

ATS-08-44
EA-08-181

OCD-ARTESIA

S

Form 3160-3
(April 2004)

DEC 11 2007
OCD-ARTESIA

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

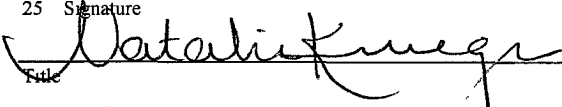
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		7 If Unit or CA Agreement, Name and No Pending	
1b Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		8 Lease Name and Well No Shifting Sands 15 Federal Com No. 3	
2 Name of Operator Cimarex Energy Co. of Colorado		9 API Well No 30-015- 35983	
3a Address PO Box 140907 Irving, TX 75014	3b Phone No (include area code) 972-401-3111	10 Field and Pool, or Exploratory Abo Wildcat	
4 Location of Well (Report location clearly and in accordance with any State requirements *) At Surface 660' FSL & 330' FWL At proposed prod Zone 660' FSL & 330' FEL		11 Sec, T R M or Blk and Survey or Area 15-16S-30E	
14 Distance in miles and direction from nearest town or post office* 6 miles North and 2 miles East		12 County or Parish Eddy	13 State NM
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 880	17 Spacing Unit dedicated to this well S2S2 160	
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft N/A	19 Proposed Depth 12194' MD 7700' TVD	20 BLM/BIA Bond No on File NM-2575	
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3793' GR	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) Natalie Krueger	Date 10.05.07
Regulatory Analyst		
Approved By (Signature) /s/ Don Peterson	Name (Printed/Typed) /s/ Don Peterson	Date DEC 07 2007
Title FOR FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

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

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

subject lease which would entitle the applicant to

APPROVAL FOR TWO YEARS

to make to any department or agency of the United

Roswell Controlled Water

**APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED**

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

DISTRICT I
1825 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 87506

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	Pool Code 97019	Pool Name Abo Wildcat
Property Code 36277	Property Name SHIFTING SANDS "15" FEDERAL COM	Well Number 3
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3793'

Surface Location

UL or lot No. M	Section 15	Township 16 S	Range 30 E	Lot Idn	Feet from the 660	North/South line SOUTH	Feet from the 330	East/West line WEST	County EDDY
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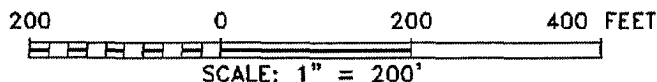
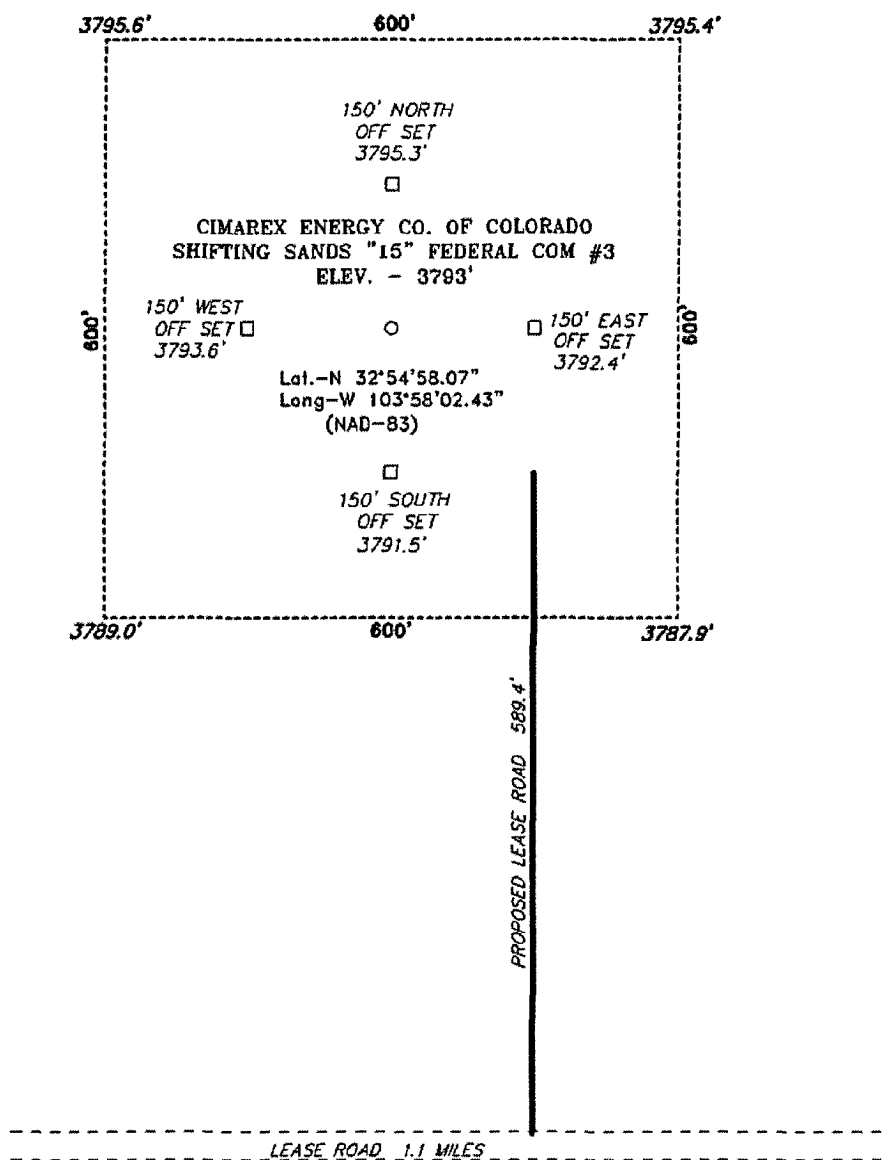
Bottom Hole Location If Different From Surface

UL or lot No. P	Section 15	Township 16 S	Range 30 E	Lot Idn	Feet from the 660' 1980	North/South line SOUTH	Feet from the 330	East/West line EAST	County EDDY
Dedicated Acres 160	Joint or Infill	Consolidation Code P	Order No.						

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

<p><u>SURFACE LOCATION</u> Lat - N32°54'58.07" Long - W103°58'02.43" SHL - N 697215.836 E 653651.180 (NAD-83)</p>		<p><u>BOTTOM HOLE LOCATION</u> Lat - N32°54'58.03" Long - W103°57'08.17" NMSPCE - N 697228.669 E 658274.915 (NAD-83)</p>		<p>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. Natalie Krueger 10-05-07 Signature Date Natalie Krueger Printed Name</p>
<p>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 28, 2007 Date Surveyed Signature of Seal Professional Surveyor W.C. [Signature]</p>		<p>Certificate No. Gary L. Jones 7977 BASIN SURVEYS</p>		
<p>LC-069641 NM-0560378 4625.4' Shifting Sands 15 Fed Com #3</p>				

SECTION 15, TOWNSHIP 16 SOUTH, RANGE 30 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM JUNCTION OF US HWY 82 AND CO. RD. 217,
GO NORTH ON CO. RD. 217 FOR 6.6 MILES TO CO.
RD. 253, ON CO. RD. 253 GO EAST 1.1 MILES TO
PROPOSED LEASE ROAD.

BASIN SURVEYS P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 18595 Drawn By: J. SMALL

Date: 10-01-2007 Disk: JMS 18595W

CIMAREX ENERGY CO. OF COLORADO

REF: SHIFTING SANDS "15" FEDERAL COM #3 / WELL PAD TOPO

THE SHIFTING SANDS "15" FEDERAL COM #3 LOCATED 660'
FROM THE SOUTH LINE AND 330' FROM THE WEST LINE OF
SECTION 15, TOWNSHIP 16 SOUTH, RANGE 30 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 09-28-2007 Sheet 1 of 1 Sheets

Application to Drill
Cimarex Energy Co. of Colorado
Shifting Sands 15 Federal Com No. 3
Unit M Section 15
T16S R30E 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 660' FSL & 330' FWL
 BHL ~~1980'~~^{660'} FSL & 330' FEL
- 2 Elevation above sea level: 3793' 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: 12194' MD @ 7700' TVD
- 6 Estimated tops of geological markers:
 Grayburg 2,500'
 San Andres 2,950'
 Abo Shale 6,425'
 Lower Abo Dolomite 7,620'
 Wolfcamp 7,700'
- 7 Possible mineral bearing formation:
 Abo Oil Primary

8 Proposed Mud Circulating System:

See COA

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 450'	8.4 - 8.6	28-29	May lose circ	FW spud mud
450' to 3,150'	10.0	28-29	May lose circ	Brine Water
3,150' to 12,194'	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 7950.' Set kick-off plug at 7650.' Kick off horizontal leg at 7450' and drill 7-7/8" hole to 12194' MD, 7700' 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
Shifting Sands 15 Federal Com No. 3
Unit M Section 15
T16S R30E Eddy County, NM

9 Casing & Cementing Program:

see COA

Hole Size	Depth	Casing OD	Weight	Thread	Collar	Grade
17-1/2	0 to 450'	New 13-3/8	48#	8-R	STC	H-40
11	0 to 3,150'	New 8-5/8	24#	8-R	LTC	J-55
7-7/8	0 to 12,194'	New 5-1/2	17#	8-R	LTC	N-80

10 Cementing & Setting Depth:

13-3/8 Surface Set 450' of 13-3/8 48# H-40 STC
Lead: 100 sx Premium Plus Thixotropic + 1% CaCl₂ + 10# Gilsonite + 0.125# Poly-e-flake (wt 14.5, yld 1.55)
2nd Lead: 100 sx Howco Lite + 1% CaCl₂ + 0.125# Poly-e-flake (wt 12.5, yld 1.97)
Tail: 270 sx Premium Plus + 2% CaCl₂ (wt 14.8, yld 1.34)
TOC Surface

8-5/8 Intermediate Set 3,150' of 8-5/8 24# J-55 LTC
Lead: 460 sx Interfill C + 0.125% Poly-e-flake (wt 11.9, yld 2.45)
Tail: 200 sx Prem Plus + 1% CaCl₂ (wt 14.8, yld 1.33)
TOC Surface

5-1/2 Production Set 12,194' of 5-1/2 17# N-80 LTC
Lead: 650 sx Interfill H + 0.125# Poly-e-flake (wt 11.5, yld 2.76)
Tail: 600 sx Super H + 0.5% Halad + 0.4% CFR-3 + 1# Salt + 5# Gilsonite + 0.125# Poly-e-flake + 0.35% HR-7 (wt 13.0, yld 1.68)
TOC 2950'

Fresh water will be protected by setting 13-3/8 casing at 450' and cementing to Surface
Hydrocarbon zones will be protected by setting 8-5/8 casing at 3,150' and cementing to Surface
and by setting 5-1/2 casing at 12,194' and cementing to 2950'

Cimarex uses the following minimum safety factors:

Burst	Collapse	Tension
1.125	1.0	1.80

Application to Drill
Cimarex Energy Co. of Colorado
Shifting Sands 15 Federal Com No. 3
Unit M Section 15
T16S R30E 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 6000' 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.

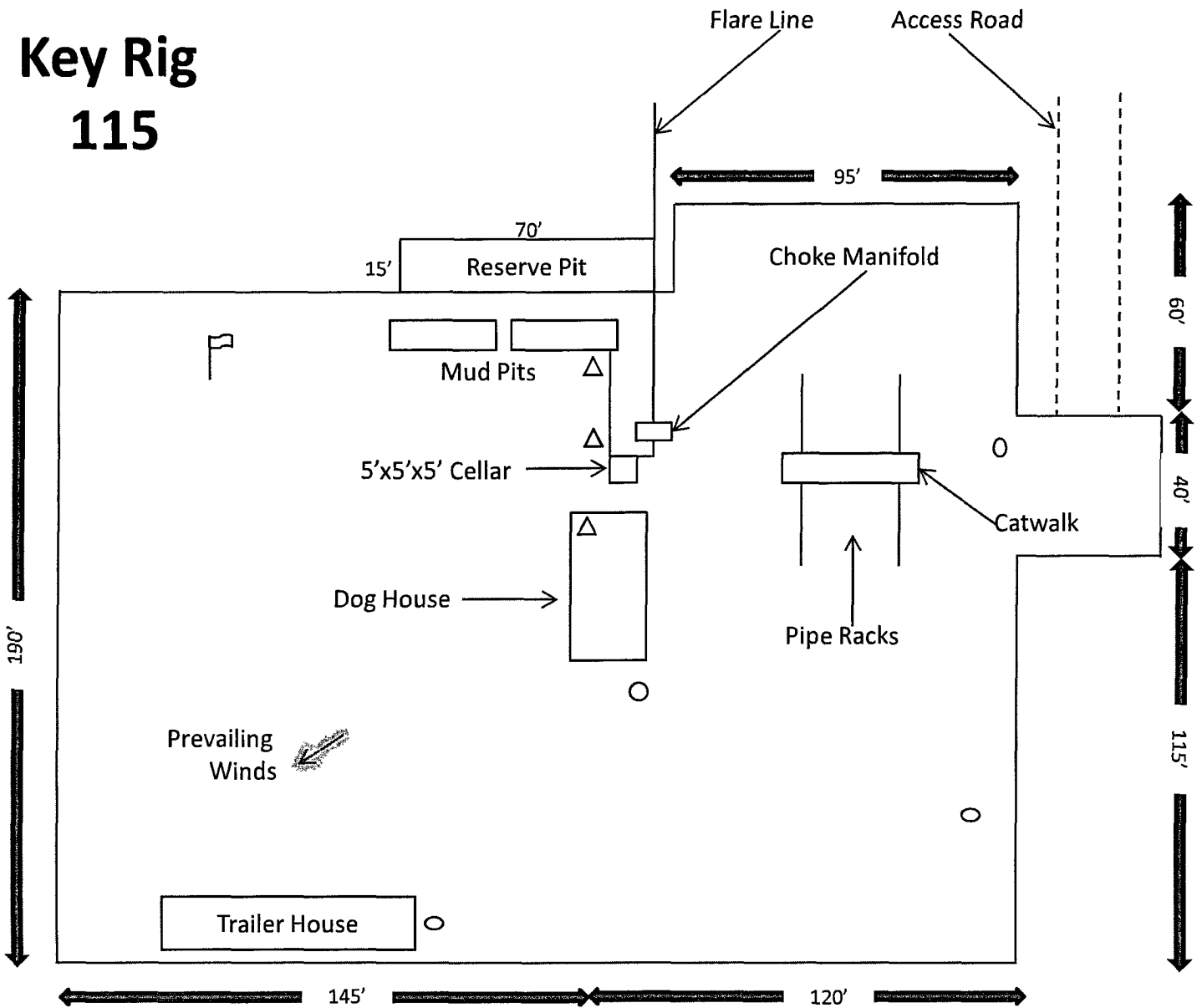
15 Other Facets of Operations:

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**

Key Rig 115

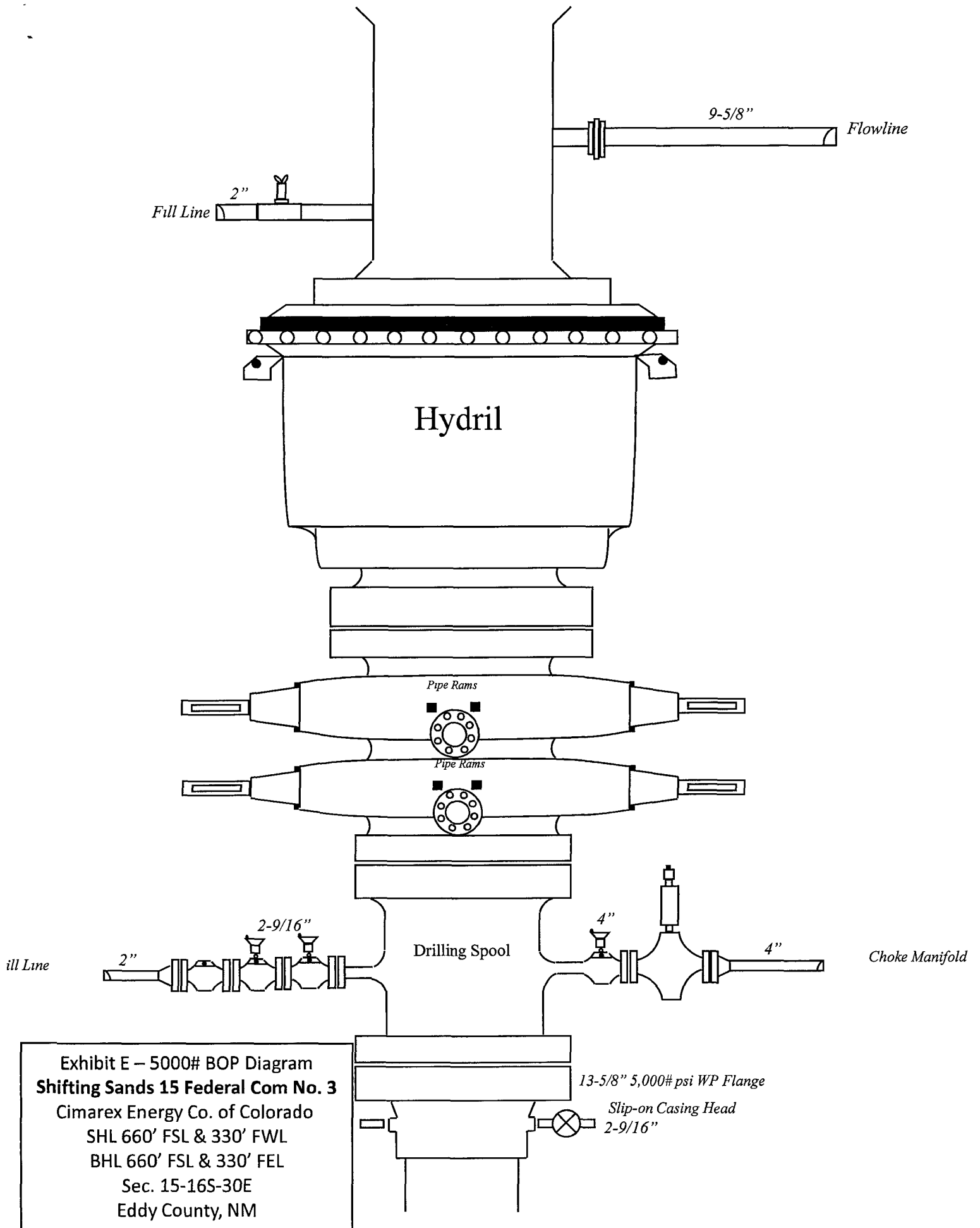


- Wind Direction Indicators
(wind sock or streamers)
- △ H2S Monitors
(alarms at bell nipple and shale shaker)
- Briefing Areas
- Remote BOP Closing Unit

See COA's

Exhibit D – Rig Diagram
Shifting Sands 15 Federal Com No. 3
 Cimarex Energy Co. of Colorado
 SHL 660' FSL & 330' FWL
 BHL 660' FSL & 330' FEL
 Sec. 15-16S-30E
 Eddy County, NM M

SR & A



**DRILLING OPERATIONS
CHOKE MANIFOLD
SM SERVICE**

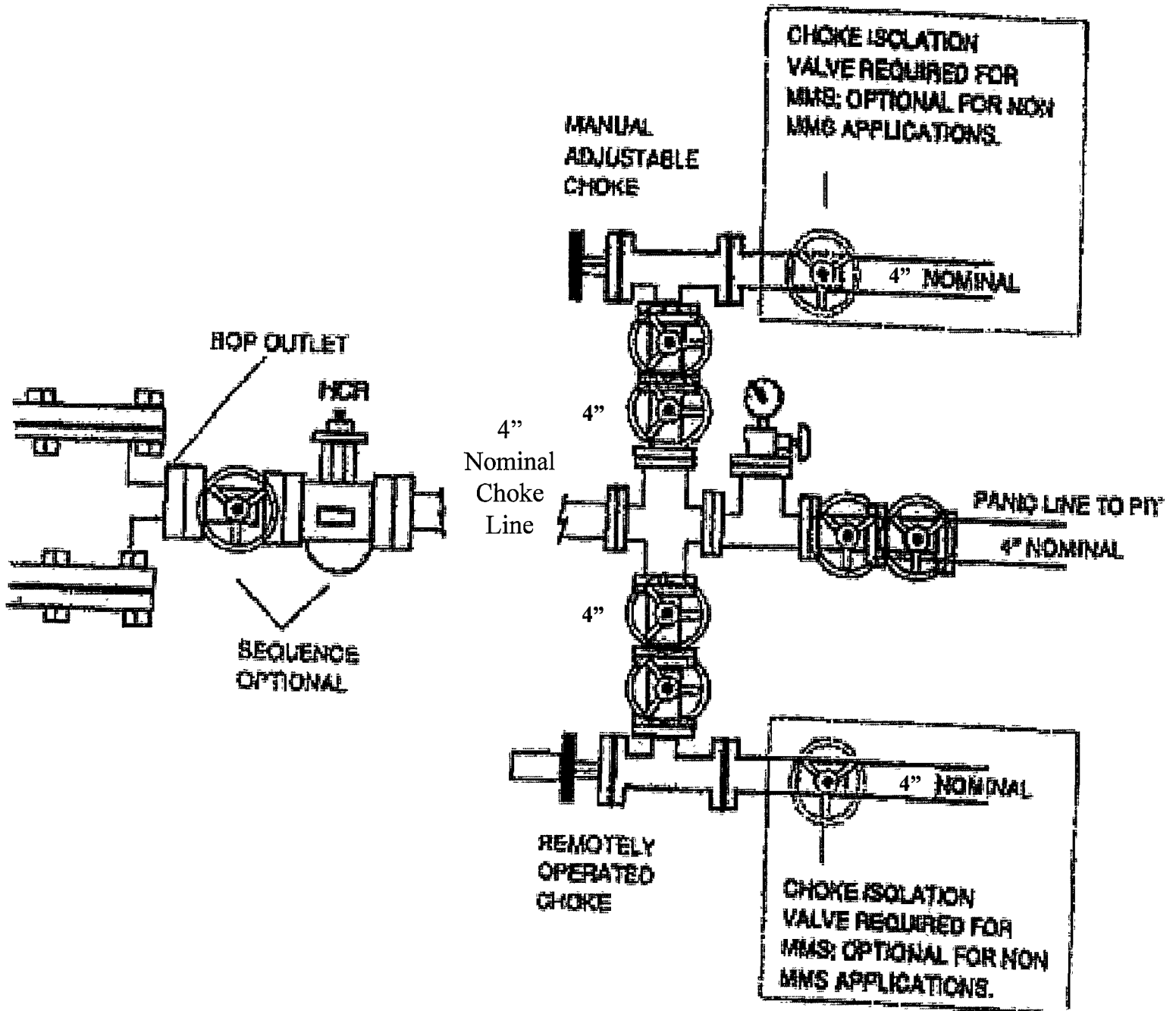
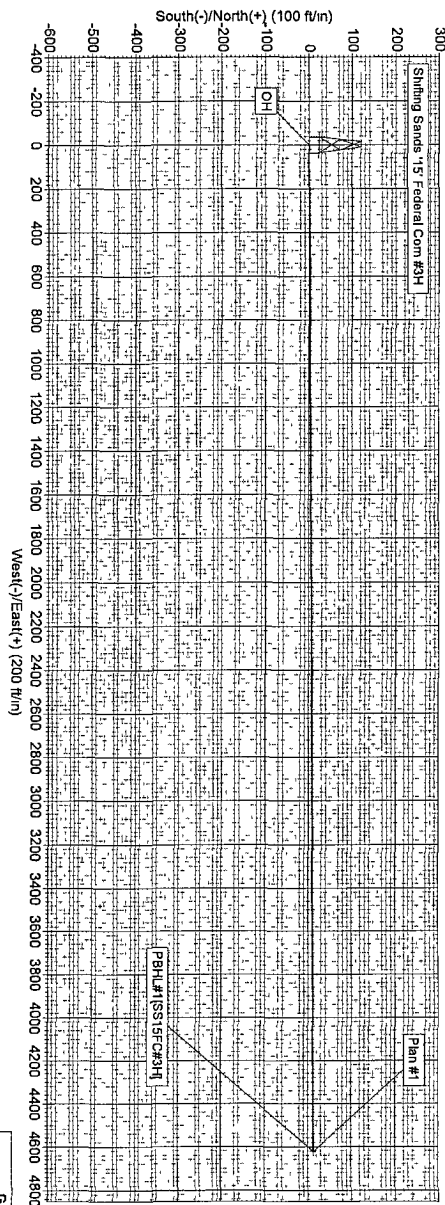


Exhibit E-1 – Choke Manifold Diagram
Shifting Sands 15 Federal Com No. 3
Cimarex Energy Co. of Colorado
SHL 660' FSL & 330' FWL
BHL 660' FSL & 330' FEL
Sec. 15-16S-30E
Eddy County, NM

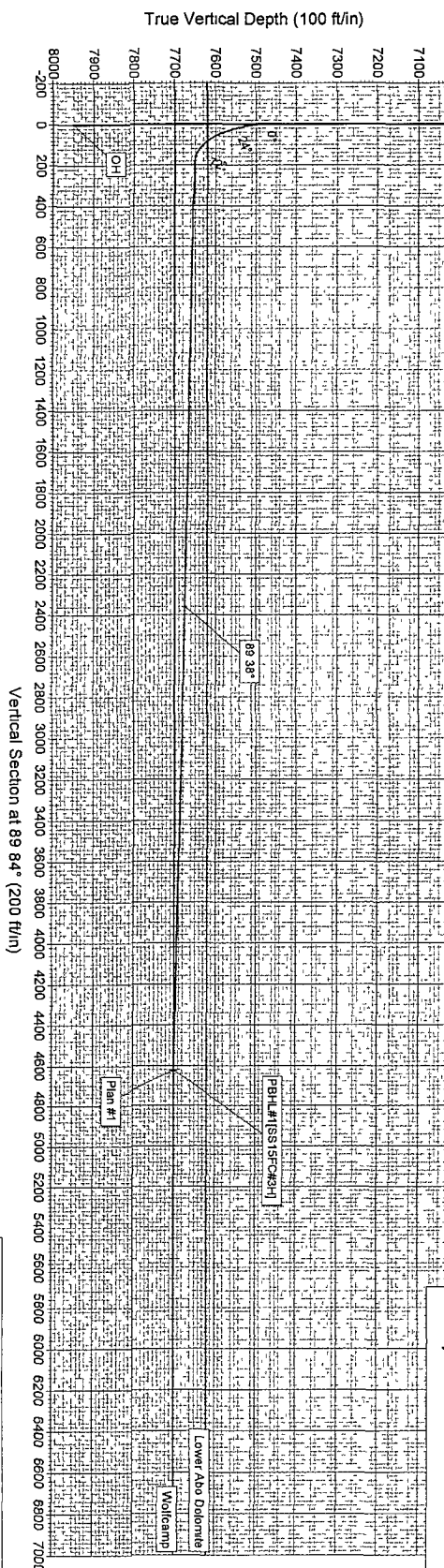
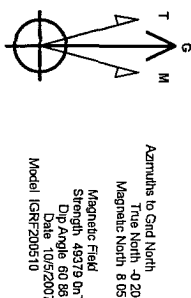


Project Eddy Co., New Mexico
Site Shilling Sands '15' Federal Com #3H
Well Shilling Sands '15' Federal Com #3H
Wellbore Lateral #1
Plan Plan #1 (Shilling Sands '15' Federal Com #3H-Lateral #1)



ANNOTATIONS
No annotation data is available

Sec	MD	Inc	As	TVD	+MS	+Ely	Dleg	TFace	VSec	Target
1	7450.00	0.00	0.00	7450.00	0.00	0.00	0.00	0.00	0.00	
2	7461.03	0.00	88.84	7461.03	0.52	188.92	39.00	89.84	0.52	
3	7758.97	89.38	89.84	7652.01	12.83	4623.74	0.00	0.00	12.83	PBHL#1(S515FCM3H)
4	12194.07	89.38	89.84	7700.00						





Cimarex Energy Co., Inc.

Eddy Co., New Mexico

Shifting Sands '15' Federal Com #3H

Shifting Sands '15' Federal Com #3H

Lateral #1

Plan: Plan #1

Standard Survey Report

05 October, 2007





Black Viper Energy Survey Report



Company:	Cimarex Energy Co., Inc.	Local Co-ordinate Reference:	Well Shifting Sands '15' Federal Com #3H
Project:	Eddy Co., New Mexico	TVD Reference:	WELL @ 3793 00ft (Original Well Elev)
Site:	Shifting Sands '15' Federal Com #3H	MD Reference:	WELL @ 3793 00ft (Original Well Elev)
Well:	Shifting Sands '15' Federal Com #3H	North Reference:	Grid
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:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Shifting Sands '15' Federal Com #3H			
Site Position:		Northing:	697,215 84 ft	Latitude:	32° 54' 58 038 N
From:	Map	Easting:	653,651 18 ft	Longitude:	103° 58' 2 412 W
Position Uncertainty:	0 00 ft	Slot Radius:	"	Grid Convergence:	0 20 °

Well	Shifting Sands '15' Federal Com #3H					
Well Position	+N/-S	0 00 ft	Northing:	697,215 84 ft	Latitude:	32° 54' 58 038 N
	+E/-W	0 00 ft	Easting:	653,651 18 ft	Longitude:	103° 58' 2 412 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	10/5/2007	8 25	60 86	49,379

Design:	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	7,450 00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0 00	0 00	0 00	89 84

Survey Tool Program		Date	10/5/2007		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
7,450 00	12,194 07	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)
7,450 00	0 00	0 00	7,450 00	0 00	0 00	0 00	0 00	0 00	0 00
7,461 03	0 00	0 00	7,461 03	0 00	0 00	0 00	0 00	0 00	0 00
7,470 00	2 69	89 84	7,470 00	0 00	0 21	0 21	30 00	30 00	0 00
7,480 00	5 69	89 84	7,479 97	0 00	0 94	0 94	30 00	30 00	0 00
7,490 00	8 69	89 84	7,489 89	0 01	2 19	2 19	30 00	30 00	0 00
7,500 00	11 69	89 84	7,499 73	0 01	3 96	3 96	30 00	30 00	0 00
7,510 00	14 69	89 84	7,509 47	0 02	6 24	6 24	30 00	30 00	0 00
7,520 00	17 69	89 84	7,519 07	0 03	9 03	9 03	30 00	30 00	0 00
7,530 00	20 69	89 84	7,528 51	0 03	12 32	12 32	30 00	30 00	0 00
7,540 00	23 69	89 84	7,537 77	0 04	16 09	16 09	30 00	30 00	0 00
7,550 00	26 69	89 84	7,546 82	0 06	20 35	20 35	30 00	30 00	0 00
7,560 00	29 69	89 84	7,555 63	0 07	25 07	25 07	30 00	30 00	0 00
7,570 00	32 69	89 84	7,564 18	0 08	30 25	30 25	30 00	30 00	0 00



Black Viper Energy Survey Report



Company:	Cimarex Energy Co., Inc	Local Co-ordinate Reference:	Well Shifting Sands '15' Federal Com #3H
Project:	Eddy Co., New Mexico	TVD Reference:	WELL @ 3793 00ft (Original Well Elev)
Site:	Shifting Sands '15' Federal Com #3H	MD Reference:	WELL @ 3793 00ft (Original Well Elev)
Well:	Shifting Sands '15' Federal Com #3H	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)
7,580 00	35 69	89 84	7,572 45	0 10	35 87	35 87	30 00	30 00	0 00
7,590 00	38 69	89 84	7,580 42	0 12	41 91	41 91	30 00	30 00	0 00
7,600 00	41 69	89 84	7,588 06	0 13	48 37	48 37	30 00	30 00	0 00
7,610 00	44 69	89 84	7,595 35	0 15	55 21	55 21	30 00	30 00	0 00
7,620 00	47 69	89 84	7,602 27	0 17	62 42	62 43	30 00	30 00	0 00
7,630 00	50 69	89 84	7,608 80	0 19	69 99	69 99	30 00	30 00	0 00
7,640 00	53 69	89 84	7,614 93	0 22	77 89	77 89	30 00	30 00	0 00
7,648 84	56 34	89 84	7,620 00	0 24	85 13	85 13	30 00	30 00	0 00
Lower Abo Dolomite									
7,650 00	56 69	89 84	7,620 64	0 24	86 10	86 10	30 00	30 00	0 00
7,660 00	59 69	89 84	7,625 91	0 26	94 60	94 60	30 00	30 00	0 00
7,670 00	62 69	89 84	7,630 73	0 29	103 36	103 36	30 00	30 00	0 00
7,680 00	65 69	89 84	7,635 09	0 31	112 36	112 36	30 00	30 00	0 00
7,690 00	68 69	89 84	7,638 96	0 34	121 58	121 58	30 00	30 00	0 00
7,700 00	71 69	89 84	7,642 35	0 36	130 99	130 99	30 00	30 00	0 00
7,710 00	74 69	89 84	7,645 24	0 39	140 56	140 56	30 00	30 00	0 00
7,720 00	77 69	89 84	7,647 63	0 42	150 27	150 27	30 00	30 00	0 00
7,730 00	80 69	89 84	7,649 50	0 44	160 09	160 09	30 00	30 00	0 00
7,740 00	83 69	89 84	7,650 86	0 47	169 99	169 99	30 00	30 00	0 00
7,750 00	86 69	89 84	7,651 70	0 50	179 96	179 96	30 00	30 00	0 00
7,758 97	89 38	89 84	7,652 01	0 52	188 92	188 92	30 00	30 00	0 00
7,800 00	89 38	89 84	7,652 45	0 64	229 95	229 95	0 00	0 00	0 00
7,900 00	89 38	89 84	7,653 53	0 92	329 94	329 94	0 00	0 00	0 00
8,000 00	89 38	89 84	7,654 62	1 19	429 94	429 94	0 00	0 00	0 00
8,100 00	89 38	89 84	7,655 70	1 47	529 93	529 93	0 00	0 00	0 00
8,200 00	89 38	89 84	7,656 78	1 75	629 92	629 93	0 00	0 00	0 00
8,300 00	89 38	89 84	7,657 86	2 03	729 92	729 92	0 00	0 00	0 00
8,400 00	89 38	89 84	7,658 95	2 30	829 91	829 91	0 00	0 00	0 00
8,500 00	89 38	89 84	7,660 03	2 58	929 91	929 91	0 00	0 00	0 00
8,600 00	89 38	89 84	7,661 11	2 86	1,029 90	1,029 90	0 00	0 00	0 00
8,700 00	89 38	89 84	7,662 19	3 14	1,129 89	1,129 90	0 00	0 00	0 00
8,800 00	89 38	89 84	7,663 27	3 41	1,229 89	1,229 89	0 00	0 00	0 00
8,900 00	89 38	89 84	7,664 36	3 69	1,329 88	1,329 89	0 00	0 00	0 00
9,000 00	89 38	89 84	7,665 44	3 97	1,429 87	1,429 88	0 00	0 00	0 00
9,100 00	89 38	89 84	7,666 52	4 25	1,529 87	1,529 87	0 00	0 00	0 00
9,200 00	89 38	89 84	7,667 60	4 52	1,629 86	1,629 87	0 00	0 00	0 00
9,300 00	89 38	89 84	7,668 68	4 80	1,729 86	1,729 86	0 00	0 00	0 00
9,400 00	89 38	89 84	7,669 77	5 08	1,829 85	1,829 86	0 00	0 00	0 00
9,500 00	89 38	89 84	7,670 85	5 36	1,929 84	1,929 85	0 00	0 00	0 00
9,600 00	89 38	89 84	7,671 93	5 63	2,029 84	2,029 84	0 00	0 00	0 00
9,700 00	89 38	89 84	7,673 01	5 91	2,129 83	2,129 84	0 00	0 00	0 00
9,800 00	89 38	89 84	7,674 09	6 19	2,229 82	2,229 83	0 00	0 00	0 00
9,900 00	89 38	89 84	7,675 18	6 47	2,329 82	2,329 83	0 00	0 00	0 00
10,000 00	89 38	89 84	7,676 26	6 74	2,429 81	2,429 82	0 00	0 00	0 00
10,100 00	89 38	89 84	7,677 34	7 02	2,529 81	2,529 82	0 00	0 00	0 00
10,200 00	89 38	89 84	7,678 42	7 30	2,629 80	2,629 81	0 00	0 00	0 00
10,300 00	89 38	89 84	7,679 50	7 58	2,729 79	2,729 80	0 00	0 00	0 00
10,400 00	89 38	89 84	7,680 59	7 85	2,829 79	2,829 80	0 00	0 00	0 00
10,500 00	89 38	89 84	7,681 67	8 13	2,929 78	2,929 79	0 00	0 00	0 00
10,600 00	89 38	89 84	7,682 75	8 41	3,029 77	3,029 79	0 00	0 00	0 00
10,700 00	89 38	89 84	7,683 83	8 69	3,129 77	3,129 78	0 00	0 00	0 00
10,800 00	89 38	89 84	7,684 92	8 96	3,229 76	3,229 77	0 00	0 00	0 00
10,900 00	89 38	89 84	7,686 00	9 24	3,329 76	3,329 77	0 00	0 00	0 00
11,000 00	89 38	89 84	7,687 08	9 52	3,429 75	3,429 76	0 00	0 00	0 00



Black Viper Energy
Survey Report



Company:	Cimarex Energy Co , Inc	Local Co-ordinate Reference:	Well Shifting Sands '15' Federal Com #3H
Project:	Eddy Co , New Mexico	TVD Reference:	WELL @ 3793 00ft (Original Well Elev)
Site:	Shifting Sands '15' Federal Com #3H	MD Reference:	WELL @ 3793 00ft (Original Well Elev)
Well:	Shifting Sands '15' Federal Com #3H	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)	Bulld Rate (°/100ft)	Turn Rate (°/100ft)
11,100 00	89 38	89 84	7,688 16	9 80	3,529 74	3,529 76	0 00	0 00	0 00
11,200 00	89 38	89 84	7,689 24	10 07	3,629 74	3,629 75	0 00	0 00	0 00
11,300 00	89 38	89 84	7,690 33	10 35	3,729 73	3,729 75	0 00	0 00	0 00
11,400 00	89 38	89 84	7,691 41	10 63	3,829 72	3,829 74	0 00	0 00	0 00
11,500 00	89 38	89 84	7,692 49	10 91	3,929 72	3,929 73	0 00	0 00	0 00
11,600 00	89 38	89 84	7,693 57	11 18	4,029 71	4,029 73	0 00	0 00	0 00
11,700 00	89 38	89 84	7,694 65	11 46	4,129 71	4,129 72	0 00	0 00	0 00
11,800 00	89 38	89 84	7,695 74	11 74	4,229 70	4,229 72	0 00	0 00	0 00
11,900 00	89 38	89 84	7,696 82	12 02	4,329 69	4,329 71	0 00	0 00	0 00
12,000 00	89 38	89 84	7,697 90	12 29	4,429 69	4,429 70	0 00	0 00	0 00
12,100 00	89 38	89 84	7,698 98	12 57	4,529 68	4,529 70	0 00	0 00	0 00
12,194 07	89 38	89 84	7,700 00	12 83	4,623 74	4,623 76	0 00	0 00	0 00
Wolfcamp - PBHL#1[SS15FC#3H]									

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[SS15FC#3H]	0 00	0 00	7,700 00	12 83	4,623 74	697,228 67	658,274 92	32° 54' 58 002 N	103° 57' 8 169 W
- plan hits target									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
	6,425 00	Abo Shale		0 00		
7,648 84	7,620 00	Lower Abo Dolomite		0 00		
12,194 07	7,700 00	Wolfcamp		0 00		

Checked By _____ Approved By: _____ Date: _____

Shifting Sands '15' Federal Com #3H Lateral Plan #1 Report 10-05-07.txt
 Cimarex Energy Co., Inc.
 Shifting Sands '15' Federal Com #3H - Plan #1

Eddy Co., New Mexico
 Shifting Sands '15' Federal Com #3H

Measured Dogleg Depth Rate (ft) (°/100ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)
7450.00	0.000	0.000	7450.00	0.00 N	0.00 E	0.00
0.00						
7461.03	0.000	0.000	7461.03	0.00 N	0.00 E	0.00
0.00						
7470.00	2.690	89.841	7470.00	0.00 N	0.21 E	0.21
30.00						
7480.00	5.690	89.841	7479.97	0.00 N	0.94 E	0.94
30.00						
7490.00	8.690	89.841	7489.89	0.01 N	2.19 E	2.19
30.00						
7500.00	11.690	89.841	7499.73	0.01 N	3.96 E	3.96
30.00						
7510.00	14.690	89.841	7509.47	0.02 N	6.24 E	6.24
30.00						
7520.00	17.690	89.841	7519.07	0.03 N	9.03 E	9.03
30.00						
7530.00	20.690	89.841	7528.51	0.03 N	12.32 E	12.32
30.00						
7540.00	23.690	89.841	7537.77	0.04 N	16.09 E	16.09
30.00						
7550.00	26.690	89.841	7546.82	0.06 N	20.35 E	20.35
30.00						
7560.00	29.690	89.841	7555.63	0.07 N	25.07 E	25.07
30.00						
7570.00	32.690	89.841	7564.18	0.08 N	30.25 E	30.25
30.00						
7580.00	35.690	89.841	7572.45	0.10 N	35.87 E	35.87
30.00						
7590.00	38.690	89.841	7580.42	0.12 N	41.91 E	41.91
30.00						
7600.00	41.690	89.841	7588.06	0.13 N	48.37 E	48.37
30.00						
7610.00	44.690	89.841	7595.35	0.15 N	55.21 E	55.21
30.00						
7620.00	47.690	89.841	7602.27	0.17 N	62.42 E	62.43
30.00						
7630.00	50.690	89.841	7608.80	0.19 N	69.99 E	69.99
30.00						
7640.00	53.690	89.841	7614.93	0.22 N	77.89 E	77.89
30.00						
7650.00	56.690	89.841	7620.64	0.24 N	86.10 E	86.10
30.00						
7660.00	59.690	89.841	7625.91	0.26 N	94.60 E	94.60
30.00						
7670.00	62.690	89.841	7630.73	0.29 N	103.36 E	103.36
30.00						
7680.00	65.690	89.841	7635.09	0.31 N	112.36 E	112.36
30.00						
7690.00	68.690	89.841	7638.96	0.34 N	121.58 E	121.58
30.00						

Shifting Sands '15' Federal Com #3H Lateral Plan #1 Report 10-05-07.txt

7700.00	71.690	89.841	7642.35	0.36 N	130.99 E	130.99
30.00						
7710.00	74.690	89.841	7645.24	0.39 N	140.56 E	140.56
30.00						
7720.00	77.690	89.841	7647.63	0.42 N	150.27 E	150.27
30.00						
7730.00	80.690	89.841	7649.50	0.44 N	160.09 E	160.09
30.00						
7740.00	83.690	89.841	7650.86	0.47 N	169.99 E	169.99
30.00						
7750.00	86.690	89.841	7651.70	0.50 N	179.96 E	179.96
30.00						
7758.97	89.380	89.841	7652.01	0.52 N	188.92 E	188.92
30.00						
7800.00	89.380	89.841	7652.45	0.64 N	229.95 E	229.95
0.00						
7900.00	89.380	89.841	7653.53	0.92 N	329.94 E	329.94
0.00						
8000.00	89.380	89.841	7654.62	1.19 N	429.94 E	429.94
0.00						
8100.00	89.380	89.841	7655.70	1.47 N	529.93 E	529.93
0.00						
8200.00	89.380	89.841	7656.78	1.75 N	629.92 E	629.93
0.00						
8300.00	89.380	89.841	7657.86	2.03 N	729.92 E	729.92
0.00						
8400.00	89.380	89.841	7658.95	2.30 N	829.91 E	829.91
0.00						
8500.00	89.380	89.841	7660.03	2.58 N	929.91 E	929.91
0.00						
8600.00	89.380	89.841	7661.11	2.86 N	1029.90 E	1029.90
0.00						
8700.00	89.380	89.841	7662.19	3.14 N	1129.89 E	1129.90
0.00						
8800.00	89.380	89.841	7663.27	3.41 N	1229.89 E	1229.89
0.00						
8900.00	89.380	89.841	7664.36	3.69 N	1329.88 E	1329.89
0.00						
9000.00	89.380	89.841	7665.44	3.97 N	1429.87 E	1429.88
0.00						
9100.00	89.380	89.841	7666.52	4.25 N	1529.87 E	1529.87
0.00						
9200.00	89.380	89.841	7667.60	4.52 N	1629.86 E	1629.87
0.00						
9300.00	89.380	89.841	7668.68	4.80 N	1729.86 E	1729.86
0.00						
9400.00	89.380	89.841	7669.77	5.08 N	1829.85 E	1829.86
0.00						
9500.00	89.380	89.841	7670.85	5.36 N	1929.84 E	1929.85
0.00						
9600.00	89.380	89.841	7671.93	5.63 N	2029.84 E	2029.84
0.00						
9700.00	89.380	89.841	7673.01	5.91 N	2129.83 E	2129.84
0.00						
9800.00	89.380	89.841	7674.09	6.19 N	2229.82 E	2229.83
0.00						
9900.00	89.380	89.841	7675.18	6.47 N	2329.82 E	2329.83
0.00						
10000.00	89.380	89.841	7676.26	6.74 N	2429.81 E	2429.82
0.00						
10100.00	89.380	89.841	7677.34	7.02 N	2529.81 E	2529.82
0.00						
10200.00	89.380	89.841	7678.42	7.30 N	2629.80 E	2629.81

Shifting Sands '15' Federal Com #3H Lateral Plan #1 Report 10-05-07.txt

0.00						
10300.00	89.380	89.841	7679.50	7.58 N	2729.79 E	2729.80
0.00						
10400.00	89.380	89.841	7680.59	7.85 N	2829.79 E	2829.80
0.00						
10500.00	89.380	89.841	7681.67	8.13 N	2929.78 E	2929.79
0.00						
10600.00	89.380	89.841	7682.75	8.41 N	3029.77 E	3029.79
0.00						
10700.00	89.380	89.841	7683.83	8.69 N	3129.77 E	3129.78
0.00						
10800.00	89.380	89.841	7684.92	8.96 N	3229.76 E	3229.77
0.00						
10900.00	89.380	89.841	7686.00	9.24 N	3329.76 E	3329.77
0.00						
11000.00	89.380	89.841	7687.08	9.52 N	3429.75 E	3429.76
0.00						
11100.00	89.380	89.841	7688.16	9.80 N	3529.74 E	3529.76
0.00						
11200.00	89.380	89.841	7689.24	10.07 N	3629.74 E	3629.75
0.00						
11300.00	89.380	89.841	7690.33	10.35 N	3729.73 E	3729.75
0.00						
11400.00	89.380	89.841	7691.41	10.63 N	3829.72 E	3829.74
0.00						
11500.00	89.380	89.841	7692.49	10.91 N	3929.72 E	3929.73
0.00						
11600.00	89.380	89.841	7693.57	11.18 N	4029.71 E	4029.73
0.00						
11700.00	89.380	89.841	7694.65	11.46 N	4129.71 E	4129.72
0.00						
11800.00	89.380	89.841	7695.74	11.74 N	4229.70 E	4229.72
0.00						
11900.00	89.380	89.841	7696.82	12.02 N	4329.69 E	4329.71
0.00						
12000.00	89.380	89.841	7697.90	12.29 N	4429.69 E	4429.70
0.00						
12100.00	89.380	89.841	7698.98	12.57 N	4529.68 E	4529.70
0.00						
12194.07	89.380	89.841	7700.00	12.83 N	4623.74 E	4623.76
0.00						

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 89.841° (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 0.199°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 12194.07ft., the Bottom Hole Displacement is 4623.76ft., in the Direction of 89.841° (Grid).

Hydrogen Sulfide Drilling Operations Plan

Cimarex Energy Co. of Colorado

Shifting Sands 15 Federal Com No. 3

Unit M Section 15

T16S R30E 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
Shifting Sands 15 Federal Com No. 3
Unit M Section 15
T16S R30E 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 217, go North on Co Rd 217 for 6.6 miles to Co Rd 253. On Co Rd 253, go East 1.1 miles to proposed lease road.

- 2 Planned Access Roads: 589.4' of new lease road is proposed, 79.4' of which will be off-lease.

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
Shifting Sands 15 Federal Com No. 3
Unit M Section 15
T16S R30E 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
Shifting Sands 15 Federal Com No. 3
Unit M Section 15
T16S R30E 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
Shifting Sands 15 Federal Com No. 3
Unit M Section 15
T16S R30E 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
Shifting Sands 15 Federal Com No. 3
Unit M Section 15
T16S R30E 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: Natalie Krueger
Natalie Krueger
DATE: October 5, 2007
TITLE: Regulatory Analyst

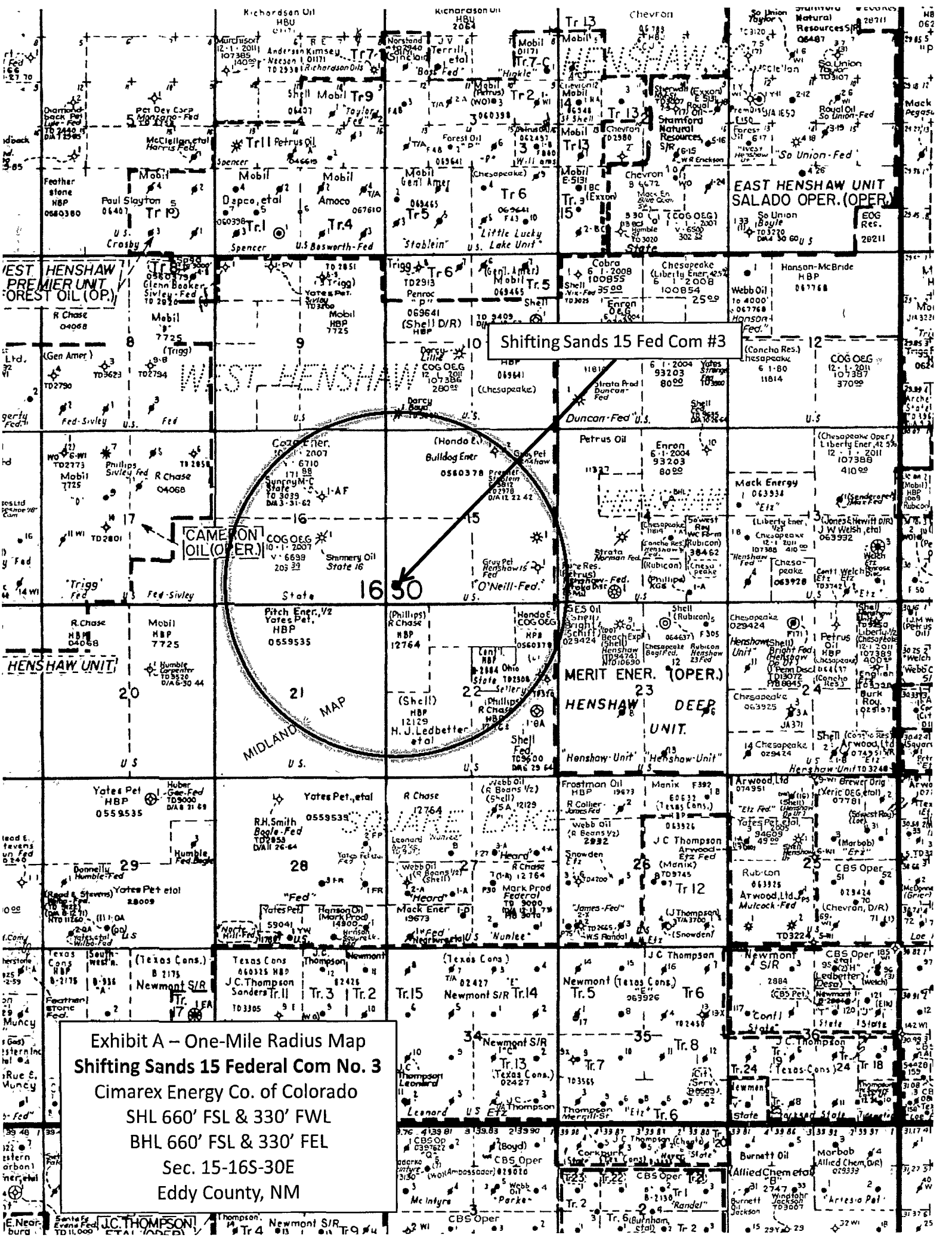


Exhibit A - One-Mile Radius Map
Shifting Sands 15 Federal Com No. 3
Cimarex Energy Co. of Colorado
SHL 660' FSL & 330' FWL
BHL 660' FSL & 330' FEL
Sec. 15-16S-30E
Eddy County, NM

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 Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. It has been reported in neighboring sections measuring 1600 ppm in gas streams and 100-7000 ppm in STVs.**
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 **a minimum of 25 feet into the Rustler Anhydrite at approximately 375 feet** and cemented to the surface. **BLM geologist is estimating that Top of Salt may be shallower than proposed setting depth of 450'.**
 - 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 water flows in the Salado and Artesia Groups.

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:

☒ 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.

Formation below the 8-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i.

- 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