

Results of Directional Survey

API number:	30-025-39816		
OGRID:		Operator:	CIMAREX ENERGY CO. OF COLORADO
		Property:	JG 16 STATE # 1

surface	ULSTR:	N	16	T	17S	R	32E
				350	FSL	2010	FWL

BH Loc	ULSTR:	N	16	T	17S	R	32E
7035	MD	7020.8	TVD	325	FSL	2309	FWL

Top Perf/OH	ULSTR:	N	16	T	17S	R	32E
5462	MD	5454.9	TVD	332	FSL	2161	FWL

Bot Perf/OH	ULSTR:	N	16	T	17S	R	32E
6764	MD	6751.0	TVD	326	FSL	2285	FWL

	MD	N/S	E/W	VD
	5412	-17.90	146.80	5405.1
TOP PERFS/OH	5462	-17.90	151.43	5454.89
	5507	-17.90	155.60	5499.70
	6674	-23.00	266.10	6661.40
BOT PERFS/OH	6764	-23.68	274.52	6751.01
	6767	-23.70	274.80	6754.00

NEXT TO LAST	6957	-25.00	292.30	6943.20
LAST READING	7014.3	-25.00	297.20	7000.20
TD	7035	-25.00	298.97	7020.79

Surface Location	350	FS	2010	FW
Projected BHL	325	FS	2309	FW
Location of				
Top Perfs/OH	332	FS	2161	FW
Bottom Perfs/OH	326	FS	2285	FW

SUMMARY of Subsurface Locations

Surface Location	N-16-17S-32E	350	FS	2010	FW	Vert. Depth
Top Perfs/OH	N-16-17S-32E	332	FS	2161	FW	5454.89
Bottom Perfs/OH	N-16-17S-32E	326	FS	2285	FW	6751.01
Projected TD	N-16-17S-32E	325	FS	2309	FW	7020.79



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Cimarex Energy Co.

Lea County (NAD 83)

Sec 16 - T17S - R32E

JG State #1

Wellbore #1

SUR @ N-16-17s-32e, 350/S & 2010/W

BHL @ N-16-17s-32e, 325/S & 2309/W

API # 30-025-39816

Survey: MWD Survey

Standard Survey Report

13 September, 2010





WELL DETAILS: JG State #1

+N/-S 0.0 +E/-W 0.0 Northing 665541.60
Ground Level: 0.0
Easting 713303.00 Latitude 32° 49' 42.055 N
SHL: 350' FSL / 2010' FWL Longitude 103° 46' 24.588 W
BHL: 330' FSL / 2310' FWL



Project: Lea County (NAD 83)
Site: Sec 16 - T17S - R32E
Well: JG State #1
Wellbore: Wellbore #1
Design: Plan #4



Azimuths to Grid North

Total Correction: 7.53°

Magnetic Field
Strength: 49114.1snT
Dip Angle: 60.76°
Date: 2010/06/24
Model: IGRF200510

WELLBORE TARGET DETAILS

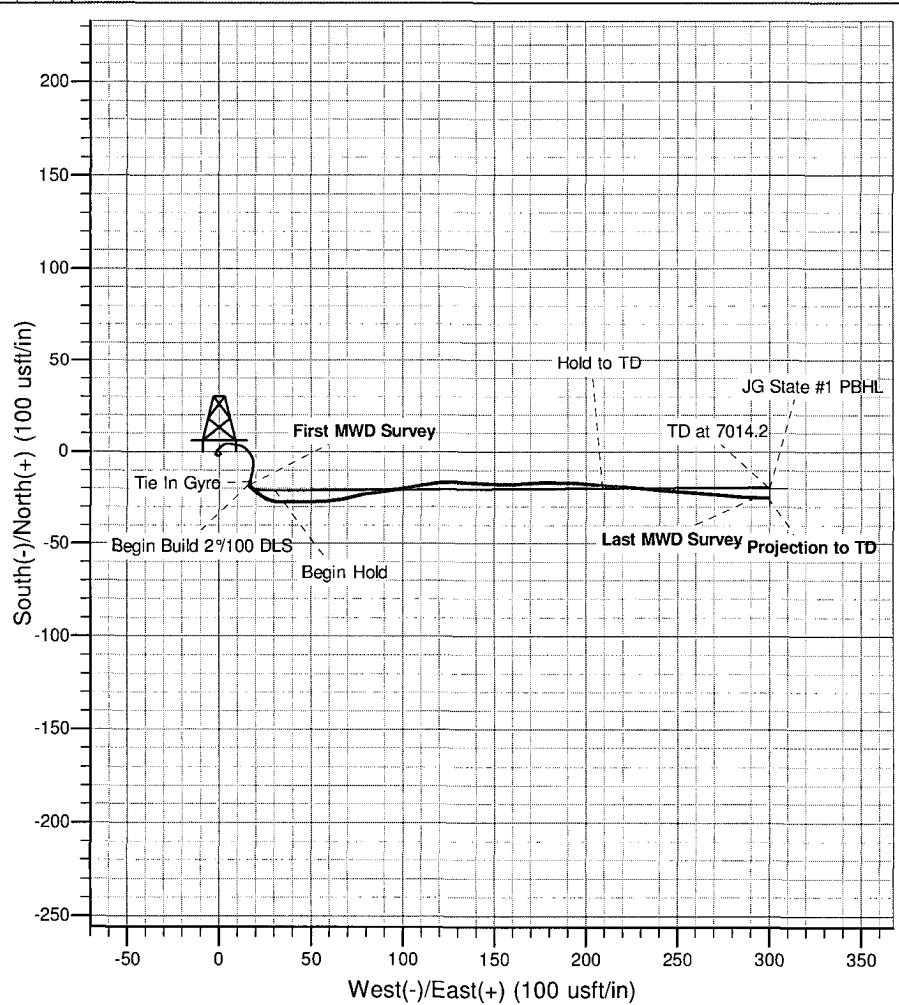
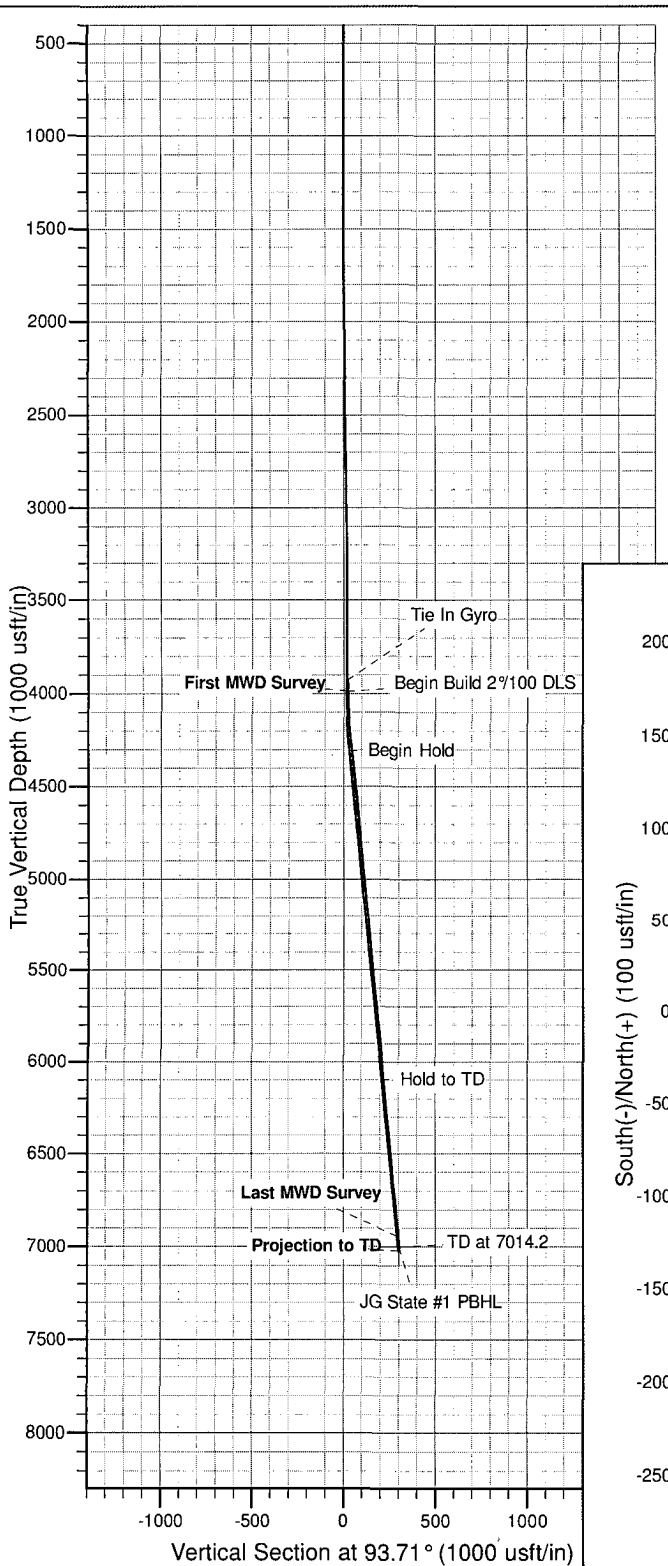
Name	TVD	+N/-S	+E/-W	Northing	Easting	Point
JG State #1 PBHL	7000.0	-20.0	300.0	665521.60	713603.00	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	3932.0	1.36	202.71	3931.7	-16.6	16.6	0.00	0.00	17.6	
2	3989.0	1.36	202.71	3988.6	-17.9	16.0	0.00	0.00	17.2	
3	4306.9	5.70	89.60	4306.0	-21.3	30.4	2.00	-124.42	31.7	
4	6106.9	5.70	89.60	6097.1	-20.0	209.2	0.00	0.00	210.0	
5	7014.2	5.70	89.60	7000.0	-19.4	299.3	0.00	0.00	299.9	JG State #1 PBHL

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
3931.7	3932.0	1.36	202.71	-16.6	16.6	17.6	0.0	Tie In Gyro
3988.6	3989.0	1.36	202.71	-17.9	16.0	17.2	1.4	Begin Build 2°/100 DLS
4306.0	4306.9	5.70	89.60	-21.3	30.4	31.7	17.7	Begin Hold
6097.1	6106.9	5.70	89.60	-20.0	209.2	210.0	196.5	Hold to TD
7000.0	7014.2	5.70	89.60	-19.4	299.3	299.9	286.6	TD at 7014.2





Great White Directional Services Survey Report



Company:	Cimarex Energy Co.	Local Co-ordinate Reference:	Well JG State #1
Project:	Lea County (NAD 83)	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 16 - T17S - R32E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	JG State #1	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Lea County (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 16 - T17S - R32E		
Site Position:		Northing:	665,541.60 usft
From:	Map	Easting:	713,303.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 49' 42.055 N
		Longitude:	103° 46' 24.588 W
		Grid Convergence:	0.30 °

Well	JG State #1		
Well Position	+N-S	0.0 usft	Northing: 665,541.60 usft
	+E-W	0.0 usft	Easting: 713,303.00 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 49' 42.055 N
		Longitude:	103° 46' 24.588 W
		Ground Level:	0.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF200510	2010/06/24	(°)
			7.83
			Dip Angle (°)
			60.76
			Field Strength (nT)
			49,114

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction (°)
			89.60

Survey Program	Date 2010/09/13		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
3,986.0	7,035.0	MWD Survey (Wellbore #1)	MWD
			Description
			MWD - Standard

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N-S	+E-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100ft)	(°/100ft)	(°/100ft)
3,932.0	1.60	202.70	3,931.6	-16.6	16.5	16.4	0.00	0.00	0.00
3,986.0	1.80	157.30	3,985.6	-18.1	16.6	16.5	2.45	0.37	-84.07
First MWD Survey									
4,081.0	4.60	133.10	4,080.4	-22.1	19.9	19.8	3.21	2.95	-25.47
4,176.0	4.60	111.90	4,175.1	-26.1	26.3	26.1	1.78	0.00	-22.32
4,272.0	7.30	89.10	4,270.6	-27.5	35.9	35.7	3.69	2.81	-23.75
4,366.0	6.70	89.10	4,363.9	-27.3	47.4	47.2	0.64	-0.64	0.00
4,461.0	5.80	88.00	4,458.4	-27.0	57.7	57.5	0.96	-0.95	-1.16
4,556.0	5.80	78.60	4,552.9	-25.9	67.2	67.0	1.00	0.00	-9.89
4,650.0	4.90	74.30	4,646.5	-23.9	75.8	75.6	1.05	-0.96	-4.57
4,745.0	5.40	84.00	4,741.1	-22.3	84.1	83.9	1.06	0.53	10.21



Great White Directional Services Survey Report



Company:	Cimarex Energy Co.	Local Co-ordinate Reference:	Well JG State #1
Project:	Lea County (NAD 83)	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 16 - T17S - R32E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	JG State #1	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,838.0	5.40	81.70	4,833.7	-21.2	92.8	92.6	0.23	0.00	-2.47
4,934.0	5.30	80.00	4,929.3	-19.8	101.6	101.5	0.20	-0.10	-1.77
5,028.0	5.10	78.10	5,022.9	-18.2	110.0	109.9	0.28	-0.21	-2.02
5,131.0	5.80	85.10	5,125.4	-16.8	119.7	119.5	0.94	0.68	6.80
5,224.0	5.50	93.20	5,218.0	-16.7	128.8	128.7	0.92	-0.32	8.71
5,318.0	5.50	93.00	5,311.5	-17.2	137.8	137.7	0.02	0.00	-0.21
5,412.0	5.50	92.00	5,405.1	-17.5	146.8	146.7	0.10	0.00	-1.06
5,507.0	5.20	92.50	5,499.7	-17.9	155.6	155.5	0.32	-0.32	0.53
5,602.0	5.70	82.00	5,594.2	-17.4	164.6	164.5	1.17	0.53	-11.05
5,696.0	6.00	90.40	5,687.8	-16.8	174.1	174.0	0.96	0.32	8.94
5,790.0	5.80	90.00	5,781.3	-16.8	183.8	183.7	0.22	-0.21	-0.43
5,885.0	5.80	92.30	5,875.8	-17.0	193.4	193.3	0.24	0.00	2.42
5,979.0	5.20	97.20	5,969.3	-17.8	202.4	202.2	0.81	-0.64	5.21
6,074.0	5.20	94.00	6,064.0	-18.6	210.9	210.8	0.31	0.00	-3.37
6,170.0	5.40	93.50	6,159.5	-19.2	219.8	219.6	0.21	0.21	-0.52
6,297.0	5.10	95.80	6,286.0	-20.1	231.4	231.2	0.29	-0.24	1.81
6,391.0	5.10	94.90	6,379.6	-20.9	239.7	239.5	0.09	0.00	-0.96
6,487.0	5.50	93.70	6,475.2	-21.6	248.5	248.4	0.43	0.42	-1.25
6,580.0	5.30	95.00	6,567.8	-22.2	257.3	257.1	0.25	-0.22	1.40
6,674.0	5.50	94.80	6,661.4	-23.0	266.1	265.9	0.21	0.21	-0.21
6,767.0	5.30	95.40	6,754.0	-23.7	274.8	274.6	0.22	-0.22	0.65
6,863.0	5.50	94.50	6,849.6	-24.5	283.8	283.6	0.23	0.21	-0.94
6,957.0	4.90	91.10	6,943.2	-25.0	292.3	292.1	0.72	-0.64	-3.62
Last MWD Survey									
7,014.3	4.90	91.10	7,000.2	-25.0	297.2	297.0	0.00	0.00	0.00
JG State #1 PBHL									
7,035.0	4.90	91.10	7,020.9	-25.1	299.0	298.8	0.00	0.00	0.00
Projection to TD									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,986.0	3,985.6	-18.1	16.6	First MWD Survey
6,957.0	6,943.2	-25.0	292.3	Last MWD Survey
7,035.0	7,020.9	-25.1	299.0	Projection to TD

Checked By: _____ Approved By: _____ Date: _____

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CIMAREX ENERGY

Maljamar

Lea County, NM

JG State #1

JG State #1

SUR @ N-16-17s-32e, 350/S & 2010/W
BHL @ N-16-17s-32e, 325/S & 2309/W
API # 30-025-39816

Survey: Actual

SDI Standard Survey Report

26 August, 2010

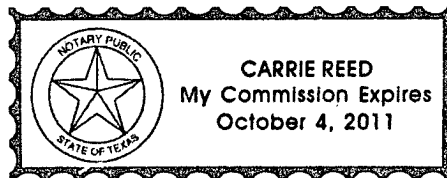
This survey is correct to the best of my knowledge and is supported by actual field data.

Richardson

Notorized this date 24th of September, 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 JG State #1
Project:	Maljamar	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	JG State #1	North Reference:	Grid
Wellbore:	JG State #1	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0810625	Database:	EDM-Regulatory

Project	Maljamar		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico Central 3002		

Well	JG State #1, Directional (Great White)
Well Position	+N/-S 0.0 usft Northing: 673,975.98 usft Latitude: 32° 49' 42.060 N
	+E/-W 0.0 usft Easting: 1,260,812.51 usft Longitude: 103° 46' 24.590 W
Position Uncertainty	0.0 usft Wellhead Elevation: usft Ground Level: 0.0 usft

Wellbore	JG State #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	8/26/2010	7.81	60.75	49,097

Design	VH - Job #32K0810625
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 93.81

Survey Program		Date 8/26/2010		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
86.7	3,932.0	Actual (JG State #1)	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	
86.7	0.56	126.61	86.7	-0.3	0.3	126.61	0.4	
178.2	0.57	168.70	178.2	-1.0	0.8	140.78	1.2	
269.3	0.06	256.22	269.3	-1.4	0.8	149.70	1.6	
358.9	0.45	283.95	358.9	-1.3	0.4	161.78	1.4	
450.2	0.57	195.07	450.2	-1.7	0.0	180.75	1.7	
539.5	0.25	256.35	539.5	-2.2	-0.3	188.56	2.2	
626.3	0.09	220.07	626.3	-2.3	-0.6	193.73	2.3	
720.3	0.05	11.36	720.3	-2.3	-0.6	194.57	2.4	
814.9	0.51	283.75	814.9	-2.1	-1.0	204.87	2.4	
908.9	0.34	316.79	908.9	-1.8	-1.6	220.81	2.4	
1,004.1	0.09	335.37	1,004.1	-1.6	-1.8	229.16	2.4	
1,099.2	0.16	321.50	1,099.2	-1.4	-1.9	234.08	2.4	
1,193.7	0.07	26.98	1,193.7	-1.2	-2.0	237.95	2.3	
1,288.2	0.22	41.34	1,288.2	-1.1	-1.8	240.15	2.1	
1,382.4	0.16	19.23	1,382.4	-0.8	-1.7	244.61	1.9	
1,476.5	0.27	359.89	1,476.5	-0.5	-1.6	254.59	1.7	

Scientific Drilling International, Inc.

SDI Standard Survey Report

Company:	CIMAREX ENERGY	Local Co-ordinate Reference:	Well JG State #1
Project:	Maljamar	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	JG State #1	North Reference:	Grid
Wellbore:	JG State #1	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0810625	Database:	EDM-Regulatory

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
1,570.3	0.39	16.19	1,570.3	0.1	-1.5	272.84	1.5	
1,665.0	0.61	49.38	1,665.0	0.7	-1.1	303.63	1.3	
1,759.2	0.64	45.67	1,759.2	1.4	-0.3	347.30	1.4	
1,853.3	0.68	43.27	1,853.3	2.2	0.4	11.43	2.2	
1,947.3	0.85	47.36	1,947.3	3.1	1.3	23.59	3.3	
2,041.3	0.66	61.06	2,041.2	3.8	2.3	31.47	4.4	
2,135.3	0.62	77.71	2,135.2	4.2	3.3	38.34	5.3	
2,228.7	1.06	87.86	2,228.6	4.3	4.7	47.21	6.3	
2,323.3	1.01	101.92	2,323.2	4.2	6.3	56.70	7.6	
2,418.2	1.12	99.94	2,418.1	3.8	8.1	64.60	8.9	
2,511.5	1.12	99.10	2,511.4	3.5	9.9	70.32	10.5	
2,605.6	0.84	107.24	2,605.5	3.2	11.4	74.46	11.9	
2,699.0	0.81	119.93	2,698.9	2.6	12.7	78.19	12.9	
2,793.7	0.87	125.61	2,793.5	1.9	13.8	82.19	14.0	
2,888.3	0.92	131.20	2,888.1	1.0	15.0	86.27	15.0	
2,983.7	0.98	142.24	2,983.5	-0.2	16.1	90.61	16.1	
3,078.5	1.00	144.24	3,078.3	-1.5	17.0	94.98	17.1	
3,172.5	1.00	154.61	3,172.3	-2.9	17.9	99.19	18.1	
3,267.8	0.74	165.42	3,267.6	-4.2	18.4	102.98	18.9	
3,362.6	0.81	176.75	3,362.4	-5.5	18.6	106.49	19.4	
3,458.0	1.01	186.47	3,457.8	-7.0	18.5	110.73	19.8	
3,553.2	1.08	186.77	3,552.9	-8.7	18.3	115.49	20.3	
3,647.9	1.09	187.75	3,647.6	-10.5	18.1	120.16	20.9	
3,743.3	1.27	193.22	3,743.0	-12.4	17.7	125.06	21.7	
3,837.9	1.34	193.05	3,837.6	-14.5	17.2	130.14	22.5	
3,932.0	1.36	202.71	3,931.7	-16.6	16.6	135.14	23.5	



Project: Maljamar
Lea County, NM
Well: JG State #1
Wellbore: JG State #1
Design: VH - Job #32K0810625

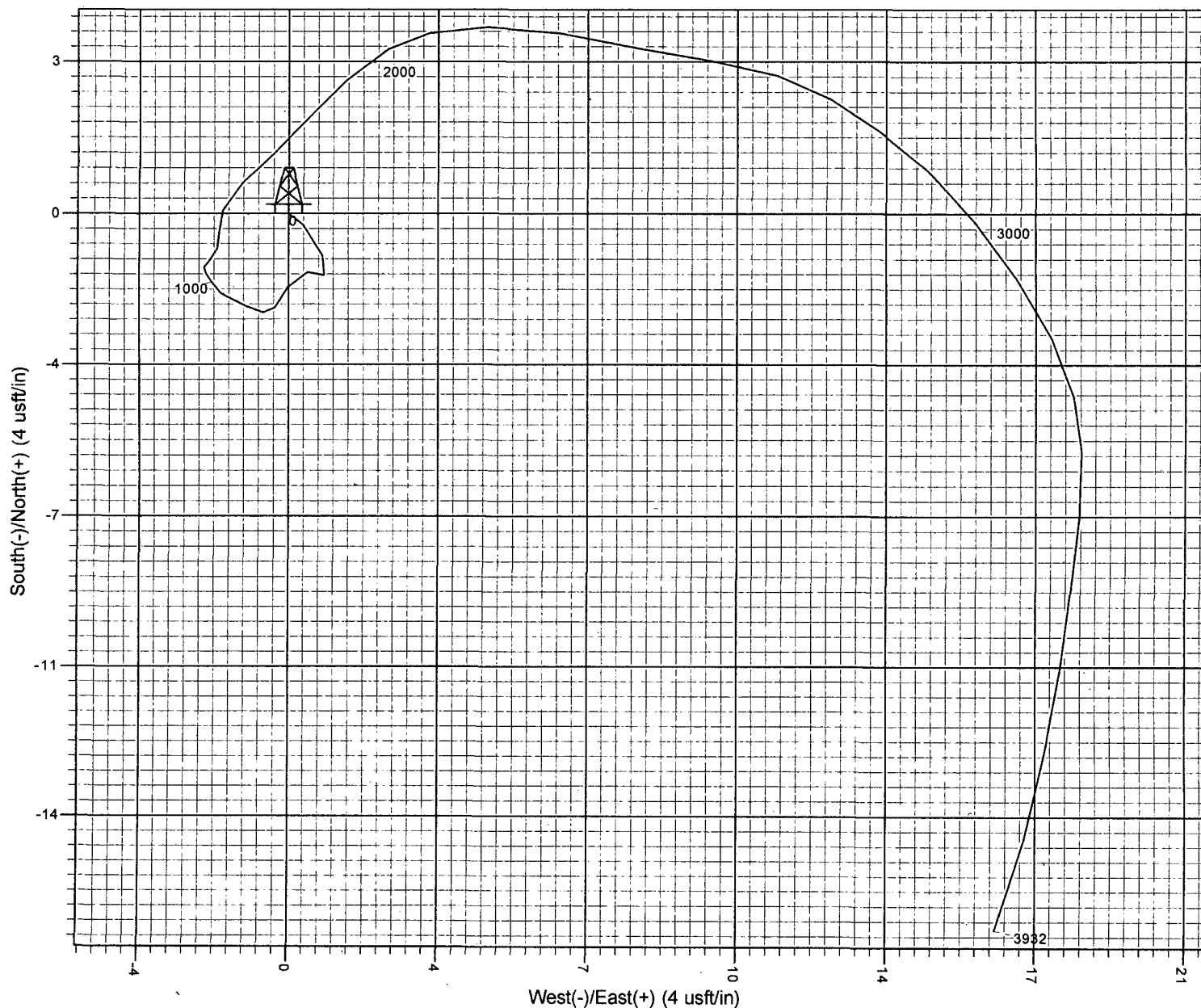


Azimuths to Grid North
True North: -1.34°
Magnetic North: 6.47°

Magnetic Field
Strength: 49097.4snT
Dip Angle: 60.75°
Date: 8/26/2010
Model: IGRF200510

WELL DETAILS: JG State #1
WELL @ 0.0usft (Original Well Elev)
Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	673975.98	1260812.51	32° 49' 42.060 N	103° 46' 24.590 W	



PROJECT DETAILS: Maljamar
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico Central 3002
System Datum: Mean Sea Level

SITE DETAILS: Lea County, NM
Site Centre Latitude: 32° 49' 42.060 N
Longitude: 103° 46' 24.590 W
Positional Uncertainty: 0.0
Convergence: 1.34
Local North: Grid