

30-015-38097

CIMAREX ENERGY

Sage Draw
Eddy County, NM
White City "10" Federal #3H
VH - Job #32K1010786

Survey: Actual

SDI Standard Survey Report

30 October, 2010

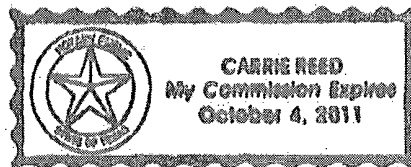
This survey is correct to the best of my knowledge and is supported by actual field data.

[Signature]

Notorized this date 2nd of November, 2010.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.
SDI Standard Survey Report

Company:	CIMAREX ENERGY	Local Co-ordinate Reference:	Well White City "10" Federal #3H
Project:	Sage Draw	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	White City "10" Federal #3H	North Reference:	Grid
Wellbore:	VH - Job #32K1010786	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K1010786	Database:	EDM-Regulatory

Project:	Sage 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:	414,248.74 usft	Latitude:	32° 8' 19.940 N
From:	Lat/Long	Easting:	518,571.59 usft	Longitude:	104° 16' 24.000 W
Position Uncertainty:	0.0 usft	Slot Radius:	0"	Grid Convergence:	0.03 °

Well	White City "10" Federal #3H					
Well Position	+N/-S	0.0 usft	Northing:	414,248.74 usft	Latitude:	32° 8' 19.940 N
	+E/-W	0.0 usft	Easting:	518,571.59 usft	Longitude:	104° 16' 24.000 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	0.0 usft	

Wellbore		VH - Job #32K1010786			
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	BGGM2010	10/14/2010	(°)	(°)	(nT)
			8.04	60.00	48,606

Design:	VH - Job #32K1010786				
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	274.40	

Survey Program		Date	10/30/2010		
From	To	Survey (Wellbore)		Tool Name	Description
(usft)	(usft)				
100.0	9,208.0	Actual (VH - Job #32K1010786)		Keeper	Keeper Gyro

Survey								
Measured Depth	Inclination	Azimuth	True Vertical	North/South	East/West	Closure Azimuth	Closure Distance	
(usft)	(°)	(°)	Depth	(usft)	(usft)	(°)	(usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0	
100.0	0.09	277.79	100.0	0.0	-0.1	277.79	0.1	
200.0	0.10	296.80	200.0	0.1	-0.2	284.56	0.2	
300.0	0.31	261.77	300.0	0.1	-0.6	276.04	0.6	
400.0	0.54	257.12	400.0	-0.1	-1.3	266.39	1.3	
500.0	0.69	260.21	500.0	-0.3	-2.4	262.99	2.4	
600.0	0.80	241.94	600.0	-0.7	-3.6	258.58	3.6	
700.0	1.14	239.10	700.0	-1.6	-5.0	252.80	5.3	
800.0	1.50	243.20	799.9	-2.7	-7.1	249.35	7.5	
900.0	1.45	234.96	899.9	-4.0	-9.3	246.76	10.1	
1,000.0	1.33	218.16	999.9	-5.6	-11.0	242.99	12.4	
1,100.0	1.13	202.27	1,099.9	-7.4	-12.1	238.42	14.2	

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Project:	Sage Draw	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	White City "10" Federal #3H	North Reference:	Grid
Wellbore:	VH - Job #32K1010786	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K1010786	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	1.13	129.82	1,199.8	-9.0	-11.7	232.53	14.8
1,300.0	2.07	103.05	1,299.8	-10.0	-9.2	222.57	13.6
1,400.0	2.55	95.91	1,399.7	-10.7	-5.2	206.15	11.9
1,500.0	3.20	90.23	1,499.6	-10.9	-0.2	181.22	10.9
1,600.0	4.05	89.10	1,599.4	-10.9	6.1	150.71	12.4
1,700.0	4.51	87.69	1,699.1	-10.6	13.6	128.15	17.2
1,800.0	3.50	87.21	1,798.9	-10.3	20.5	116.73	23.0
1,900.0	2.23	80.25	1,898.7	-9.9	25.5	111.14	27.3
2,000.0	1.72	83.46	1,998.7	-9.4	28.9	107.94	30.4
2,100.0	1.52	84.88	2,098.6	-9.1	31.7	105.96	33.0
2,200.0	1.52	86.95	2,198.6	-8.9	34.4	104.49	35.5
2,300.0	1.22	93.94	2,298.6	-8.9	36.7	103.59	37.8
2,400.0	1.04	92.53	2,398.6	-9.0	38.7	103.08	39.7
2,500.0	1.00	89.68	2,498.5	-9.0	40.5	102.57	41.5
2,600.0	0.61	86.09	2,598.5	-9.0	41.9	102.11	42.9
2,700.0	0.62	81.95	2,698.5	-8.9	43.0	101.67	43.9
2,800.0	0.52	91.72	2,798.5	-8.8	44.0	101.34	44.8
2,900.0	0.43	80.65	2,898.5	-8.8	44.8	101.08	45.6
3,000.0	0.38	97.05	2,998.5	-8.7	45.5	100.89	46.3
3,100.0	0.40	93.26	3,098.5	-8.8	46.2	100.80	47.0
3,200.0	0.31	105.35	3,198.5	-8.9	46.8	100.78	47.6
3,300.0	0.23	129.30	3,298.5	-9.1	47.2	100.92	48.0
3,400.0	0.22	152.91	3,398.5	-9.4	47.4	101.21	48.3
3,500.0	0.33	183.27	3,498.5	-9.9	47.5	101.72	48.5
3,600.0	0.45	206.88	3,598.5	-10.5	47.3	102.51	48.5
3,700.0	0.61	213.65	3,698.5	-11.3	46.8	103.55	48.2
3,800.0	0.63	209.26	3,798.5	-12.2	46.3	104.78	47.8
3,900.0	0.56	218.38	3,898.5	-13.1	45.7	105.96	47.5
4,000.0	0.58	231.47	3,998.5	-13.8	45.0	107.02	47.1
4,100.0	0.57	218.54	4,098.5	-14.5	44.3	108.10	46.6
4,200.0	0.62	213.21	4,198.5	-15.3	43.7	109.32	46.3
4,300.0	0.68	217.22	4,298.5	-16.2	43.0	110.68	46.0
4,400.0	0.83	225.22	4,398.5	-17.2	42.2	112.23	45.5
4,500.0	0.83	226.07	4,498.5	-18.2	41.1	113.92	45.0
4,600.0	0.82	225.74	4,598.4	-19.2	40.1	115.64	44.5
4,700.0	0.70	210.48	4,698.4	-20.3	39.3	117.30	44.2
4,800.0	0.66	202.81	4,798.4	-21.3	38.7	118.84	44.2
4,900.0	0.71	199.81	4,898.4	-22.4	38.3	120.37	44.4
5,000.0	0.67	204.84	4,998.4	-23.5	37.8	121.90	44.6
5,100.0	0.74	205.62	5,098.4	-24.7	37.3	123.46	44.7
5,200.0	0.71	207.82	5,198.4	-25.8	36.7	125.07	44.9
5,300.0	0.77	207.25	5,298.4	-26.9	36.1	126.69	45.1
5,400.0	0.84	209.04	5,398.4	-28.2	35.5	128.45	45.3
5,500.0	0.80	223.81	5,498.4	-29.3	34.6	130.24	45.4

Scientific Drilling International, Inc.

SDI Standard Survey Report

Company: CIMAREX ENERGY
 Project: Sage Draw
 Site: Eddy County, NM
 Well: White City "10" Federal #3H
 Wellbore: VH - Job #32K1010786
 Design: VH - Job #32K1010786

Local Co-ordinate Reference: Well White City "10" Federal #3H
 TVD Reference: WELL @ 0.0usft (Original Well Elev)
 MD Reference: WELL @ 0.0usft (Original Well Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 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	0.78	204.62	5,598.4	-30.4	33.9	131.94	45.5
5,700.0	0.75	234.86	5,698.3	-31.4	33.1	133.66	45.6
5,800.0	0.99	242.09	5,798.3	-32.2	31.8	135.41	45.2
5,900.0	1.43	217.73	5,898.3	-33.6	30.2	138.03	45.2
6,000.0	1.99	209.78	5,998.3	-36.1	28.6	141.61	46.1
6,100.0	2.31	204.53	6,098.2	-39.4	26.9	145.70	47.7
6,200.0	2.40	208.78	6,198.1	-43.1	25.1	149.83	49.9
6,300.0	2.18	219.73	6,298.0	-46.4	22.8	153.80	51.7
6,400.0	2.52	241.48	6,398.0	-48.9	19.7	158.07	52.7
6,500.0	2.01	241.10	6,497.9	-50.8	16.2	162.29	53.3
6,600.0	1.38	252.50	6,597.8	-52.0	13.5	165.41	53.8
6,700.0	1.15	242.44	6,697.8	-52.9	11.5	167.72	54.1
6,800.0	0.25	152.27	6,797.8	-53.5	10.7	168.68	54.6
6,900.0	0.59	290.10	6,897.8	-53.5	10.3	169.07	54.5
7,000.0	1.18	310.94	6,997.8	-52.7	9.1	170.23	53.5
7,100.0	1.16	315.79	7,097.8	-51.3	7.6	171.58	51.8
7,200.0	0.67	297.21	7,197.8	-50.3	6.4	172.79	50.7
7,300.0	0.45	260.44	7,297.7	-50.1	5.5	173.78	50.4
7,400.0	0.54	249.49	7,397.7	-50.3	4.6	174.74	50.5
7,500.0	0.33	281.37	7,497.7	-50.4	3.9	175.57	50.6
7,600.0	2.27	38.03	7,597.7	-48.8	4.8	174.33	49.0
7,700.0	1.88	34.13	7,697.7	-45.9	7.0	171.35	46.4
7,800.0	1.94	13.32	7,797.6	-42.9	8.3	169.05	43.7
7,900.0	1.78	349.75	7,897.5	-39.7	8.4	168.05	40.6
8,000.0	1.14	300.22	7,997.5	-37.7	7.3	169.08	38.4
8,100.0	0.97	268.07	8,097.5	-37.2	5.6	171.49	37.6
8,200.0	0.66	263.73	8,197.5	-37.3	4.1	173.66	37.5
8,300.0	0.90	223.67	8,297.5	-37.9	3.0	175.43	38.0
8,400.0	0.91	225.28	8,397.5	-39.1	1.9	177.18	39.1
8,500.0	0.51	224.97	8,497.5	-39.9	1.0	178.50	39.9
8,600.0	0.31	109.12	8,597.5	-40.3	1.0	178.60	40.3
8,700.0	0.32	125.86	8,697.5	-40.6	1.5	177.93	40.6
8,800.0	0.16	68.77	8,797.5	-40.7	1.8	177.43	40.7
8,900.0	0.12	288.39	8,897.5	-40.6	1.9	177.38	40.7
9,000.0	0.20	283.82	8,997.5	-40.5	1.6	177.76	40.6
9,100.0	0.20	314.27	9,097.5	-40.4	1.3	178.17	40.4
9,200.0	0.29	304.95	9,197.5	-40.1	1.0	178.63	40.1
9,208.0	0.30	305.00	9,205.5	-40.1	0.9	178.67	40.1

Checked By: _____

Approved By: _____

Date: _____



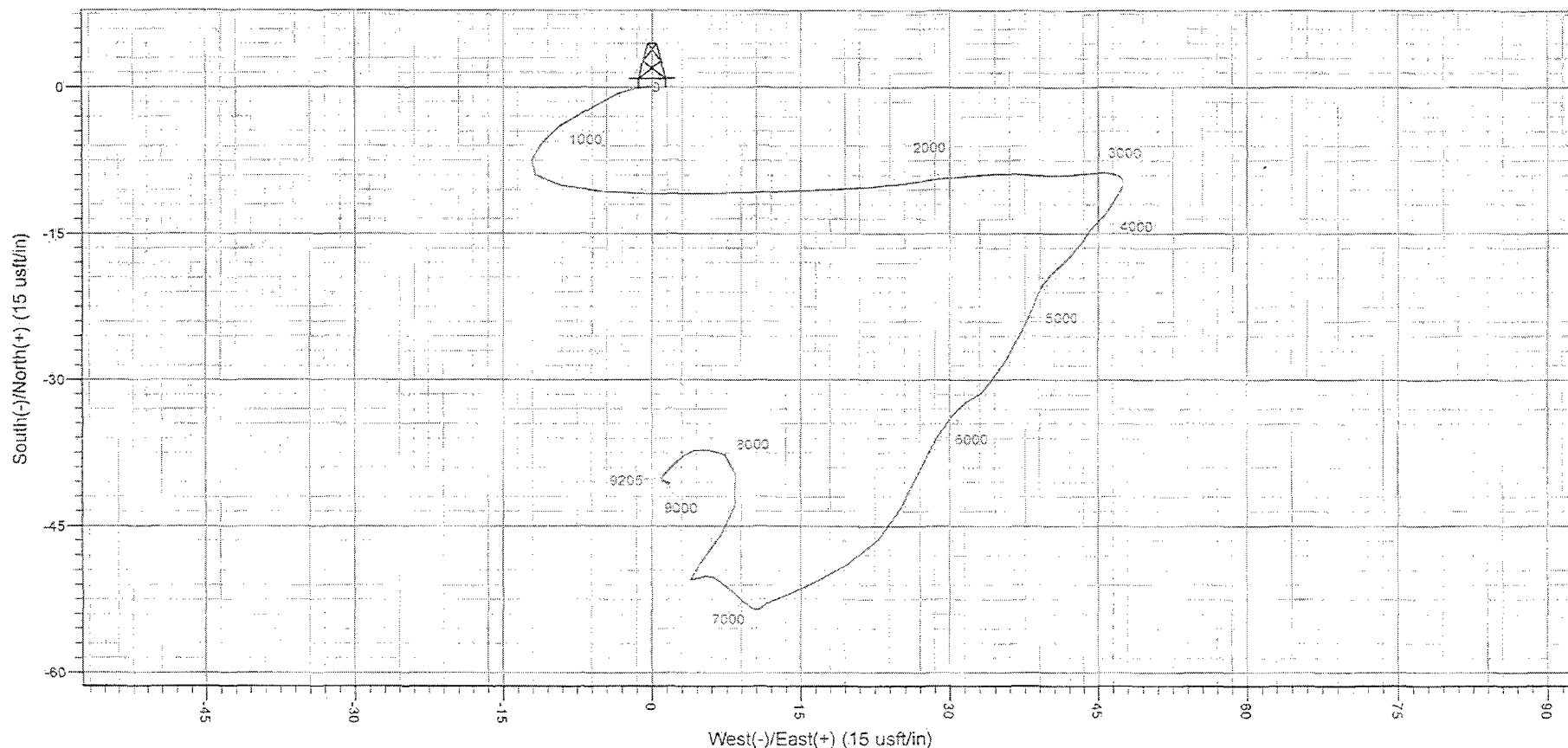
Project: Sage Draw
Eddy County, NM
Well: White City "10" Federal #3H
Wellbore: VH - Job #32K1010786
Design: VH - Job #32K1010786



Azimuths to Grid North
True North: -0.03°
Magnetic North: 6.01°
Magnetic Field
Strength: 48606.3nT
Dip Angle: 60.00°
Date: 10/14/2010
Model: EGGM2010

WELL DETAILS: White City "10" Federal #3H
WELL @ 0.0usft (Original Well Elev.)
Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	414248.74	518571.59	32° 8' 19.940 N	104° 16' 24.000 W	



PROJECT DETAILS: Sage Draw
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° 8' 19.940 N
Longitude: 104° 16' 24.000 W
Positional Uncertainty: 0.0
Convergence: 0.03
Local North: Grid