

30-015-37496

CIMAREX ENERGY

Morrow Wildcat

Eddy County, NM

Jumping Spring "16" State Com #1

VH - Job #32K0411385

Survey: Actual

SDI Standard Survey Report

12 May, 2011

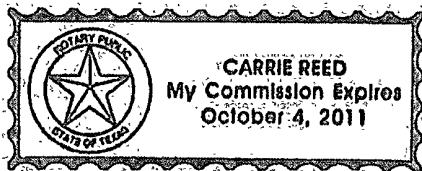
This survey is correct to the best of my knowledge and is supported by actual field data.

[Signature]

Notarized this date 13th of June, 2011.

[Signature]

Notary Signature
County of Midland
State of Texas



Scientific Drilling
Directional Drilling Operations

Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	CIMAREX ENERGY	Local Co-ordinate Reference:	Well Jumping Spring "16" State Com #1
Project:	Morrow Wildcat	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Jumping Spring "16" State Com #1	North Reference:	Grid
Wellbore:	VH - Job #32K0411385	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0411385	Database:	EDM-Regulatory

Project:	Morrow Wildcat	System Datum:	Mean Sea Level
Map System:	US State Plane 1927 (Exact solution)		
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:	Eddy County, NM		
Site Position:		Northing:	380,807.30 usft
From:	Lat/Long	Easting:	512,971.83 usft
Position Uncertainty:	0.0 usft	Slot Radius:	0"
		Grid Convergence:	0.02°

Well	Jumping Spring "16" State Com #1, Directional (Precision)					
Well Position	+N/-S	0.0 usft	Northing:	380,807.30 usft	Latitude:	32° 2' 49.010 N
	+E/-W	0.0 usft	Easting:	512,971.83 usft	Longitude:	104° 17' 29.280 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	0.0 usft

Wellbore		VH - Job #32K0411385			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/2/2011	7.91	59.90	48,465

Design:	VH - Job #32K0411385				
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	273.83	

Survey Program	Date	5/12/2011		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
100.0	9,076.0	Actual (VH - Job #32K0411385)	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	0.27	200.79	100.0	-0.2	-0.1	200.79	0.2		
200.0	0.29	309.79	200.0	-0.3	-0.4	232.40	0.5		
300.0	0.05	265.03	300.0	-0.1	-0.6	258.65	0.6		
400.0	0.18	264.07	400.0	-0.1	-0.8	260.04	0.8		
500.0	0.30	200.87	500.0	-0.4	-1.0	249.06	1.1		
600.0	0.51	204.91	600.0	-1.0	-1.3	231.71	1.7		
700.0	0.65	208.76	700.0	-2.0	-1.8	222.54	2.6		
800.0	0.69	218.49	800.0	-2.9	-2.4	219.86	3.8		
900.0	0.53	223.52	900.0	-3.7	-3.1	220.04	4.9		
1,000.0	0.54	222.02	1,000.0	-4.4	-3.8	220.48	5.8		
1,100.0	1.22	102.54	1,100.0	-5.0	-3.0	211.35	5.8		

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	CIMAREX ENERGY	Local Co-ordinate Reference:	Well Jumping Spring "16" State Com #1
Project:	Morrow Wildcat	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Jumping Spring "16" State Com #1	North Reference:	Grid
Wellbore:	VH - Job #32K0411385	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0411385	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	2.24	88.40	1,199.9	-5.2	0.0	180.53	5.2
1,300.0	2.42	88.04	1,299.8	-5.0	4.0	141.47	6.4
1,400.0	3.98	89.06	1,399.7	-4.9	9.6	117.11	10.8
1,500.0	5.24	90.32	1,499.4	-4.9	17.6	105.48	18.3
1,600.0	5.12	89.55	1,598.9	-4.9	26.7	100.36	27.1
1,700.0	4.56	92.77	1,698.6	-5.0	35.1	98.16	35.5
1,800.0	4.23	95.53	1,798.3	-5.6	42.7	97.43	43.1
1,900.0	4.16	98.62	1,898.0	-6.4	50.0	97.24	50.4
2,000.0	4.07	98.94	1,997.8	-7.2	57.1	97.18	57.6
2,100.0	3.93	97.97	2,097.5	-8.1	64.1	97.21	64.6
2,200.0	3.83	98.77	2,197.3	-9.1	70.7	97.32	71.3
2,300.0	3.83	99.55	2,297.1	-10.1	77.3	97.48	78.0
2,400.0	3.82	102.19	2,396.8	-11.4	83.9	97.74	84.7
2,500.0	3.52	104.88	2,496.6	-12.9	90.1	98.15	91.0
2,600.0	3.16	104.09	2,596.5	-14.4	95.8	98.53	96.8
2,700.0	3.09	104.15	2,696.3	-15.7	101.0	98.83	102.2
2,800.0	2.83	106.17	2,796.2	-17.0	106.0	99.13	107.4
2,900.0	2.69	110.07	2,896.1	-18.5	110.6	99.51	112.1
3,000.0	2.55	112.29	2,996.0	-20.2	114.9	99.96	116.6
3,100.0	2.48	116.24	3,095.9	-22.0	118.9	100.47	120.9
3,200.0	2.42	119.69	3,195.8	-24.0	122.6	101.08	125.0
3,300.0	2.35	120.46	3,295.7	-26.1	126.2	101.67	128.9
3,400.0	2.10	121.18	3,395.6	-28.1	129.6	102.22	132.6
3,500.0	2.11	123.28	3,495.6	-30.0	132.7	102.75	136.0
3,600.0	2.05	126.31	3,595.5	-32.1	135.7	103.30	139.4
3,700.0	1.99	126.13	3,695.4	-34.2	138.5	103.86	142.7
3,800.0	2.03	130.64	3,795.4	-36.3	141.2	104.43	145.8
3,900.0	1.76	136.57	3,895.3	-38.6	143.6	105.04	148.7
4,000.0	1.62	133.86	3,995.3	-40.7	145.7	105.61	151.3
4,100.0	1.53	136.69	4,095.2	-42.7	147.7	106.11	153.7
4,200.0	1.38	133.24	4,195.2	-44.5	149.4	106.57	155.9
4,300.0	1.39	139.57	4,295.2	-46.2	151.1	107.00	158.0
4,400.0	1.24	139.63	4,395.1	-48.0	152.6	107.45	160.0
4,500.0	1.17	151.86	4,495.1	-49.7	153.8	107.90	161.6
4,600.0	1.15	155.58	4,595.1	-51.5	154.7	108.41	163.0
4,700.0	1.28	153.44	4,695.1	-53.4	155.6	108.94	164.5
4,800.0	1.08	161.22	4,795.1	-55.3	156.4	109.46	165.9
4,900.0	1.11	158.94	4,895.0	-57.1	157.0	109.97	167.1
5,000.0	1.12	166.81	4,995.0	-58.9	157.6	110.50	168.2
5,100.0	1.14	174.14	5,095.0	-60.9	157.9	111.07	169.2
5,200.0	1.16	169.46	5,195.0	-62.8	158.2	111.66	170.2
5,300.0	0.94	174.18	5,295.0	-64.7	158.5	112.19	171.2
5,400.0	0.95	178.94	5,394.9	-66.3	158.6	112.69	171.9
5,500.0	1.00	156.82	5,494.9	-67.9	158.9	113.14	172.8

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company: CIMAREX ENERGY
Project: Morrow Wildcat
Site: Eddy County, NM
Well: Jumping Spring "16" State Com #1
Wellbore: VH - Job #32K0411385
Design: VH - Job #32K0411385

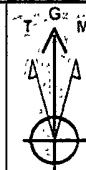
Local Co-ordinate Reference: Well Jumping Spring "16" State Com #1
TVD Reference: WELL @ 0.0usft (Original Well Elev)
MD Reference: WELL @ 0.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM-Regulatory

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,600.0	0.99	142.81	5,594.9	-69.4	159.8	113.48	174.2
5,700.0	0.96	137.18	5,694.9	-70.7	160.9	113.73	175.7
5,800.0	0.90	130.40	5,794.9	-71.8	162.1	113.91	177.3
5,900.0	1.02	115.29	5,894.9	-72.7	163.5	113.99	178.9
6,000.0	0.66	90.10	5,994.9	-73.1	164.8	113.92	180.3
6,100.0	0.45	283.95	6,094.9	-73.0	165.0	113.87	180.5
6,200.0	0.68	306.14	6,194.9	-72.6	164.2	113.85	179.5
6,300.0	0.87	306.82	6,294.9	-71.8	163.1	113.75	178.2
6,400.0	0.95	315.23	6,394.8	-70.7	161.9	113.60	176.7
6,500.0	2.09	342.31	6,494.8	-68.4	160.8	113.05	174.7
6,600.0	6.63	338.58	6,594.5	-61.3	158.1	111.19	169.6
6,700.0	8.88	330.82	6,693.6	-49.2	152.2	107.90	160.0
6,800.0	8.91	314.01	6,792.4	-37.1	142.9	104.54	147.6
6,900.0	8.56	297.05	6,891.2	-28.2	130.7	102.18	133.7
7,000.0	6.93	292.81	6,990.3	-22.4	118.6	100.71	120.7
7,100.0	6.17	293.86	7,089.7	-17.9	108.1	99.41	109.6
7,200.0	5.01	294.57	7,189.2	-13.9	99.2	97.99	100.2
7,300.0	3.77	294.68	7,288.9	-10.7	92.3	96.64	92.9
7,400.0	3.30	286.56	7,388.7	-8.5	86.5	95.64	86.9
7,500.0	3.16	283.28	7,488.5	-7.1	81.1	95.00	81.4
7,600.0	2.58	279.79	7,588.4	-6.1	76.2	94.56	76.4
7,700.0	2.51	273.37	7,688.3	-5.6	71.8	94.43	72.0
7,800.0	2.19	268.43	7,788.2	-5.5	67.7	94.63	67.9
7,900.0	2.09	267.17	7,888.2	-5.6	63.9	95.03	64.2
8,000.0	1.96	265.07	7,988.1	-5.9	60.4	95.54	60.7
8,100.0	1.66	259.77	8,088.1	-6.3	57.3	96.24	57.6
8,200.0	1.48	263.15	8,188.0	-6.7	54.6	96.98	55.0
8,300.0	1.25	258.12	8,288.0	-7.1	52.2	97.69	52.7
8,400.0	1.08	261.84	8,388.0	-7.4	50.2	98.40	50.8
8,500.0	1.11	250.23	8,488.0	-7.9	48.4	99.25	49.0
8,600.0	1.12	254.31	8,587.9	-8.5	46.5	100.31	47.3
8,700.0	1.13	284.79	8,687.9	-8.5	44.6	100.76	45.4
8,800.0	1.17	283.59	8,787.9	-8.0	42.7	100.60	43.4
8,900.0	1.05	286.68	8,887.9	-7.5	40.8	100.39	41.5
9,000.0	0.98	290.24	8,987.9	-6.9	39.1	100.04	39.7
9,076.0	1.47	280.41	9,063.8	-6.5	37.6	99.85	38.1



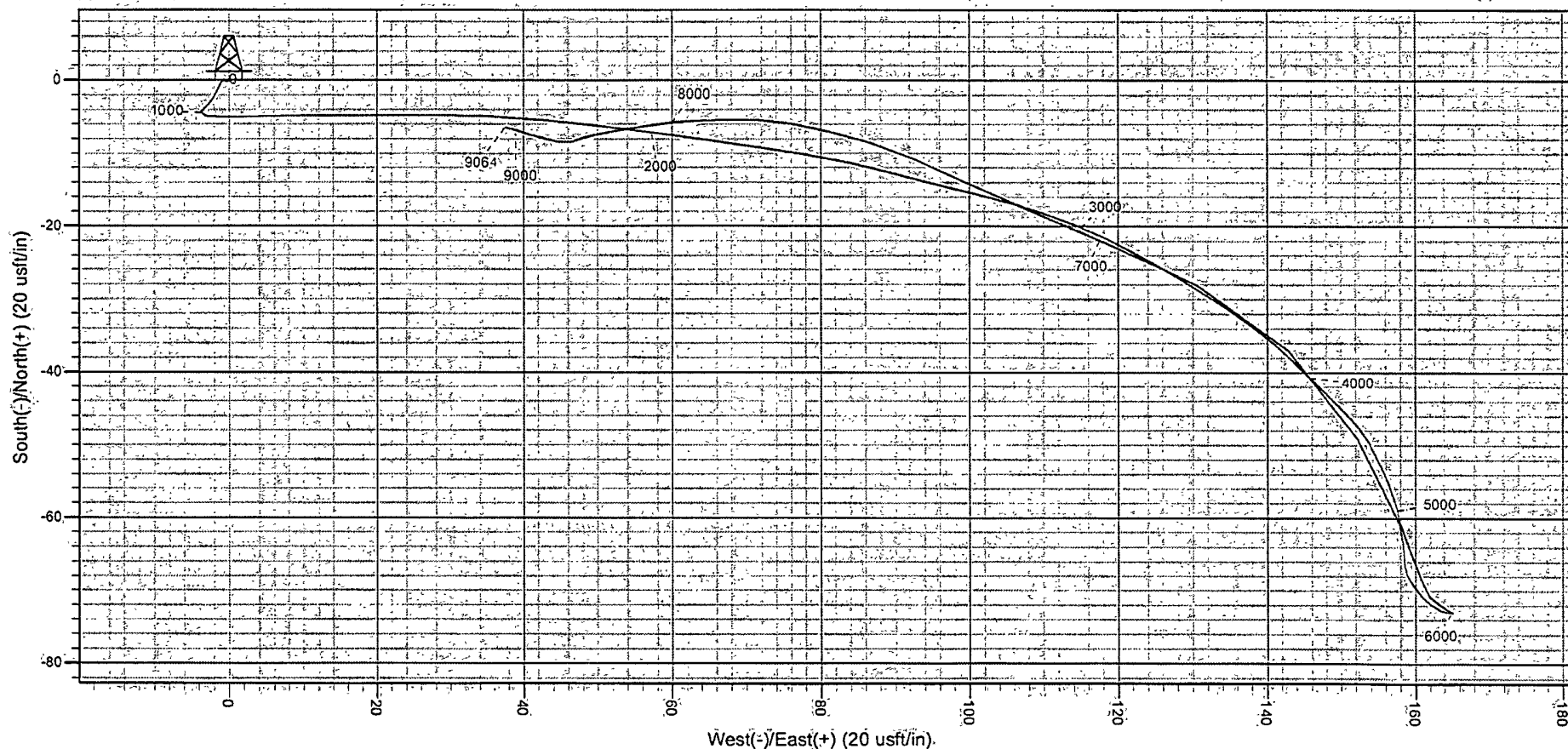
Project: Morrow Wildcat
 Eddy County, NM
 Well: Jumping Spring "16" State Com. #1
 Wellbore: VH - Job #32K0411385
 Design: VH - Job #32K0411385



Azimuths to Grid North
 True North: 0.02°
 Magnetic North: 7.89°
 Magnetic Field
 Strength: 48465.0 nT
 Dip Angle: 59.90°
 Date: 5/2/2011
 Model: IGRF 2010

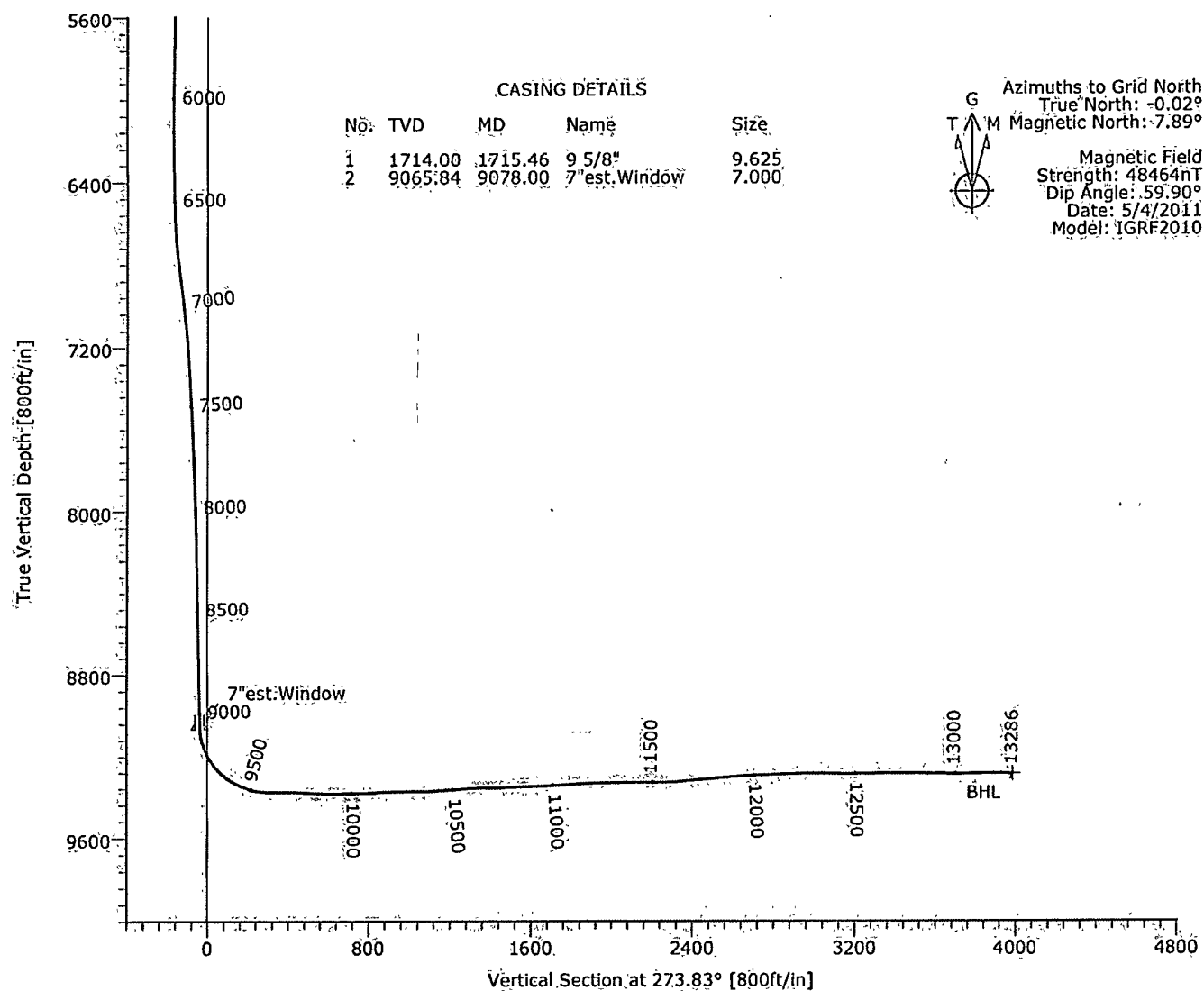
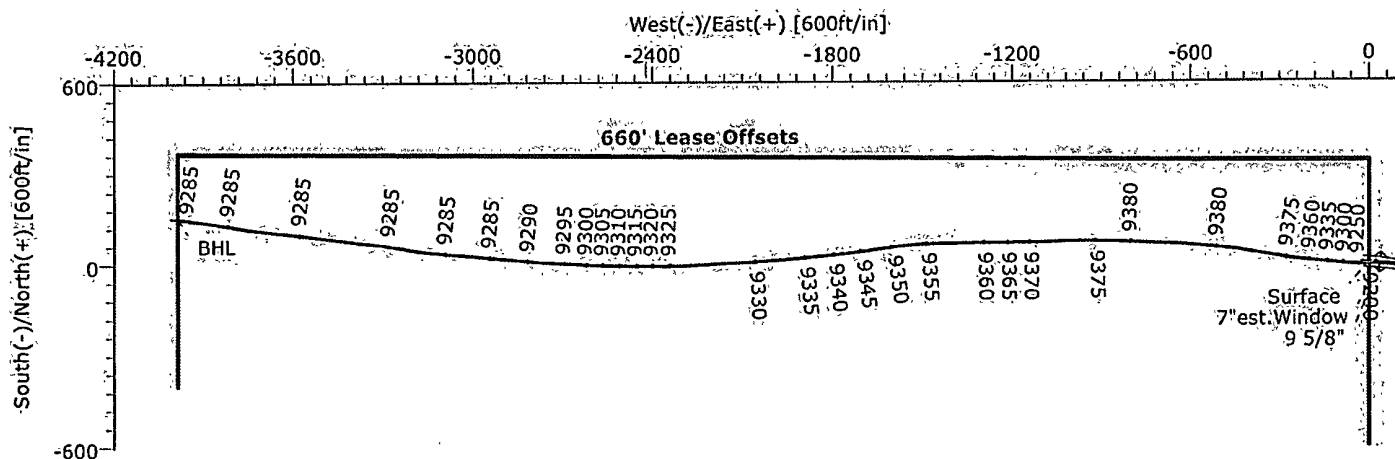
WELL DETAILS: Jumping Spring "16" State Com #1
 WELL @: 0.0usft (Original Well Elev)
 Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	380807.30	512971.83	32° 2' 49.010 N	104° 17' 29.280 W	



PROJECT DETAILS: Morrow Wildcat
 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° 2' 49.010 N
 Longitude: 104° 17' 29.280 W
 Positional Uncertainty: 0.0
 Convergence: 0.02
 Local North: Grid



Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Surface	0.00	0.00	0.00	380819.70	554309.40	32°02'48.999N	104°17'29.289W	Point
BHL	9285.00	152.07	-3983.53	380971.77	550325.87	32°02'50.517N	104°18'15.574W	Point

PRECISION DIRECTIONAL SERVICES, INC.

Drake Office: 281-598-6740

Precision Directional Services, Inc.

Survey Report

Company: CIMAREX ENERGY		Date: 5/31/2011	Time: 06:09:07	Page: 1
Field: Southeast NM E83		Co-ordinate(N/E) Reference: Well: #1, Grid North		
Site: Jumping Spring "16" State Com		Vertical (TVD) Reference: 3390'GL+19'KB 3409.0		
Well: #1		Section (VS) Reference: Well (0.00N,0.00E,273.83Azi)		
Wellpath: Sidetrack		Survey Calculation Method: Minimum Curvature Db: Sybase		

Field: Southeast NM E83	
Map System: US State Plane Coordinate System 1983	Map Zone: New Mexico, Eastern Zone
Geo Datum: GRS 1980	Coordinate System: Well Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: IGRF2010

Site: Jumping Spring "16" State Com Eddy County Section 16, T26S-R26E	
Site Position:	Northing: 380819.70 ft Latitude: 32 2 48.999 N
From: Map	Easting: 554309.40 ft Longitude: 104 17 29.289 W
Position Uncertainty: 0.00 ft	North Reference: Grid
Ground Level: 3390.00 ft	Grid Convergence: 0.02 deg

Well: #1		Slot Name:	
Well Position:	+N/-S 0.00 ft Northing: 380819.70 ft Latitude: 32 2 48.999 N		
	+E/-W 0.00 ft Easting: 554309.40 ft Longitude: 104 17 29.289 W		
Position Uncertainty:	0.00 ft		

Wellpath: Sidetrack		Drilled From: Original Hole	
Current Datum: 3390'GL+19'KB	Height 3409.00 ft	Tie-on Depth: 9076.00 ft	
Magnetic Data: 5/4/2011		Above System Datum: Mean Sea Level	
Field Strength: 48464 nT		Declination: 7.91 deg	
Vertical Section: Depth From (TVD)	+N/-S	Mag Dip Angle: 59.90 deg	
ft	ft	+E/-W	Direction
		ft	deg
0.00	0.00	0.00	273.83

Survey Program for Definitive Wellpath			
Date: 5/30/2011	Validated: No	Version: 2	
Actual From	To	Survey	Toolcode Tool Name
ft	ft		
100.00	9076.00	Survey #1 (100.00-9076.00) (0)	Gyroscope
9127.00	13238.00	Survey #1 (9127.00-13238.00)	Std MWD
13286.00	13286.00	Survey #2 (13286.00-13286.00)	Projection

Survey										
MD	Incl	Azlm	TVD	+N/-S	+E/-W	VS	DLS	Build	Turn	Tool/Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
100.00	0.27	200.79	100.00	-0.22	-0.08	0.07	0.27	0.27	0.00	Gyroscope
200.00	0.29	309.79	200.00	-0.28	-0.36	0.34	0.46	0.02	109.00	Gyroscope
300.00	0.05	265.03	300.00	-0.12	-0.60	0.59	0.26	-0.24	-44.76	Gyroscope
400.00	0.18	264.07	400.00	-0.14	-0.80	0.79	0.13	0.13	-0.96	Gyroscope
500.00	0.30	200.87	500.00	-0.40	-1.05	1.02	0.27	0.12	-63.20	Gyroscope
600.00	0.51	204.91	599.99	-1.05	-1.33	1.26	0.21	0.21	4.04	Gyroscope
700.00	0.65	208.76	699.99	-1.95	-1.79	1.66	0.15	0.14	3.85	Gyroscope
800.00	0.69	218.49	799.98	-2.92	-2.44	2.24	0.12	0.04	9.73	Gyroscope
900.00	0.53	223.52	899.98	-3.73	-3.13	2.87	0.17	-0.16	5.03	Gyroscope
1000.00	0.54	222.02	999.97	-4.41	-3.76	3.46	0.02	0.01	-1.50	Gyroscope
1100.00	1.22	102.54	1099.97	-4.99	-3.04	2.70	1.56	0.68	-119.48	Gyroscope
1200.00	2.24	88.40	1199.92	-5.17	-0.05	-0.30	1.10	1.02	-14.14	Gyroscope
1300.00	2.42	88.04	1299.84	-5.04	4.02	-4.34	0.18	0.18	-0.36	Gyroscope
1400.00	3.98	89.06	1399.68	-4.91	9.60	-9.90	1.56	1.56	1.02	Gyroscope
1500.00	5.24	90.32	1499.35	-4.88	17.63	-17.92	1.26	1.26	1.26	Gyroscope
1600.00	5.12	89.55	1598.94	-4.87	26.66	-26.93	0.14	-0.12	-0.77	Gyroscope
1700.00	4.56	92.77	1698.59	-5.03	35.09	-35.35	0.62	-0.56	3.22	Gyroscope
1800.00	4.23	95.53	1798.29	-5.58	42.73	-43.01	0.39	-0.33	2.76	Gyroscope
1900.00	4.16	96.62	1898.02	-6.35	50.01	-50.32	0.11	-0.07	1.09	Gyroscope
2000.00	4.07	96.94	1997.77	-7.20	57.13	-57.49	0.09	-0.09	0.32	Gyroscope

Survey Report

Company: CIMAREX ENERGY	Date: 5/31/2011	Time: 06:09:07	Page: 2
Field: Southeast NM E'83	Co-ordinate(NE) Reference:	Well: #1, Grid North	
Site: Jumping Spring "16" State Com	Vertical (TVD) Reference:	3390'GL+19'KB 3409.0	
Well: #1	Section (VS) Reference:	Well (0.00N,0.00E,273.83Azi)	
Wellpath: Sidetrack	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey

MD ft	Incl deg	Azhn deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
2100.00	3.93	97.97	2097.52	-8.10	64.05	-64.45	0.16	-0.14	1.03	Gyroscope
2200.00	3.83	98.77	2197.29	-9.09	70.74	-71.19	0.11	-0.10	0.80	Gyroscope
2300.00	3.83	99.55	2297.07	-10.15	77.34	-77.84	0.05	0.00	0.78	Gyroscope
2400.00	3.82	102.19	2396.85	-11.41	83.89	-84.46	0.18	-0.01	2.64	Gyroscope
2500.00	3.52	104.88	2496.64	-12.90	90.11	-90.77	0.35	-0.30	2.69	Gyroscope
2600.00	3.16	104.09	2596.47	-14.36	95.75	-96.50	0.36	-0.36	-0.79	Gyroscope
2700.00	3.09	104.15	2696.32	-15.69	101.04	-101.86	0.07	-0.07	0.06	Gyroscope
2800.00	2.83	106.17	2796.19	-17.03	106.02	-106.92	0.28	-0.26	2.02	Gyroscope
2900.00	2.69	110.07	2896.07	-18.53	110.60	-111.59	0.23	-0.14	3.90	Gyroscope
3000.00	2.55	112.29	2995.97	-20.18	114.86	-115.95	0.17	-0.14	2.22	Gyroscope
3100.00	2.48	116.24	3095.87	-21.98	118.86	-120.06	0.19	-0.07	3.95	Gyroscope
3200.00	2.42	119.69	3195.78	-23.98	122.63	-123.96	0.16	-0.06	3.45	Gyroscope
3300.00	2.35	120.46	3295.70	-26.06	126.24	-127.69	0.08	-0.07	0.77	Gyroscope
3400.00	2.10	121.18	3395.62	-28.05	129.57	-131.15	0.25	-0.25	0.72	Gyroscope
3500.00	2.11	123.28	3495.55	-30.01	132.68	-134.38	0.08	0.01	2.10	Gyroscope
3600.00	2.05	126.31	3595.49	-32.08	135.66	-137.50	0.13	-0.06	3.03	Gyroscope
3700.00	1.99	126.13	3695.43	-34.16	138.50	-140.47	0.06	-0.06	-0.18	Gyroscope
3800.00	2.03	130.64	3795.36	-36.34	141.25	-143.36	0.16	0.04	4.51	Gyroscope
3900.00	1.76	136.57	3895.31	-38.61	143.65	-145.90	0.33	-0.27	5.93	Gyroscope
4000.00	1.62	133.86	3995.27	-40.70	145.72	-148.11	0.16	-0.14	-2.71	Gyroscope
4100.00	1.53	136.89	4095.23	-42.66	147.65	-150.17	0.12	-0.09	3.03	Gyroscope
4200.00	1.38	133.24	4195.20	-44.46	149.44	-152.08	0.18	-0.15	-3.65	Gyroscope
4300.00	1.39	139.57	4295.17	-46.20	151.11	-153.86	0.15	0.01	6.33	Gyroscope
4400.00	1.24	139.63	4395.14	-47.95	152.59	-155.46	0.15	-0.15	0.06	Gyroscope
4500.00	1.17	151.86	4495.12	-49.68	153.78	-156.75	0.27	-0.07	12.23	Gyroscope
4600.00	1.15	155.58	4595.10	-51.49	154.67	-157.77	0.08	-0.02	3.72	Gyroscope
4700.00	1.26	153.44	4695.08	-53.39	155.58	-158.80	0.12	0.11	-2.14	Gyroscope
4800.00	1.08	161.22	4795.05	-55.26	156.37	-159.72	0.24	-0.18	7.78	Gyroscope
4900.00	1.11	158.94	4895.04	-57.06	157.03	-160.49	0.05	0.03	-2.28	Gyroscope
5000.00	1.12	166.81	4995.02	-58.91	157.60	-161.18	0.15	0.01	7.87	Gyroscope
5100.00	1.14	174.14	5095.00	-60.86	157.92	-161.63	0.15	0.02	7.33	Gyroscope
5200.00	1.16	169.46	5194.98	-62.84	158.21	-162.05	0.10	0.02	-4.68	Gyroscope
5300.00	0.94	174.18	5294.96	-64.65	158.48	-162.44	0.24	-0.22	4.72	Gyroscope
5400.00	0.95	178.94	5394.95	-66.30	158.57	-162.65	0.08	0.01	4.76	Gyroscope
5500.00	1.00	156.82	5494.93	-67.93	158.93	-163.12	0.38	0.05	-22.12	Gyroscope
5600.00	0.99	142.81	5594.92	-69.42	159.80	-164.08	0.24	-0.01	-14.01	Gyroscope
5700.00	0.96	137.18	5694.90	-70.72	160.89	-165.26	0.10	-0.03	-5.63	Gyroscope
5800.00	0.90	130.40	5794.89	-71.84	162.06	-166.50	0.13	-0.06	-6.78	Gyroscope
5900.00	1.02	115.29	5894.88	-72.73	163.46	-167.95	0.28	0.12	-15.11	Gyroscope
6000.00	0.66	90.10	5994.87	-73.11	164.84	-169.36	0.51	-0.36	-25.19	Gyroscope
6100.00	0.45	283.95	6094.86	-73.02	165.04	-169.55	1.10	-0.21	-166.15	Gyroscope
6200.00	0.68	306.14	6194.86	-72.58	164.18	-168.66	0.31	0.23	22.19	Gyroscope
6300.00	0.87	306.82	6294.85	-71.77	163.09	-167.52	0.19	0.19	0.68	Gyroscope
6400.00	0.95	315.23	6394.84	-70.73	161.90	-166.26	0.16	0.08	8.41	Gyroscope
6500.00	2.09	342.31	6494.80	-68.40	160.76	-164.97	1.32	1.14	27.08	Gyroscope
6600.00	6.63	338.58	6594.49	-61.29	158.10	-161.84	4.55	4.54	-3.73	Gyroscope
6700.00	8.88	330.82	6693.57	-49.17	152.22	-155.17	2.48	2.25	-7.76	Gyroscope
6800.00	8.91	314.01	6792.38	-37.05	142.89	-145.05	2.59	0.03	-16.81	Gyroscope
6900.00	8.56	297.65	6891.24	-28.22	130.73	-132.32	2.50	-0.35	-16.36	Gyroscope
7000.00	6.93	292.81	6990.32	-22.42	118.57	-118.80	1.75	-1.63	-4.84	Gyroscope
7100.00	6.17	293.86	7089.67	-17.91	108.10	-109.05	0.77	-0.76	1.05	Gyroscope
7200.00	5.01	294.57	7189.19	-13.92	99.21	-99.92	1.16	-1.16	0.71	Gyroscope
7300.00	3.77	294.68	7288.90	-10.73	92.25	-92.76	1.24	-1.24	0.11	Gyroscope
7400.00	3.30	286.56	7388.71	-8.54	86.50	-86.88	0.69	-0.47	-8.12	Gyroscope

Precision Directional Services, Inc.

Survey Report

Company: CIMAREX ENERGY Field: Southeast NM E83 Site: Jumping Spring "16" State Com Well: #1 Wellpath: Sidetrack	Date: 5/31/2011 Co-ordinate(NE) Reference: Well: #1, Grid North Vertical (TVD) Reference: 3390'GL+19'KB 3409.0 Section (VS) Reference: Well (0.00N,0.00E,273.83Azi) Survey Calculation Method: Minimum Curvature
	Time: 06:09:07 Page: 3 Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N-S ft	+E-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
7500.00	3.16	283.28	7488.55	-7.09	81.06	-81.36	0.23	-0.14	-3.28	Gyroscope
7600.00	2.58	279.79	7588.42	-6.07	76.16	-76.40	0.61	-0.58	-3.49	Gyroscope
7700.00	2.51	273.37	7688.32	-5.56	71.76	-71.97	0.29	-0.07	-6.42	Gyroscope
7800.00	2.19	268.43	7788.24	-5.48	67.66	-67.88	0.38	-0.32	-4.94	Gyroscope
7900.00	2.09	267.17	7888.17	-5.62	63.93	-64.16	0.11	-0.10	-1.26	Gyroscope
8000.00	1.96	265.07	7988.11	-5.86	60.41	-60.66	0.15	-0.13	-2.10	Gyroscope
8100.00	1.66	259.77	8088.06	-6.27	57.28	-57.57	0.34	-0.30	-5.30	Gyroscope
8200.00	1.48	263.15	8188.02	-6.68	54.57	-54.89	0.20	-0.18	3.38	Gyroscope
8300.00	1.25	258.12	8287.99	-7.05	52.22	-52.57	0.26	-0.23	-5.03	Gyroscope
8400.00	1.08	261.84	8387.97	-7.41	50.22	-50.60	0.19	-0.17	3.72	Gyroscope
8500.00	1.11	250.23	8487.95	-7.87	48.38	-48.79	0.22	0.03	-11.61	Gyroscope
8600.00	1.12	254.31	8587.93	-8.47	46.52	-46.98	0.08	0.01	4.08	Gyroscope
8700.00	1.13	284.79	8687.92	-8.48	44.63	-45.10	0.59	0.01	30.48	Gyroscope
8800.00	1.17	283.59	8787.90	-7.99	42.68	-43.12	0.05	0.04	-1.20	Gyroscope
8900.00	1.05	286.68	8887.88	-7.48	40.81	-41.22	0.13	-0.12	3.09	Gyroscope
9000.00	0.98	290.24	8987.86	-6.93	39.13	-39.51	0.09	-0.07	3.56	Gyroscope
9076.00	1.47	280.41	9063.84	-6.52	37.56	-37.92	0.70	0.64	-12.93	Gyroscope
9127.00	13.80	272.50	9114.30	-6.14	30.82	-31.16	24.21	24.18	-15.51	MWD
9159.00	18.00	270.50	9145.06	-5.93	22.06	-22.40	13.23	13.12	-6.25	MWD
9191.00	24.70	270.80	9174.85	-5.79	10.41	-10.78	20.94	20.94	0.94	MWD
9221.00	29.10	269.50	9201.60	-5.77	-3.15	2.76	14.80	14.67	-4.33	MWD
9253.00	34.70	268.50	9228.76	-6.08	-20.05	19.60	17.58	17.50	-3.12	MWD
9284.00	39.60	272.20	9253.46	-5.93	-38.76	38.28	17.37	15.81	11.94	MWD
9316.00	45.20	274.00	9277.08	-4.74	-60.30	59.84	17.90	17.50	5.62	MWD
9347.00	50.90	274.40	9297.80	-3.05	-83.28	82.89	18.41	18.39	1.29	MWD
9379.00	56.60	274.40	9316.71	-1.07	-109.00	108.68	17.81	17.81	0.00	MWD
9411.00	61.60	274.60	9333.14	1.08	-136.36	136.13	15.63	15.62	0.62	MWD
9442.00	66.50	276.10	9346.70	3.69	-164.11	163.99	16.39	15.81	4.84	MWD
9474.00	71.60	276.30	9358.14	6.92	-193.81	193.84	15.95	15.94	0.62	MWD
9505.00	76.50	276.10	9366.65	10.13	-223.43	223.61	15.82	15.81	-0.65	MWD
9537.00	82.10	275.60	9372.59	13.33	-254.70	255.02	17.57	17.50	-1.56	MWD
9565.00	87.10	280.30	9375.23	17.19	-282.29	282.81	24.45	17.86	16.79	MWD
9605.00	90.40	280.40	9376.10	24.38	-321.62	322.53	8.25	8.25	0.25	MWD
9637.00	90.50	280.00	9375.85	30.04	-353.12	354.33	1.29	0.31	-1.25	MWD
9700.00	89.00	279.90	9376.12	40.93	-415.17	416.97	2.39	-2.38	-0.16	MWD
9763.00	87.10	275.50	9378.27	49.36	-477.54	479.77	7.60	-3.02	-6.98	MWD
9826.00	86.50	276.40	9381.79	55.88	-540.11	542.63	1.72	-0.95	1.43	MWD
9881.00	89.00	274.30	9383.95	61.01	-594.82	597.56	5.93	4.55	-3.82	MWD
9945.00	91.60	272.40	9383.61	64.75	-658.70	661.55	5.03	4.06	-2.97	MWD
10007.00	90.30	272.00	9382.58	67.13	-720.64	723.52	2.19	-2.10	-0.65	MWD
10071.00	93.10	272.60	9380.68	69.69	-784.56	787.46	4.47	4.37	0.94	MWD
10134.00	92.80	271.90	9377.44	72.16	-847.42	850.35	1.21	-0.48	-1.11	MWD
10197.00	91.50	271.10	9375.08	73.81	-910.36	913.25	2.42	-2.06	-1.27	MWD
10261.00	90.50	269.30	9373.96	74.03	-974.34	977.11	3.22	-1.56	-2.81	MWD
10324.00	89.90	267.60	9373.74	72.33	-1037.32	1039.83	2.86	-0.95	-2.70	MWD
10387.00	92.70	268.50	9372.31	70.19	-1100.26	1102.49	4.67	4.44	1.43	MWD
10451.00	94.10	269.70	9368.52	69.18	-1164.13	1166.15	2.88	2.19	1.87	MWD
10514.00	93.90	269.80	9364.12	68.91	-1226.98	1228.84	0.35	-0.32	0.16	MWD
10577.00	93.30	269.50	9360.17	68.52	-1289.85	1291.55	1.06	-0.95	-0.48	MWD
10641.00	91.10	268.80	9357.71	67.57	-1353.79	1355.28	3.61	-3.44	-1.09	MWD
10704.00	89.80	269.00	9357.21	66.37	-1416.78	1418.05	2.09	-2.06	0.32	MWD
10768.00	93.50	267.90	9355.37	64.64	-1480.72	1481.73	6.03	5.78	-1.72	MWD
10831.00	92.60	265.60	9352.02	61.07	-1543.52	1544.15	3.92	-1.43	-3.65	MWD

Precision Directional Services, Inc.

Survey Report

Company: CIMAREX ENERGY
 Field: Southeast NM E83
 Site: Jumping Spring "16" State Com
 Well: #1
 Wellpath: Sidetrack

Date: 5/31/2011 Time: 06:09:07 Page: 4
 Co-ordinate(NE) Reference: Well: #1, Grid North
 Vertical (TVD) Reference: 3390'GL+19'KB 3409.0
 Section (VS) Reference: Well (0.00N,0.00E,273.83Azi)
 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azimuth deg	TVD ft	+N-S ft	+E-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
10894.00	91.30	262.00	9349.88	54.27	-1606.11	1606.14	6.07	-2.06	-5.71	MWD
10957.00	93.60	261.70	9347.18	45.35	-1668.41	1667.71	3.68	3.65	-0.48	MWD
11020.00	93.10	262.80	9343.50	36.87	-1730.72	1729.32	1.92	-0.79	1.75	MWD
11084.00	93.10	263.60	9340.04	29.30	-1794.18	1792.13	1.25	0.00	1.25	MWD
11147.00	93.10	264.60	9336.63	22.83	-1856.75	1854.13	1.58	0.00	1.59	MWD
11211.00	92.40	265.00	9333.56	17.04	-1920.42	1917.27	1.26	-1.09	0.62	MWD
11274.00	91.20	265.60	9331.58	11.88	-1983.17	1979.54	2.13	-1.90	0.95	MWD
11337.00	91.40	266.10	9330.15	7.32	-2045.99	2041.91	0.85	0.32	0.79	MWD
11401.00	90.50	267.30	9329.09	3.64	-2109.87	2105.41	2.34	-1.41	1.87	MWD
11464.00	89.30	267.20	9329.20	0.62	-2172.80	2167.99	1.91	-1.90	-0.16	MWD
11527.00	90.10	267.50	9329.53	-2.30	-2235.73	2230.59	1.36	1.27	0.48	MWD
11590.00	92.80	267.60	9327.94	-4.99	-2298.65	2293.18	4.29	4.29	0.16	MWD
11652.00	95.40	270.50	9323.51	-6.02	-2360.47	2354.80	6.27	4.19	4.68	MWD
11715.00	95.30	270.30	9317.63	-5.58	-2423.19	2417.41	0.35	-0.16	-0.32	MWD
11780.00	94.70	270.90	9311.97	-4.90	-2487.94	2482.06	1.30	-0.92	0.92	MWD
11843.00	95.30	271.50	9306.47	-3.59	-2550.69	2544.75	1.34	0.95	0.95	MWD
11907.00	95.40	272.00	9300.51	-1.64	-2614.38	2608.43	0.79	0.16	0.78	MWD
11970.00	93.30	272.90	9295.73	1.05	-2677.14	2671.23	3.62	-3.33	1.43	MWD
12033.00	91.50	273.10	9293.09	4.34	-2739.99	2734.16	2.87	-2.86	0.32	MWD
12096.00	93.10	274.80	9290.56	8.68	-2802.79	2797.11	3.70	2.54	2.70	MWD
12160.00	92.20	275.30	9287.60	14.30	-2866.47	2861.02	1.61	-1.41	0.78	MWD
12223.00	92.00	275.50	9285.30	20.23	-2929.15	2923.96	0.45	-0.32	0.32	MWD
12286.00	90.40	275.10	9283.98	26.05	-2991.86	2986.92	2.62	-2.54	-0.63	MWD
12349.00	89.00	274.70	9284.31	31.43	-3054.63	3049.91	2.31	-2.22	-0.63	MWD
12412.00	88.60	275.50	9285.63	37.03	-3117.37	3112.88	1.42	-0.63	1.27	MWD
12474.00	90.20	278.50	9286.27	44.58	-3178.89	3174.77	5.48	2.58	4.84	MWD
12537.00	91.20	280.20	9285.50	54.81	-3241.05	3237.47	3.13	1.59	2.70	MWD
12605.00	90.30	276.50	9284.61	64.69	-3308.31	3305.24	5.60	-1.32	-5.44	MWD
12665.00	90.20	276.50	9284.35	71.48	-3367.92	3365.17	0.17	-0.17	0.00	MWD
12728.00	90.20	277.60	9284.13	79.21	-3430.44	3428.07	1.75	0.00	1.75	MWD
12792.00	89.80	277.30	9284.13	87.51	-3493.90	3491.95	0.78	-0.62	-0.47	MWD
12855.00	89.20	277.10	9284.68	95.40	-3556.40	3554.83	1.00	-0.95	-0.32	MWD
12918.00	88.70	276.50	9285.84	102.86	-3618.95	3617.74	1.24	-0.79	-0.95	MWD
12982.00	88.70	276.40	9287.29	110.05	-3682.53	3681.65	0.16	0.00	-0.16	MWD
13045.00	91.90	278.20	9286.96	118.05	-3745.01	3744.53	5.83	5.08	2.86	MWD
13108.00	91.30	279.10	9285.20	127.53	-3807.26	3807.28	1.72	-0.95	1.43	MWD
13171.00	90.80	278.40	9284.05	137.11	-3869.52	3870.04	1.37	-0.79	-1.11	MWD
13238.00	89.00	277.10	9284.16	146.14	-3935.90	3936.88	3.31	-2.69	-1.94	MWD
13286.00	89.00	277.10	9285.00	152.07	-3983.53	3984.79	0.00	0.00	0.00	Project