

DEVON ENERGY

Delaware

Eddy County, NM

Cotton Draw Unit #110

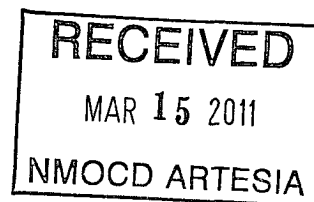
VH - Job #32K1110868

Survey: Actual

30-015-36406

SDI Standard Survey Report

10 November, 2010



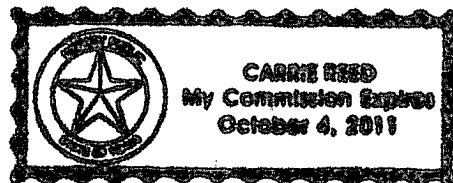
This survey is correct to the best of my knowledge and is supported by actual field data.

Richard M. Reed

Notorized this date 11th of November, 2010.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.

SDI Standard Survey Report

Company:	DEVON ENERGY	Local Co-ordinate Reference:	Well Cotton Draw Unit #110
Project:	Delaware	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Cotton Draw Unit #110	North Reference:	Grid
Wellbore:	VH - Job #32K1110868	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K1110868	Database:	EDM-Regulatory

Project	Delaware		
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:	430,805.41 usft	Latitude:	32° 10' 58.800 N	
From:	Lat/Long	Easting:	684,184.14 usft	Longitude:	103° 44' 16.800 W
Position Uncertainty:	0.0 usft	Slot Radius:	0"	Grid Convergence:	0.32 °

Well	Cotton Draw Unit #110, Directional (Pathfinder)					
Well Position	+N/-S	0.0 usft	Northing:	430,770.20 usft	Latitude:	32° 10' 58.450 N
	+E/-W	0.0 usft	Easting:	684,213.55 usft	Longitude:	103° 44' 16.460 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	0.0 usft	

Wellbore	VH - Job #32K1110868				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	BGGM2010	11/7/2010	7.79	60.14	48,695

Design	VH - Job #32K1110868				
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	359.66	

Survey Program	Date	11/10/2010		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
100.0	7,628.0	Actual (VH - Job #32K1110868)	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	1.64	212.87	100.0	-1.2	-0.8	212.87	1.4	
200.0	1.37	215.25	200.0	-3.4	-2.2	213.57	4.1	
300.0	1.24	216.48	299.9	-5.2	-3.6	214.38	6.3	
400.0	0.88	220.72	399.9	-6.7	-4.7	215.26	8.2	
500.0	1.22	224.82	499.9	-8.0	-6.0	216.69	10.0	
600.0	1.33	232.24	599.9	-9.5	-7.6	218.86	12.2	
700.0	1.42	240.40	699.8	-10.8	-9.6	221.73	14.5	
800.0	0.90	273.48	799.8	-11.4	-11.5	225.32	16.2	
900.0	0.90	293.12	899.8	-11.0	-13.0	229.74	17.0	
1,000.0	0.82	309.88	999.8	-10.2	-14.3	234.33	17.6	
1,100.0	0.80	313.93	1,099.8	-9.3	-15.3	238.74	17.9	

Scientific Drilling International, Inc.

SDI Standard Survey Report

Company: DEVON ENERGY
Project: Delaware
Site: Eddy County, NM
Well: Cotton Draw Unit #110
Wellbore: VH - Job #32K1110868
Design: VH - Job #32K1110868

Local Co-ordinate Reference: Well Cotton Draw Unit #110
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)
1,200.0	0.63	324.57	1,199.8	-8.4	-16.1	242.60	18.2
1,300.0	0.66	337.13	1,299.8	-7.4	-16.7	246.11	18.3
1,400.0	0.69	335.45	1,399.8	-6.3	-17.2	249.81	18.3
1,500.0	0.67	327.22	1,499.8	-5.3	-17.7	253.44	18.5
1,600.0	0.66	333.42	1,599.8	-4.3	-18.3	256.88	18.8
1,700.0	0.54	330.81	1,699.7	-3.3	-18.8	259.92	19.1
1,800.0	0.47	331.54	1,799.7	-2.6	-19.2	262.39	19.4
1,900.0	0.58	345.77	1,899.7	-1.7	-19.5	264.98	19.6
2,000.0	0.46	353.02	1,999.7	-0.8	-19.7	267.59	19.7
2,100.0	0.21	352.55	2,099.7	-0.2	-19.8	269.28	19.8
2,200.0	0.14	348.23	2,199.7	0.1	-19.8	270.15	19.8
2,300.0	0.28	89.73	2,299.7	0.2	-19.6	270.51	19.6
2,400.0	0.38	96.64	2,399.7	0.1	-19.0	270.41	19.0
2,500.0	0.45	117.78	2,499.7	-0.1	-18.4	269.74	18.4
2,600.0	0.75	148.71	2,599.7	-0.8	-17.7	267.32	17.7
2,700.0	0.78	147.57	2,699.7	-2.0	-17.0	263.41	17.1
2,800.0	0.83	156.11	2,799.7	-3.2	-16.3	258.91	16.6
2,900.0	0.94	156.77	2,899.7	-4.6	-15.7	253.62	16.4
3,000.0	0.96	152.89	2,999.7	-6.1	-15.0	247.81	16.2
3,100.0	1.04	155.96	3,099.7	-7.7	-14.2	241.63	16.2
3,200.0	1.22	125.90	3,199.6	-9.1	-13.0	234.90	15.9
3,300.0	1.23	119.17	3,299.6	-10.3	-11.2	227.45	15.2
3,400.0	0.94	119.60	3,399.6	-11.2	-9.6	220.43	14.7
3,500.0	0.85	134.42	3,499.6	-12.1	-8.3	214.40	14.7
3,600.0	0.95	122.13	3,599.6	-13.1	-7.1	208.39	14.9
3,700.0	1.81	111.38	3,699.5	-14.1	-4.9	199.17	14.9
3,800.0	2.05	112.57	3,799.5	-15.4	-1.8	186.62	15.5
3,900.0	2.28	114.39	3,899.4	-16.9	1.7	174.33	17.0
4,000.0	3.37	126.76	3,999.3	-19.5	5.8	163.29	20.3
4,100.0	4.12	134.77	4,099.1	-23.8	10.7	155.66	26.1
4,200.0	4.36	135.98	4,198.8	-29.0	15.9	151.22	33.1
4,300.0	3.97	136.94	4,298.5	-34.3	20.9	148.58	40.2
4,400.0	2.93	139.86	4,398.4	-38.8	25.0	147.23	46.1
4,500.0	2.63	140.68	4,498.2	-42.5	28.1	146.56	50.9
4,600.0	2.26	139.55	4,598.2	-45.8	30.8	146.07	55.2
4,700.0	1.89	140.61	4,698.1	-48.5	33.1	145.70	58.8
4,800.0	1.77	144.60	4,798.0	-51.1	35.1	145.54	62.0
4,900.0	1.73	143.95	4,898.0	-53.6	36.8	145.48	65.0
5,000.0	1.40	145.47	4,998.0	-55.8	38.4	145.44	67.7
5,100.0	1.12	149.65	5,097.9	-57.6	39.6	145.50	69.9
5,200.0	0.97	150.74	5,197.9	-59.2	40.5	145.62	71.7
5,300.0	0.81	145.44	5,297.9	-60.5	41.3	145.68	73.3
5,400.0	0.65	126.46	5,397.9	-61.5	42.2	145.53	74.5
5,500.0	0.58	141.51	5,497.9	-62.2	43.0	145.36	75.6

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Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Cotton Draw Unit #110	North Reference:	Grid
Wellbore:	VH - Job #32K1110868	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K1110868	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	0.66	129.47	5,597.9	-63.0	43.7	145.22	76.6
5,700.0	0.58	108.56	5,697.9	-63.5	44.6	144.88	77.6
5,800.0	0.38	119.97	5,797.9	-63.8	45.4	144.56	78.3
5,900.0	0.37	111.54	5,897.9	-64.1	46.0	144.33	78.9
6,000.0	0.18	138.51	5,997.9	-64.3	46.4	144.19	79.3
6,100.0	0.10	104.22	6,097.9	-64.5	46.6	144.14	79.5
6,200.0	0.09	62.57	6,197.9	-64.4	46.7	144.05	79.6
6,300.0	0.03	148.18	6,297.9	-64.4	46.8	143.99	79.7
6,400.0	0.15	123.83	6,397.9	-64.5	47.0	143.96	79.8
6,500.0	0.20	181.35	6,497.9	-64.8	47.1	144.01	80.1
6,600.0	0.17	125.15	6,597.9	-65.0	47.2	144.05	80.3
6,700.0	0.26	120.20	6,697.9	-65.2	47.5	143.95	80.7
6,800.0	0.41	127.20	6,797.9	-65.6	48.0	143.81	81.2
6,900.0	0.44	129.41	6,897.9	-66.0	48.6	143.67	82.0
7,000.0	0.55	128.30	6,997.9	-66.6	49.2	143.52	82.8
7,100.0	0.63	128.52	7,097.9	-67.2	50.0	143.33	83.8
7,200.0	0.79	127.08	7,197.8	-68.0	51.0	143.11	85.0
7,300.0	0.71	135.23	7,297.8	-68.8	52.0	142.93	86.3
7,400.0	0.71	122.05	7,397.8	-69.6	53.0	142.73	87.5
7,500.0	0.54	125.74	7,497.8	-70.2	53.9	142.50	88.5
7,600.0	0.52	160.39	7,597.8	-70.9	54.4	142.50	89.4
7,628.0	0.59	171.39	7,625.8	-71.2	54.5	142.57	89.6



Project: Delaware
Eddy County, NM
Well: Cotton Draw Unit #110
Wellbore: VH - Job #32K1110868
Design: VH - Job #32K1110868

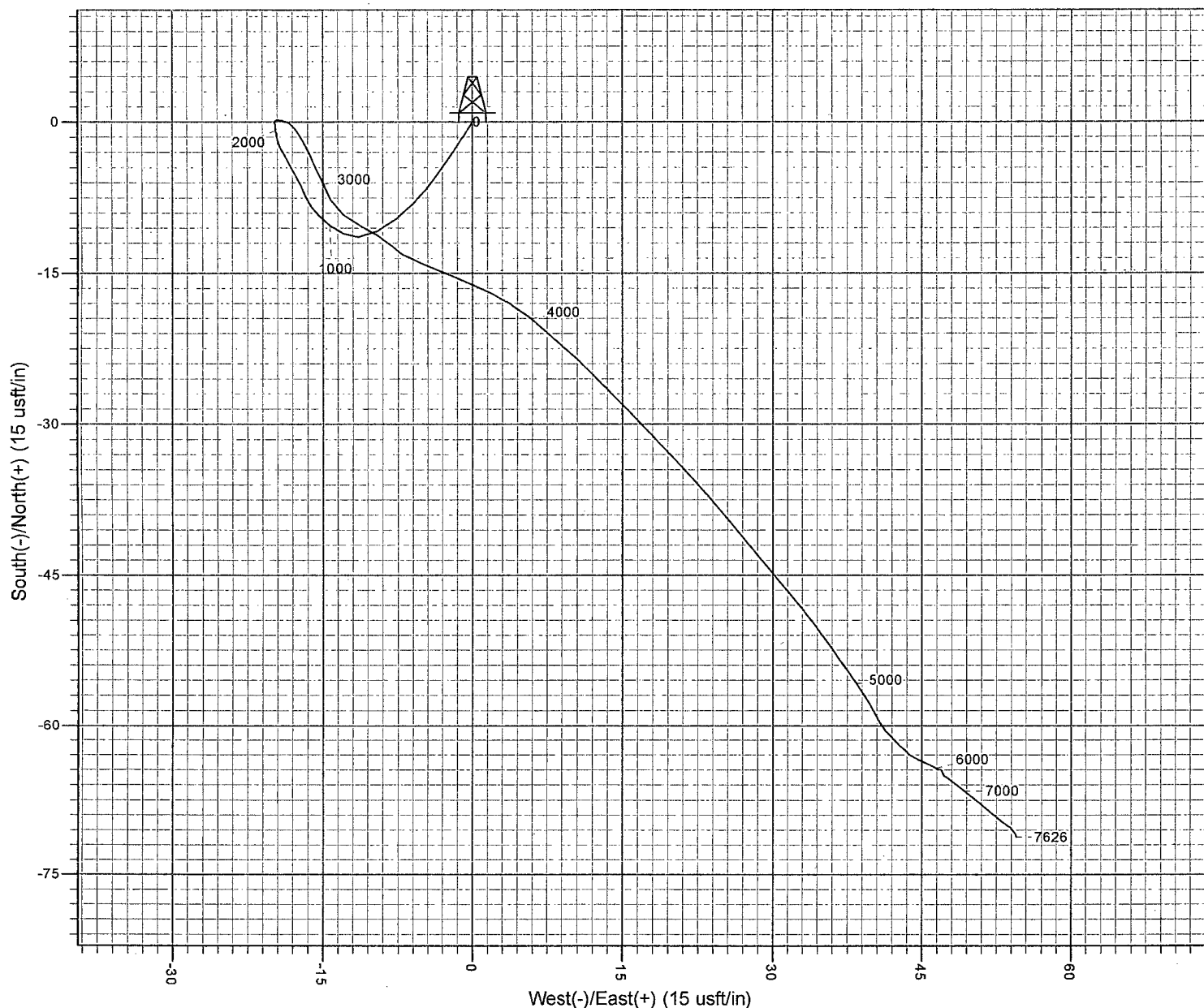


Azimuths to Grid North
True North: -0.32°
Magnetic North: 7.47°

Magnetic Field
Strength: 48695.3nT
Dip Angle: 60.14°
Date: 11/7/2010
Model: BGGM2010

WELL DETAILS: Cotton Draw Unit #110
WELL @ 0.0usft (Original Well Elev)
Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	430770.20	684213.55	32° 10' 58.450 N	103° 44' 16.460 W	



PROJECT DETAILS: Delaware
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° 10' 58.800 N
Longitude: 103° 44' 16.800 W
Positional Uncertainty: 0.0
Convergence: 0.32
Local North: Grid