

ATS-07-657
EA-07-1355

S

OCD-ARTESIA

Form 3160-3
(April 2004)

NOV 19 2007
OCD-ARTESIA

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

REVISED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

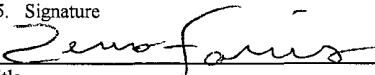
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a Type of Work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NM-0556811
1b Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Cimarex Energy Co. of Colorado		7. If Unit or CA Agreement, Name and No.
3a. Address PO Box 140907 Irving, TX 75014	3b. Phone No (include area code) 972-401-3111	8. Lease Name and Well No. High Lonesome 23 Federal No. 1
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At Surface 1980' FNL & 330' FWL At proposed prod Zone 1980' FNL & 330' FEL		9. API Well No. 30-015- 35934
14 Distance in miles and direction from nearest town or post office* 5 miles West of Loco Hills		10. Field and Pool, or Exploratory Wolfcamp Wildcat 11-6-07 11. Sec., T. R. M. or Blk and Survey or Area 23-16S-29E
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line if any) 330'	16. No of acres in lease 1480	12 County or Parish Eddy
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. N/A	19 Proposed Depth 11640'	13. State NM
20 BLM/BIA Bond No on File NM-2575	21. Elevations (Show whether DF, KDB, RT, GL, etc) 3689' GR	17. Spacing Unit dedicated to this well S2N2 160
22 Approximate date work will start* 1/1/2008	23. Estimated duration 30-35 days	

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form

- | | |
|---|--|
| 1. Well plat certified by a registered surveyor | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above) |
| 2. A Drilling Plan | 5. Operator Certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature 	Name (Printed/Typed) Zeno Farris	Date 10.05.07
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Manager Operations Administration		
Approved By (Signature) /s/ James Stovall	Name (Printed/Typed) /s/ James Stovall	Date NOV 15 2007
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or ce
conduct operations thereon
Conditions of approval, if any, are attached
Title 18 U.S.S Section 1001 and Title 43 U:
States any false, fictitious, or fraudulent stat

If earthen pits are used in association with the drilling of this well, an OCD pit permit must be obtained prior to pit construction.

Select lease which would entitle the applicant to
APPROVAL FOR TWO YEARS
make to any department or agency of the United

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

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

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 36850	Pool Code 97019	Pool Name Abo Wildcat
Property Code	Property Name HIGH LONESOME "23" FEDERAL	Well Number 1
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3689'

Surface Location

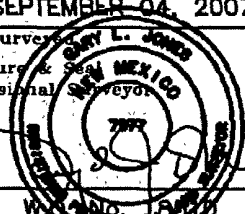
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	23	16 S	29 E		1980	NORTH	330	WEST	EDDY

Bottom Hole Location If Different From Surface

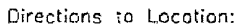
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	23	16 S	29 E		1980	NORTH	330	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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

SURFACE LOCATION Lat - N32°54'32.36" Long - W104°03'10.80" NMSPCE- N 694537.101 E 627372.590 (NAD-83)	BOTTOM HOLE LOCATION Lat - N32°54'32.4" Long - W104°02'16.5" NMSPCE- N 694533.167 E 632011.492 (NAD-83)	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. 09-21-07 Signature _____ Date _____ Printed Name Zeno Farris
NM-0556811 High Lonesome 23 Fed 1		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. SEPTEMBER 04, 2007 Date Surveyed _____ Signature & Seal _____ Professional Surveyor  Certificate No. Gary L. Jones 7977 Basin Surveys

NE



CIMAREX ENERGY CO. OF COLORADO

Sheet 1 of 1 Sheets

Application to Drill
Cimarex Energy Co. of Colorado
High Lonesome 23 Federal No. 1
Unit E Section 23
T16S R29E Eddy County, NM

In response to questions asked under Section II B of Bulletin NTL-6, the following information is provided for your consideration:

- 1 Location: SHL 1980' FNL & 330' FWL
 BHL 1980' FNL & 330' FEL
- 2 Elevation above sea level: 3689' GR
- 3 Geologic name of surface formation: Quaternary Alluvium Deposits
- 4 Drilling tools and associated equipment: Conventional rotary drilling rig using fluid as a circulating medium for solids removal.
- 5 Proposed drilling depth: 11640'
- 6 Estimated tops of geological markers:
Abo Shale 5,958'
Lower Abo Dolomite 7,190'
Wolfcamp lime 7,278'
- 7 Possible mineral bearing formation:
Wolfcamp Oil Primary
Abo
- 8 Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 340'	8.4 - 8.6	28-29	May lose circ	FW spud mud
340' to 2,500'	10.0	28-29	May lose circ	Brine Water
2,500' to 11,640'	8.4 - 9.5	29-32	NC	Fresh water and brine, use hi-vis sweeps to keep hole clean

Sufficient mud materials will be kept on location at all times in order to combat lost circulation, or unexpected kicks. In order to run DSTs, open hole logs, and casing, the viscosity and water loss may have to be adjusted in order to meet these needs. Mud system monitoring equipment with derrick floor indicators and visual/audio alarms shall be installed and operative prior to drilling into the Wolfcamp formation. This equipment will remain in use until production casing is run and cemented.

8a. Proposed drilling Plan

Drill pilot hole to 7400.' Set kick-off plug at 7000.' Kick off horizontal leg at 6800' and drill 7-7/8" hole to 11640' MD, 7260' TVD. Run 5-1/2" 17# P-110 LTC casing and cement as shown on page 2, production casing details.

Application to Drill
Cimarex Energy Co. of Colorado
High Lonesome 23 Federal No. 1
Unit E Section 23
T16S R29E Eddy County, NM

9 Casing & Cementing Program:

Hole Size	Depth			Casing OD		Weight	Thread	Collar	Grade
17-1/2	0	to	340'	New	13-3/8	48#	8-R	STC	H-40
11	0	to	2,500'	New	8-5/8	24#	8-R	LTC	J-55
7-7/8	0	to	11,640'	New	5-1/2	17#	8-R	LTC	N-80

10 Cementing & Setting Depth:

13-3/8 **Surface** Set 340' of 13-3/8 48# H-40 STC
Lead: 300 sx Thixotropic/Premium Plus + 10# Gilsonite + 10# Cal-Seal + 1% CaCl +
0.125# Poly-e-flake (wt 14.2, yld 1.64)
Tail: 220 sx Premium Plus + 2% CaCl (wt 14.8, yld 1.35)
TOC Surface

8-5/8 **Intermediate** Set 2,500' of 8-5/8 24# J-55 LTC
Lead: 425 sx Interfill C + 0.125# flocele (wt 11.9, yld 2.45)
Tail: 200 sx Prem Plus + 1% CaCl (wt 14.8, yld 1.33)
TOC Surface

5-1/2 **Production** Set 11,640' of 5-1/2 17# N-80 LTC
Lead: 640 sx Permian Basin Super H + 0.5% Halad 344 + 0.25% D-AIR 3000 + 0.4% CFR-
3 + 1# Salt + 5# Gilsonite + 0.125# Poly-E-Flake + 0.35% HR-7 (wt 13.0, yld 1.68).

TOC 2300'

Fresh water will be protected by setting 13-3/8 casing at 340' and cementing to Surface
Hydrocarbon zones will be protected by setting 8-5/8 casing at 2,500' and cementing to Surface
and by setting 5-1/2 casing at 11,640' and cementing to 2300'

Cimarex uses the following minimum safety factors:

Burst	Collapse	Tension
1.125	1.0	1.80

Application to Drill
Cimarex Energy Co. of Colorado
High Lonesome 23 Federal No. 1
Unit E Section 23
T16S R29E Eddy County, NM

11 Pressure control Equipment:

Exhibit "E". A 13 3/8" 5000 PSI working pressure B.O.P. consisting of one set of blind rams and one set of pipe rams and a 5000 # annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head below 6000'. A kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

BOP unit will be hydraulically operated. BOP will be nipped up on the 8-5/8" casing and will be operated at least once a day while drilling and the blind rams will be operated when out of hole during trips. No abnormal pressure or temperature is expected while drilling. From the base of the surface pipe through the running of production casing, the well will be equipped with a 5000 psi BOP system.

We are requesting a variance for testing the 13-3/8" surface casing from Onshore Order No. 2, which states that all casing strings below the conductor shall be pressure tested to 0.22 psi per foot or 1500 psi, whichever is greater, but not to exceed 70% of the manufacturer's stated maximum internal yield. We are requesting to test the 13-3/8" casing to 1000 psi using rig pumps. The BOP will be tested to 5000 PSI by an independent service company.

12 Testing, Logging and Coring Program:

- A. Mud logging program: 2 man unit from 6800' to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
- C. No DSTs are planned at this time.

13 Potential Hazards:

No abnormal pressures or temperatures are expected. The area has a potential H2S hazard. An H2S drilling plan is attached. Adequate flare lines will be installed off the mud / gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used.

Estimated BHP **4000 psi** Estimated BHT **175**

14 Road and location construction will begin after BLM approval of APD. Anticipated spud date as soon as approved.

Drilling expected to take 30-35 days

If production casing is run an additional 30 days will be required to complete and construct surface facilities.

15 Other Facets of Operations:

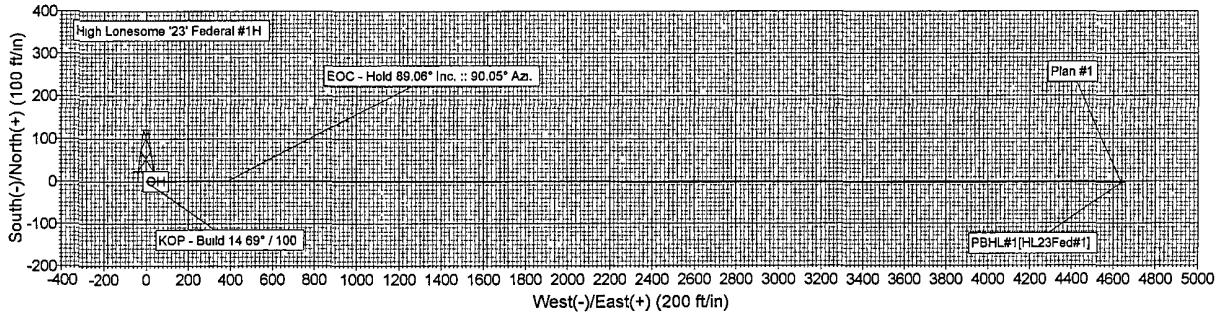
After running casing, cased hole gamma ray neutron collar logs will be run from total depth over possible pay intervals.

Abo pay will be perforated and stimulated.

The proposed well will be tested and potentialized as **an oil well**



Project: Eddy Co., New Mexico
 Site: High Lonesome '23' Federal #1H
 Well: High Lonesome '23' Federal #1H
 Wellbore: Lateral #1
 Plan: Plan #1 (High Lonesome '23' Federal #1H/Lateral #1)



ANNOTATIONS

TVD	MD	Annotation
6800.00	6800.00	KOP - Build 14.69° / 100
7190.00	7406.29	EOC - Hold 89.06° Inc. :: 90.05° Azi

PROJECT DETAILS Eddy Co., New Mexico

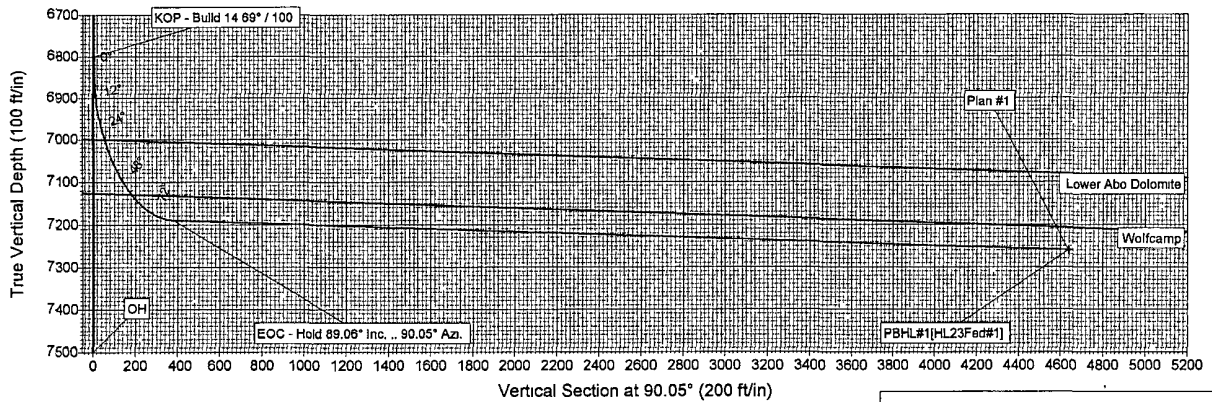
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 System Datum: Ground Level



Azimuths to Grid North
 True North: -0.15°
 Magnetic North: 8.14°
 Magnetic Field
 Strength: 49342.5nT
 Dip Angle: 60.84°
 Date: 9/19/2007
 Model: IGRF200510

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	DLeg	TFace	VSec	Target
1	6800.00	0.00	0.00	6800.00	0.00	0.00	0.00	0.00	0.00	
2	7406.29	89.06	90.05	7190.00	-0.33	383.65	14.69	90.05	383.65	
3	11862.12	89.06	90.05	7260.00	-3.93	4638.90	0.00	0.00	4638.90	PSHL#1 (HL23Fed#1)



Plan: Plan #1 (High Lonesome '23' Federal #1H/Lateral #1)
 Created By: L.D. Burton Date: September 19, 2007



Lateral #1

19 September, 2007





Black Viper Energy Survey Report



Company:	Cimarex Energy Co., Inc	Local Co-ordinate Reference:	Well High Lonesome '23' Federal #1H
Project:	Eddy Co., New Mexico	TVD Reference:	WELL @ 3689 00ft (Original Well Elev)
Site:	High Lonesome '23' Federal #1H	MD Reference:	WELL @ 3689 00ft (Original Well Elev)
Well:	High Lonesome '23' Federal #1H	North Reference:	Gnd
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003 14 1 0 Server DB

Project:	Eddy Co., New Mexico		
Map System:	US State Plane 1983	System Datum:	Ground Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:		High Lonesome '23' Federal #1H			
Site Position:		Northing:	694,537 10 ft	Latitude:	32° 54' 32 329 N
From:	Map	Easting:	627,372 59 ft	Longitude:	104° 3' 10 777 W
Position Uncertainty:	0 00 ft	Slot Radius:	"	Grid Convergence:	0 15 °

Well	High Lonesome '23' Federal #1H					
Well Position	+N/-S	0 00 ft	Northing:	694,537 10 ft	Latitude:	32° 54' 32 329 N
	+E/-W	0 00 ft	Easting:	627,372 59 ft	Longitude:	104° 3' 10 777 W
Position Uncertainty	0 00 ft	Wellhead Elevation:	ft	Ground Level:	0 00 ft	

Wellbore	Lateral #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	9/19/2007	8 29	60 84	49,342

Design:	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	6,800 00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0 00	0 00	0 00	90 05

Survey Tool Program		Date	9/19/2007		
From	To	Survey (Wellbore)	Tool Name	Description	
(ft)	(ft)				
6,800 00	11,662 12	Plan #1 (Lateral #1)	MWD	MWD - Standard	

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,800 00	0 00	0 00	6,800 00	0 00	0 00	0 00	0 00	0 00	0 00
KOP - Build 14.69° / 100									
6,825 00	3 67	90 05	6,824 98	0 00	0 80	0 80	14 69	14 69	0 00
6,850 00	7 34	90 05	6,849 86	0 00	3 20	3 20	14 69	14 69	0 00
6,875 00	11 02	90 05	6,874 54	-0 01	7 19	7 19	14 69	14 69	0 00
6,900 00	14 69	90 05	6,898 91	-0 01	12 75	12 75	14 69	14 69	0 00
6,925 00	18 36	90 05	6,922 87	-0 02	19 86	19 86	14 69	14 69	0 00
6,950 00	22 03	90 05	6,946 33	-0 02	28 49	28 49	14 69	14 69	0 00
6,975 00	25 71	90 05	6,969 19	-0 03	38 60	38 60	14 69	14 69	0 00
7,000 00	29 38	90 05	6,991 35	-0 04	50 16	50 16	14 69	14 69	0 00
7,011.13	31 01	90 05	7,000 97	-0 05	55 76	55 76	14 69	14 69	0 00
Lower Abo Dolomite									
7,025 00	33 05	90 05	7,012 73	-0 06	63 12	63 12	14 69	14 69	0 00



Black Viper Energy Survey Report



Company:	Cimarex Energy Co., Inc	Local Co-ordinate Reference:	Well High Lonesome '23' Federal #1H
Project:	Eddy Co., New Mexico	TVD Reference:	WELL @ 3689 00ft (Original Well Elev)
Site:	High Lonesome '23' Federal #1H	MD Reference:	WELL @ 3689 00ft (Original Well Elev)
Well:	High Lonesome '23' Federal #1H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003 14 1 0 Server DB

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,050 00	36 72	90 05	7,033 23	-0 07	77 41	77 41	14 69	14 69	0 00
7,075 00	40 40	90 05	7,052 78	-0 08	92 99	92 99	14 69	14 69	0 00
7,100 00	44 07	90 05	7,071 28	-0 10	109 79	109 79	14 69	14 69	0 00
7,125 00	47 74	90 05	7,088 68	-0 11	127 74	127 74	14 69	14 69	0 00
7,150 00	51 41	90 05	7,104 89	-0 13	146 77	146 77	14 69	14 69	0 00
7,175 00	55 08	90 05	7,119 84	-0 15	166 80	166 80	14 69	14 69	0 00
7,191 79	57 55	90 05	7,129 16	-0 16	180 77	180 77	14 69	14 69	0 00
Wolfcamp									
7,200 00	58 76	90 05	7,133 49	-0 16	187 74	187 74	14 69	14 69	0 00
7,225 00	62 43	90 05	7,145 76	-0 18	209 52	209 52	14 69	14 69	0 00
7,250 00	66 10	90 05	7,156 61	-0 20	232 04	232 04	14 69	14 69	0 00
7,275 00	69 77	90 05	7,166 00	-0 22	255 20	255 20	14 69	14 69	0 00
7,300 00	73 45	90 05	7,173 89	-0 24	278 92	278 92	14 69	14 69	0 00
7,325 00	77 12	90 05	7,180 24	-0 26	303 10	303 10	14 69	14 69	0 00
7,350 00	80 79	90 05	7,185 03	-0 29	327 63	327 63	14 69	14 69	0 00
7,375 00	84 46	90 05	7,188 23	-0 31	352 42	352 42	14 69	14 69	0 00
7,400 00	88 14	90 05	7,189 85	-0 33	377 36	377 36	14 69	14 69	0 00
7,406 29	89 06	90 05	7,190 00	-0 33	383 65	383 65	14 69	14 69	0 00
EOC - Hold 89.06° Inc. :: 90.05° Azi									
7,500 00	89 06	90 05	7,191 54	-0 42	477 35	477 35	0 00	0 00	0 00
7,600 00	89 06	90 05	7,193 18	-0 50	577 33	577 33	0 00	0 00	0 00
7,700 00	89 06	90 05	7,194 82	-0 59	677 32	677 32	0 00	0 00	0 00
7,800 00	89 06	90 05	7,196 46	-0 68	777 31	777 31	0 00	0 00	0 00
7,900 00	89 06	90 05	7,198 10	-0 77	877 29	877 29	0 00	0 00	0 00
8,000 00	89 06	90 05	7,199 74	-0 85	977 28	977 28	0 00	0 00	0 00
8,100 00	89 06	90 05	7,201 37	-0 94	1,077.27	1,077 27	0 00	0 00	0 00
8,200 00	89 06	90 05	7,203 01	-1 03	1,177 25	1,177 25	0 00	0 00	0 00
8,300 00	89 06	90 05	7,204 65	-1 11	1,277 24	1,277 24	0 00	0 00	0 00
8,400 00	89 06	90 05	7,206 29	-1 20	1,377.23	1,377 23	0 00	0 00	0 00
8,500 00	89 06	90 05	7,207 93	-1 29	1,477 21	1,477 21	0 00	0 00	0 00
8,600 00	89 06	90 05	7,209 57	-1 38	1,577 20	1,577 20	0 00	0 00	0 00
8,700 00	89 06	90 05	7,211 20	-1 46	1,677 19	1,677 19	0 00	0 00	0 00
8,800 00	89 06	90 05	7,212 84	-1 55	1,777 17	1,777 17	0 00	0 00	0 00
8,900 00	89 06	90 05	7,214 48	-1 64	1,877 16	1,877 16	0 00	0 00	0 00
9,000 00	89 06	90 05	7,216 12	-1 73	1,977 15	1,977 15	0 00	0 00	0 00
9,100 00	89 06	90 05	7,217 75	-1 81	2,077 13	2,077.13	0 00	0 00	0 00
9,200 00	89 06	90 05	7,219 39	-1 90	2,177 12	2,177 12	0 00	0 00	0 00
9,300 00	89 06	90 05	7,221 02	-1 99	2,277 10	2,277 11	0 00	0 00	0 00
9,400 00	89 06	90 05	7,222 66	-2 07	2,377 09	2,377 09	0 00	0 00	0 00
9,500 00	89 06	90 05	7,224 30	-2 16	2,477 08	2,477 08	0 00	0 00	0 00
9,600 00	89 06	90 05	7,225 93	-2 25	2,577 06	2,577 07	0 00	0 00	0 00
9,700 00	89 06	90 05	7,227 57	-2 34	2,677 05	2,677 05	0 00	0 00	0 00
9,800 00	89 06	90 05	7,229 20	-2 42	2,777 04	2,777 04	0 00	0 00	0 00
9,900 00	89 06	90 05	7,230 84	-2 51	2,877 02	2,877 03	0 00	0 00	0 00
10,000 00	89 06	90 05	7,232 47	-2 60	2,977 01	2,977 01	0 00	0 00	0 00
10,100 00	89 06	90 05	7,234 11	-2 69	3,077 00	3,077 00	0 00	0 00	0 00
10,200 00	89 06	90 05	7,235 74	-2 77	3,176 98	3,176 99	0 00	0 00	0 00
10,300 00	89 06	90 05	7,237 37	-2 86	3,276 97	3,276 97	0 00	0 00	0 00
10,400 00	89 06	90 05	7,239 01	-2 95	3,376 96	3,376 96	0 00	0 00	0 00
10,500 00	89 06	90 05	7,240 64	-3 03	3,476 94	3,476 95	0 00	0 00	0 00
10,600 00	89 06	90 05	7,242 27	-3 12	3,576 93	3,576 93	0 00	0 00	0 00
10,700 00	89 06	90 05	7,243 91	-3 21	3,676 92	3,676 92	0 00	0 00	0 00
10,800 00	89 06	90 05	7,245.54	-3 30	3,776 90	3,776 91	0 00	0 00	0 00
10,900 00	89 06	90 05	7,247.17	-3.38	3,876.89	3,876 89	0 00	0 00	0 00



Black Viper Energy Survey Report



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Well:	High Lonesome '23' Federal #1H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003 14 1 0 Server DB

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,000 00	89 06	90 05	7,248 80	-3 47	3,976 88	3,976 88	0 00	0 00	0 00
11,100 00	89 07	90 05	7,250 43	-3 56	4,076 86	4,076 87	0 00	0 00	0 00
11,200 00	89 07	90 05	7,252 07	-3 64	4,176 85	4,176 85	0 00	0 00	0 00
11,300 00	89 07	90 05	7,253 70	-3 73	4,276 84	4,276 84	0 00	0 00	0 00
11,400 00	89 07	90 05	7,255 33	-3 82	4,376 82	4,376 83	0 00	0 00	0 00
11,500 00	89 07	90 05	7,256 96	-3 91	4,476 81	4,476 81	0 00	0 00	0 00
11,600 00	89 07	90 05	7,258 59	-3 99	4,576 80	4,576 80	0 00	0 00	0 00
11,662 12	89 06	90 05	7,260 00	-3 93	4,638 90	4,638 90	0 02	-0 02	0 00
PBHL#1[HL23Fed#1]									

Targets									
Target Name	Dip Angle (°)	Dip Dir (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL#1[HL23Fed#1]	0 00	0 00	7,260 00	-3 93	4,638 90	694,533 17	632,011 49	32° 54' 32 165 N	104° 2' 16 361 W
- plan hits target									
- Point									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,011 13	7,000 00	Lower Abo Dolomite		-1 00	270 00
7,191 79	7,126 00	Wolfcamp		-1.00	270 00

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
6,800 00	6,800 00	0 00	0 00	KOP - Build 14 69° / 100
7,406 29	7,190 00	-0 33	383 65	EOC - Hold 89 06° Inc 90 05° Azi

Checked By: _____ Approved By: _____ Date: _____

High Lonesome '23' Federal #1H Lateral Plan #1 Report 9-20-07.txt
 Cimarex Energy Co., Inc.
 High Lonesome '23' Federal #1H - Plan #1

Eddy Co., New Mexico
 High Lonesome '23' Federal #1H

Measured Dogleg Depth Rate (ft) (°/100ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)
6800.00	0.000	0.000	6800.00	0.00 N	0.00 E	0.00
0.00						
6810.00	1.469	90.050	6810.00	0.00 S	0.13 E	0.13
14.69						
6820.00	2.938	90.050	6819.99	0.00 S	0.51 E	0.51
14.69						
6830.00	4.407	90.050	6829.97	0.00 S	1.15 E	1.15
14.69						
6840.00	5.876	90.050	6839.93	0.00 S	2.05 E	2.05
14.69						
6850.00	7.345	90.050	6849.86	0.00 S	3.20 E	3.20
14.69						
6860.00	8.814	90.050	6859.76	0.00 S	4.61 E	4.61
14.69						
6870.00	10.282	90.050	6869.62	0.01 S	6.26 E	6.26
14.69						
6880.00	11.751	90.050	6879.44	0.01 S	8.18 E	8.18
14.69						
6890.00	13.220	90.050	6889.20	0.01 S	10.34 E	10.34
14.69						
6900.00	14.689	90.050	6898.91	0.01 S	12.75 E	12.75
14.69						
6910.00	16.158	90.050	6908.55	0.01 S	15.41 E	15.41
14.69						
6920.00	17.627	90.050	6918.12	0.02 S	18.31 E	18.31
14.69						
6930.00	19.096	90.050	6927.61	0.02 S	21.46 E	21.46
14.69						
6940.00	20.565	90.050	6937.01	0.02 S	24.86 E	24.86
14.69						
6950.00	22.034	90.050	6946.33	0.02 S	28.49 E	28.49
14.69						
6960.00	23.503	90.050	6955.55	0.03 S	32.36 E	32.36
14.69						
6970.00	24.972	90.050	6964.67	0.03 S	36.46 E	36.46
14.69						
6980.00	26.441	90.050	6973.68	0.04 S	40.80 E	40.80
14.69						
6990.00	27.910	90.050	6982.57	0.04 S	45.37 E	45.37
14.69						
7000.00	29.378	90.050	6991.35	0.04 S	50.16 E	50.16
14.69						
7010.00	30.847	90.050	7000.00	0.05 S	55.18 E	55.18
14.69						
7020.00	32.316	90.050	7008.52	0.05 S	60.42 E	60.42
14.69						
7030.00	33.785	90.050	7016.90	0.06 S	65.87 E	65.87
14.69						
7040.00	35.254	90.050	7025.14	0.06 S	71.54 E	71.54
14.69						

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14.69	7050.00	36.723	90.050	7033.23	0.07 S	77.41 E	77.41
14.69	7060.00	38.192	90.050	7041.17	0.07 S	83.49 E	83.49
14.69	7070.00	39.661	90.050	7048.95	0.08 S	89.78 E	89.78
14.69	7080.00	41.130	90.050	7056.56	0.08 S	96.26 E	96.26
14.69	7090.00	42.599	90.050	7064.01	0.09 S	102.93 E	102.93
14.69	7100.00	44.068	90.050	7071.28	0.10 S	109.79 E	109.79
14.69	7110.00	45.537	90.050	7078.38	0.10 S	116.84 E	116.84
14.69	7120.00	47.006	90.050	7085.29	0.11 S	124.07 E	124.07
14.69	7130.00	48.475	90.050	7092.02	0.11 S	131.47 E	131.47
14.69	7140.00	49.943	90.050	7098.55	0.12 S	139.04 E	139.04
14.69	7150.00	51.412	90.050	7104.89	0.13 S	146.77 E	146.77
14.69	7160.00	52.881	90.050	7111.02	0.13 S	154.67 E	154.67
14.69	7170.00	54.350	90.050	7116.95	0.14 S	162.72 E	162.72
14.69	7180.00	55.819	90.050	7122.68	0.15 S	170.92 E	170.92
14.69	7190.00	57.288	90.050	7128.19	0.16 S	179.26 E	179.26
14.69	7200.00	58.757	90.050	7133.49	0.16 S	187.74 E	187.74
14.69	7210.00	60.226	90.050	7138.56	0.17 S	196.36 E	196.36
14.69	7220.00	61.695	90.050	7143.42	0.18 S	205.10 E	205.10
14.69	7230.00	63.164	90.050	7148.04	0.19 S	213.97 E	213.97
14.69	7240.00	64.633	90.050	7152.44	0.19 S	222.95 E	222.95
14.69	7250.00	66.102	90.050	7156.61	0.20 S	232.04 E	232.04
14.69	7260.00	67.571	90.050	7160.55	0.21 S	241.23 E	241.23
14.69	7270.00	69.039	90.050	7164.24	0.22 S	250.52 E	250.52
14.69	7280.00	70.508	90.050	7167.70	0.23 S	259.90 E	259.90
14.69	7290.00	71.977	90.050	7170.91	0.24 S	269.37 E	269.37
14.69	7300.00	73.446	90.050	7173.89	0.24 S	278.92 E	278.92
14.69	7310.00	74.915	90.050	7176.61	0.25 S	288.54 E	288.54
14.69	7320.00	76.384	90.050	7179.09	0.26 S	298.23 E	298.23
14.69	7330.00	77.853	90.050	7181.32	0.27 S	307.98 E	307.98
14.69	7340.00	79.322	90.050	7183.30	0.28 S	317.78 E	317.78
14.69	7350.00	80.791	90.050	7185.03	0.29 S	327.63 E	327.63
14.69	7360.00	82.260	90.050	7186.50	0.29 S	337.52 E	337.52

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14.69						
7370.00	83.729	90.050	7187.72	0.30 S	347.44 E	347.44
14.69						
7380.00	85.198	90.050	7188.68	0.31 S	357.40 E	357.40
14.69						
7390.00	86.667	90.050	7189.39	0.32 S	367.37 E	367.37
14.69						
7400.00	88.135	90.050	7189.85	0.33 S	377.36 E	377.36
14.69						
7410.00	89.060	90.050	7190.06	0.34 S	387.36 E	387.36
9.25						
7420.00	89.060	90.050	7190.22	0.35 S	397.36 E	397.36
0.00						
7430.00	89.060	90.050	7190.39	0.36 S	407.36 E	407.36
0.00						
7440.00	89.060	90.050	7190.55	0.36 S	417.36 E	417.36
0.00						
7450.00	89.060	90.050	7190.72	0.37 S	427.35 E	427.35
0.00						
7460.00	89.060	90.050	7190.88	0.38 S	437.35 E	437.35
0.00						
7470.00	89.060	90.050	7191.05	0.39 S	447.35 E	447.35
0.00						
7480.00	89.060	90.050	7191.21	0.40 S	457.35 E	457.35
0.00						
7490.00	89.060	90.050	7191.37	0.41 S	467.35 E	467.35
0.00						
7500.00	89.060	90.050	7191.54	0.42 S	477.35 E	477.35
0.00						
7510.00	89.060	90.050	7191.70	0.43 S	487.35 E	487.35
0.00						
7520.00	89.060	90.050	7191.87	0.43 S	497.34 E	497.34
0.00						
7530.00	89.060	90.050	7192.03	0.44 S	507.34 E	507.34
0.00						
7540.00	89.060	90.050	7192.19	0.45 S	517.34 E	517.34
0.00						
7550.00	89.060	90.050	7192.36	0.46 S	527.34 E	527.34
0.00						
7560.00	89.060	90.050	7192.52	0.47 S	537.34 E	537.34
0.00						
7570.00	89.060	90.050	7192.69	0.48 S	547.34 E	547.34
0.00						
7580.00	89.060	90.050	7192.85	0.49 S	557.34 E	557.34
0.00						
7590.00	89.060	90.050	7193.01	0.50 S	567.33 E	567.34
0.00						
7600.00	89.060	90.050	7193.18	0.50 S	577.33 E	577.33
0.00						
7610.00	89.060	90.050	7193.34	0.51 S	587.33 E	587.33
0.00						
7620.00	89.060	90.050	7193.51	0.52 S	597.33 E	597.33
0.00						
7630.00	89.060	90.050	7193.67	0.53 S	607.33 E	607.33
0.00						
7640.00	89.060	90.050	7193.83	0.54 S	617.33 E	617.33
0.00						
7650.00	89.060	90.050	7194.00	0.55 S	627.33 E	627.33
0.00						
7660.00	89.060	90.050	7194.16	0.56 S	637.33 E	637.33
0.00						
7670.00	89.060	90.050	7194.33	0.56 S	647.32 E	647.32
0.00						

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7680.00	89.060	90.050	7194.49	0.57 S	657.32 E	657.32
0.00						
7690.00	89.060	90.050	7194.65	0.58 S	667.32 E	667.32
0.00						
7700.00	89.060	90.050	7194.82	0.59 S	677.32 E	677.32
0.00						
7710.00	89.060	90.050	7194.98	0.60 S	687.32 E	687.32
0.00						
7720.00	89.060	90.050	7195.15	0.61 S	697.32 E	697.32
0.00						
7730.00	89.060	90.050	7195.31	0.62 S	707.32 E	707.32
0.00						
7740.00	89.060	90.050	7195.47	0.63 S	717.31 E	717.31
0.00						
7750.00	89.060	90.050	7195.64	0.63 S	727.31 E	727.31
0.00						
7760.00	89.060	90.050	7195.80	0.64 S	737.31 E	737.31
0.00						
7770.00	89.060	90.050	7195.97	0.65 S	747.31 E	747.31
0.00						
7780.00	89.060	90.050	7196.13	0.66 S	757.31 E	757.31
0.00						
7790.00	89.060	90.050	7196.29	0.67 S	767.31 E	767.31
0.00						
7800.00	89.061	90.050	7196.46	0.68 S	777.31 E	777.31
0.00						
7810.00	89.061	90.050	7196.62	0.69 S	787.31 E	787.31
0.00						
7820.00	89.061	90.050	7196.78	0.70 S	797.30 E	797.30
0.00						
7830.00	89.061	90.050	7196.95	0.70 S	807.30 E	807.30
0.00						
7840.00	89.061	90.050	7197.11	0.71 S	817.30 E	817.30
0.00						
7850.00	89.061	90.050	7197.28	0.72 S	827.30 E	827.30
0.00						
7860.00	89.061	90.050	7197.44	0.73 S	837.30 E	837.30
0.00						
7870.00	89.061	90.050	7197.60	0.74 S	847.30 E	847.30
0.00						
7880.00	89.061	90.050	7197.77	0.75 S	857.30 E	857.30
0.00						
7890.00	89.061	90.050	7197.93	0.76 S	867.29 E	867.29
0.00						
7900.00	89.061	90.050	7198.10	0.77 S	877.29 E	877.29
0.00						
7910.00	89.061	90.050	7198.26	0.77 S	887.29 E	887.29
0.00						
7920.00	89.061	90.050	7198.42	0.78 S	897.29 E	897.29
0.00						
7930.00	89.061	90.050	7198.59	0.79 S	907.29 E	907.29
0.00						
7940.00	89.061	90.050	7198.75	0.80 S	917.29 E	917.29
0.00						
7950.00	89.061	90.050	7198.92	0.81 S	927.29 E	927.29
0.00						
7960.00	89.061	90.050	7199.08	0.82 S	937.28 E	937.29
0.00						
7970.00	89.061	90.050	7199.24	0.83 S	947.28 E	947.28
0.00						
7980.00	89.061	90.050	7199.41	0.84 S	957.28 E	957.28
0.00						
7990.00	89.061	90.050	7199.57	0.84 S	967.28 E	967.28

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0.00						
8000.00	89.061	90.050	7199.74	0.85 S	977.28 E	977.28
0.00						
8010.00	89.061	90.050	7199.90	0.86 S	987.28 E	987.28
0.00						
8020.00	89.061	90.050	7200.06	0.87 S	997.28 E	997.28
0.00						
8030.00	89.061	90.050	7200.23	0.88 S	1007.28 E	1007.28
0.00						
8040.00	89.061	90.050	7200.39	0.89 S	1017.27 E	1017.27
0.00						
8050.00	89.061	90.050	7200.56	0.90 S	1027.27 E	1027.27
0.00						
8060.00	89.061	90.050	7200.72	0.91 S	1037.27 E	1037.27
0.00						
8070.00	89.061	90.050	7200.88	0.91 S	1047.27 E	1047.27
0.00						
8080.00	89.061	90.050	7201.05	0.92 S	1057.27 E	1057.27
0.00						
8090.00	89.061	90.050	7201.21	0.93 S	1067.27 E	1067.27
0.00						
8100.00	89.061	90.050	7201.37	0.94 S	1077.27 E	1077.27
0.00						
8110.00	89.061	90.050	7201.54	0.95 S	1087.26 E	1087.27
0.00						
8120.00	89.061	90.050	7201.70	0.96 S	1097.26 E	1097.26
0.00						
8130.00	89.061	90.050	7201.87	0.97 S	1107.26 E	1107.26
0.00						
8140.00	89.061	90.050	7202.03	0.97 S	1117.26 E	1117.26
0.00						
8150.00	89.061	90.050	7202.19	0.98 S	1127.26 E	1127.26
0.00						
8160.00	89.061	90.050	7202.36	0.99 S	1137.26 E	1137.26
0.00						
8170.00	89.061	90.050	7202.52	1.00 S	1147.26 E	1147.26
0.00						
8180.00	89.061	90.050	7202.69	1.01 S	1157.26 E	1157.26
0.00						
8190.00	89.061	90.050	7202.85	1.02 S	1167.25 E	1167.25
0.00						
8200.00	89.061	90.050	7203.01	1.03 S	1177.25 E	1177.25
0.00						
8210.00	89.061	90.050	7203.18	1.04 S	1187.25 E	1187.25
0.00						
8220.00	89.061	90.050	7203.34	1.04 S	1197.25 E	1197.25
0.00						
8230.00	89.061	90.050	7203.51	1.05 S	1207.25 E	1207.25
0.00						
8240.00	89.061	90.050	7203.67	1.06 S	1217.25 E	1217.25
0.00						
8250.00	89.061	90.050	7203.83	1.07 S	1227.25 E	1227.25
0.00						
8260.00	89.061	90.050	7204.00	1.08 S	1237.24 E	1237.25
0.00						
8270.00	89.061	90.050	7204.16	1.09 S	1247.24 E	1247.24
0.00						
8280.00	89.061	90.050	7204.32	1.10 S	1257.24 E	1257.24
0.00						
8290.00	89.061	90.050	7204.49	1.11 S	1267.24 E	1267.24
0.00						
8300.00	89.061	90.050	7204.65	1.11 S	1277.24 E	1277.24
0.00						

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8310.00	89.061	90.050	7204.82	1.12 S	1287.24 E	1287.24
0.00						
8320.00	89.061	90.050	7204.98	1.13 S	1297.24 E	1297.24
0.00						
8330.00	89.061	90.050	7205.14	1.14 S	1307.24 E	1307.24
0.00						
8340.00	89.061	90.050	7205.31	1.15 S	1317.23 E	1317.23
0.00						
8350.00	89.061	90.050	7205.47	1.16 S	1327.23 E	1327.23
0.00						
8360.00	89.061	90.050	7205.64	1.17 S	1337.23 E	1337.23
0.00						
8370.00	89.061	90.050	7205.80	1.18 S	1347.23 E	1347.23
0.00						
8380.00	89.061	90.050	7205.96	1.18 S	1357.23 E	1357.23
0.00						
8390.00	89.061	90.050	7206.13	1.19 S	1367.23 E	1367.23
0.00						
8400.00	89.061	90.050	7206.29	1.20 S	1377.23 E	1377.23
0.00						
8410.00	89.061	90.050	7206.45	1.21 S	1387.22 E	1387.22
0.00						
8420.00	89.061	90.050	7206.62	1.22 S	1397.22 E	1397.22
0.00						
8430.00	89.061	90.050	7206.78	1.23 S	1407.22 E	1407.22
0.00						
8440.00	89.061	90.050	7206.95	1.24 S	1417.22 E	1417.22
0.00						
8450.00	89.061	90.050	7207.11	1.25 S	1427.22 E	1427.22
0.00						
8460.00	89.061	90.050	7207.27	1.25 S	1437.22 E	1437.22
0.00						
8470.00	89.061	90.050	7207.44	1.26 S	1447.22 E	1447.22
0.00						
8480.00	89.061	90.050	7207.60	1.27 S	1457.21 E	1457.22
0.00						
8490.00	89.061	90.050	7207.76	1.28 S	1467.21 E	1467.21
0.00						
8500.00	89.061	90.050	7207.93	1.29 S	1477.21 E	1477.21
0.00						
8510.00	89.061	90.050	7208.09	1.30 S	1487.21 E	1487.21
0.00						
8520.00	89.061	90.050	7208.26	1.31 S	1497.21 E	1497.21
0.00						
8530.00	89.061	90.050	7208.42	1.32 S	1507.21 E	1507.21
0.00						
8540.00	89.061	90.050	7208.58	1.32 S	1517.21 E	1517.21
0.00						
8550.00	89.061	90.050	7208.75	1.33 S	1527.21 E	1527.21
0.00						
8560.00	89.061	90.050	7208.91	1.34 S	1537.20 E	1537.20
0.00						
8570.00	89.061	90.050	7209.08	1.35 S	1547.20 E	1547.20
0.00						
8580.00	89.061	90.050	7209.24	1.36 S	1557.20 E	1557.20
0.00						
8590.00	89.061	90.050	7209.40	1.37 S	1567.20 E	1567.20
0.00						
8600.00	89.062	90.050	7209.57	1.38 S	1577.20 E	1577.20
0.00						
8610.00	89.062	90.050	7209.73	1.39 S	1587.20 E	1587.20
0.00						
8620.00	89.062	90.050	7209.89	1.39 S	1597.20 E	1597.20

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0.00						
8630.00	89.062	90.050	7210.06	1.40 S	1607.19 E	1607.20
0.00						
8640.00	89.062	90.050	7210.22	1.41 S	1617.19 E	1617.19
0.00						
8650.00	89.062	90.050	7210.39	1.42 S	1627.19 E	1627.19
0.00						
8660.00	89.062	90.050	7210.55	1.43 S	1637.19 E	1637.19
0.00						
8670.00	89.062	90.050	7210.71	1.44 S	1647.19 E	1647.19
0.00						
8680.00	89.062	90.050	7210.88	1.45 S	1657.19 E	1657.19
0.00						
8690.00	89.062	90.050	7211.04	1.45 S	1667.19 E	1667.19
0.00						
8700.00	89.062	90.050	7211.20	1.46 S	1677.19 E	1677.19
0.00						
8710.00	89.062	90.050	7211.37	1.47 S	1687.18 E	1687.18
0.00						
8720.00	89.062	90.050	7211.53	1.48 S	1697.18 E	1697.18
0.00						
8730.00	89.062	90.050	7211.70	1.49 S	1707.18 E	1707.18
0.00						
8740.00	89.062	90.050	7211.86	1.50 S	1717.18 E	1717.18
0.00						
8750.00	89.062	90.050	7212.02	1.51 S	1727.18 E	1727.18
0.00						
8760.00	89.062	90.050	7212.19	1.52 S	1737.18 E	1737.18
0.00						
8770.00	89.062	90.050	7212.35	1.52 S	1747.18 E	1747.18
0.00						
8780.00	89.062	90.050	7212.51	1.53 S	1757.17 E	1757.18
0.00						
8790.00	89.062	90.050	7212.68	1.54 S	1767.17 E	1767.17
0.00						
8800.00	89.062	90.050	7212.84	1.55 S	1777.17 E	1777.17
0.00						
8810.00	89.062	90.050	7213.00	1.56 S	1787.17 E	1787.17
0.00						
8820.00	89.062	90.050	7213.17	1.57 S	1797.17 E	1797.17
0.00						
8830.00	89.062	90.050	7213.33	1.58 S	1807.17 E	1807.17
0.00						
8840.00	89.062	90.050	7213.50	1.59 S	1817.17 E	1817.17
0.00						
8850.00	89.062	90.050	7213.66	1.59 S	1827.17 E	1827.17
0.00						
8860.00	89.062	90.050	7213.82	1.60 S	1837.16 E	1837.16
0.00						
8870.00	89.062	90.050	7213.99	1.61 S	1847.16 E	1847.16
0.00						
8880.00	89.062	90.050	7214.15	1.62 S	1857.16 E	1857.16
0.00						
8890.00	89.062	90.050	7214.31	1.63 S	1867.16 E	1867.16
0.00						
8900.00	89.062	90.050	7214.48	1.64 S	1877.16 E	1877.16
0.00						
8910.00	89.062	90.050	7214.64	1.65 S	1887.16 E	1887.16
0.00						
8920.00	89.062	90.050	7214.81	1.66 S	1897.16 E	1897.16
0.00						
8930.00	89.062	90.050	7214.97	1.66 S	1907.15 E	1907.16
0.00						

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8940.00	89.062	90.050	7215.13	1.67 S	1917.15 E	1917.15
0.00						
8950.00	89.062	90.050	7215.30	1.68 S	1927.15 E	1927.15
0.00						
8960.00	89.062	90.050	7215.46	1.69 S	1937.15 E	1937.15
0.00						
8970.00	89.062	90.050	7215.62	1.70 S	1947.15 E	1947.15
0.00						
8980.00	89.062	90.050	7215.79	1.71 S	1957.15 E	1957.15
0.00						
8990.00	89.062	90.050	7215.95	1.72 S	1967.15 E	1967.15
0.00						
9000.00	89.062	90.050	7216.12	1.73 S	1977.15 E	1977.15
0.00						
9010.00	89.062	90.050	7216.28	1.73 S	1987.14 E	1987.14
0.00						
9020.00	89.062	90.050	7216.44	1.74 S	1997.14 E	1997.14
0.00						
9030.00	89.062	90.050	7216.61	1.75 S	2007.14 E	2007.14
0.00						
9040.00	89.062	90.050	7216.77	1.76 S	2017.14 E	2017.14
0.00						
9050.00	89.062	90.050	7216.93	1.77 S	2027.14 E	2027.14
0.00						
9060.00	89.062	90.050	7217.10	1.78 S	2037.14 E	2037.14
0.00						
9070.00	89.062	90.050	7217.26	1.79 S	2047.14 E	2047.14
0.00						
9080.00	89.062	90.050	7217.42	1.80 S	2057.13 E	2057.14
0.00						
9090.00	89.062	90.050	7217.59	1.80 S	2067.13 E	2067.13
0.00						
9100.00	89.062	90.050	7217.75	1.81 S	2077.13 E	2077.13
0.00						
9110.00	89.062	90.050	7217.92	1.82 S	2087.13 E	2087.13
0.00						
9120.00	89.062	90.050	7218.08	1.83 S	2097.13 E	2097.13
0.00						
9130.00	89.062	90.050	7218.24	1.84 S	2107.13 E	2107.13
0.00						
9140.00	89.062	90.050	7218.41	1.85 S	2117.13 E	2117.13
0.00						
9150.00	89.062	90.050	7218.57	1.86 S	2127.12 E	2127.13
0.00						
9160.00	89.062	90.050	7218.73	1.86 S	2137.12 E	2137.12
0.00						
9170.00	89.062	90.050	7218.90	1.87 S	2147.12 E	2147.12
0.00						
9180.00	89.062	90.050	7219.06	1.88 S	2157.12 E	2157.12
0.00						
9190.00	89.062	90.050	7219.22	1.89 S	2167.12 E	2167.12
0.00						
9200.00	89.062	90.050	7219.39	1.90 S	2177.12 E	2177.12
0.00						
9210.00	89.062	90.050	7219.55	1.91 S	2187.12 E	2187.12
0.00						
9220.00	89.062	90.050	7219.72	1.92 S	2197.12 E	2197.12
0.00						
9230.00	89.062	90.050	7219.88	1.93 S	2207.11 E	2207.11
0.00						
9240.00	89.062	90.050	7220.04	1.93 S	2217.11 E	2217.11
0.00						
9250.00	89.062	90.050	7220.21	1.94 S	2227.11 E	2227.11

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0.00						
9260.00	89.062	90.050	7220.37	1.95 S	2237.11 E	2237.11
0.00						
9270.00	89.062	90.050	7220.53	1.96 S	2247.11 E	2247.11
0.00						
9280.00	89.062	90.050	7220.70	1.97 S	2257.11 E	2257.11
0.00						
9290.00	89.062	90.050	7220.86	1.98 S	2267.11 E	2267.11
0.00						
9300.00	89.063	90.050	7221.02	1.99 S	2277.10 E	2277.11
0.00						
9310.00	89.063	90.050	7221.19	2.00 S	2287.10 E	2287.10
0.00						
9320.00	89.063	90.050	7221.35	2.00 S	2297.10 E	2297.10
0.00						
9330.00	89.063	90.050	7221.52	2.01 S	2307.10 E	2307.10
0.00						
9340.00	89.063	90.050	7221.68	2.02 S	2317.10 E	2317.10
0.00						
9350.00	89.063	90.050	7221.84	2.03 S	2327.10 E	2327.10
0.00						
9360.00	89.063	90.050	7222.01	2.04 S	2337.10 E	2337.10
0.00						
9370.00	89.063	90.050	7222.17	2.05 S	2347.10 E	2347.10
0.00						
9380.00	89.063	90.050	7222.33	2.06 S	2357.09 E	2357.09
0.00						
9390.00	89.063	90.050	7222.50	2.07 S	2367.09 E	2367.09
0.00						
9400.00	89.063	90.050	7222.66	2.07 S	2377.09 E	2377.09
0.00						
9410.00	89.063	90.050	7222.82	2.08 S	2387.09 E	2387.09
0.00						
9420.00	89.063	90.050	7222.99	2.09 S	2397.09 E	2397.09
0.00						
9430.00	89.063	90.050	7223.15	2.10 S	2407.09 E	2407.09
0.00						
9440.00	89.063	90.050	7223.31	2.11 S	2417.09 E	2417.09
0.00						
9450.00	89.063	90.050	7223.48	2.12 S	2427.08 E	2427.09
0.00						
9460.00	89.063	90.050	7223.64	2.13 S	2437.08 E	2437.08
0.00						
9470.00	89.063	90.050	7223.81	2.14 S	2447.08 E	2447.08
0.00						
9480.00	89.063	90.050	7223.97	2.14 S	2457.08 E	2457.08
0.00						
9490.00	89.063	90.050	7224.13	2.15 S	2467.08 E	2467.08
0.00						
9500.00	89.063	90.050	7224.30	2.16 S	2477.08 E	2477.08
0.00						
9510.00	89.063	90.050	7224.46	2.17 S	2487.08 E	2487.08
0.00						
9520.00	89.063	90.050	7224.62	2.18 S	2497.08 E	2497.08
0.00						
9530.00	89.063	90.050	7224.79	2.19 S	2507.07 E	2507.07
0.00						
9540.00	89.063	90.050	7224.95	2.20 S	2517.07 E	2517.07
0.00						
9550.00	89.063	90.050	7225.11	2.21 S	2527.07 E	2527.07
0.00						
9560.00	89.063	90.050	7225.28	2.21 S	2537.07 E	2537.07
0.00						

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9570.00	89.063	90.050	7225.44	2.22 S	2547.07 E 2547.07
0.00					
9580.00	89.063	90.050	7225.60	2.23 S	2557.07 E 2557.07
0.00					
9590.00	89.063	90.050	7225.77	2.24 S	2567.07 E 2567.07
0.00					
9600.00	89.063	90.050	7225.93	2.25 S	2577.06 E 2577.07
0.00					
9610.00	89.063	90.050	7226.10	2.26 S	2587.06 E 2587.06
0.00					
9620.00	89.063	90.050	7226.26	2.27 S	2597.06 E 2597.06
0.00					
9630.00	89.063	90.050	7226.42	2.28 S	2607.06 E 2607.06
0.00					
9640.00	89.063	90.050	7226.59	2.28 S	2617.06 E 2617.06
0.00					
9650.00	89.063	90.050	7226.75	2.29 S	2627.06 E 2627.06
0.00					
9660.00	89.063	90.050	7226.91	2.30 S	2637.06 E 2637.06
0.00					
9670.00	89.063	90.050	7227.08	2.31 S	2647.06 E 2647.06
0.00					
9680.00	89.063	90.050	7227.24	2.32 S	2657.05 E 2657.05
0.00					
9690.00	89.063	90.050	7227.40	2.33 S	2667.05 E 2667.05
0.00					
9700.00	89.063	90.050	7227.57	2.34 S	2677.05 E 2677.05
0.00					
9710.00	89.063	90.050	7227.73	2.34 S	2687.05 E 2687.05
0.00					
9720.00	89.063	90.050	7227.89	2.35 S	2697.05 E 2697.05
0.00					
9730.00	89.063	90.050	7228.06	2.36 S	2707.05 E 2707.05
0.00					
9740.00	89.063	90.050	7228.22	2.37 S	2717.05 E 2717.05
0.00					
9750.00	89.063	90.050	7228.38	2.38 S	2727.04 E 2727.05
0.00					
9760.00	89.063	90.050	7228.55	2.39 S	2737.04 E 2737.04
0.00					
9770.00	89.063	90.050	7228.71	2.40 S	2747.04 E 2747.04
0.00					
9780.00	89.063	90.050	7228.87	2.41 S	2757.04 E 2757.04
0.00					
9790.00	89.063	90.050	7229.04	2.41 S	2767.04 E 2767.04
0.00					
9800.00	89.063	90.050	7229.20	2.42 S	2777.04 E 2777.04
0.00					
9810.00	89.063	90.050	7229.37	2.43 S	2787.04 E 2787.04
0.00					
9820.00	89.063	90.050	7229.53	2.44 S	2797.03 E 2797.04
0.00					
9830.00	89.063	90.050	7229.69	2.45 S	2807.03 E 2807.03
0.00					
9840.00	89.063	90.050	7229.86	2.46 S	2817.03 E 2817.03
0.00					
9850.00	89.063	90.050	7230.02	2.47 S	2827.03 E 2827.03
0.00					
9860.00	89.063	90.050	7230.18	2.48 S	2837.03 E 2837.03
0.00					
9870.00	89.063	90.050	7230.35	2.48 S	2847.03 E 2847.03
0.00					
9880.00	89.063	90.050	7230.51	2.49 S	2857.03 E 2857.03

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0.00							
9890.00	89.063	90.050	7230.67	2.50 S	2867.03 E	2867.03	
0.00							
9900.00	89.063	90.050	7230.84	2.51 S	2877.02 E	2877.03	
0.00							
9910.00	89.063	90.050	7231.00	2.52 S	2887.02 E	2887.02	
0.00							
9920.00	89.063	90.050	7231.16	2.53 S	2897.02 E	2897.02	
0.00							
9930.00	89.063	90.050	7231.33	2.54 S	2907.02 E	2907.02	
0.00							
9940.00	89.063	90.050	7231.49	2.55 S	2917.02 E	2917.02	
0.00							
9950.00	89.063	90.050	7231.65	2.55 S	2927.02 E	2927.02	
0.00							
9960.00	89.063	90.050	7231.82	2.56 S	2937.02 E	2937.02	
0.00							
9970.00	89.063	90.050	7231.98	2.57 S	2947.01 E	2947.02	
0.00							
9980.00	89.063	90.050	7232.14	2.58 S	2957.01 E	2957.01	
0.00							
9990.00	89.063	90.050	7232.31	2.59 S	2967.01 E	2967.01	
0.00							
10000.00	89.064	90.050	7232.47	2.60 S	2977.01 E	2977.01	
0.00							
10010.00	89.064	90.050	7232.63	2.61 S	2987.01 E	2987.01	
0.00							
10020.00	89.064	90.050	7232.80	2.62 S	2997.01 E	2997.01	
0.00							
10030.00	89.064	90.050	7232.96	2.62 S	3007.01 E	3007.01	
0.00							
10040.00	89.064	90.050	7233.12	2.63 S	3017.01 E	3017.01	
0.00							
10050.00	89.064	90.050	7233.29	2.64 S	3027.00 E	3027.01	
0.00							
10060.00	89.064	90.050	7233.45	2.65 S	3037.00 E	3037.00	
0.00							
10070.00	89.064	90.050	7233.62	2.66 S	3047.00 E	3047.00	
0.00							
10080.00	89.064	90.050	7233.78	2.67 S	3057.00 E	3057.00	
0.00							
10090.00	89.064	90.050	7233.94	2.68 S	3067.00 E	3067.00	
0.00							
10100.00	89.064	90.050	7234.11	2.69 S	3077.00 E	3077.00	
0.00							
10110.00	89.064	90.050	7234.27	2.69 S	3087.00 E	3087.00	
0.00							
10120.00	89.064	90.050	7234.43	2.70 S	3096.99 E	3097.00	
0.00							
10130.00	89.064	90.050	7234.60	2.71 S	3106.99 E	3106.99	
0.00							
10140.00	89.064	90.050	7234.76	2.72 S	3116.99 E	3116.99	
0.00							
10150.00	89.064	90.050	7234.92	2.73 S	3126.99 E	3126.99	
0.00							
10160.00	89.064	90.050	7235.09	2.74 S	3136.99 E	3136.99	
0.00							
10170.00	89.064	90.050	7235.25	2.75 S	3146.99 E	3146.99	
0.00							
10180.00	89.064	90.050	7235.41	2.75 S	3156.99 E	3156.99	
0.00							
10190.00	89.064	90.050	7235.58	2.76 S	3166.99 E	3166.99	
0.00							

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10200.00	89.064	90.050	7235.74	2.77 S	3176.98 E 3176.99
0.00					
10210.00	89.064	90.050	7235.90	2.78 S	3186.98 E 3186.98
0.00					
10220.00	89.064	90.050	7236.07	2.79 S	3196.98 E 3196.98
0.00					
10230.00	89.064	90.050	7236.23	2.80 S	3206.98 E 3206.98
0.00					
10240.00	89.064	90.050	7236.39	2.81 S	3216.98 E 3216.98
0.00					
10250.00	89.064	90.050	7236.56	2.82 S	3226.98 E 3226.98
0.00					
10260.00	89.064	90.050	7236.72	2.82 S	3236.98 E 3236.98
0.00					
10270.00	89.064	90.050	7236.88	2.83 S	3246.97 E 3246.98
0.00					
10280.00	89.064	90.050	7237.05	2.84 S	3256.97 E 3256.97
0.00					
10290.00	89.064	90.050	7237.21	2.85 S	3266.97 E 3266.97
0.00					
10300.00	89.064	90.050	7237.37	2.86 S	3276.97 E 3276.97
0.00					
10310.00	89.064	90.050	7237.54	2.87 S	3286.97 E 3286.97
0.00					
10320.00	89.064	90.050	7237.70	2.88 S	3296.97 E 3296.97
0.00					
10330.00	89.064	90.050	7237.86	2.89 S	3306.97 E 3306.97
0.00					
10340.00	89.064	90.050	7238.03	2.89 S	3316.97 E 3316.97
0.00					
10350.00	89.064	90.050	7238.19	2.90 S	3326.96 E 3326.97
0.00					
10360.00	89.064	90.050	7238.35	2.91 S	3336.96 E 3336.96
0.00					
10370.00	89.064	90.050	7238.52	2.92 S	3346.96 E 3346.96
0.00					
10380.00	89.064	90.050	7238.68	2.93 S	3356.96 E 3356.96
0.00					
10390.00	89.064	90.050	7238.84	2.94 S	3366.96 E 3366.96
0.00					
10400.00	89.064	90.050	7239.01	2.95 S	3376.96 E 3376.96
0.00					
10410.00	89.064	90.050	7239.17	2.96 S	3386.96 E 3386.96
0.00					
10420.00	89.064	90.050	7239.33	2.96 S	3396.95 E 3396.96
0.00					
10430.00	89.064	90.050	7239.50	2.97 S	3406.95 E 3406.95
0.00					
10440.00	89.064	90.050	7239.66	2.98 S	3416.95 E 3416.95
0.00					
10450.00	89.064	90.050	7239.82	2.99 S	3426.95 E 3426.95
0.00					
10460.00	89.064	90.050	7239.99	3.00 S	3436.95 E 3436.95
0.00					
10470.00	89.064	90.050	7240.15	3.01 S	3446.95 E 3446.95
0.00					
10480.00	89.064	90.050	7240.31	3.02 S	3456.95 E 3456.95
0.00					
10490.00	89.064	90.050	7240.48	3.03 S	3466.95 E 3466.95
0.00					
10500.00	89.064	90.050	7240.64	3.03 S	3476.94 E 3476.95
0.00					
10510.00	89.064	90.050	7240.80	3.04 S	3486.94 E 3486.94

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0.00							
10520.00	89.064	90.050	7240.97	3.05 S	3496.94 E	3496.94	
0.00							
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0.00							
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0.00							
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	High Lonesome '23'	Federal #1H	Lateral Plan #1	Report 9-20-07.txt
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11660.00 0.02	89.055	90.047	7259.57	4.04 S 4636.79 E 4636.79
11662.12 0.02	89.055	90.047	7260.00	3.93 S 4638.90 E 4638.90

All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to WELL. Northings and Eastings are relative to well.

The Dogleg Severity is in Degrees per 100 feet.
Vertical Section is from site and calculated along an Azimuth of 90.049° (Grid).

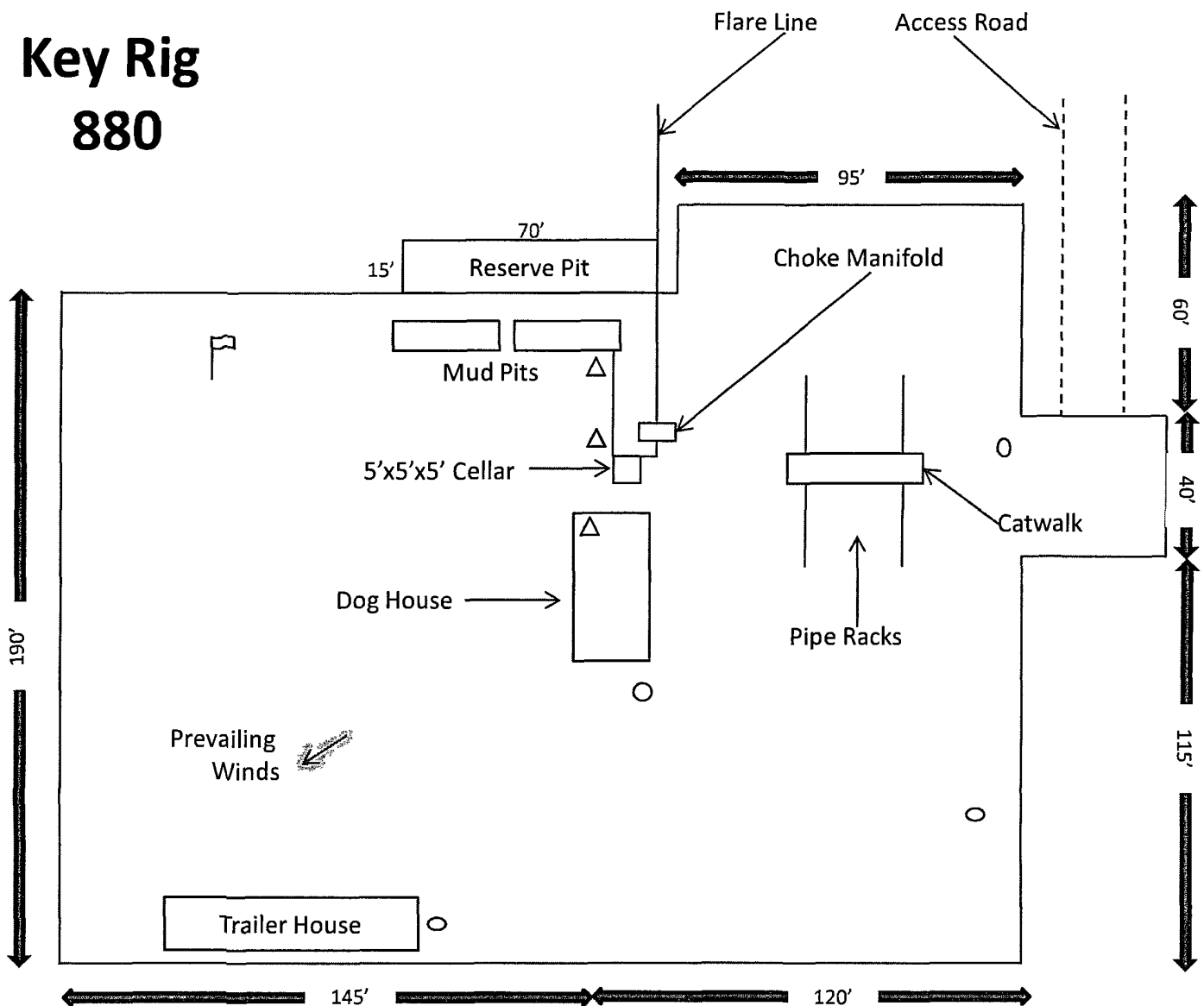
Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.

Central meridian is -104.333°.

Grid Convergence at Surface is 0.152°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 11662.12ft., the Bottom Hole Displacement is 4638.90ft., in the Direction of 90.049° (Grid).

Key Rig 880



- Wind Direction Indicators
(wind sock or streamers)
- △ H2S Monitors
(alarms at bell nipple and shale shaker)
- Briefing Areas
- Remote BOP Closing Unit

*See COA's
Pit East
V-Door South*

Exhibit D – Rig Diagram
High Lonesome 23 Federal No. 1
 Cimarex Energy Co. of Colorado
 SHL 1980' FNL & 330' FWL
 BHL 1980' FNL & 330' FEL
 Sec. 23-16S-29E
 Eddy County, NM

SR & A

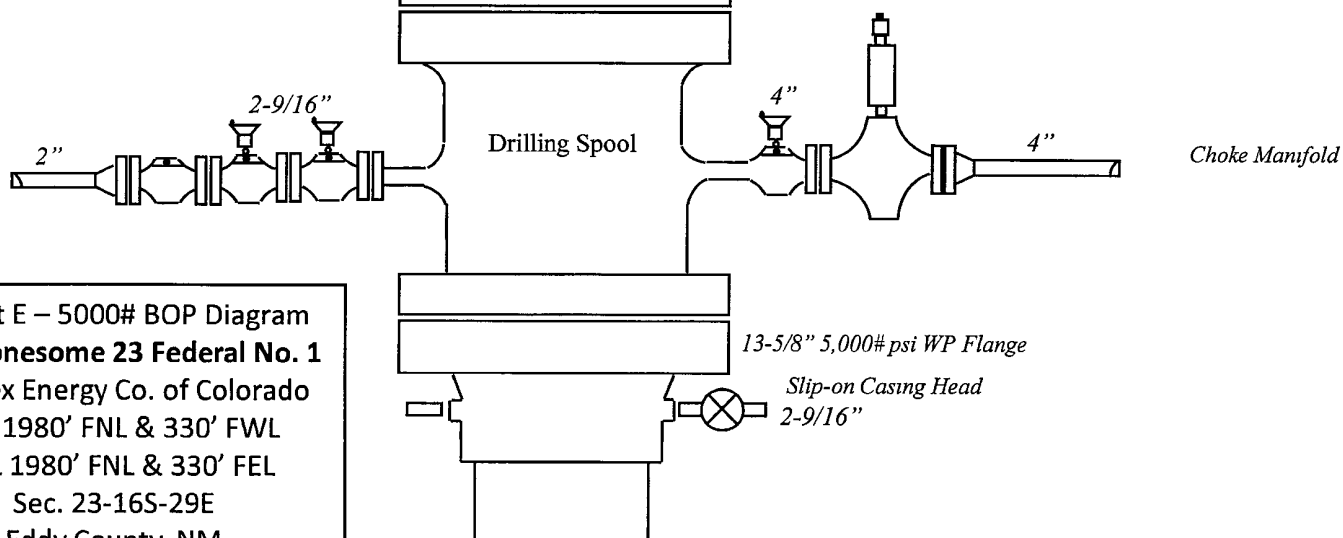
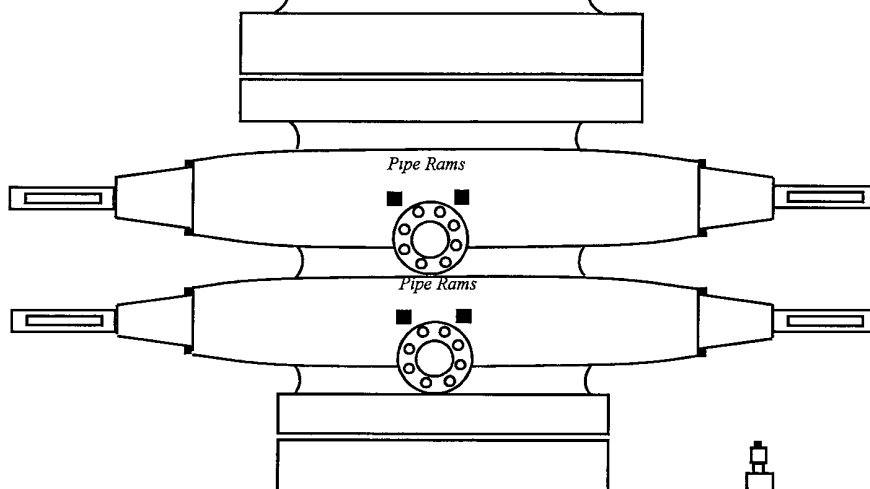
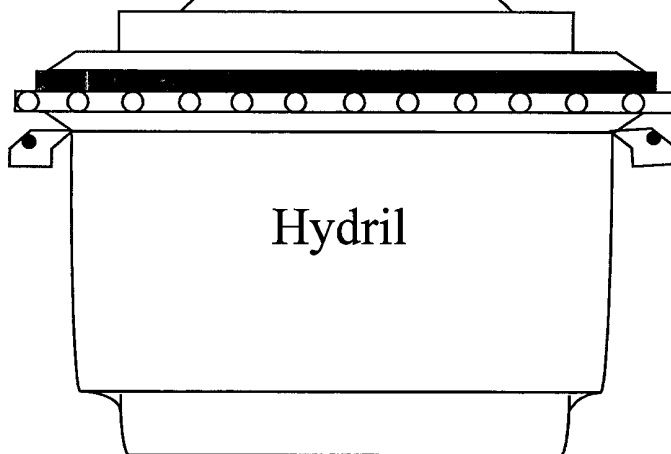
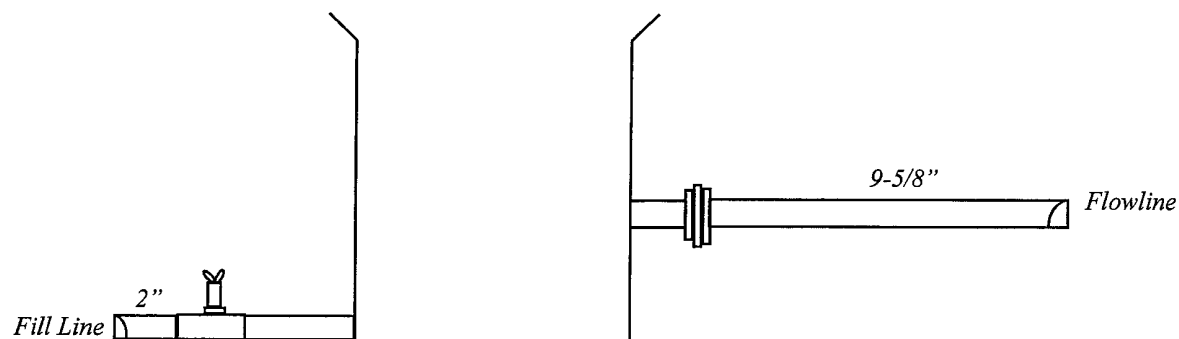


Exhibit E – 5000# BOP Diagram
High Lonesome 23 Federal No. 1
 Cimarex Energy Co. of Colorado
 SHL 1980' FNL & 330' FWL
 BHL 1980' FNL & 330' FEL
 Sec. 23-16S-29E
 Eddy County, NM

**DRILLING OPERATIONS
CHOKE MANIFOLD
5M SERVICE**

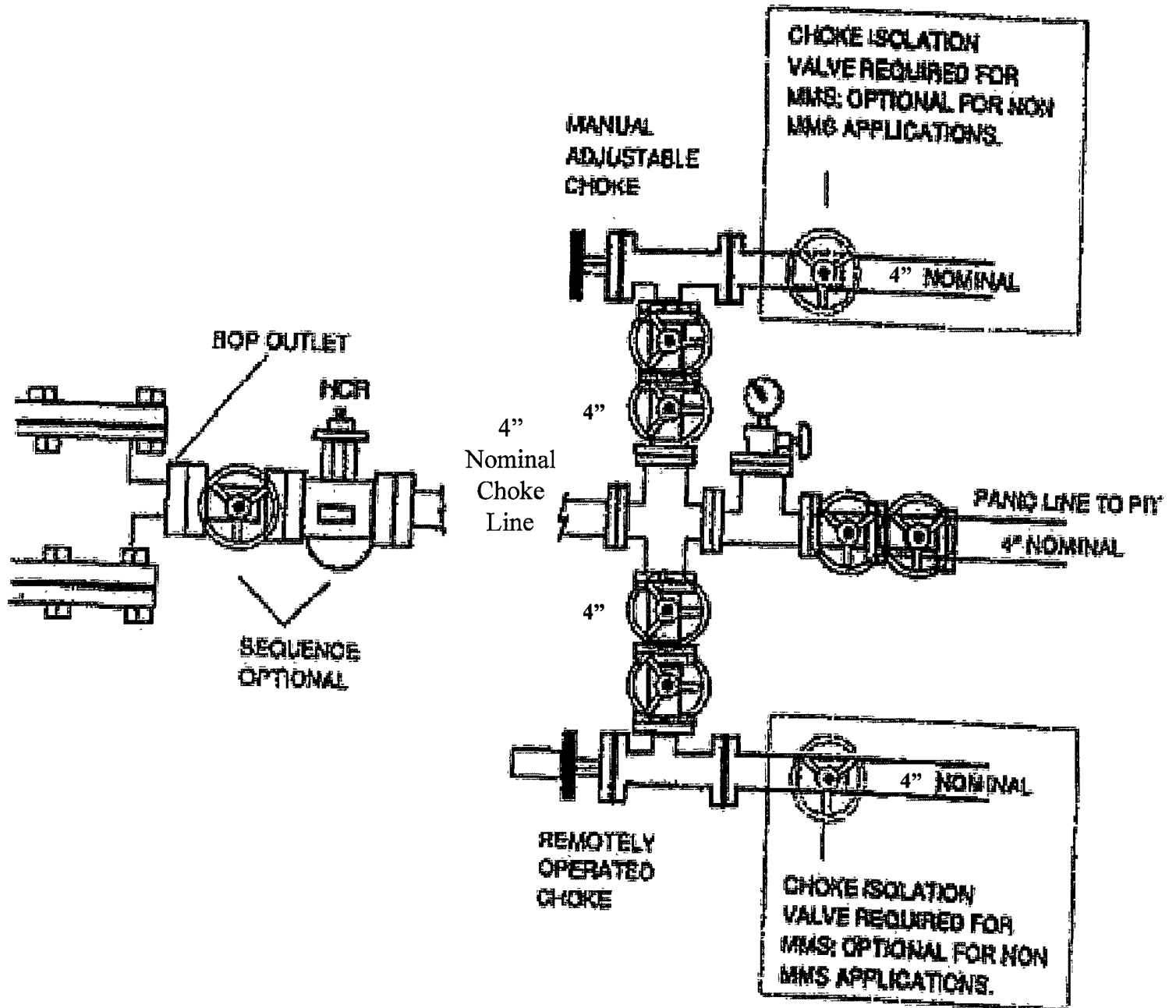


Exhibit E-1 – Choke Manifold Diagram
High Lonesome 23 Federal No. 1
 Cimarex Energy Co. of Colorado
 SHL 1980' FNL & 330' FWL
 BHL 1980' FNL & 330' FEL
 Sec. 23-16S-29E
 Eddy County, NM

Hydrogen Sulfide Drilling Operations Plan

Cimarex Energy Co. of Colorado

High Lonesome 23 Federal No. 1

Unit E Section 23

T16S R29E Eddy County, NM

- 1 All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:
 - A. Characteristics of H2S
 - B. Physical effects and hazards
 - C. Proper use of safety equipment and life support systems.
 - D. Principle and operation of H2S detectors, warning system and briefing areas.
 - E. Evacuation procedure, routes and first aid.
 - F. Proper use of 30 minute pressure demand air pack.
- 2 H2S Detection and Alarm Systems
 - A. H2S detectors and audio alarm system to be located at bell nipple, end of flow line (mud pit) and on derrick floor or doghouse.
- 3 Windsock and/or wind streamers
 - A. Windsock at mudpit area should be high enough to be visible.
 - B. Windsock at briefing area should be high enough to be visible.
- 4 Condition Flags and Signs
 - A. Warning sign on access road to location.
 - B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H2S present in dangerous concentration). Only emergency personnel admitted to location.
- 5 Well control equipment
 - A. See exhibit "E"
- 6 Communication
 - A. While working under masks chalkboards will be used for communication.
 - B. Hand signals will be used where chalk board is inappropriate.
 - C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.
- 7 Drillstem Testing

No DSTs are planned at this time.
- 8 Drilling contractor supervisor will be required to be familiar with the effects H2S has on tubular goods and other mechanical equipment.
- 9 If H2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H2S scavengers if necessary.

Surface Use Plan
Cimarex Energy Co. of Colorado
High Lonesome 23 Federal No. 1
Unit E Section 23
T16S R29E Eddy County, NM

1 Existing Roads: Area maps, Exhibit "B" is a reproduction of Eddy Co. General Highway Map. Exhibit "C" is a reproduction of a USGS Topographic Map, showing existing roads and proposed roads. All existing roads will be maintained in a condition equal to or better than current conditions. Any new roads will be constructed to BLM specifications.

A. Exhibit "A" shows the proposed well site as staked.

B. From the junction of US Hwy 82 and Co Rd 214 (Barnaval Draw), go North 6.4 miles to "Y." Take left fork and go Northwest for 0.7 miles to Pipeline ROW; thence Northeast along Pipeline ROW for 1.1 miles; thence East 0.8 miles; thence South 0.5 miles to lease road.

2 Planned Access Roads: No new access roads are proposed.

3 Location of Existing Wells in a One-Mile Radius - Exhibit A

A. Water wells - None known

B. Disposal wells - None known

C. Drilling wells - None known

D. Producing wells - As shown on Exhibit "A"

E. Abandoned wells - As shown on Exhibit "A"

Surface Use Plan
Cimarex Energy Co. of Colorado
High Lonesome 23 Federal No. 1
Unit E Section 23
T16S R29E Eddy County, NM

- 4 If on completion this well is a producer, Cimarex Energy Co. of Colorado will furnish maps and/or plats showing on site facilities or off site facilities if needed. This will be accompanied by a Sundry Notice.
- 5 Location and Type of Water Supply
Water will be purchased locally from a commercial source and trucked over the access roads or piped in flexible lines laid on top of the ground.
- 6 Source of Construction Material
If possible, construction will be obtained from the excavation of drill site. If additional material is needed, it will be purchased from a local source and transported over the access route as shown on Exhibit "C".
- 7 Methods of Handling Waste Material
 - A. Drill cuttings will be disposed of in the reserve pit.
 - B. All trash, junk and other waste material will be contained in trash cages or bins to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary land fill.
 - C. Salts remaining after completion of well will be picked up by supplier including broken sacks.
 - D. Sewage from living quarters will drain into holding tanks and be cleaned out periodically. A Porta-John will be provided for the rig crews. This equipment will be properly maintained during the drilling operations and removed upon completion of the well.
 - E. Remaining drilling fluids will be allowed to dry in the reserve pit until the pit is dry enough for breaking out. In the event that drillings fluids do not dry out in a reasonable time they will be hauled off by transports and be disposed of at a State approved disposal facility. Water produced during drilling will be put in reserve pit. Any oil or condensate produced will be stored in test tanks until sold and hauled from the site.
- 8 Ancillary Facilities
 - A. No camps or airstrips to be constructed.

Surface Use Plan
Cimarex Energy Co. of Colorado
High Lonesome 23 Federal No. 1
Unit E Section 23
T16S R29E Eddy County, NM

9 Well Site Layout

- A. Exhibit "D" shows location and rig layout.
- B. This exhibit indicates proposed location of reserve and trash pits; and living facilities.
- C. Mud pits in the active circulating system will be steel pits and the reserve pit is proposed to be lined with PVC or polyethylene liner. The pit liner will be 12 mils thick. Pit liner will extend a minimum, 2'00" over the reserve pits dikes where the liner will be anchored down.
- D. The reserve pit will be fenced on three sides with four strands of barbed wire during drilling and completion phases. The fourth side will be fenced after all drilling operations have ceased. If the well is a producer, the reserve pit fence will be torn down. The reserve pit and those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.

10 Plans for Restoration of Surface

Rehabilitation of the location and cuttings burial cell will start in a timely manner after all drilling operations cease. The type of reclamation will depend on whether the well is a producer or a dry hole.

However, in either event, the reserve pit will be allowed to dry properly, and fluid removed and disposed of in accordance with Article 7.B as previously noted. The pit area will then be leveled and contoured to conform to the original and surrounding area. Drainage systems, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be modified in certain circumstances to prevent inundation of the location's pad and surface facilities. After the area has been shaped and contoured, topsoil from the spoil pile will be placed over the disturbed area to the extent possible. Revegetation procedures will comply with BLM standards.

If the well is a dry hole, the pad and road area will be recountoured to match the existing terrain. Topsoil will be spread to the extent possible. Revegetation will comply with BLM standards.

Should the well be a producer, the previously noted procedures will apply to those areas which are not required for production facilities.

Surface Use Plan
Cimarex Energy Co. of Colorado
High Lonesome 23 Federal No. 1
Unit E Section 23
T16S R29E Eddy County, NM

11 Other Information

- A. Topography consists of a sloping plane with loose tan sands. Vegetation is mainly yucca, mesquite and shin oak.
- B. The wellsite is on surface owned by Department of the Interior, Bureau of Land Management. The land is used mainly for farming, cattle ranching, recreational use, and oil and gas production.
- C. An Archaeological survey will be conducted on the location and proposed roads, and this report will be filed with the Bureau of Land Management in the Carlsbad BLM office.
- D. There are no know dwellings within 1 1/2 miles of this location.

**Operator Certification Statement
Cimarex Energy Co. of Colorado
High Lonesome 23 Federal No. 1**

Unit E Section 23
T16S R29E Eddy County, NM

Operator's Representative

Cimarex Energy Co. of Colorado
P.O. Box 140907
Irving, TX 75014
Office Phone: (972) 443-6489
Zeno Farris

CERTIFICATION: I hereby certify that the statements and plans made in this APD are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Cimarex Energy Co. of Colorado and/or its contractors/subcontractors and is in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provision of U.S.C. 1001 for the filing of a false statement.

NAME: Zeno Farris
Zeno Farris

DATE: September 21, 2007

TITLE: Manager Operations Administration

VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 2 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(505) 361-2822

1. **Although there are no measured amounts of Hydrogen Sulfide reported, it is always a potential hazard. If Hydrogen Sulfide is encountered, please provide measured values to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

B. CASING

1. The 13-3/8 inch surface casing shall be set at **approximately 340** feet and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement).

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial action will be done prior to drilling out that string.

Possible lost circulation in the Grayburg and San Andres formations.

Possible high pressure gas bursts from the Wolfcamp formation.

- 2. The minimum required fill of cement behind the 8-5/8 inch intermediate casing is:
BLM geologist reports that lost circulation may be possible at 2500' and that a setting depth of 2700' should give a more solid casing set point.

☒ Cement to surface. If cement does not circulate see B.1.a-d above.

Cimarex bases safety factor for this string on hole being one third full.

Hole to remain liquid filled while running casing.

- 3. The minimum required fill of cement behind the 5-1/2 inch production casing is:

☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

- 4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

- 1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
- 2. The appropriate BLM office shall be notified a minimum of 2 hours in advance for a representative to witness the tests.
 - a. The tests shall be done by an independent service company.
 - b. The results of the test shall be reported to the appropriate BLM office.
 - c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

- d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.
- e. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation **if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days**. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.
- f. A variance to test only the surface casing to the reduced pressure of 1000 psi with the rig pumps is approved. **The BOP will be tested to 5000 psi by an independent service company.**

D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

Engineer on call phone (after hours): Carlsbad: (505) 706-2779

WWI 110607



Cimarex Energy Co. of Colorado

5215 North O'Connor Blvd. ♦ Suite 1500 ♦ Irving, TX 75039 ♦ (972) 401-3111 ♦ Fax (972) 443-6486

Mailing Address: P.O. Box 140907 ♦ Irving, TX 75014-0907

A subsidiary of Cimarex Energy Co. • A NYSE Listed Company • "XEC"

September 21, 2007

Oil Conservation Division
District II Office
1301 W. Grand Ave.
Artesia, New Mexico 88210
Attn: Mr. Bryan Arrant

Re: Statewide Rule 118
Hydrogen Sulfide Gas Contingency Plan
Proposed High Lonesome 23 Federal No. 1 Well

Dear Mr. Arrant:

In accordance with NMAC 19.15.3.118 C. (1) governing the determination of the hydrogen sulfide concentration in gaseous mixtures in each of its operations, Cimarex Energy Co. of Colorado does not anticipate that there will be enough H₂S from the surface to the Abo formations to meet the OCD's minimum requirements for the submission of a contingency plan for the drilling and completion of the following test(s):

High Lonesome 23 Federal No. 1
SHL 1980' FNL & 330' FWL
BHL 1980' FNL & 330' FEL
Sec. 23-16S-29E
Eddy County, NM

If anything further is needed regarding this issue, or if you have any questions, please feel free to contact the undersigned at 972-443-6489.

Yours truly,

A handwritten signature in cursive script that reads "Zeno Farris".

Zeno Farris
Manager, Operations Administration