

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD-ARTESIA

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007

RM

JUN - 2 2009

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a. Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other		5. Lease Serial No LC-061622	
b. Type of Completion ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff Resvr Other _____		6. If Indian, Allottee or Tribe Name	
2. Name of Operator Cimarex Energy Co. of Colorado		7. Unit or CA Agreement Name and No	
3. Address 5215 N. O'Connor Blvd ste 1500 Irving TX 75039		8. Lease Name and Well No County Line 1 Federal 3	
3a. Phone No (include area code) 972-443-6489		9. API Well No 30-015-36621	
4. Location of Well (Report Location clearly and in accordance with Federal requirements)* At surface 4080 FSL & 330 FEL At top prod interval reported below 4086 FSL & 343 FEL At total depth 4089 FSL & 457 FWL		10. Field and Pool, or Exploratory County Line Tank; Abo 11. Sec, T, R, M, on Block and Survey or Area 1-16S-29E Lot 16 12. County or Parish Eddy 13. State NM	
14. Date Spudded 09.25.08	15. Date T D Reached 12.18.08	16. Date Completed ☐ D & A ☒ Ready to Prod	17. Elevations (DF, RKB, RT, GL)* 3731' GR

18. Total Depth MD 11786' pilot hole 7580' TVD 7390'	19. Plug Back TD MD 11786' pilot hole 7207' TVD 7390'	20. Depth Bridge Plug Set TVD 7207'
21. Type Electric & Other Mechanical Logs Run (Submit copy of each) ZDL, CN, DLL, MLL, DSL, GR		22. Was well cored? ☒ No ☐ Yes (Submit analysis) Was DST run? ☒ No ☐ Yes (Submit report) Directional Survey ☐ No ☒ Yes (Submit copy)

23. Casing and Liner Record (Report all strings set in well)									
Hole Size	Size/Grade	Wt (#/ft)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No of Skis & Type of Cement	Slurry Vol (BBL)	Cement Top*	Amount Pulled
17 1/2"	13 3/8" H40	48	0'	420'		570 sx class C		306'	
						1" top job 325sx C		0'	
12 1/4"	9 5/8" J-K55	40	0'	2668'		1175 sx class C		0'	
8 3/4"	7" P110	26	0'	7578'		700 sx class H		1310' calc	
6 1/8"	4 1/2" P-110	11.6	7044'	11370'		No cement			

24. Tubing Record									
Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	
2 7/8"	6976'	6,837'	7" x 2 7/8"						

25. Producing Intervals			26. Perforation Record		
Formation	Top	Bottom	Perforated Interval	Size	No. Holes
A) Abo	7261'	7461'	No Perfs		
B)					
C)					
D)					

27. Acid, Fracture, Treatment, Cement Squeeze, etc		ACCEPTED FOR RECORD MAY 31 2009 BUREAU OF LAND MANAGEMENT CARLSBAD FIELD OFFICE
Depth Interval	Amount and Type of Material	
Please See Attachment...		

28. Production - Interval A -									
Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr API	Gas Gravity	Production Method
01.29.09	02.02.09	24	→	22	30	324	37.14	1	Pumping
Choke Size	Tbg Press Flwg	Csg Press	24 Hr Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
20/64	SI 300	140	→				1,364	Producing	

28. Production - Interval B -									
Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr API	Gas Gravity	Production Method
			→						
Choke Size	Tbg Press Flwg	Csg Press	24 Hr Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
	SI		→						

* (See instructions and spaces for additional data on page 2)

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr API	Gas Gravity	Production Method
Choke Size	Tbg Press Flwg SI	Csg Press	24 Hr Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

28c Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr API	Gas Gravity	Production Method
Choke Size	Tbg Press Flwg SI	Csg Press	24 Hr Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

29. Disposition of Gas (*Sold, used for fuel, vented, etc*)**Sold**

30 Summary of Porous Zones (Include Aquifers)

Show all important zones of porosity and contents thereof. Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31 Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top Meas Depth
				San Andres GLRT Abo Wolfcamp	3,096' 4,163' 7,261' 7,461'

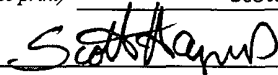
32 Additional remarks (include plugging procedure)

01-28-09 2½" x 2" x 20' Quinn Frac pump installed.

33. Indicate which items have been attached by placing a check in the appropriate boxes

- ☒ Electrical/Mechanical Logs (1 full set req'd)
 ☐ Geologic Report
 ☐ DST Report
 ☒ Directional Survey
☐ Sundry Notice for plugging and cement verification
 ☐ Core Analysis
 ☐ Other Peak assembly, top of cement calc., deviation report.

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions)*

Name (please print) Scott Haynes Title Regulatory Analyst
 Signature  Date May 20, 2009

Title 18 U S C. Section 1001 and Title 43 U S C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

Acid, Fracture, Treatment, Cement Squeeze, etc. Attachment
County Line 1 Federal 3
 1-16S-29E
 Eddy County, NM

Depth Interval	Amount and Type of Material Used
10762'-11370'	<u>STAGE 1:</u> Open well and load hole with 64 bbl linear fluid. Formation broke at 7700 psi. Start acid. Pump 5000 gal 15% HCL. Pump 14,500 gal linear gel flush. Start x-linker pad. Pump 135,000 gal pad. Start sand. Pump 50,000 gal x-linked gel carrying 76,698# 20/40 white sand ramped from .5 ppg to 2.5 ppg. Flush with 1000 gal linear fluid. Drop 2" ball. Average rate for stage was 47.7 bpm at an average pressure of 6138 psi.
10344'-10762'	<u>STAGE 2:</u> Pump 5000 gal 15% HCL. Pump 13,744 gal linear gel. Ball hit and port opened at 6285 psi. Start x-linker pad. Pump 35,000 gal pad. Start sand. Pump 50,000 gal x-linked gel carrying 55,985# 2-/40 white sand ramped from .5 ppg to 2 ppg. Flush with 1000 gal linear fluid. Drop 2-1/4" ball. Average rate for stage was 59.2 bpm at a average pressure of 8468 psi.
9968'-10344'	<u>STAGE 3:</u> Pump 5000 gal 15% HCL. Pump 13,471 gal linear gel flush. Ball hit and port opened at 5892 psi. Start and port opened at 5892 psi. Start x-linker pad. Pump 50,000 gal. Start sand. Pump 50,000 gal x-linked gel carrying 79,354# 20/40 white sand ramped from .5 ppg to 2.5 ppg. Flush with 1000 gal linear fluid. Drop 2-1/2" ball. Average rate for stage was 47 bpm at an average pressure of 6541 psi.
9568'-9968'	<u>STAGE 4:</u> Pump 5000 gal 15% HCL. Pump 10,500 gal linear flush. Ball hit and port opened at 5068 psi. Start x-linker pad. Pump 50,000 gal x-linked gel pad. Start sand. Pump 50,000 gal x-linked gel carrying 74894# 20/40 white sand ramped from .5 ppg to 2.5 ppg. Flush with 1000 gal linear fluid. Drop 2-3/4" ball. Average rate for stage was 56 bpm at an average pressure of 8820 psi.
9071'-9568'	<u>STAGE 5:</u> Pump 5000 gal 15% HCL. Pump 10,500 gal linear gel flush. Ball hit and port opened at 4760 psi. Start x-linker. Pump 50,000 gal x-linked pad. Start sand. Pump 50,000 gal x-linked gel carrying 72896# 20/40 white sand ramped from .5 ppg to 2.5 ppg. Flush with 1000 gal linear gel. Drop 3" ball. Average rate was 55 bpm at an average 6760 pressure of psi.
8443'-9071'	<u>STAGE 6:</u> Pump 5000 gal 15% HCL. Pump 12,541 gal linear gel flush. Ball hit and port opened at 5360 psi. Start x-linker. Pump 65,000 gal x-linked pad. Start sand. Pump 50,000 gal x-linked gel carrying 81,331# 20/40 white sand ramped from .5 ppg to 2.5 ppg. Flush with 1000 gal linear fluid. Drop 3-1/4" ball. Ball was difficult to get into casing. Work with pressure and surges to get ball down. Average rate for stage was 70 bpm at an average pressure of 5878 psi.
7773'-8443'	<u>STAGE 7:</u> Pump 5000 gal 15% HCL. Pump 12323 gal linear fluid. Ball hit and port opened at 5170 psi. Start x-linker. Pump 105,000 gal x-linked pad. Start sand. Pump 50,000 gal x-linked gel carrying 68,868# 20/40 white sand ramped from .5 ppg to 2.5 ppg. Flush with 52 bbl linear fluid. Drop 3-1/2" ball. Maxinum rate achieved was 5 bpm at 4900 psi.

Prod								
	TD		7578 CP		2668 TOC		1310 TOT	5520
Lead		Excess		yield	sacks	Total		
	1358	0	215.24	1.67	128.89			
	2852	0.25	535.82	1.67	320.85	450		
Tail								
	2058	0.25	386.65	1.62	238.67			
Shoe	82	0	17.614	1.62	10.873	250		

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

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

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

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Form C-102
Revised October 12, 2005

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-36621	Pool Code 97197	Pool Name County Line Tank; Abo
Property Code 36849	Property Name COUNTY LINE "1" FEDERAL	Well Number 3
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3783'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
LOT 9	1	16 S	29 E		4080	SOUTH	330	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
LOT 12	1	16 S	29 E		4089	SOUTH	457	WEST	EDDY

Dedicated Acres 160	Joint or Infill	Consolidation Code	Order No. NSL- Pending
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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

BOTTOM HOLE LOCATION BHL 4089 FSL & 457 FWL		OPERATOR CERTIFICATION 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.  5-20-09 Signature Date Scott Haynes Printed Name	
SURVEYOR CERTIFICATION 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. JULY 23 2008 Date Surveyed  Signature of Professional Surveyor W.B. [unclear] Professional Surveyor Certificate No. Gary L. Jones 7977 BASIN SURVEYS		Surface Location Lot - N32°57'16.56" Long - W104°01'14.52" NADSPCE - N 711161.1 E 637233.0 (NAD-83) SHL 4080 FSL & 330 FWL PP 4086 FSL & 343 FWL SCALE - 1" = 2000'	

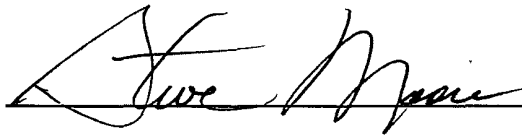
OPERATOR CIMAREX ENERGY COMPANY
WELL/LEASE COUNLY LINE 1 3H
COUNTY EDDY RIG 80

STATE OF NEW MEXICO
DEVIATION REPORT

377	1.00
780	1.00
1,154	1.00
1,534	0.50
1,947	0.50
2,360	0.50
2,924	0.75
3,400	1.00
3,812	1.00
4,193	1.00
4,511	1.00
4,924	0.75
5,307	0.50
5,719	0.50
6,100	0.50
6,497	1.00
6,733	1.25
6,828	1.25
6,924	1.50
7,019	1.00
7,114	0.75
7,580	0.75

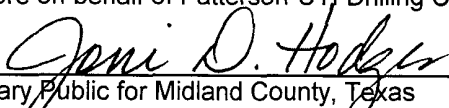
STATE OF TEXAS

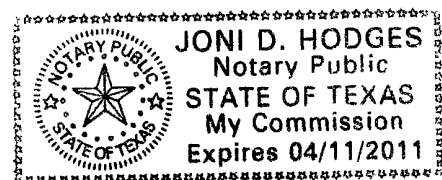
COUNTY OF MIDLAND

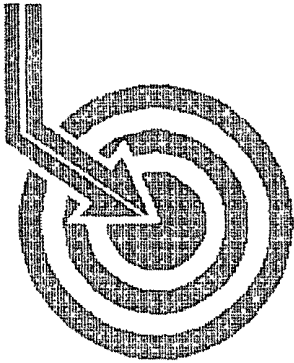
BY. 

The foregoing instrument was acknowledged before me on
Moore on behalf of Patterson-UTJ Drilling Company LLC.

NOVEMBER 12, 2008, by Steve


Notary Public for Midland County, Texas
My Commission Expires 4/11/11





Scientific Drilling

CIMAREX ENERGY

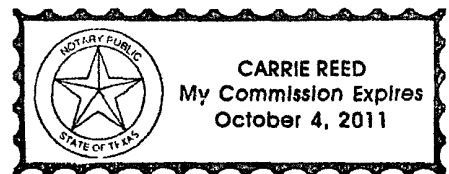
Field: Wildcat
Site: Eddy County, NM
Well: County Line 1 Federal #3H
Wellpath: VH - Job #32K1108903
Survey: 11/12/08

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

.....*R. Hart*..... Company Representative

Notorized this date 22nd of December, 2008.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific Drilling International Survey Report

Company: CIMAREX ENERGY	Date: 12/17/2008	Time: 15:05 52	Page: 1
Field: Wildcat	Co-ordinate(NE) Reference:	Site: Eddy County, NM, Grid North	
Site: Eddy County, NM	Vertical (TVD) Reference:	SITE 0.0	
Well: County Line 1 Federal #3H	Section (VS) Reference:	Well (0.00N,0.00E,66.81Az)	
Wellpath: VH - Job #32K1108903	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey: 11/12/08	Start Date: 11/12/2008
KSRG 0'-7377'	
Company: Scientific Drilling Internatio	Engineer: Guebara/Williams w/GeoGyro
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	359.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.93	125.33	100.00	0.42	-0.47	0.66	0.93	0.81	125.33
200.00	0.55	130.71	199.99	1.06	-1.25	1.69	0.39	2.10	126.56
300.00	0.57	113.55	299.98	1.61	-1.76	2.51	0.17	3.07	125.11
400.00	0.68	108.29	399.98	2.40	-2.15	3.53	0.12	4.13	121.35
500.00	0.74	104.82	499.97	3.35	-2.50	4.71	0.07	5.34	117.93
600.00	0.93	100.16	599.96	4.54	-2.81	6.14	0.20	6.75	114.58
700.00	0.75	105.18	699.95	5.73	-3.12	7.57	0.19	8.19	112.42
800.00	0.83	94.24	799.94	6.88	-3.35	8.92	0.17	9.53	110.57
900.00	0.68	96.21	899.93	8.04	-3.47	10.23	0.15	10.81	108.71
1000.00	0.82	96.12	999.92	9.18	-3.61	11.54	0.14	12.09	107.36
1100.00	0.67	93.74	1099.91	10.33	-3.72	12.83	0.15	13.36	106.17
1200.00	0.63	90.88	1199.91	11.35	-3.77	13.96	0.05	14.46	105.10
1300.00	0.47	93.41	1299.90	12.22	-3.80	14.92	0.16	15.40	104.28
1400.00	0.21	87.62	1399.90	12.76	-3.82	15.52	0.26	15.98	103.82
1500.00	0.28	93.05	1499.90	13.15	-3.82	15.94	0.07	16.39	103.48
1600.00	0.19	83.28	1599.90	13.53	-3.82	16.35	0.10	16.79	103.13
1700.00	0.25	91.17	1699.90	13.89	-3.80	16.73	0.07	17.16	102.80
1800.00	0.21	59.69	1799.90	14.27	-3.71	17.11	0.13	17.51	102.24
1900.00	0.15	59.12	1899.90	14.58	-3.55	17.38	0.06	17.74	101.55
2000.00	0.08	43.27	1999.90	14.77	-3.43	17.54	0.08	17.87	101.08
2100.00	0.16	111.59	2099.90	14.93	-3.44	17.72	0.15	18.05	100.97
2200.00	0.08	58.52	2199.89	15.10	-3.45	17.91	0.13	18.24	100.90
2300.00	0.18	232.07	2299.89	15.02	-3.51	17.84	0.26	18.19	101.13
2400.00	0.20	250.86	2399.89	14.69	-3.66	17.56	0.07	17.93	101.79
2500.00	0.29	305.82	2499.89	14.39	-3.57	17.19	0.24	17.55	101.75
2600.00	0.23	309.19	2599.89	14.17	-3.30	16.82	0.06	17.14	101.09
2700.00	0.29	304.87	2699.89	13.94	-3.03	16.46	0.06	16.74	100.42
2800.00	0.30	309.98	2799.89	13.69	-2.71	16.05	0.03	16.28	99.60
2900.00	0.30	309.25	2899.89	13.45	-2.38	15.65	0.00	15.83	98.65
3000.00	0.33	300.70	2999.89	13.16	-2.07	15.20	0.06	15.34	97.75
3100.00	0.40	297.75	3099.89	12.77	-1.76	14.64	0.07	14.75	96.85
3200.00	0.42	301.40	3199.88	12.34	-1.40	14.02	0.03	14.09	95.72
3300.00	0.49	301.86	3299.88	11.88	-0.99	13.34	0.07	13.38	94.23
3400.00	0.51	306.00	3399.88	11.40	-0.50	12.62	0.04	12.63	92.27
3500.00	0.57	310.93	3499.87	10.96	0.09	11.89	0.08	11.89	89.58
3600.00	0.65	310.51	3599.87	10.49	0.78	11.08	0.08	11.11	85.97
3700.00	0.64	315.43	3699.86	10.04	1.55	10.26	0.06	10.37	81.42
3800.00	0.65	322.31	3799.85	9.69	2.39	9.52	0.08	9.81	75.88
3900.00	0.70	323.84	3899.85	9.41	3.34	8.81	0.05	9.42	69.26
4000.00	0.68	336.33	3999.84	9.27	4.37	8.21	0.15	9.30	61.96
4100.00	0.65	333.82	4099.83	9.24	5.43	7.72	0.04	9.44	54.91
4200.00	0.55	330.88	4199.83	9.16	6.35	7.24	0.10	9.63	48.72
4300.00	0.52	339.09	4299.82	9.12	7.20	6.84	0.08	9.93	43.56
4400.00	0.42	337.12	4399.82	9.14	7.96	6.54	0.10	10.30	39.41
4500.00	0.41	331.46	4499.82	9.11	8.61	6.23	0.04	10.63	35.87
4600.00	0.39	327.35	4599.81	9.02	9.21	5.87	0.03	10.92	32.51
4700.00	0.40	316.39	4699.81	8.85	9.75	5.45	0.08	11.17	29.19
4800.00	0.43	324.83	4799.81	8.65	10.31	4.99	0.07	11.45	25.82



Scientific Drilling International

Survey Report

Company: CIMAREX ENERGY
 Field: Wildcat
 Site: Eddy County, NM
 Well: County Line 1 Federal #3H
 Wellpath: VH - Job #32K1108903

Date: 12/17/2008 Time: 15:05 52 Page: 2
 Co-ordinate(NE) Reference: Site: Eddy County, NM, Grd North
 Vertical (TVD) Reference: SITE 0 0
 Section (VS) Reference: Well (0.00N,0 00E,66 81Azi)
 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

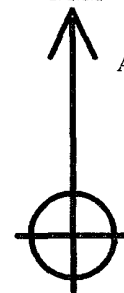
MD ft	Incl deg	Azimi deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
4900 00	0.39	315 87	4899 81	8.45	10 86	4.54	0.08	11 77	22 67
5000 00	0 39	312 06	4999.80	8.18	11.33	4 05	0.03	12.03	19 65
5100 00	0.42	311.17	5099.80	7 88	11 80	3.52	0 03	12 32	16 60
5200 00	0 34	314.78	5199 80	7.61	12.25	3.03	0.08	12 62	13.90
5300 00	0.25	310.33	5299.80	7.40	12.60	2 65	0.09	12 88	11 89
5400.00	0 31	286.05	5399.80	7 10	12.82	2 23	0.13	13 01	9 86
5500 00	0 28	284 81	5499 80	6.69	12.96	1.73	0.03	13.07	7 61
5600 00	0 26	251.11	5599.79	6 28	12.95	1.28	0.16	13 01	5 65
5700.00	0 38	243 81	5699 79	5.72	12 73	0.77	0.13	12 75	3.46
5800 00	0.32	249 90	5799 79	5 11	12.48	0 21	0 07	12.49	0.96
5900 00	0.30	228 14	5899.79	4 58	12 21	-0 25	0.12	12 22	358 84
6000 00	0 42	164.11	5999 79	4 29	11 69	-0 34	0 40	11.69	358 32
6100 00	0 53	146 09	6099 78	4 33	10.95	0 02	0.18	10 95	0 08
6200.00	0 62	148 01	6199.78	4.50	10 11	0.56	0.09	10 12	3 17
6300 00	0 60	133.23	6299 77	4 79	9.29	1 23	0.16	9 37	7.53
6400 00	0.52	132.40	6399 77	5 18	8 62	1 95	0 08	8.84	12 71
6500 00	0 59	131.89	6499 76	5 59	7.97	2.66	0 07	8 41	18.47
6600 00	0.71	123 98	6599 76	6 14	7.28	3 56	0.15	8 11	26 05
6700.00	0 95	108 20	6699 75	7 10	6 68	4 86	0 33	8 26	36 05
6800 00	1 24	90 49	6799 73	8 71	6 41	6.73	0 44	9 30	46 40
6900 00	1.19	92.47	6899.71	10 64	6 36	8 85	0.07	10 90	54.31
7000 00	0.98	93 10	6999 69	12.34	6 27	10.74	0 21	12.44	59.74
7100 00	0 75	89 71	7099 68	13 71	6 22	12.25	0.24	13 74	63.07
7200.00	0 31	123 85	7199.67	14.46	6 08	13 13	0.52	14.47	65 17
7300 00	0 19	93 67	7299 67	14 76	5.91	13 52	0.17	14.76	66 37
7377 00	0 18	93.91	7376 67	14.98	5.90	13 77	0.01	14.98	66 81



Scientific
Drilling

Field: Wildcat
Site: Eddy County, NM
Well: County Line 1 Federal #3H
Wellpath: VH - Job #32K1108903
Survey: 11/12/08

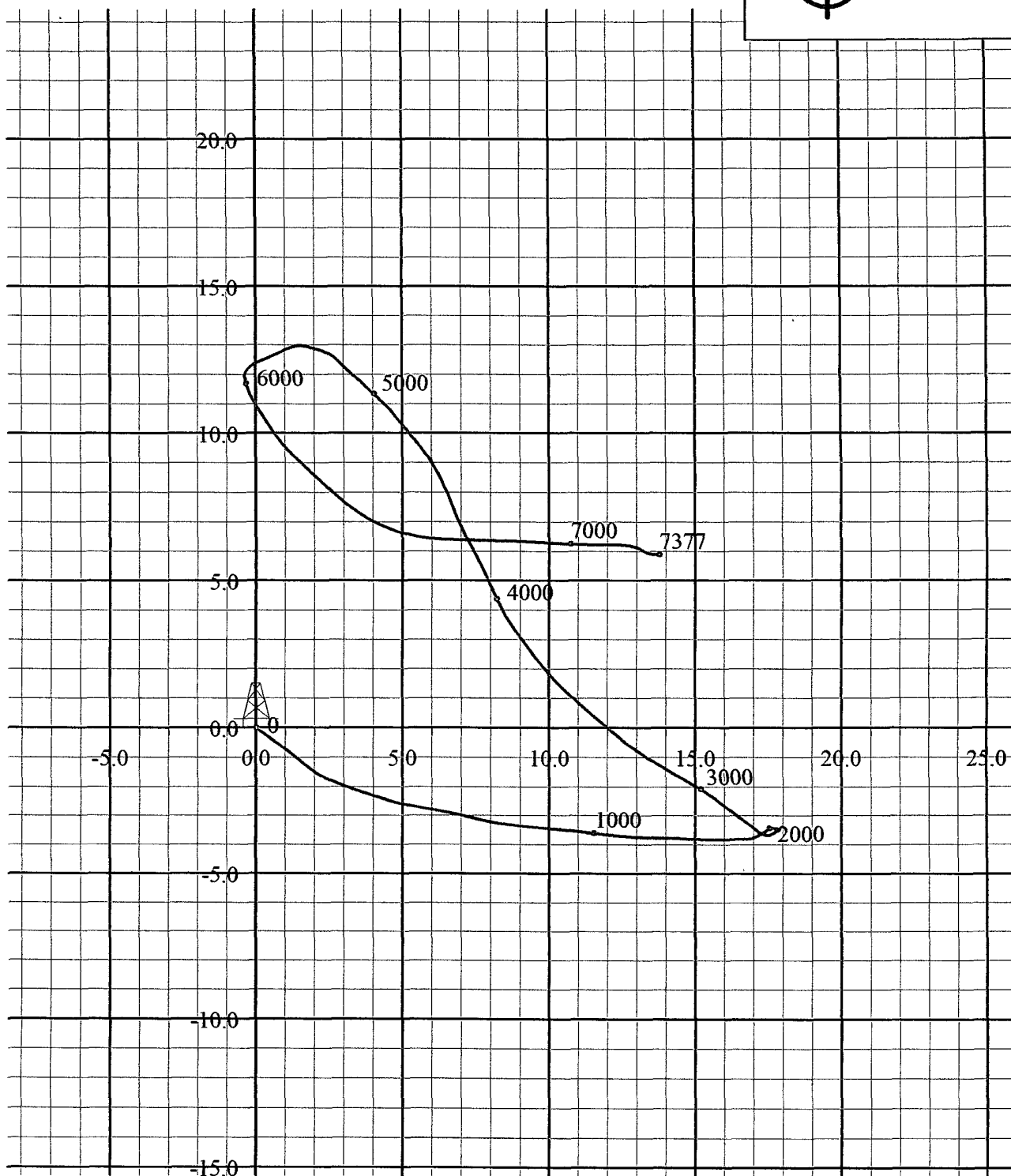
G/T/M



Azimuths to Grid North
True North: 0.00°
Magnetic North: 0.00°

Magnetic Field
Strength: 0nT
Dip Angle: 0.00°
Date: 12/17/2008
Model: igrf2000

South(-)/North(+) [5ft/in]



West(-)/East(+) [5ft/in]

Sperry Drilling Services

DIRECTIONAL SURVEY REPORT

Cimarex
County Line #1
Federal
Eddy NM
USA
MO-MJ-000629889

Measured Depth (feet)	Inclination (degrees)	Direction (degrees)	Vertical Depth (feet)	Latitude (feet)	Departure (feet)	Vertical Section (feet)	Dogleg (deg/100ft)
7100.00	0.75	89.71	7099.70	6.20 N	12.30 E	-12.30	TIE-IN
7160.00	0.47	270.00	7159.70	6.20 N	12.45 E	-12.45	2.03
7234.00	22.52	275.84	7231.77	7.66 N	2.13 W	2.14	29.80
7249.00	27.11	271.07	7245.38	8.02 N	8.41 W	8.41	33.38
7264.00	31.47	269.50	7258.46	8.05 N	15.75 W	15.75	29.48
7280.00	35.26	270.35	7271.82	8.04 N	24.55 W	24.55	23.88
7296.00	38.56	268.38	7284.61	7.93 N	34.15 W	34.15	21.93
7311.00	42.35	267.95	7296.02	7.61 N	43.88 W	43.88	25.29
7327.00	46.20	266.81	7307.48	7.10 N	55.04 W	55.04	24.56
7343.00	50.42	268.21	7318.12	6.59 N	66.97 W	66.97	27.21
7359.00	53.80	269.18	7327.94	6.30 N	79.59 W	79.59	21.62
7375.00	56.00	268.77	7337.14	6.07 N	92.68 W	92.68	13.96
7391.00	58.13	269.59	7345.84	5.88 N	106.10 W	106.10	13.95
7407.00	60.32	270.71	7354.03	5.92 N	119.85 W	119.85	14.98
7423.00	62.49	270.77	7361.68	6.10 N	133.90 W	133.90	13.55
7439.00	64.66	271.74	7368.80	6.41 N	148.22 W	148.22	14.58
7455.00	67.12	272.94	7375.34	7.01 N	162.81 W	162.81	16.84
7471.00	69.27	270.32	7381.28	7.43 N	177.66 W	177.66	20.30
7486.00	71.84	271.76	7386.28	7.69 N	191.80 W	191.80	19.37
7502.00	74.78	272.11	7390.87	8.21 N	207.11 W	207.11	18.47
7518.00	78.60	272.08	7394.56	8.77 N	222.67 W	222.67	23.89
7550.00	85.09	271.64	7399.09	9.80 N	254.31 W	254.31	20.33
7582.00	89.07	270.80	7400.72	10.48 N	286.26 W	286.26	12.71
7613.00	91.95	271.36	7400.45	11.06 N	317.25 W	317.25	9.45
7645.00	92.63	270.65	7399.17	11.63 N	349.22 W	349.22	3.07
7677.00	91.94	268.96	7397.90	11.52 N	381.19 W	381.19	5.71
7709.00	89.88	268.70	7397.39	10.86 N	413.18 W	413.18	6.50
7740.00	90.56	267.58	7397.27	9.86 N	444.16 W	444.16	4.22
7772.00	91.14	267.57	7396.80	8.51 N	476.13 W	476.13	1.83
7804.00	89.11	267.73	7396.73	7.20 N	508.10 W	508.10	6.37
7835.00	87.75	267.47	7397.58	5.90 N	539.06 W	539.06	4.46
7867.00	87.87	267.35	7398.80	4.45 N	571.00 W	571.00	0.52
7899.00	87.75	267.69	7400.03	3.07 N	602.95 W	602.95	1.14
7931.00	87.57	268.26	7401.33	1.94 N	634.90 W	634.90	1.87
7957.00	88.34	269.77	7402.26	1.50 N	660.88 W	660.88	6.50
7989.00	89.69	269.64	7402.81	1.33 N	692.88 W	692.88	4.25
8020.00	89.85	270.09	7402.94	1.26 N	723.88 W	723.88	1.53
8052.00	89.88	270.27	7403.02	1.35 N	755.88 W	755.88	0.58
8084.00	89.85	270.24	7403.09	1.50 N	787.87 W	787.87	0.14
8116.00	90.09	270.32	7403.11	1.65 N	819.87 W	819.87	0.81
8147.00	90.80	270.17	7402.87	1.78 N	850.87 W	850.87	2.33
8179.00	91.51	269.72	7402.22	1.75 N	882.87 W	882.87	2.63
8211.00	91.45	269.75	7401.40	1.60 N	914.86 W	914.86	0.21
8243.00	90.99	269.44	7400.71	1.38 N	946.85 W	946.85	1.73
8275.00	90.65	269.06	7400.26	0.96 N	978.84 W	978.84	1.60
8307.00	90.74	269.12	7399.87	0.45 N	1010.83 W	1010.83	0.34
8338.00	91.45	269.33	7399.28	0.03 N	1041.83 W	1041.83	2.39
8369.00	91.39	269.09	7398.51	0.39 S	1072.81 W	1072.81	0.79
8401.00	91.79	269.51	7397.62	0.78 S	1104.80 W	1104.80	1.82
8432.00	91.60	270.01	7396.70	0.91 S	1135.78 W	1135.78	1.72
8464.00	92.22	270.70	7395.63	0.71 S	1167.77 W	1167.77	2.89
8496.00	91.88	270.52	7394.49	0.37 S	1199.74 W	1199.74	1.19
8527.00	91.11	271.12	7393.68	0.08 N	1230.73 W	1230.73	3.15
8558.00	90.80	271.31	7393.16	0.73 N	1261.72 W	1261.72	1.16
8590.00	91.67	270.91	7392.47	1.35 N	1293.70 W	1293.70	2.98

8622.00	91.11	271.06	7391.70	1.90 N	1325.69 W	1325.69	1.81
8654.00	91.17	270.85	7391.06	2.43 N	1357.68 W	1357.68	0.67
8685.00	91.79	271.05	7390.26	2.94 N	1388.66 W	1388.66	2.09
8717.00	91.66	271.05	7389.30	3.53 N	1420.64 W	1420.64	0.39
8749.00	91.48	270.27	7388.42	3.90 N	1452.63 W	1452.63	2.48

8781.00	90.15	270.15	7387.96	4.02 N	1484.63 W	1484.63	4.17
8812.00	89.75	269.59	7387.99	3.95 N	1515.63 W	1515.63	2.22
8844.00	89.11	269.63	7388.30	3.74 N	1547.62 W	1547.62	2.03
8876.00	88.95	269.65	7388.85	3.54 N	1579.62 W	1579.62	0.48
8908.00	89.94	269.19	7389.16	3.22 N	1611.61 W	1611.61	3.41

8939.00	89.75	268.95	7389.24	2.71 N	1642.61 W	1642.61	0.98
8970.00	90.19	269.24	7389.26	2.22 N	1673.61 W	1673.61	1.69
9002.00	91.02	269.52	7388.92	1.88 N	1705.60 W	1705.60	2.74
9034.00	90.43	269.90	7388.51	1.71 N	1737.60 W	1737.60	2.19
9066.00	90.12	269.42	7388.36	1.52 N	1769.60 W	1769.60	1.78

9097.00	90.59	269.83	7388.17	1.32 N	1800.60 W	1800.60	1.99
9129.00	90.15	269.90	7387.96	1.24 N	1832.60 W	1832.60	1.37
9161.00	89.88	269.90	7387.95	1.19 N	1864.60 W	1864.60	0.87
9193.00	89.78	270.33	7388.05	1.25 N	1896.60 W	1896.60	1.38
9224.00	89.78	269.97	7388.16	1.33 N	1927.59 W	1927.59	1.17

9256.00	89.51	270.42	7388.36	1.44 N	1959.59 W	1959.59	1.65
9287.00	90.71	270.04	7388.30	1.57 N	1990.59 W	1990.59	4.08
9319.00	90.19	269.94	7388.05	1.56 N	2022.59 W	2022.59	1.68
9351.00	90.03	269.71	7387.99	1.46 N	2054.59 W	2054.59	0.86
9383.00	90.71	269.60	7387.78	1.27 N	2086.59 W	2086.59	2.15

9414.00	90.37	269.44	7387.49	1.01 N	2117.59 W	2117.59	1.20
9446.00	90.15	269.10	7387.35	0.61 N	2149.58 W	2149.58	1.26
9478.00	90.74	268.93	7387.10	0.06 N	2181.58 W	2181.58	1.92
9510.00	90.65	269.58	7386.71	0.36 S	2213.57 W	2213.57	2.05
9542.00	92.01	269.15	7385.97	0.72 S	2245.56 W	2245.56	4.46

9574.00	91.88	269.48	7384.88	1.10 S	2277.54 W	2277.54	1.11
9606.00	91.60	269.67	7383.90	1.33 S	2309.53 W	2309.53	1.05
9638.00	92.01	270.25	7382.90	1.36 S	2341.51 W	2341.51	2.20
9669.00	91.95	270.26	7381.83	1.22 S	2372.49 W	2372.49	0.20
9701.00	91.51	270.49	7380.86	1.01 S	2404.48 W	2404.48	1.54

9733.00	91.05	270.57	7380.15	0.71 S	2436.47 W	2436.47	1.47
9764.00	90.62	270.62	7379.69	0.39 S	2467.46 W	2467.46	1.41
9796.00	90.46	270.12	7379.39	0.18 S	2499.46 W	2499.46	1.65
9828.00	90.99	269.95	7378.99	0.16 S	2531.46 W	2531.46	1.72
9860.00	90.96	270.09	7378.44	0.15 S	2563.45 W	2563.45	0.45

9892.00	90.62	270.10	7378.00	0.10 S	2595.45 W	2595.45	1.06
9924.00	90.25	270.12	7377.76	0.04 S	2627.45 W	2627.45	1.16
9956.00	89.97	270.68	7377.70	0.19 N	2659.45 W	2659.45	1.94
9987.00	90.99	270.60	7377.44	0.53 N	2690.44 W	2690.44	3.29
10019.00	90.80	269.90	7376.94	0.67 N	2722.44 W	2722.44	2.25

10051.00	90.59	270.31	7376.56	0.73 N	2754.44 W	2754.44	1.44
10083.00	91.14	270.71	7376.08	1.01 N	2786.43 W	2786.43	2.14
10115.00	91.23	270.52	7375.41	1.35 N	2818.42 W	2818.42	0.66
10147.00	90.84	270.17	7374.83	1.55 N	2850.42 W	2850.42	1.67
10179.00	90.43	270.70	7374.48	1.79 N	2882.41 W	2882.41	2.09

10211.00	90.59	270.74	7374.20	2.19 N	2914.41 W	2914.41	0.51
10242.00	91.36	271.02	7373.67	2.67 N	2945.40 W	2945.40	2.63
10274.00	91.23	271.00	7372.95	3.23 N	2977.39 W	2977.39	0.40
10306.00	91.51	271.23	7372.18	3.85 N	3009.37 W	3009.37	1.15
10338.00	91.14	270.56	7371.44	4.36 N	3041.36 W	3041.36	2.39

10370.00	90.06	270.58	7371.10	4.68 N	3073.36 W	3073.36	3.38
10402.00	89.81	270.26	7371.14	4.91 N	3105.36 W	3105.36	1.25
10433.00	90.43	269.84	7371.07	4.94 N	3136.35 W	3136.35	2.42
10465.00	90.56	270.24	7370.80	4.96 N	3168.35 W	3168.35	1.32
10497.00	91.33	270.37	7370.27	5.13 N	3200.35 W	3200.35	2.44

10529.00	91.30	270.24	7369.54	5.30 N	3232.34 W	3232.34	0.39
10561.00	90.83	270.64	7368.94	5.55 N	3264.33 W	3264.33	1.91
10593.00	90.62	270.79	7368.54	5.95 N	3296.33 W	3296.33	0.82
10625.00	90.15	271.34	7368.32	6.55 N	3328.32 W	3328.32	2.25
10657.00	90.03	271.13	7368.27	7.24 N	3360.31 W	3360.31	0.76

10689.00	90.84	270.86	7368.03	7.80 N	3392.31 W	3392.31	2.66
10721.00	90.56	271.19	7367.64	8.37 N	3424.30 W	3424.30	1.36
10752.00	90.40	271.15	7367.38	9.00 N	3455.29 W	3455.29	0.51
10784.00	90.15	270.93	7367.23	9.58 N	3487.29 W	3487.29	1.05
10816.00	89.97	269.99	7367.19	9.84 N	3519.29 W	3519.29	3.00

10848.00	89.78	270.10	7367.26	9.86 N	3551.29 W	3551.29	0.68
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10880.00	88.71	270.33	7367.68	9.98 N	3583.28 W	3583.28	3.44
10912.00	88.27	269.71	7368.52	9.99 N	3615.27 W	3615.27	2.36
10944.00	88.09	269.68	7369.54	9.82 N	3647.25 W	3647.25	0.59
10975.00	87.04	269.76	7370.86	9.67 N	3678.23 W	3678.23	3.38

11007.00	86.20	268.59	7372.74	9.21 N	3710.17 W	3710.17	4.49
11039.00	86.02	269.39	7374.91	8.65 N	3742.09 W	3742.09	2.56
11071.00	85.52	269.01	7377.27	8.20 N	3774.00 W	3774.00	1.97
11103.00	85.42	268.86	7379.80	7.61 N	3805.89 W	3805.89	0.57
11134.00	85.08	269.02	7382.37	7.03 N	3836.78 W	3836.78	1.21

11166.00	84.77	269.23	7385.20	6.55 N	3868.65 W	3868.65	1.17
11198.00	85.98	269.25	7387.78	6.13 N	3900.54 W	3900.54	3.76
11230.00	86.84	269.43	7389.78	5.76 N	3932.48 W	3932.48	2.76
11262.00	88.36	268.76	7391.12	5.25 N	3964.44 W	3964.44	5.20
11294.00	90.00	269.22	7391.58	4.69 N	3996.43 W	3996.43	5.32

11326.00	90.93	269.37	7391.32	4.29 N	4028.43 W	4028.43	2.93
11357.00	90.83	269.79	7390.84	4.06 N	4059.43 W	4059.43	1.39
11389.00	90.59	270.14	7390.45	4.04 N	4091.42 W	4091.42	1.35
11421.00	90.52	270.76	7390.14	4.30 N	4123.42 W	4123.42	1.96
11453.00	90.28	270.34	7389.91	4.60 N	4155.42 W	4155.42	1.54

11485.00	90.00	270.53	7389.83	4.85 N	4187.42 W	4187.42	1.07
11516.00	90.28	271.46	7389.76	5.39 N	4218.41 W	4218.41	3.11
11548.00	90.22	271.87	7389.62	6.32 N	4250.40 W	4250.40	1.29
11580.00	90.15	271.41	7389.52	7.23 N	4282.38 W	4282.38	1.43
11612.00	89.85	270.54	7389.52	7.78 N	4314.38 W	4314.38	2.89

11643.00	89.85	270.01	7389.60	7.93 N	4345.38 W	4345.38	1.71
11675.00	89.72	270.26	7389.72	8.01 N	4377.38 W	4377.38	0.87
11707.00	89.63	270.90	7389.90	8.33 N	4409.38 W	4409.38	2.00
11739.00	89.45	270.94	7390.16	8.84 N	4441.37 W	4441.37	0.59
11786.00	89.45	270.94	7390.62	9.61 N	4488.36 W	4488.36	0.01

CALCULATION BASED ON MINIMUM CURVATURE METHOD
 SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
 TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT
 VERTICAL SECTION RELATIVE TO WELL HEAD
 VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 270.00 DEGREES (GRID)
 A TOTAL CORRECTION OF 8.04 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED
 HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD
 HORIZONTAL DISPLACEMENT (CLOSURE) AT 11786.00 FEET
 IS 4488.37 FEET ALONG 270.12 DEGREES (GRID)
 SURVEYS CALCULATED USING LONG COLLAR METHOD
 WELL ASSUMED VERTICAL AT WELL HEAD
 TIE-ON PROVIDED BY GEO GYROS
 SURVEYS FROM 0' MD TO 7160' MD PROVIDED BY GEO GYROS
 SURVEYS FROM 7160' MD TO 11739' MD PROVIDED BY HALLIBURTON/SPERRY DRILLING SERVICES
 SURVEYS 11739' MD PROJECTED TO TD AT 11786' MD
 SPERRY ENGINEERS: BRENT COBB, MIKE HALE, KEITH PENRY