

CONOCOPHILLIPS

Maljamar
Lea County, NM
MCA #470
VH - Job #32K0910646

RECEIVED

OCT 25 2010
HOBBSOCD

Survey: Actual

SDI Standard Survey Report

06 September, 2010

SUR: H-33-17s-32e, 1830/N & 1310/E
BHL: H-33-17s-32e, 1694/N & 1304/E
API # 30-025-39765

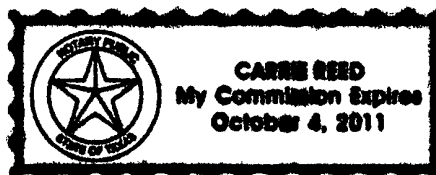
This survey is correct to the best of my knowledge and is supported by actual field data.

Subart

Notorized this date 13th of October, 2010.

Carrin Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.
SDI Standard Survey Report

Company:	CONOCOPHILLIPS	Local Co-ordinate Reference:	Well MCA #470
Project:	Maljamar	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	MCA #470	North Reference:	Grid
Wellbore:	VH - Job #32K0910646	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0910646	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 East 3001		

Well	MCA #470, Vertical				
Well Position	+N/-S	0.0 usft	Northing:	652,746.75 usft	Latitude: 32° 47' 35.550 N
	+E/-W	0.0 usft	Easting:	674,166.55 usft	Longitude: 103° 45' 59.640 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level: 0.0 usft

Wellbore	VH - Job #32K0910646				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2000	12/31/2004	8.70	60.93	49,773

Design	VH - Job #32K0910646				
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	2.84	

Survey Program	Date	9/6/2010			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	4,525.0	Actual (VH - Job #32K0910646)	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	0.32	298.79	100.0	0.1	-0.2	298.79	0.3	
200.0	0.14	47.84	200.0	0.4	-0.4	311.34	0.5	
300.0	0.25	212.22	300.0	0.2	-0.4	300.33	0.5	
400.0	0.23	288.15	400.0	0.1	-0.7	279.80	0.7	
500.0	0.18	267.88	500.0	0.2	-1.1	279.63	1.1	
600.0	0.38	335.45	600.0	0.5	-1.4	289.21	1.5	
700.0	0.23	84.08	700.0	0.8	-1.3	301.41	1.5	
800.0	0.36	310.63	800.0	1.0	-1.4	307.23	1.7	
900.0	0.27	325.30	900.0	1.4	-1.7	309.58	2.2	
1,000.0	0.57	16.29	1,000.0	2.1	-1.7	320.66	2.7	
1,100.0	0.73	13.94	1,100.0	3.2	-1.4	335.94	3.5	
1,200.0	0.63	352.35	1,200.0	4.4	-1.3	342.84	4.6	
1,300.0	0.58	4.85	1,300.0	5.4	-1.4	345.72	5.6	
1,400.0	0.56	25.19	1,400.0	6.4	-1.1	349.96	6.4	
1,500.0	0.59	48.32	1,500.0	7.1	-0.5	355.74	7.2	
1,600.0	0.84	63.66	1,600.0	7.8	0.5	3.74	7.8	

Scientific Drilling International, Inc.

SDI Standard Survey Report

Company:	CONOCOPHILLIPS	Local Co-ordinate Reference:	Well MCA #470
Project:	Maljamar	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	MCA #470	North Reference:	Grid
Wellbore:	VH - Job #32K0910646	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0910646	Database:	EDM-Regulatory

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
1,700.0	0.94	56.57	1,699.9	8.6	1.9	12.17	8.8	
1,800.0	1.02	59.44	1,799.9	9.5	3.3	19.20	10.0	
1,900.0	0.52	35.76	1,899.9	10.3	4.3	22.81	11.2	
2,000.0	0.68	30.48	1,999.9	11.2	4.9	23.66	12.2	
2,100.0	1.35	44.82	2,099.9	12.5	6.0	25.70	13.9	
2,200.0	2.00	40.22	2,199.9	14.7	8.0	28.52	16.7	
2,300.0	2.19	26.22	2,299.8	17.7	10.0	29.30	20.3	
2,400.0	2.27	16.11	2,399.7	21.4	11.4	27.99	24.2	
2,500.0	2.27	7.71	2,499.6	25.2	12.2	25.75	28.0	
2,600.0	2.42	11.18	2,599.6	29.3	12.8	23.70	32.0	
2,700.0	2.33	5.36	2,699.5	33.4	13.4	21.95	36.0	
2,800.0	2.37	3.71	2,799.4	37.4	13.8	20.19	39.9	
2,900.0	2.37	1.50	2,899.3	41.6	14.0	18.55	43.9	
3,000.0	2.71	2.14	2,999.2	46.0	14.1	17.04	48.1	
3,100.0	2.92	3.44	3,099.1	50.9	14.3	15.73	52.9	
3,200.0	3.19	0.15	3,198.9	56.2	14.5	14.46	58.1	
3,300.0	3.41	359.38	3,298.8	62.0	14.5	13.14	63.7	
3,400.0	3.44	355.83	3,398.6	68.0	14.2	11.82	69.4	
3,500.0	3.45	357.72	3,498.4	74.0	13.9	10.63	75.2	
3,600.0	3.60	355.50	3,598.2	80.1	13.5	9.58	81.2	
3,700.0	3.44	355.71	3,698.0	86.2	13.0	8.61	87.2	
3,800.0	3.14	351.91	3,797.9	91.9	12.4	7.71	92.8	
3,900.0	3.30	353.58	3,897.7	97.5	11.7	6.86	98.2	
4,000.0	3.43	354.31	3,997.5	103.3	11.1	6.14	103.9	
4,100.0	3.51	350.69	4,097.4	109.3	10.3	5.39	109.8	
4,200.0	3.19	350.06	4,197.2	115.1	9.3	4.64	115.5	
4,300.0	3.08	350.45	4,297.0	120.5	8.4	4.00	120.8	
4,400.0	2.85	348.12	4,396.9	125.6	7.5	3.40	125.8	
4,500.0	2.68	353.44	4,496.8	130.3	6.7	2.94	130.5	
4,525.0	2.61	351.59	4,521.8	131.5	6.5	2.84	131.6	



Scientific Drilling
Directional Drilling Operations

Project: Maljamar
Lea County, NM
Well: MCA #470
Wellbore: VH - Job #32K0910646
Design: VH - Job #32K0910646

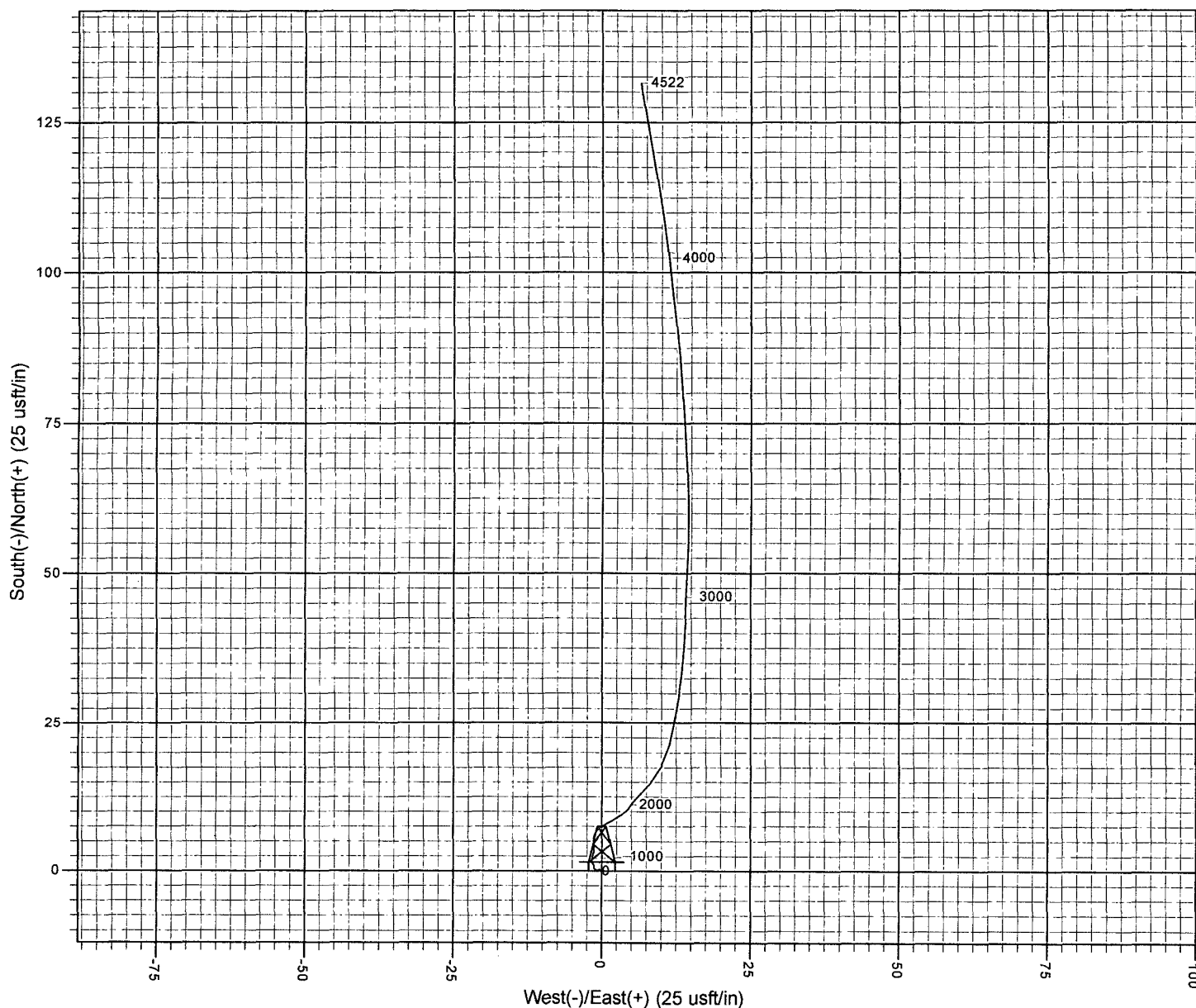


Azimuths to Grid North
True North: -0.31°
Magnetic North: 8.39°

Magnetic Field
Strength: 49772.7snT
Dip Angle: 60.93°
Date: 12/31/2004
Model: IGRF2000

WELL DETAILS: MCA #470
WELL @ 0.0usft (Original Well Elev)
Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	652746.75	674166.55	32° 47' 35.550 N	103° 45' 59.640 W	



PROJECT DETAILS: Maljamar
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° 47' 35.550 N
Longitude: 103° 45' 59.640 W
Positional Uncertainty: 0.0
Convergence: 0.31
Local North: Grid