

3D-025-39766
ELG 12-14-2011

CONOCOPHILLIPS

Maljamar

Lea County, NM

MCA #480

VH - Job #32K0910708

Survey: Actual

SDI Standard Survey Report

27 September, 2010

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

K. Wharton

Notorized this date 13th of October, 2010.

Carrie Reed

Notary Signature
County of Midland
State of Texas



DEC 14 2011

Scientific Drilling International, Inc.

SDI Standard Survey Report

Company:	CONOCOPHILLIPS	Local Co-ordinate Reference:	Well MCA #480
Project:	Maljamar	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	MCA #480	North Reference:	Grid
Wellbore:	VH - Job #32K0910708	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0910708	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 #480, Vertical					
Well Position	+N/-S	0.0 usft	Northing:	655,885.97 usft	Latitude:	32° 48' 6.650 N
	+E/-W	0.0 usft	Easting:	673,459.20 usft	Longitude:	103° 46' 7.730 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	0.0 usft

Wellbore	VH - Job #32K0910708				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2010	9/22/2010	7.87	60.72	49,082

Design	VH - Job #32K0910708				
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	12.76	

Survey Program		Date 9/27/2010		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
100.0	4,085.0	Actual (VH - Job #32K0910708)	Keeper	Keeper Gyro

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	0.06	333.06	100.0	0.0	0.0	333.06	0.1
200.0	0.32	297.05	200.0	0.2	-0.3	306.65	0.4
300.0	0.47	200.83	300.0	0.0	-0.7	267.02	0.7
400.0	0.15	157.56	400.0	-0.5	-0.8	235.51	1.0
500.0	0.15	88.84	500.0	-0.7	-0.6	222.60	0.9
600.0	0.24	88.39	600.0	-0.7	-0.3	202.22	0.7
700.0	0.27	69.50	700.0	-0.6	0.2	163.67	0.6
800.0	0.32	32.00	800.0	-0.2	0.5	114.45	0.6
900.0	0.67	11.35	900.0	0.6	0.8	54.51	1.0
1,000.0	0.97	16.55	1,000.0	2.0	1.2	30.55	2.3
1,100.0	0.97	19.16	1,100.0	3.6	1.7	25.13	3.9
1,200.0	1.12	21.26	1,199.9	5.3	2.3	23.60	5.8
1,300.0	1.10	23.22	1,299.9	7.1	3.0	23.25	7.7
1,400.0	0.94	33.09	1,399.9	8.6	3.9	24.10	9.5
1,500.0	0.80	33.63	1,499.9	9.9	4.7	25.37	11.0
1,600.0	0.85	35.23	1,599.9	11.1	5.5	26.42	12.4

Scientific Drilling International, Inc.

SDI Standard Survey Report

Company: CONOCOPHILLIPS
 Project: Maljamar
 Site: Lea County, NM
 Well: MCA #480
 Wellbore: VH - Job #32K0910708
 Design: VH - Job #32K0910708

Local Co-ordinate Reference: Well MCA #480
 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)
1,700.0	0.84	39.47	1,699.9	12.3	6.4	27.58	13.8
1,800.0	0.90	44.73	1,799.9	13.4	7.4	29.01	15.3
1,900.0	1.16	46.98	1,899.9	14.6	8.7	30.78	17.0
2,000.0	1.23	43.94	1,999.8	16.1	10.2	32.36	19.1
2,100.0	1.16	48.28	2,099.8	17.5	11.7	33.70	21.1
2,200.0	1.03	41.38	2,199.8	18.9	13.1	34.64	23.0
2,300.0	1.06	30.99	2,299.8	20.4	14.1	34.74	24.8
2,400.0	1.03	22.57	2,399.8	22.0	14.9	34.21	26.6
2,500.0	1.12	18.97	2,499.7	23.7	15.6	33.32	28.4
2,600.0	1.16	14.48	2,599.7	25.6	16.2	32.25	30.3
2,700.0	1.02	18.09	2,699.7	27.5	16.7	31.31	32.1
2,800.0	1.14	11.40	2,799.7	29.3	17.2	30.39	34.0
2,900.0	1.03	11.30	2,899.7	31.1	17.6	29.40	35.8
3,000.0	1.20	357.79	2,999.6	33.1	17.7	28.14	37.5
3,100.0	1.36	351.69	3,099.6	35.3	17.5	26.34	39.4
3,200.0	1.67	359.21	3,199.6	37.9	17.3	24.50	41.7
3,300.0	1.71	0.14	3,299.5	40.9	17.3	22.90	44.4
3,400.0	1.62	355.68	3,399.5	43.8	17.2	21.41	47.0
3,500.0	1.73	353.85	3,499.5	46.7	16.9	19.90	49.7
3,600.0	1.68	353.38	3,599.4	49.6	16.6	18.45	52.3
3,700.0	1.67	354.76	3,699.4	52.6	16.3	17.20	55.0
3,800.0	1.68	349.86	3,799.3	55.4	15.9	15.98	57.7
3,900.0	1.78	352.72	3,899.3	58.4	15.4	14.78	60.4
4,000.0	1.79	350.12	3,999.2	61.5	15.0	13.66	63.3
4,085.0	1.65	349.00	4,084.2	64.0	14.5	12.76	65.6



Scientific Drilling
Directional Drilling Operations

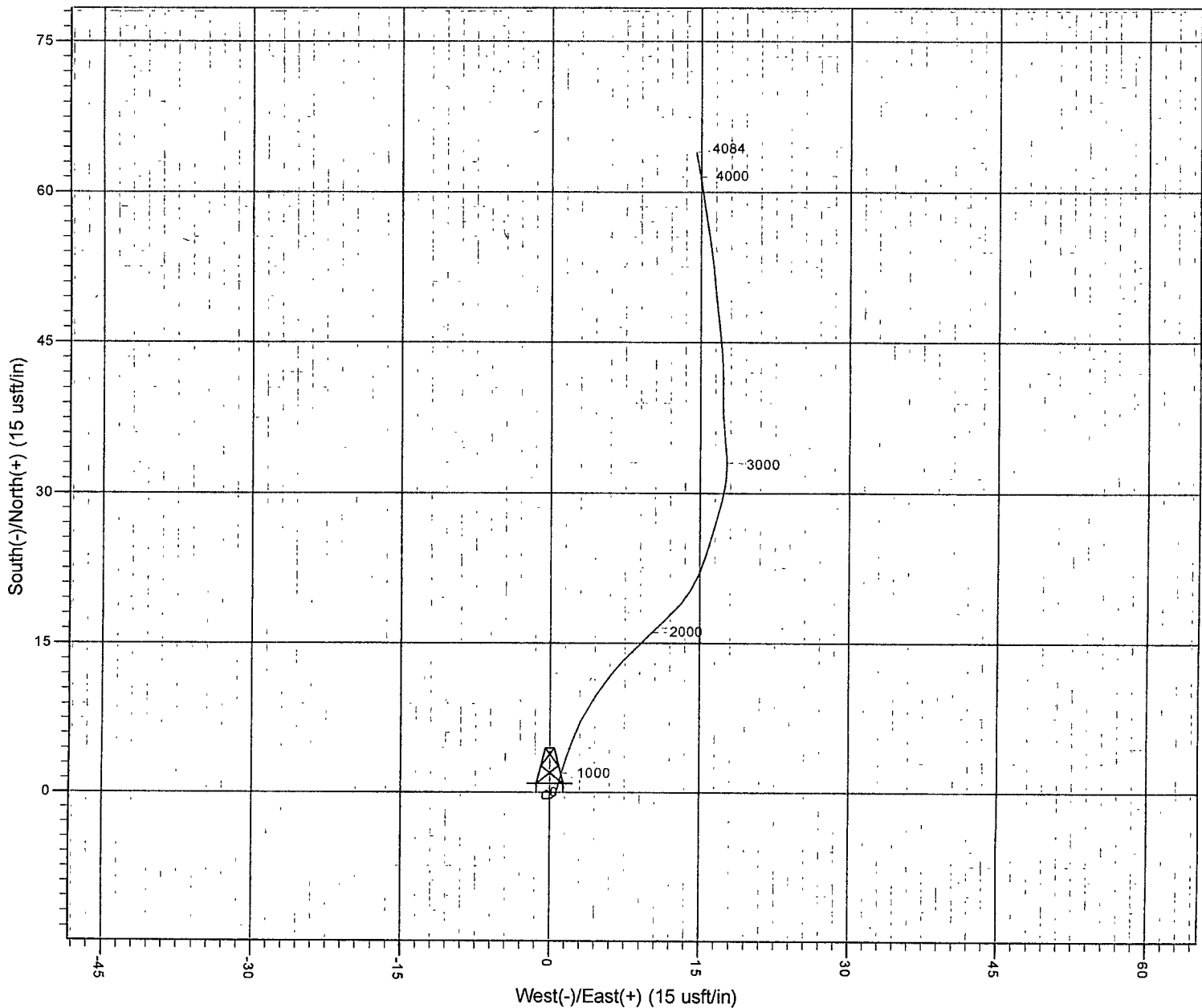
Project: Maljamar
Lea County, NM
Well: MCA #480
Wellbore: VH - Job #32K0910708
Design: VH - Job #32K0910708



Azimuths to Grid North
True North -0 31°
Magnetic North 7 57°
Magnetic Field
Strength 49082 2snT
Dip Angle 60 72°
Date 9/22/2010
Model BGGM2010

WELL DETAILS: MCA #480
WELL @ 0.0usft (Original Well Elev)
Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	655885.97	673459.20	32° 48' 6.650 N	103° 46' 7.730 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