

Cimarex Energy Co.

Eddy County (NM83E)

Sec 10 - T71S - R30E

Hydrus 10 Fed #8

Wellbore #1

Survey: MWD

Standard Survey Report

16 November, 2009

A handwritten signature in black ink, appearing to be "MR" followed by a flourish.

Great White Directional Services

Survey Report

Company:	Cimarex Energy Co.	Local Co-ordinate Reference:	Well Hydrus 10 Fed #8
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 10 - T71S - R30E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Hydrus 10 Fed #8	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Eddy County (NM83E)		
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 10 - T71S - R30E		
Site Position:		Northing:	670,879.30 usft
From:	Map	Easting:	657,054.40 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 50' 37.337 N
		Longitude:	103° 57' 23.575 W
		Grid Convergence:	0.20 °

Well	Hydrus 10 Fed #8		
Well Position	+N/-S	0.0 usft	Northing: 670,879.30 usft
	+E/-W	0.0 usft	Easting: 657,054.40 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 50' 37.337 N
		Longitude:	103° 57' 23.575 W
		Ground Level:	0.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF200510	2009/10/23	8.00
			60.75
			49,167

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
			240.94

Survey Program	Date	2009/11/16		
From	To	Survey (Wellbore)	Tool Name	Description
100.0	2,415.0	Gyro Surveys (Wellbore #1)	MWD	MWD - Standard
2,460.0	5,866.0	MWD (Wellbore #1)	MWD	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)	
2,415.0	10.71	112.16	2,408.9	-11.4	103.2	-84.6	0.00	0.00	0.00	
2,460.0	11.20	110.00	2,453.1	-14.5	111.2	-90.1	1.42	1.09	-4.80	
First MWD Survey										
2,491.0	11.60	111.90	2,483.5	-16.7	116.9	-94.1	1.77	1.29	6.13	
2,522.0	10.00	121.80	2,513.9	-19.3	122.1	-97.3	7.88	-5.16	31.94	
2,553.0	8.30	132.80	2,544.5	-22.2	126.0	-99.3	7.85	-5.48	35.48	
2,584.0	6.60	142.40	2,575.3	-25.1	128.7	-100.3	6.78	-5.48	30.97	
2,615.0	5.10	154.50	2,606.1	-27.8	130.4	-100.5	6.24	-4.84	39.03	
2,646.0	4.30	167.30	2,637.0	-30.2	131.2	-100.1	4.24	-2.58	41.29	
2,677.0	3.00	179.70	2,667.9	-32.1	131.5	-99.3	4.88	-4.19	40.00	

Great White Directional Services

Survey Report

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Site:	Sec 10 - T71S - R30E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Hydrus 10 Fed #8	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)
2,709.0	2.70	196.10	2,699.9	-33.7	131.3	-98.4	2.70	-0.94	51.25
2,740.0	3.80	202.50	2,730.9	-35.3	130.7	-97.1	3.73	3.55	20.65
2,771.0	4.00	201.90	2,761.8	-37.3	129.9	-95.4	0.66	0.65	-1.94
2,802.0	5.20	206.00	2,792.7	-39.6	128.9	-93.4	4.01	3.87	13.23
2,833.0	5.20	204.50	2,823.6	-42.1	127.7	-91.2	0.44	0.00	-4.84
2,864.0	5.10	203.90	2,854.4	-44.6	126.5	-88.9	0.37	-0.32	-1.94
2,895.0	6.10	217.30	2,885.3	-47.2	125.0	-86.3	5.29	3.23	43.23
2,927.0	7.10	220.70	2,917.1	-50.1	122.7	-82.9	3.35	3.13	10.63
2,958.0	7.10	221.10	2,947.8	-53.0	120.2	-79.3	0.16	0.00	1.29
2,989.0	9.00	222.00	2,978.5	-56.2	117.3	-75.2	6.14	6.13	2.90
3,020.0	10.60	222.10	3,009.1	-60.1	113.7	-70.2	5.16	5.16	0.32
3,051.0	11.50	223.00	3,039.5	-64.5	109.7	-64.6	2.96	2.90	2.90
3,082.0	11.70	224.60	3,069.9	-69.0	105.4	-58.6	1.22	0.65	5.16
3,113.0	11.70	225.50	3,100.2	-73.4	101.0	-52.6	0.59	0.00	2.90
3,144.0	12.30	229.50	3,130.5	-77.8	96.2	-46.3	3.31	1.94	12.90
3,176.0	12.10	231.00	3,161.8	-82.1	91.0	-39.7	1.17	-0.63	4.69
3,207.0	12.50	237.30	3,192.1	-86.0	85.7	-33.1	4.51	1.29	20.32
3,238.0	14.20	237.60	3,222.3	-89.8	79.6	-26.0	5.49	5.48	0.97
3,269.0	15.30	239.00	3,252.2	-94.0	72.9	-18.1	3.73	3.55	4.52
3,300.0	16.30	242.20	3,282.1	-98.1	65.6	-9.7	4.28	3.23	10.32
3,331.0	17.70	242.50	3,311.7	-102.3	57.5	-0.6	4.52	4.52	0.97
3,362.0	19.40	243.20	3,341.1	-106.8	48.8	9.3	5.53	5.48	2.26
3,393.0	20.50	245.30	3,370.2	-111.4	39.2	19.8	4.23	3.55	6.77
3,424.0	21.80	247.70	3,399.2	-115.8	29.0	30.9	5.04	4.19	7.74
3,455.0	23.00	250.80	3,427.8	-120.0	17.9	42.6	5.43	3.87	10.00
3,487.0	24.40	250.70	3,457.1	-124.3	5.8	55.3	4.38	4.38	-0.31
3,517.0	24.50	250.50	3,484.4	-128.4	-5.9	67.5	0.43	0.33	-0.67
3,549.0	25.00	250.00	3,513.5	-132.9	-18.5	80.8	1.69	1.56	-1.56
3,580.0	24.80	249.70	3,541.6	-137.4	-30.8	93.7	0.76	-0.65	-0.97
3,611.0	24.70	249.20	3,569.8	-142.0	-42.9	106.5	0.75	-0.32	-1.61
3,643.0	24.60	248.30	3,598.8	-146.8	-55.4	119.7	1.21	-0.31	-2.81
3,674.0	24.40	247.60	3,627.1	-151.6	-67.3	132.5	1.14	-0.65	-2.26
3,705.0	24.20	247.40	3,655.3	-156.5	-79.1	145.1	0.70	-0.65	-0.65
3,736.0	24.40	246.90	3,683.6	-161.5	-90.8	157.8	0.93	0.65	-1.61
3,767.0	24.40	247.40	3,711.8	-166.4	-102.6	170.6	0.67	0.00	1.61
3,798.0	24.80	250.00	3,740.0	-171.1	-114.7	183.3	3.72	1.29	8.39
3,829.0	24.90	249.80	3,768.1	-175.6	-126.9	196.2	0.42	0.32	-0.65
3,861.0	24.90	249.90	3,797.1	-180.2	-139.5	209.5	0.13	0.00	0.31
3,892.0	23.70	253.10	3,825.4	-184.3	-151.6	222.1	5.75	-3.87	10.32
3,954.0	24.10	252.10	3,882.1	-191.8	-175.6	246.7	0.92	0.65	-1.61
3,985.0	24.10	252.20	3,910.4	-195.7	-187.7	259.1	0.13	0.00	0.32
4,016.0	24.00	253.40	3,938.7	-199.4	-199.7	271.4	1.61	-0.32	3.87
4,047.0	23.20	255.50	3,967.1	-202.7	-211.7	283.5	3.74	-2.58	6.77

Great White Directional Services

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Site:	Sec 10 - T71S - R30E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Hydrus 10 Fed #8	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)
4,079.0	23.30	255.40	3,996.5	-205.9	-223.9	295.7	0.34	0.31	-0.31
4,110.0	23.60	255.00	4,024.9	-209.1	-235.8	307.7	1.10	0.97	-1.29
4,141.0	23.40	256.00	4,053.4	-212.2	-247.8	319.7	1.44	-0.65	3.23
4,172.0	23.10	255.90	4,081.8	-215.1	-259.7	331.5	0.98	-0.97	-0.32
4,203.0	23.10	255.90	4,110.4	-218.1	-271.5	343.2	0.00	0.00	0.00
4,234.0	23.10	255.90	4,138.9	-221.1	-283.3	355.0	0.00	0.00	0.00
4,265.0	23.00	255.20	4,167.4	-224.1	-295.0	366.7	0.94	-0.32	-2.26
4,296.0	23.50	252.80	4,195.9	-227.5	-306.8	378.6	3.46	1.61	-7.74
4,327.0	23.30	252.50	4,224.3	-231.1	-318.5	390.7	0.75	-0.65	-0.97
4,358.0	23.10	252.70	4,252.8	-234.8	-330.2	402.7	0.69	-0.65	0.65
4,390.0	22.80	253.00	4,282.3	-238.5	-342.1	414.9	1.01	-0.94	0.94
4,421.0	22.80	252.60	4,310.9	-242.0	-353.6	426.6	0.50	0.00	-1.29
4,452.0	22.50	252.40	4,339.5	-245.6	-365.0	438.3	1.00	-0.97	-0.65
4,483.0	22.70	252.70	4,368.1	-249.2	-376.3	450.0	0.74	0.65	0.97
4,514.0	22.60	252.80	4,396.7	-252.7	-387.7	461.7	0.35	-0.32	0.32
4,576.0	22.20	253.40	4,454.0	-259.6	-410.3	484.8	0.74	-0.65	0.97
4,608.4	22.04	253.24	4,484.0	-263.1	-422.0	496.7	0.52	-0.48	-0.48
Target 1									
4,638.0	21.90	253.10	4,511.5	-266.3	-432.6	507.5	0.52	-0.48	-0.49
4,701.0	21.90	252.90	4,569.9	-273.2	-455.1	530.5	0.12	0.00	-0.32
4,763.0	21.50	252.50	4,627.6	-280.0	-477.0	552.9	0.69	-0.65	-0.65
4,825.0	21.10	250.70	4,685.3	-287.1	-498.3	575.1	1.24	-0.65	-2.90
4,875.0	21.40	254.10	4,731.9	-292.6	-515.6	592.8	2.54	0.60	6.80
4,937.0	17.70	247.60	4,790.3	-299.3	-535.2	613.2	6.91	-5.97	-10.48
5,000.0	13.70	232.70	4,851.0	-307.4	-550.0	630.1	8.97	-6.35	-23.65
5,062.0	12.20	227.40	4,911.4	-316.3	-560.7	643.7	3.08	-2.42	-8.55
5,124.0	10.50	229.90	4,972.2	-324.4	-569.8	655.7	2.85	-2.74	4.03
5,186.0	9.20	229.40	5,033.3	-331.3	-577.9	666.1	2.10	-2.10	-0.81
5,249.0	7.30	237.50	5,095.6	-336.7	-585.1	675.0	3.53	-3.02	12.86
5,311.0	7.20	239.80	5,157.2	-340.8	-591.8	682.8	0.50	-0.16	3.71
5,373.0	6.20	240.00	5,218.7	-344.4	-598.0	690.0	1.61	-1.61	0.32
5,435.0	5.80	230.90	5,280.4	-348.0	-603.4	696.5	1.66	-0.65	-14.68
5,498.0	5.80	232.00	5,343.1	-352.0	-608.4	702.7	0.18	0.00	1.75
5,560.0	5.80	230.20	5,404.7	-355.9	-613.2	708.9	0.29	0.00	-2.90
5,684.0	5.90	230.30	5,528.1	-364.0	-623.0	721.3	0.08	0.08	0.08
5,747.0	5.80	228.70	5,590.8	-368.2	-627.8	727.6	0.30	-0.16	-2.54
5,809.0	4.80	241.90	5,652.5	-371.5	-632.5	733.3	2.53	-1.61	21.29
5,825.0	4.63	239.47	5,668.5	-372.1	-633.6	734.6	1.63	-1.06	-15.16
Last MWD Survey									
5,828.0	4.60	239.00	5,671.4	-372.2	-633.8	734.8	1.63	-1.03	-15.81
5,866.0	4.60	239.00	5,709.3	-373.8	-636.4	737.9	0.00	0.00	0.00
Projection to Bit - Hydrus #8 PBHL									

Great White Directional Services

Survey Report

Company:	Cimarex Energy Co.	Local Co-ordinate Reference:	Well Hydrus 10 Fed #8
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 10 - T71S - R30E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Hydrus 10 Fed #8	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,460.0	2,453.1	-14.5	111.2	First MWD Survey
5,825.0	5,668.5	-372.1	-633.6	Last MWD Survey
5,866.0	5,709.3	-373.8	-636.4	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Artec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87503

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-36546	Pool Code 96718	Pool Name Loco Hills; Glorieta-Yeso
Property Code 37059	Property Name HYDRUS "10" FEDERAL	Well Number 8
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3706'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	10	17 S	30 E		710	SOUTH	1650	EAST	EDDY

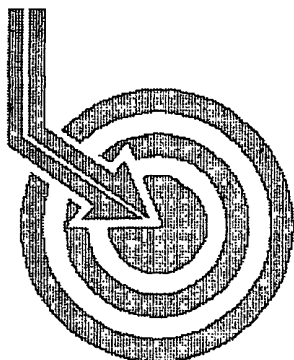
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	10	17 S	30 E		336	SOUTH	2286	EAST	EDDY

Dedicated Acres 40	Joint or Infill I	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	OPERATOR CERTIFICATION <i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i> Zeno Farris 4/27/2010 Signature Date Zeno Farris Printed Name
	SURVEYOR CERTIFICATION <i>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief.</i> MAY 18 2008 Date Surveyed Signature of Professional Surveyor Professional Surveyor 6664
	Certificate No. Gary L. Jones 7977
	Basin Surveys



Scientific Drilling

CIMAREX ENERGY

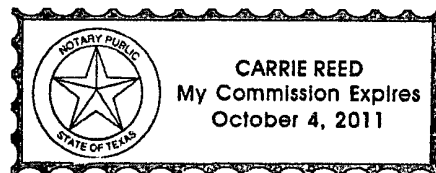
Field: Loco Hills
Site: Eddy County, NM
Well: Hydrus 10 Federal #8
Wellpath: VH - Job #32K1109469
Survey: 11/04/09

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

.....*Cluwart*.....Company Representative

Notorized this date 3rd of December, 2009.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific Drilling International

Survey Report

Company: CIMAREX ENERGY	Date: 11/09/2009	Time: 10:50:11	Page: 1
Field: Loco Hills	Co-ordinate(NE) Reference:	Site: Eddy County, NM, Grid North	
Site: Eddy County, NM	Vertical (TVD) Reference:	SITE 0.0	
Well: Hydrus 10 Federal #8	Section (VS) Reference:	Well (0.00N,0.00E,240.94Azi)	
Wellpath: VH - Job #32K1109469	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey: 11/04/09	Start Date: 11/04/2009
Company: Scientific Drilling Internatio	Engineer: Madrid/Garza/Paredes
Tool: Keeper, Keeper Gyro	Tied-to: From Surface

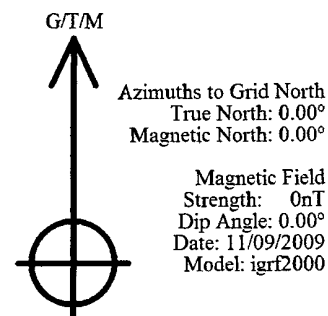
Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.00	0.00	359.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.39	4.18	100.00	-0.19	0.34	0.02	0.39	0.34	4.18
200.00	1.00	12.19	199.99	-0.95	1.53	0.23	0.62	1.55	8.68
300.00	1.89	7.06	299.96	-2.50	4.02	0.62	0.90	4.07	8.78
400.00	1.31	18.23	399.92	-4.31	6.74	1.18	0.66	6.85	9.93
500.00	1.07	20.13	499.90	-5.85	8.71	1.86	0.24	8.90	12.06
600.00	0.90	28.47	599.88	-7.22	10.27	2.56	0.22	10.59	13.97
700.00	0.90	23.32	699.87	-8.51	11.68	3.24	0.08	12.13	15.50
800.00	1.00	33.50	799.86	-9.91	13.13	4.03	0.20	13.74	17.07
900.00	1.09	47.20	899.84	-11.60	14.51	5.21	0.26	15.42	19.77
1000.00	1.24	53.41	999.82	-13.60	15.80	6.78	0.20	17.19	23.23
1100.00	1.25	69.65	1099.80	-15.75	16.82	8.67	0.35	18.93	27.27
1200.00	1.20	70.91	1199.77	-17.86	17.54	10.68	0.06	20.54	31.34
1300.00	1.35	72.16	1299.75	-20.05	18.25	12.79	0.15	22.29	35.04
1400.00	1.48	77.17	1399.72	-22.44	18.90	15.17	0.18	24.23	38.77
1500.00	1.57	84.55	1499.68	-24.94	19.31	17.80	0.22	26.26	42.66
1600.00	1.80	94.68	1599.64	-27.50	19.31	20.73	0.38	28.33	47.02
1700.00	2.27	102.61	1699.58	-30.28	18.75	24.22	0.55	30.64	52.25
1800.00	3.44	108.67	1799.45	-33.78	17.36	29.00	1.21	33.80	59.09
1900.00	5.07	110.07	1899.17	-38.69	14.88	35.99	1.63	38.95	67.53
2000.00	6.40	111.22	1998.67	-45.14	11.35	45.34	1.33	46.74	75.94
2100.00	7.72	111.51	2097.91	-52.97	6.87	56.78	1.32	57.20	83.10
2200.00	8.67	111.72	2196.89	-62.00	1.62	70.04	0.95	70.05	88.68
2300.00	9.31	111.41	2295.66	-71.92	-4.12	84.57	0.64	84.67	92.79
2400.00	10.53	111.37	2394.16	-82.89	-10.41	100.61	1.22	101.15	95.91
2415.00	10.71	112.16	2408.90	-84.63	-11.43	103.18	1.54	103.81	96.32

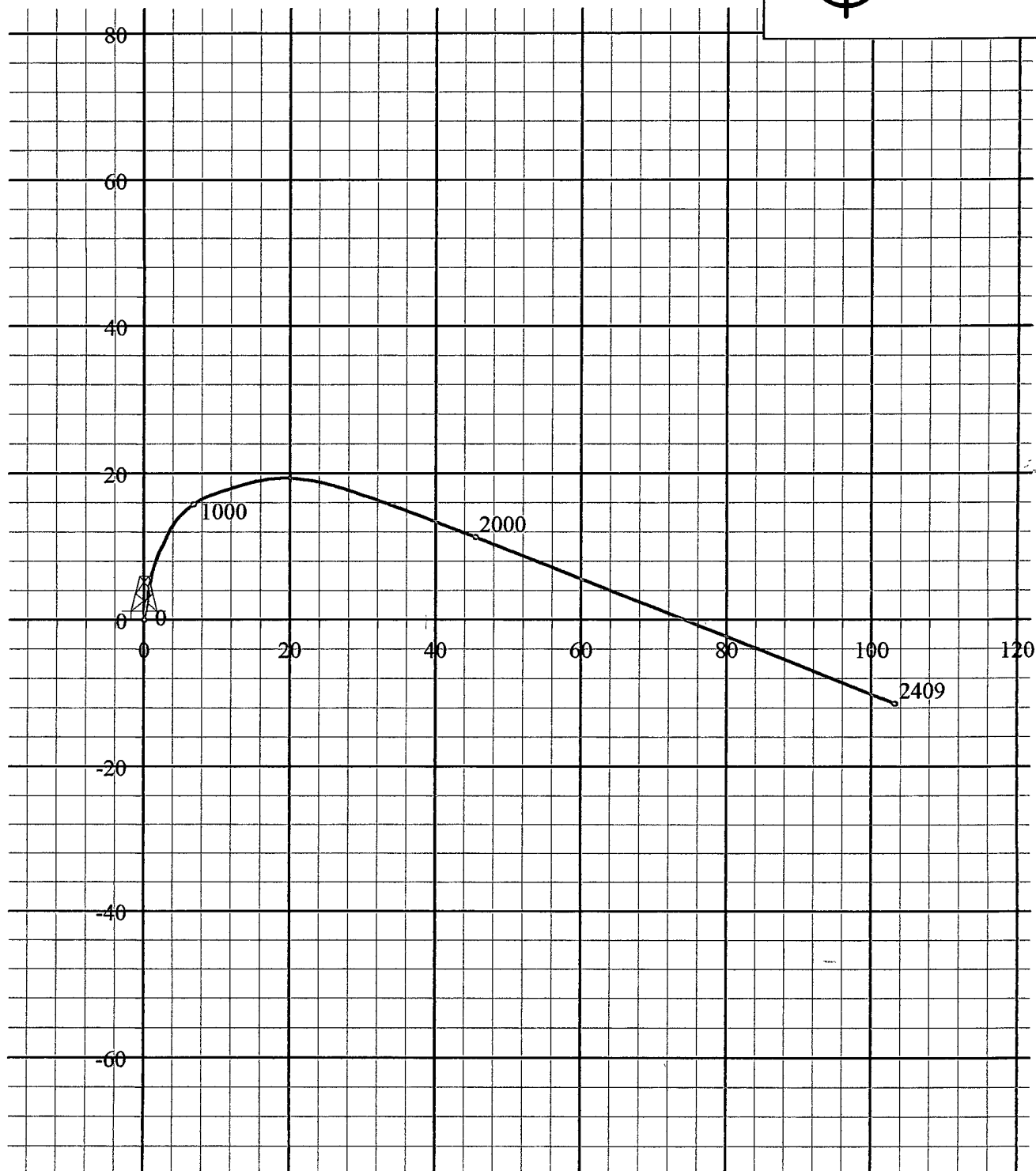


Scientific
Drilling

Field: Loco Hills
Site: Eddy County, NM
Well: Hydrus 10 Federal #8
Wellpath: VH - Job #32K1109469
Survey: 11/04/09



South(-)/North(+) [20ft/in]



West(-)/East(+) [20ft/in]