272 60	6,792 48	54 88	-2,997 32	2,953 98	2 40	2 21	0 95
9,573 00	92 20	272 60	6,789 30	59 23	-3,093 17	3,048 04	0 63	0 63	0 00
9,668 00	92 40	272 50	6,785 48	63 46	-3,188 00	3,141 12	0 24	0 21	-0 11
9,764 00	92 70	272 80	6,781 21	67 89	-3,283 80	3,235 13	0 44	0 31	0 31
9,860 00	92 30	272 30	6,777 02	72 16	-3,379 61	3,329 18	0 67	-0 42	-0 52
9,956 00	93 10	271 70	6,772 50	75 51	-3,475 45	3,423 38	1 04	0 83	-0 63
10,052 00	93 60	271 60	6,766 89	78 26	-3,571 24	3,517 64	0 53	0 52	-0 10
10,147 00	93 70	271 40	6,760 84	80 75	-3,666 02	3,610 93	0 23	0 11	-0 21
10,243 00	94 10	271 70	6,754 31	83 34	-3,761 76	3,705 16	0 52	0 42	0 31
10,339 00	94 20	271 70	6,747 37	86 18	-3,857 47	3,799 32	0 10	0 10	0 00
10,434 00	94 50	271 30	6,740 16	88 66	-3,952 16	3,892 53	0 53	0 32	-0 42
10,530 00	94 40	270 80	6,732 71	90 41	-4,047 86	3,986 84	0 53	-0 10	-0 52
10,625 00	94 00	270 50	6,725 76	91 49	-4,142 59	4,080 31	0 53	-0 42	-0 32
10,721 00	94 00	270 40	6,719 06	92 24	-4,238 36	4,174 84	0 10	0 00	-0 10
10,816 00	93 50	270 70	6,712 85	93 15	-4,333 15	4,268 38	0 61	-0 53	0 32
10,912 00	93 30	271 30	6,707 15	94 82	-4,428 96	4,362 83	0 66	-0 21	0 63
10,975 00	93 50	271 60	6,703 42	96 41	-4,491 83	4,424 72	0 57	0 32	0 48
11,025 00	93 50	271 60	6,700 36	97 81	-4,541 72	4,473 81	0 00	0 00	0 00

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates	Comment
6,234 00	6,233 52	-4 76	First MWD Survey
10,975 00	6,703 42	96 41	Last MWD Survey
11,025 00	6,700 36	97 81	Proj to Bit

Checked By _____ Approved By: _____ Date _____



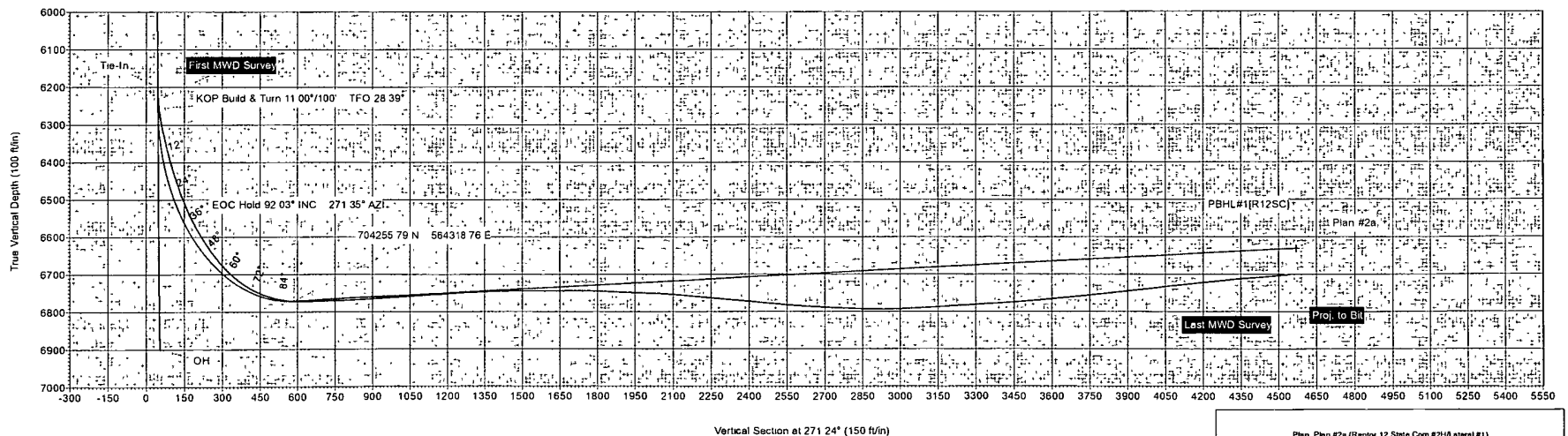
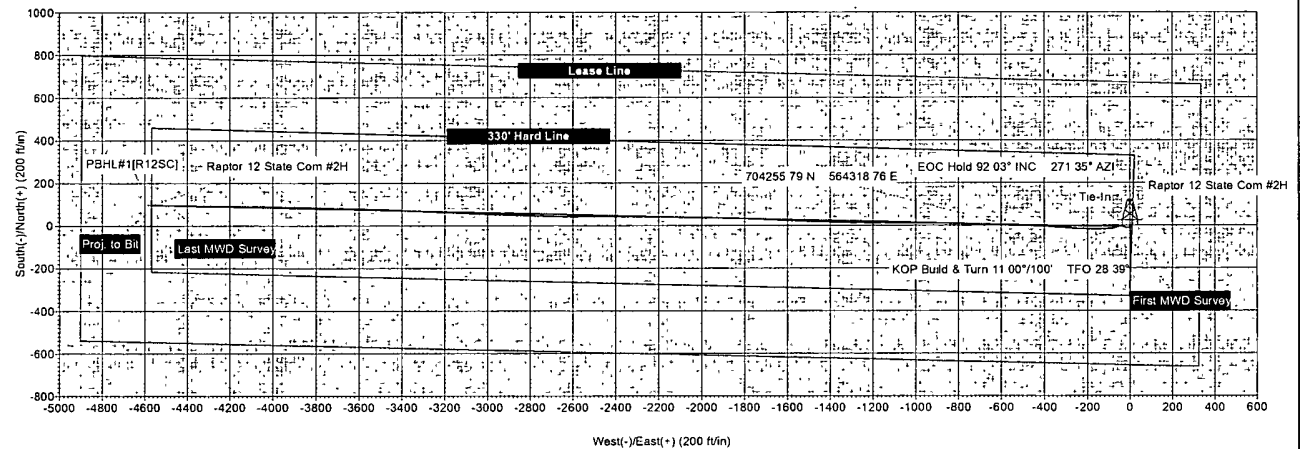
Raptor 12 State Com #2H
Eddy County, NM
Lateral #1
1980.00 FSL
-330.00 FEL



Well Name Raptor 12 State Com #2H
System US State Plane 1927 (Exact solution)
Zone New Mexico East 3001
System Datum Mean Sea Level
Northing: 704250 60
Easting: 564904 00
Ground Level 3589 00
Depth Reference WELL @ 3589 00ft (Original Well Elev)

SECTION DETAILS									
MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	Vsect	Target	
6200 00	0 72	242 95	6199 59	-4 01	-45 39	0 00	45 29		
6256 63	0 72	242 95	6256 22	-4 33	-46 02	0 00	45 92		
7087 51	92 03	271 35	6771 00	5 19	-585 24	11 00	585 21		
11073 67	92 02	271 35	6630 00	98 90	-4567 80	0 00	4568 87		

ANNOTATIONS		
TVD	MD	Annotation
6199 59	6200 00	Tie-In
6256 22	6256 63	KOP Build & Turn 11 00°/100' TFO 28 39°
6771 00	7087 51	EOC Hold 92 03° INC 271 35° AZI
6771 00	7087 51	704255 79 N 564318 76 E
6630 00	11073 67	704349 50 N 560336 20 E



Final

Plan Plan #2a (Raptor 12 State Com #2H/Lateral #1)
Created By: Michael Herrera Date: April 02, 2012