Results of Directional Survey

API number:	30-025-40388			
OGRID:		Operator:	COG OPERATING LLC	
		Property:	KING COBRA 2 STATE	# 1H

surface	ULSTR:	A	02	T	19S	R	34E
				460	FNL	460	FEL
BH Loc	ULSTR:	P	02	T	19S	R	34E
14940	MD	10680.7	TVD	338	FSL	477	FEL
				4942	FNL		
Top Perf/OH	ULSTR:	A	02	T	19S	R	34E
10838	MD	10649.0	TVD	843	FNL	494	FEL
Bot Perf/OH	ULSTR:	P	02	T	19S	R	34E
14901	MD	10679.1	TVD	377	FSL	480	FEL
				4903	FNL		

	MD	N/S	E/W	VD
	10806	-352.37	-33.25	10640
TOP PERFS/OH	**10838**	-383.15	-33.92	10649.00
	10838	-383.15	-33.92	10649.00
	14893	-4434.70	-20.71	10678.73
BOT PERFS/OH	**14901**	-4442.67	-20.15	10679.07
	14940	-4481.55	-17.41	10680.72

NEXT TO LAST	14893	-4434.70	-20.71	10678.73
LAST READING	14940	-4481.55	-17.41	10680.72
TD	**14940**	-4481.55	-17.41	10680.72

Surface Location	460	FN	460	FE
Projected BHL	4942	FN	477	FE
Location of				
Top Perfs/OH	843	FN	494	FE
Bottom Perfs/OH	4903	FN	480	FE

SUMMARY of Subsurface Locations

Surface Location	A-02-19S-34E	460	FN	460	FE	Vert. Depth
Top Perfs/OH	A-02-19S-34E	843	FN	494	FE	10649.00
Bottom Perfs/OH	P-02-19S-34E	4903	FN	480	FE	10679.07
Projected TD	P-02-19S-34E	4942	FN	477	FE	10680.72

JUN 07 2012

McVAY DRILLING COMPANY
P.O. Box 2450
Hobbs, New Mexico 88241
(575) 397-3311
FAX: 39-DRILL

Well Name and Num: King Cobra 2 State 1H
Location: Sec. 2, T19S, R34E
Operator: COG
Drilling Contractor: McVay Drilling Company

The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

Degrees @	Depth	Degrees @	Depth	Degrees @	Depth	Degrees @	Depth
1.03	294	0.46	5734	60.14	10682	87.58	14893
1.53	587	0.78	6716	72.21	10806		
2.76	1204	0.75	7661	79.93	10900		
3.13	1328	0.78	8166	83.10	10931		
2.31	1550	2.37	8669	89.16	11409		
2.10	1634	2.19	8890	89.69	12076		
1.61	1834	1.60	9050	91.98	12172		
0.64	2086	1.32	9273	89.87	12648		
1.18	2332	0.69	9746	90.04	13203		
0.45	2486	0.63	10173	90.92	13389		
1.92	2950	0.59	10670	91.00	13481		
1.62	3073	0.62	10146	90.13	13573		
1.57	3320	0.88	10177	88.64	13944		
0.76	3799	5.28	10209	88.90	14314		
0.65	4285	24.18	10366	89.43	14406		
0.54	4759	30.60	10429	89.52	14499		
0.49	5230	62.14	10618	89.69	14684		

SUR: A-02-19s-34e, 460/N & 460/E
BHL: P-02-19s-34e, 4942/N & 477/E
API # 30-025-40388

By: Hubert Crouch

Subscribed and sworn to before me this 17th day of April, 2012

Tina Flemens
Notary Public, Lea County, New Mexico

OFFICIAL SEAL
TINA FLEMENS
Notary Public
State of New Mexico
My Comm. Expires 8-16-13

SUR: A-02-19s-34e, 460/N & 460/E
BHL: P-02-19s-34e, 4942/N & 477/E
API # 30-025-40388

COG OPERATING

Scharb
Lea County, NM
King Cobra "2" State #1H
VH - Job #32K0312366

HOBBS OCD

MAY 29 2012

RECEIVED

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 2nd of April, 2012.

Notary Signature
County of Midland
State of Texas

NOTARY PUBLIC STATE OF TEXAS
CARRIE REED
My Commission Expires
October 4, 2015

Scientific Drilling
Directional Drilling Operations

Scientific Drilling International, Inc.

SDI Standard Survey Report

Scientific Drilling
Directional Drilling Operations

Company:	COG OPERATING	**Local Co-ordinate Reference:**	Well King Cobra "2" State #1H
Project:	Scharb	**TVD Reference:**	WELL @ 0 0usft (Original Well Elev)
Site:	Lea County, NM	**MD Reference:**	WELL @ 0 0usft (Original Well Elev)
Well:	King Cobra "2" State #1H	**North Reference:**	Grid
Wellbore:	VH - Job #32K0312366	**Survey Calculation Method:**	Minimum Curvature
Design:	VH - Job #32K0312366	**Database:**	EDM-Regulatory

Project Scharb

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 Lea County, NM

Site Position:		**Northing:**	612,439 34 usft	**Latitude:**	32° 40' 51 600 N
From:	Lat/Long	**Easting:**	753,020 58 usft	**Longitude:**	103° 30' 39 600 W
Position Uncertainty:	0 0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0 44 °

Well King Cobra "2" State #1H, Directional (Pathfinder)

Well Position	**+N/-S**	0 0 usft	**Northing:**	617,757 71 usft	**Latitude:**	32° 41' 44 528 N
	+E/-W	0 0 usft	**Easting:**	749,017 51 usft	**Longitude:**	103° 31' 25 958 W
Position Uncertainty		0 0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	0 0 usft

Wellbore VH - Job #32K0312366

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/28/2012	7 50	60 61	48,853

Design VH - Job #32K0312366

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	285 40

Survey Program **Date** 4/10/2012

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100 0	10,880 0	Gyro (VH - Job #32K0312366)	Keeper	Keeper Gyro

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0 0	0 00	0 00	0 0	0 0	0 0	0 00	0 0
100.0	0 43	246 65	100 0	-0 1	-0 3	246 65	0.4
200 0	0 61	246.23	200 0	-0 5	-1 2	246 48	1 3
300 0	0 73	235 16	300 0	-1 1	-2 2	243 49	2 4
400 0	0 86	233 91	400 0	-1 9	-3 3	240 23	3 8
500 0	1 14	237 17	500 0	-2 9	-4 8	238 83	5 6
600 0	1 23	237 45	599 9	-4.0	-6 5	238 42	7 6
700 0	1 33	235 63	699.9	-5 2	-8 4	237 99	9 9
800 0	1 54	231 97	799 9	-6 7	-10 4	237 11	12 4
900 0	1 74	232 59	899 8	-8 5	-12 6	236 21	15 2
1,000 0	1 85	226 69	999 8	-10 5	-15 0	235 07	18 3
1,100 0	2 32	218 58	1,099 7	-13 2	-17 5	232 95	21 9

Company:	COG OPERATING	**Local Co-ordinate Reference:**	Well King Cobra "2" State #1H
Project:	Scharb	**TVD Reference:**	WELL @ 0 0usft (Original Well Elev)
Site:	Lea County, NM	**MD Reference:**	WELL @ 0 0usft (Original Well Elev)
Well:	King Cobra "2" State #1H	**North Reference:**	Grid
Wellbore:	VH - Job #32K0312366	**Survey Calculation Method:**	Minimum Curvature
Design:	VH - Job #32K0312366	**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 0	2 50	219 18	1,199 6	-16 5	-20 1	230 70	26 0
1,300 0	3 02	215 18	1,299 5	-20 3	-23 0	228 57	30 7
1,400 0	3 25	213 58	1,399 4	-24 8	-26 1	226 43	36 0
1,500 0	2 59	211 61	1,499 2	-29 1	-28 8	224 74	41 0
1,600 0	2 00	212 08	1,599 2	-32 5	-30 9	223 59	44 9
1,700 0	1 53	211 14	1,699 1	-35 1	-32 6	222 83	47 9
1,800 0	1 21	210 19	1,799 1	-37 2	-33 8	222 26	50 2
1,900 0	1 04	207 71	1,899 1	-38 9	-34 7	221 77	52 1
2,000 0	0 71	184 92	1,999 1	-40 3	-35 2	221 13	53 5
2,100 0	0 52	157 42	2,099 1	-41 3	-35 1	220 32	54 2
2,200 0	0 57	153 49	2,199 0	-42 2	-34 7	219 41	54 6
2,300 0	0 46	142 80	2,299 0	-43 0	-34 2	218 53	54 9
2,400 0	0 63	130 00	2,399 0	-43 7	-33 6	217 56	55 1
2,500 0	0 65	130 80	2,499 0	-44 4	-32 7	216 40	55 1
2,600 0	0 63	128 67	2,599 0	-45 1	-31 9	215 24	55 2
2,700 0	0 61	113 59	2,699 0	-45 6	-30 9	214 13	55 1
2,800 0	1 35	76 80	2,799 0	-45 6	-29 3	212 73	54 2
2,900 0	1 89	74 46	2,899 0	-44 9	-26 6	210 62	52 2
3,000 0	1 85	74 39	2,998 9	-44 0	-23 4	208 03	49 8
3,100 0	1 51	72 05	3,098 9	-43 2	-20 6	205 53	47 8
3,200 0	1 46	68 58	3,198 8	-42 3	-18 2	203 26	46 0
3,300 0	1 21	68 09	3,298 8	-41 4	-16 0	201 13	44 4
3,400 0	0 97	60 59	3,398 8	-40 6	-14 3	199 39	43 1
3,500 0	0 73	68 39	3,498 8	-40 0	-13 0	197 97	42 0
3,600 0	0 54	77 69	3,598 8	-39 6	-11 9	196 73	41 4
3,700 0	0 54	81 60	3,698 8	-39 5	-11 0	195 55	41 0
3,800 0	0 56	90 68	3,798 8	-39 4	-10 0	194 28	40 7
3,900 0	0 59	102 54	3,898 8	-39 5	-9 0	192 88	40 5
4,000 0	0 48	94 83	3,998 8	-39 7	-8 1	191 57	40 5
4,100 0	0 38	83 84	4,098 8	-39 7	-7 4	190 53	40 3
4,200 0	0 29	74 89	4,198 7	-39 6	-6 8	189 75	40 1
4,300 0	0 28	40 12	4,298 7	-39 3	-6 4	189 24	39 8
4,400 0	0 45	23 46	4,398 7	-38 8	-6 1	188 92	39 2
4,500 0	0 52	21 89	4,498 7	-38 0	-5 8	188 62	38 4
4,600 0	0 48	359 28	4,598 7	-37 1	-5 6	188 56	37 6
4,700 0	0 49	348 28	4,698 7	-36 3	-5 7	188 90	36 8
4,800 0	0 48	333 61	4,798 7	-35 5	-6 0	189 52	36 0
4,900 0	0 45	337 41	4,898 7	-34 8	-6 3	190 26	35 3
5,000 0	0 45	344 08	4,998 7	-34 0	-6 6	190 90	34 7
5,100 0	0 55	341 77	5,098 7	-33 2	-6 8	191 59	33 9
5,200 0	0 45	326 65	5,198 7	-32 4	-7 2	192 48	33 2
5,300 0	0 44	308 41	5,298 7	-31 9	-7 7	193 58	32 8
5,400 0	0 42	304 67	5,398 7	-31 4	-8 3	194 80	32 5
5,500 0	0 44	307 93	5,498 7	-31 0	-8 9	196 04	32 2

Company:	COG OPERATING	**Local Co-ordinate Reference:**	Well King Cobra "2" State #1H
Project:	Scharb	**TVD Reference:**	WELL @ 0 0usft (Original Well Elev)
Site:	Lea County, NM	**MD Reference:**	WELL @ 0 0usft (Original Well Elev)
Well:	King Cobra "2" State #1H	**North Reference:**	Grid
Wellbore:	VH - Job #32K0312366	**Survey Calculation Method:**	Minimum Curvature
Design:	VH - Job #32K0312366	**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 0	0 37	301 75	5,598 7	-30 6	-9 5	197 23	32 0
5,700 0	0 36	306 60	5,698 7	-30 2	-10 0	198 33	31 8
5,800 0	0 42	311 80	5,798 7	-29 8	-10 5	199 48	31 6
5,900 0	0 38	311 57	5,898 7	-29 3	-11 1	200 67	31 3
6,000 0	0 21	67 43	5,998 7	-29 0	-11 1	200 99	31 1
6,100 0	0 29	98 26	6,098 7	-29 0	-10 7	200 29	30 9
6,200 0	0 19	143 52	6,198 7	-29 1	-10 4	199 57	30 9
6,300 0	0 25	164 90	6,298 7	-29 5	-10 2	199 09	31 2
6,400 0	0 34	198 36	6,398 7	-30 0	-10 2	198 86	31 7
6,500 0	0 52	261.09	6,498.7	-30 3	-10 8	199 57	32 2
6,600 0	0 57	267 44	6,598 7	-30 4	-11 7	201 08	32 6
6,700 0	0 55	268 51	6,698 7	-30 5	-12 7	202 64	33 0
6,800 0	0 62	259 27	6,798 7	-30 6	-13 7	204 16	33 5
6,900 0	0 63	257 26	6,898 7	-30 8	-14 8	205 65	34 2
7,000 0	0 65	261 86	6,998 7	-31 0	-15 9	207 13	34 8
7,100 0	0 53	274 55	7,098 7	-31 0	-16 9	208 57	35 3
7,200 0	0 48	307 83	7,198 7	-30 7	-17 7	209 92	35 5
7,300 0	0 67	329.54	7,298 7	-30 0	-18 3	211 43	35 1
7,400 0	0 78	335 52	7,398 6	-28.9	-18 9	213 22	34 5
7,500 0	1 01	340 48	7,498 6	-27 4	-19 5	215 40	33 6
7,600 0	1 07	337 82	7,598 6	-25 7	-20 1	218 05	32 7
7,700 0	1 08	340 79	7,698 6	-24 0	-20 8	220 94	31 7
7,800 0	1 12	341 65	7,798 6	-22 1	-21 4	224 03	30 8
7,900 0	1 10	339 16	7,898 6	-20 3	-22 1	227 34	30 0
8,000 0	0 95	337 70	7,998 5	-18 7	-22 7	230 60	29 4
8,100 0	0 60	327 22	8,098 5	-17 5	-23 3	233 18	29 1
8,200 0	0 66	331 80	8,198 5	-16 5	-23 9	235 34	29 0
8,300 0	0 72	343 48	8,298 5	-15 4	-24 3	237 66	28 8
8,400 0	0 51	331 63	8,398 5	-14 4	-24 7	239 77	28 6
8,500 0	0 39	292 11	8,498 5	-13 9	-25 2	241 19	28 8
8,600 0	1.26	8 41	8,598 5	-12 7	-25 4	243 49	28 4
8,700 0	2 27	357 56	8,698 5	-9 6	-25 3	249 23	27 1
8,800 0	2 16	354.63	8,798 4	-5 7	-25 6	257 34	26 2
8,900 0	1 96	352 78	8,898 3	-2 2	-26 0	265 22	26 1
9,000 0	1 67	350 01	8,998 3	1 0	-26 4	272 08	26 4
9,100 0	1 50	347 79	9,098 2	3 7	-27 0	277 76	27 2
9,200 0	1 26	347.49	9,198 2	6 0	-27 5	282 37	28 1
9,300 0	1 01	343 89	9,298 2	7 9	-28 0	285 87	29 1
9,400 0	0 46	329 21	9,398 2	9 1	-28 4	287 83	29 8
9,500 0	0 42	293 81	9,498 2	9 6	-29 0	288 40	30 5
9,600 0	0 50	275 15	9,598 2	9 8	-29 7	288 28	31 3
9,700 0	0 47	280 64	9,698 2	9 9	-30 6	288 01	32 1
9,800 0	0 42	262 25	9,798 2	10 0	-31 3	287 64	32 9
9,900 0	0 48	260 35	9,898 2	9 8	-32 1	287 04	33 6

Company:	COG OPERATING	**Local Co-ordinate Reference:**	Well King Cobra "2" State #1H
Project:	Scharb	**TVD Reference:**	WELL @ 0 0usft (Original Well Elev)
Site:	Lea County, NM	**MD Reference:**	WELL @ 0 0usft (Original Well Elev)
Well:	King Cobra "2" State #1H	**North Reference:**	Grid
Wellbore:	VH - Job #32K0312366	**Survey Calculation Method:**	Minimum Curvature
Design:	VH - Job #32K0312366	**Database:**	EDM-Regulatory

Survey

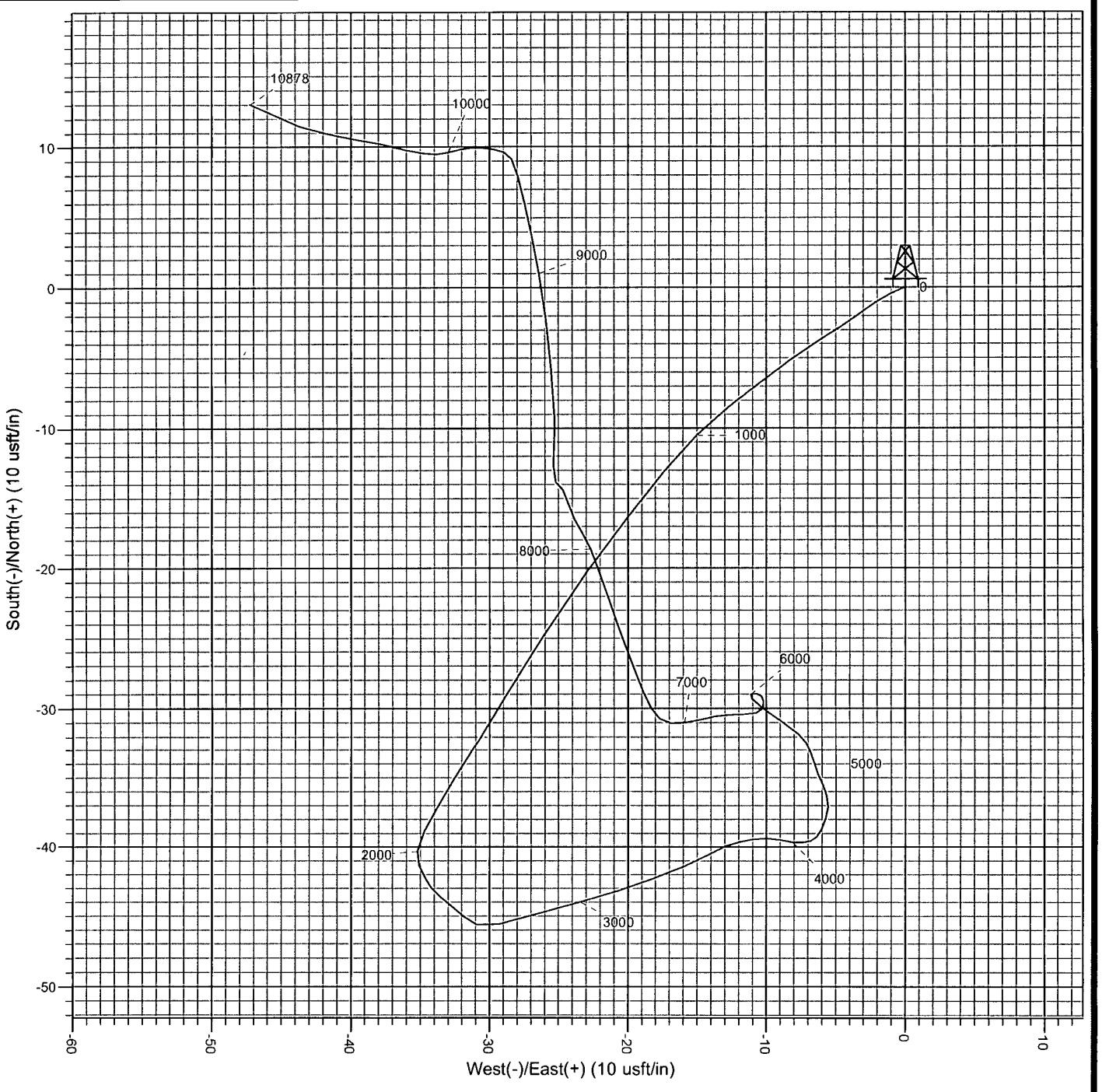
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
10,000 0	0 54	251 65	9,998 2	9 6	-33 0	286 27	34 3
10,100 0	0 48	273 44	10,098 1	9 5	-33 8	285 69	35 1
10,200 0	0 65	274 07	10,198.1	9 6	-34 8	285 36	36 1
10,300 0	0 90	285 17	10,298 1	9 8	-36 1	285 19	37 4
10,400 0	1 13	281 66	10,398 1	10 2	-37 9	285 10	39 2
10,500 0	1 22	278 68	10,498 1	10 6	-39 9	284 85	41 3
10,600 0	1 08	283 94	10,598 1	11 0	-41 8	284 68	43 3
10,700 0	1 12	286 87	10,698 1	11 5	-43 7	284 71	45 2
10,800 0	1 26	298 55	10,798 0	12 3	-45 6	285 08	47 2
10,880 0	1 36	289 38	10,878 0	13 0	-47 3	285 40	49 0

Scientific Drilling
Directional Drilling Operations

Project: Scharb
Lea County, NM
Well: King Cobra "2" State #1H
Wellbore: VH - Job #32K0312366
Design: VH - Job #32K0312366

WELL DETAILS: King Cobra "2" State #1H
WELL @ 0.0usft (Original Well Elev)
Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	617757.71	749017.51	32° 41' 44.528 N	103° 31' 25.958 W	



PROJECT DETAILS: Scharb
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

SITE DETAILS: Lea County, NM
Site Centre Latitude: 32° 40' 51.600 N
Longitude: 103° 30' 39.600 W
Positional Uncertainity: 0.0
Convergence: 0 44
Local North: Grid

PathFinder Energy Services, Inc.
Survey Report

Tie-in Date: 03/29/2012
Date Completed: 04/09/2012

COG OPERATING, LLC
KING COBRA 2 STATE #1H - API #: 30-025-40388
LEA COUNTY, NEW MEXICO
Rig:MCVAY 7
PathFinder Office Supervisor: JUAN ALCOCER
PathFinder Field Engineers: NICK POND
JARREN EASLEY

Survey Calculations by RX5 V6.04 using Minimum Curvature

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.41.44.5118 N LON:103.31.25.9511 W
GRID Reference:NAD83 new mexico east Transverse Mercator
Ref GRID Coor: X: 790350.2000 Y: 617776.3000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.06°EAST TO GRID
Vertical Section Plane: 180.29
Survey Vert. Reference: 18.00' Kelly Bushing To Ground
Altitude:3969.30' Ground To MSL

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)	(ft)	Closure Dist (ft)	Dir (deg)	DLS (dg/100ft)
TIED INTO SCIENTIFIC GYRO SURVEY @ 10100' MD.										
10100.00	0.48	273.44	10098.15	0.00	-9.33	9.50 N	33.86 W	35.17@	285.67	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
10114.00	0.53	281.89	10112.15	14.00	-9.34	9.52 N	33.98 W	35.29@	285.65	0.64
10146.00	0.62	276.97	10144.15	32.00	-9.39	9.57 N	34.30 W	35.61@	285.59	0.32
10177.00	0.88	216.40	10175.15	31.00	-9.22	9.40 N	34.61 W	35.86@	285.19	2.55
10209.00	5.28	188.08	10207.09	32.00	-7.56	7.74 N	34.96 W	35.81@	282.49	14.14
10241.00	9.41	183.84	10238.82	32.00	-3.49	3.67 N	35.34 W	35.53@	275.93	13.01
10273.00	13.19	181.19	10270.20	32.00	2.77	2.59 S	35.59 W	35.69@	265.84	11.92
10304.00	16.88	179.94	10300.13	31.00	10.81	10.63 S	35.66 W	37.21@	253.40	11.95
10334.00	20.75	178.61	10328.52	30.00	20.48	20.30 S	35.53 W	40.92@	240.25	12.98
10366.00	24.18	176.46	10358.09	32.00	32.69	32.52 S	34.99 W	47.76@	227.10	11.02
10398.00	27.26	176.20	10386.92	32.00	46.54	46.37 S	34.10 W	57.56@	216.33	9.63
10429.00	30.60	175.83	10414.05	31.00	61.50	61.33 S	33.05 W	69.67@	208.32	10.79
10461.00	34.21	176.31	10441.06	32.00	78.60	78.43 S	31.88 W	84.67@	202.12	11.31
10493.00	37.72	178.77	10466.96	32.00	97.36	97.21 S	31.09 W	102.06@	197.74	11.86
10525.00	41.86	179.71	10491.54	32.00	117.83	117.68 S	30.83 W	121.65@	194.68	13.07
10556.00	46.17	179.76	10513.83	31.00	139.37	139.21 S	30.73 W	142.56@	192.45	13.90
10588.00	49.33	180.24	10535.34	32.00	163.05	162.90 S	30.73 W	165.77@	190.68	9.94
10618.00	52.14	180.63	10554.33	30.00	186.27	186.12 S	30.91 W	188.67@	189.43	9.42
10650.00	55.84	180.84	10573.14	32.00	212.15	212.00 S	31.24 W	214.29@	188.38	11.57
10682.00	60.41	181.17	10590.03	32.00	239.32	239.16 S	31.72 W	241.26@	187.55	14.31
10713.00	63.58	180.43	10604.58	31.00	266.68	266.53 S	32.10 W	268.45@	186.87	10.44
10743.00	65.60	180.47	10617.46	30.00	293.78	293.62 S	32.31 W	295.39@	186.28	6.73
10775.00	68.76	180.91	10629.87	32.00	323.27	323.11 S	32.67 W	324.76@	185.77	9.96
10806.00	72.81	181.35	10640.07	31.00	352.54	352.37 S	33.25 W	353.94@	185.39	13.13

SUR: A-02-19s-34e, 460/N & 460/E
BHL: P-02-19s-34e, 4942/N & 477/E
API # 30-025-40388

PathFinder Energy Services, Inc.
Survey Report

COG OPERATING, LLC
KING COBRA 2 STATE #1H - API #: 30-025-40388
LEA COUNTY, NEW MEXICO
RIG:MCVAY 7

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)	(ft)	Closure Dist (ft)	Dir (deg)	DLS (dg/100ft)
10838.00	75.62	181.17	10648.77	32.00	383.32	383.15 S	33.92 W	384.65@	185.06	8.80
10870.00	77.65	181.61	10656.17	32.00	414.45	414.28 S	34.68 W	415.73@	184.78	6.48
10900.00	79.93	181.43	10662.00	30.00	443.87	443.69 S	35.46 W	445.11@	184.57	7.62
10931.00	83.10	181.79	10666.57	31.00	474.51	474.34 S	36.32 W	475.73@	184.38	10.29
10963.00	84.77	181.79	10669.95	32.00	506.32	506.14 S	37.31 W	507.52@	184.22	5.22
10995.00	87.32	182.05	10672.16	32.00	538.23	538.04 S	38.38 W	539.41@	184.08	8.01
11027.00	88.46	182.31	10673.34	32.00	570.19	570.00 S	39.60 W	571.37@	183.97	3.65
11059.00	88.72	181.70	10674.13	32.00	602.17	601.97 S	40.72 W	603.35@	183.87	2.07
11090.00	89.52	181.08	10674.60	31.00	633.16	632.96 S	41.47 W	634.31@	183.75	3.26
11122.00	89.69	180.73	10674.82	32.00	665.16	664.95 S	41.98 W	666.28@	183.61	1.22
11218.00	89.87	180.21	10675.19	96.00	761.15	760.95 S	42.76 W	762.15@	183.22	0.57
11313.00	90.22	179.94	10675.12	95.00	856.15	855.95 S	42.89 W	857.02@	182.87	0.46
11409.00	89.16	179.77	10675.64	96.00	952.15	951.94 S	42.65 W	952.90@	182.57	1.12
11505.00	90.75	179.68	10675.71	96.00	1048.14	1047.94 S	42.18 W	1048.79@	182.31	1.66
11600.00	90.31	179.50	10674.83	95.00	1143.13	1142.93 S	41.50 W	1143.69@	182.08	0.50
11695.00	89.87	179.33	10674.68	95.00	1238.12	1237.93 S	40.53 W	1238.59@	181.88	0.50
11791.00	91.10	179.59	10673.87	96.00	1334.10	1333.92 S	39.63 W	1334.51@	181.70	1.31
11886.00	90.75	178.18	10672.34	95.00	1429.06	1428.89 S	37.78 W	1429.38@	181.51	1.53
11981.00	90.13	177.66	10671.61	95.00	1523.97	1523.82 S	34.33 W	1524.21@	181.29	0.85
12076.00	89.69	178.71	10671.76	95.00	1618.91	1618.77 S	31.32 W	1619.07@	181.11	1.20
12172.00	91.98	179.85	10670.36	96.00	1714.87	1714.74 S	30.12 W	1715.01@	181.01	2.66
12267.00	92.68	179.59	10666.49	95.00	1809.79	1809.66 S	29.65 W	1809.91@	180.94	0.79
12363.00	90.66	180.21	10663.70	96.00	1905.74	1905.62 S	29.49 W	1905.85@	180.89	2.20
12460.00	90.13	179.68	10663.03	97.00	2002.74	2002.61 S	29.39 W	2002.83@	180.84	0.77
12555.00	90.22	179.59	10662.74	95.00	2097.73	2097.61 S	28.79 W	2097.81@	180.79	0.13
12648.00	89.87	178.89	10662.67	93.00	2190.71	2190.60 S	27.56 W	2190.78@	180.72	0.84
12741.00	88.90	178.71	10663.66	93.00	2283.68	2283.58 S	25.61 W	2283.72@	180.64	1.06
12833.00	88.20	178.10	10665.99	92.00	2375.60	2375.51 S	23.05 W	2375.62@	180.56	1.01

PathFinder Energy Services, Inc.
Survey Report

COG OPERATING, LLC
KING COBRA 2 STATE #1H - API #: 30-025-40388
LEA COUNTY, NEW MEXICO
RIG:MCVAY 7

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)	(ft)	Closure Dist (ft)	Dir (deg)	DLS (dg/100ft)
12925.00	89.08	177.92	10668.18	92.00	2467.50	2467.43 S	19.85 W	2467.51@	180.46	0.98
13018.00	89.96	178.89	10668.95	93.00	2560.44	2560.39 S	17.27 W	2560.44@	180.39	1.41
13111.00	89.69	177.92	10669.24	93.00	2653.39	2653.35 S	14.68 W	2653.39@	180.32	1.08
13203.00	90.04	179.41	10669.46	92.00	2745.35	2745.32 S	12.53 W	2745.35@	180.26	1.66
13296.00	90.48	180.47	10669.03	93.00	2838.34	2838.32 S	12.44 W	2838.35@	180.25	1.23
13389.00	90.92	180.38	10667.90	93.00	2931.34	2931.31 S	13.13 W	2931.34@	180.26	0.48
13481.00	91.10	180.12	10666.28	92.00	3023.32	3023.29 S	13.53 W	3023.32@	180.26	0.34
13573.00	90.13	180.46	10665.29	92.00	3115.32	3115.28 S	13.99 W	3115.32@	180.26	1.12
13666.00	90.13	180.87	10665.08	93.00	3208.31	3208.28 S	15.07 W	3208.31@	180.27	0.44
13759.00	90.57	181.10	10664.51	93.00	3301.30	3301.26 S	16.67 W	3301.30@	180.29	0.53
13852.00	89.16	181.44	10664.73	93.00	3394.29	3394.24 S	18.73 W	3394.29@	180.32	1.56
13944.00	88.64	180.89	10666.49	92.00	3486.26	3486.20 S	20.60 W	3486.26@	180.34	0.82
14037.00	90.04	181.85	10667.57	93.00	3579.23	3579.16 S	22.83 W	3579.24@	180.37	1.82
14129.00	90.66	181.44	10667.00	92.00	3671.21	3671.12 S	25.47 W	3671.21@	180.40	0.81
14221.00	89.08	181.18	10667.21	92.00	3763.19	3763.10 S	27.57 W	3763.20@	180.42	1.74
14314.00	88.90	180.83	10668.85	93.00	3856.17	3856.07 S	29.20 W	3856.18@	180.43	0.42
14406.00	89.43	180.49	10670.19	92.00	3948.15	3948.05 S	30.26 W	3948.17@	180.44	0.68
14499.00	89.52	180.10	10671.04	93.00	4041.15	4041.05 S	30.74 W	4041.16@	180.44	0.43
14591.00	89.52	179.46	10671.81	92.00	4133.14	4133.04 S	30.39 W	4133.15@	180.42	0.70
14684.00	89.96	179.52	10672.24	93.00	4226.13	4226.04 S	29.56 W	4226.14@	180.40	0.48
14776.00	87.67	177.47	10674.14	92.00	4318.06	4317.97 S	27.14 W	4318.06@	180.36	3.34
14869.00	87.85	176.53	10677.77	93.00	4410.83	4410.78 S	22.28 W	4410.83@	180.29	1.03
14893.00	87.58	175.97	10678.73	24.00	4434.75	4434.70 S	20.71 W	4434.75@	180.27	2.59
STRAIGHT-LINE PROJECTION TO BIT @ 14940' MD										
14940.00	87.58	175.97	10680.72	47.00	4481.58	4481.55 S	17.41 W	4481.58@	180.22	0.00