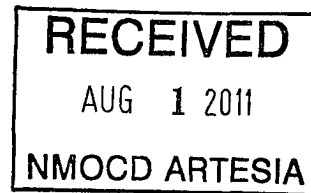


30-015-37832

COG OPERATING

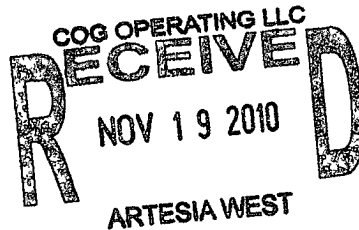
Corral Canyon
Eddy County, NM
Big Papi Federal Com #1H
VH - Job #32K1110861



Survey: Actual

SDI Standard Survey Report

10 November, 2010



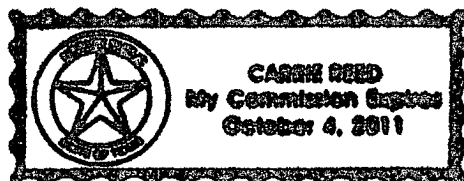
This survey is correct to the best of my knowledge and is supported by actual field data.

Robert

Notorized this date 11th of November, 2010.

Cassie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.

SDI Standard Survey Report

Company:	COG OPERATING	Local Co-ordinate Reference:	Well Big Papi Federal Com #1H
Project:	Corral Canyon	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Big Papi Federal Com #1H	North Reference:	Grid
Wellbore:	VH - Job #32K1110861	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K1110861	Database:	EDM-Regulatory

Project:	Corral Canyon		
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:	392,246.54 usft	Latitude:	32° 4' 40.537 N
From:	Lat/Long	Easting:	607,388.27 usft	Longitude:	103° 59' 11.836 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.18 °

Well	Big Papi Federal Com #1H, Directional (DDC)				
Well Position	+N/-S	0.0 usft	Northing:	392,246.54 usft	Latitude: 32° 4' 40.537 N
	+E/-W	0.0 usft	Easting:	607,388.27 usft	Longitude: 103° 59' 11.836 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level: 0.0 usft

Wellbore	VH - Job #32K1110861				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2010	11/5/2010	7 90	59 99	48,600

Design		VH - Job #32K1110861			
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	178.23	

Survey Program		Date	11/10/2010		
From (usft)	To (usft)	Survey (Wellbore)		Tool Name	Description
100 0	6,472 0	Actual (VH - Job #32K1110861)		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	0.0
100.0	0.47	70.04	100.0	0.1	0.4	70.04	0.4	
200.0	0.90	52.22	200.0	0.8	1.4	61.33	1.6	
300.0	0.89	63.51	300.0	1.6	2.7	59.60	3.1	
400.0	0.87	60.56	400.0	2.3	4.1	60.40	4.7	
500.0	0.77	58.45	500.0	3.0	5.3	60.21	6.1	
600.0	0.33	23.23	600.0	3.6	6.0	58.62	7.0	
700.0	0.30	350.28	700.0	4.2	6.1	55.43	7.4	
800.0	0.07	33.61	800.0	4.5	6.0	53.44	7.5	
900.0	0.29	108.33	900.0	4.5	6.3	54.82	7.7	
1,000.0	0.67	93.40	999.9	4.3	7.1	58.72	8.4	
1,100.0	0.91	93.31	1,099.9	4.3	8.5	63.44	9.5	

Scientific Drilling International, Inc.

SDI Standard Survey Report

Company:	COG OPERATING	Local Co-ordinate Reference:	Well-Big Papi Federal Com #1H
Project:	Corral Canyon	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Big Papi Federal Com #1H	North Reference:	Grid
Wellbore:	VH - Job #32K1110861	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K1110861	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	0.98	94.90	1,199.9	4.1	10.2	67.84	11.0
1,300.0	1.01	98.31	1,299.9	3.9	11.9	71.67	12.5
1,400.0	0.51	118.24	1,399.9	3.6	13.2	74.69	13.6
1,500.0	0.83	155.62	1,499.9	2.7	13.8	78.84	14.1
1,600.0	0.85	171.73	1,599.9	1.3	14.2	84.64	14.3
1,700.0	0.78	189.57	1,699.9	-0.1	14.2	90.28	14.2
1,800.0	0.74	182.86	1,799.9	-1.4	14.1	95.61	14.2
1,900.0	0.32	160.54	1,899.9	-2.3	14.2	99.20	14.3
2,000.0	0.54	221.02	1,999.9	-2.9	13.9	101.80	14.2
2,100.0	1.01	217.19	2,099.8	-4.0	13.1	106.86	13.7
2,200.0	1.14	216.73	2,199.8	-5.5	12.0	114.56	13.2
2,300.0	3.59	101.82	2,299.8	-6.9	14.4	115.57	16.0
2,400.0	5.49	102.40	2,399.4	-8.6	22.2	111.14	23.8
2,500.0	5.09	105.38	2,499.0	-10.8	31.1	109.10	32.9
2,600.0	4.54	105.34	2,598.7	-13.0	39.2	108.34	41.3
2,700.0	4.26	105.28	2,698.4	-15.0	46.6	107.87	49.0
2,800.0	3.41	106.98	2,798.1	-16.9	53.0	107.65	55.7
2,900.0	2.62	113.24	2,898.0	-18.6	58.0	107.83	60.9
3,000.0	1.82	122.69	2,997.9	-20.4	61.4	108.38	64.7
3,100.0	1.61	125.37	3,097.9	-22.1	63.9	109.06	67.6
3,200.0	1.40	124.50	3,197.9	-23.6	66.1	109.65	70.1
3,300.0	1.26	129.48	3,297.8	-25.0	67.9	110.19	72.4
3,400.0	1.08	131.52	3,397.8	-26.3	69.5	110.73	74.3
3,500.0	1.09	144.06	3,497.8	-27.7	70.7	111.38	76.0
3,600.0	0.99	149.13	3,597.8	-29.2	71.7	112.15	77.5
3,700.0	1.06	144.50	3,697.8	-30.7	72.7	112.89	78.9
3,800.0	0.84	149.24	3,797.7	-32.1	73.6	113.54	80.3
3,900.0	0.61	150.90	3,897.7	-33.2	74.3	114.07	81.3
4,000.0	0.57	151.80	3,997.7	-34.1	74.8	114.51	82.2
4,100.0	0.43	156.44	4,097.7	-34.9	75.1	114.89	82.8
4,200.0	0.50	148.72	4,197.7	-35.6	75.5	115.23	83.5
4,300.0	0.45	164.40	4,297.7	-36.3	75.9	115.59	84.1
4,400.0	0.36	160.46	4,397.7	-37.0	76.1	115.94	84.6
4,500.0	0.37	148.94	4,497.7	-37.6	76.3	116.21	85.1
4,600.0	0.40	171.66	4,597.7	-38.2	76.6	116.52	85.6
4,700.0	0.52	153.02	4,697.7	-38.9	76.8	116.89	86.1
4,800.0	0.51	164.54	4,797.7	-39.8	77.1	117.28	86.8
4,900.0	0.59	170.28	4,897.7	-40.7	77.3	117.77	87.4
5,000.0	0.61	166.63	4,997.7	-41.7	77.5	118.29	88.1
5,100.0	0.67	180.23	5,097.7	-42.8	77.7	118.88	88.7
5,200.0	0.70	187.05	5,197.7	-44.0	77.6	119.58	89.2
5,300.0	0.94	189.65	5,297.7	-45.5	77.4	120.43	89.7
5,400.0	1.06	204.56	5,397.7	-47.1	76.9	121.50	90.1
5,500.0	1.25	206.94	5,497.6	-48.9	76.0	122.77	90.4

Scientific Drilling International, Inc.
SDI Standard Survey Report

Company:	COG OPERATING	Local Co-ordinate Reference:	Well Big Papi Federal Com #1H
Project:	Corral Canyon	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Big Papi Federal Com #1H	North Reference:	Grid
Wellbore:	VH - Job #32K1110861	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K1110861	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	1.16	219.61	5,597.6	-50.7	74.8	124.10	90.4
5,700.0	1.14	213.90	5,697.6	-52.3	73.6	125.37	90.3
5,800.0	1.06	219.61	5,797.6	-53.8	72.5	126.59	90.3
5,900.0	1.05	213.15	5,897.6	-55.3	71.4	127.75	90.3
6,000.0	1.00	211.32	5,997.5	-56.8	70.4	128.88	90.5
6,100.0	1.01	212.08	6,097.5	-58.3	69.5	129.98	90.7
6,200.0	0.96	206.75	6,197.5	-59.8	68.7	131.04	91.1
6,300.0	0.69	201.47	6,297.5	-61.1	68.1	131.91	91.5
6,400.0	0.63	181.99	6,397.5	-62.2	67.8	132.52	92.0
6,472.0	1.07	195.83	6,469.5	-63.3	67.6	133.08	92.6



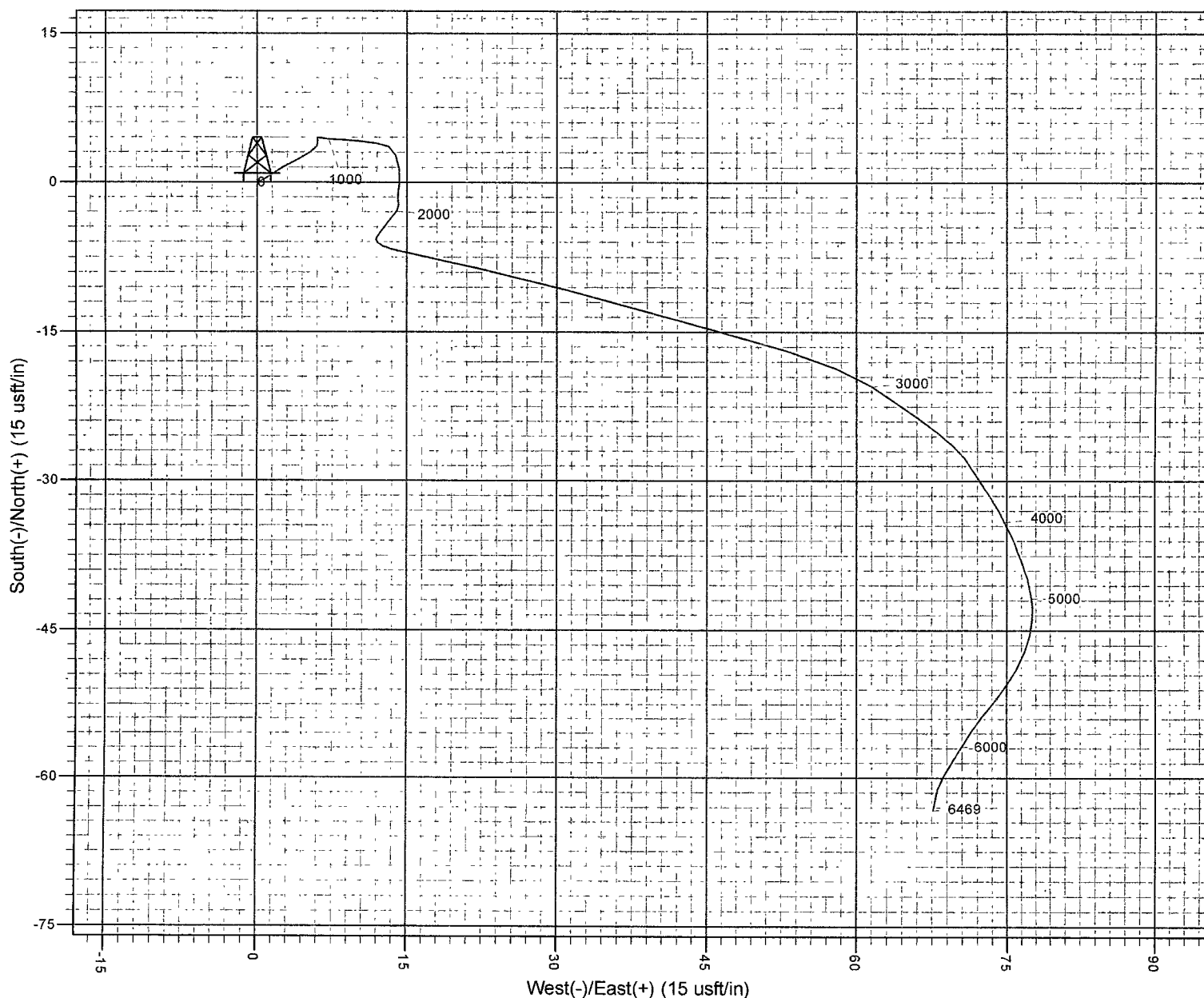
Project: Corral Canyon
Eddy County, NM
Well: Big Papi Federal Com #1H
Wellbore: VH - Job #32K1110861
Design: VH - Job #32K1110861



Azimuths to Grid North
True North -0 18°
Magnetic North 7 71°
Magnetic Field
Strength 48599 8snT
Dip Angle 59 99°
Date: 11/5/2010
Model: BGGM2010

WELL DETAILS: Big Papi Federal Com #1H
WELL @ 0.0usft (Original Well Elev)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	392246.54	607388.27	32° 4' 40.537 N	103° 59' 11.836 W	



PROJECT DETAILS Corral Canyon
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: Eddy County, NM
Site Centre Latitude: 32° 4' 40.537 N
Longitude: 103° 59' 11.836 W
Positional Uncertainty: 0.0
Convergence: 0.18
Local North: Grid