

OCD Artesia

09-856

ATS-09-472

PM

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		5. Lease Serial No. NM-26072	
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		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 5215 N. O'Connor Blvd., Ste. 1500; Irving, TX 75039		8. Lease Name and Well No. Gizzard 18 Federal No. 4	
3b. Phone No. (include area code) 972-401-3111		9. API Well No. 30-015- 37433	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At Surface 1725 FNL & 350 FEL At proposed prod. Zone 1980 FNL & 1171 FWL Horizontal Abo test		10. Field and Pool, or Exploratory Ishee Lake; Abo	
11. Sec., T. R. M. or Blk. and Survey or Area 18-16S-29E		12. County or Parish Eddy	
14. Distance in miles and direction from nearest town or post office*		13. State NM	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig unit line if any) 350'	16. No of acres in lease 360	17. Spacing Unit dedicated to this well S2NE, SENW 120	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft N/A	19. Proposed Depth Pilot Hole 7300' MD 10915' TVD 6900'	20. BLM/BIA Bond No. on File NM-2575	
21. Elevations (Show whether DF, KDB, RT, GL, etc) 3650' GR	22. Approximate date work will start* 09.30.09	23. Estimated duration 25-30 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 <i>Zeno Farris</i>	Name (Printed/Typed) Zeno Farris	Date 07.29.09
Title Manager Operations Administration		
Approved By (Signature) <i>/s/ Don Peterson</i>	Name (Printed/Typed)	Date DEC - 9 2009
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

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

* (Instructions on page 2)

Roswell Controlled Water Basin

Approval Subject to General Requirements
& 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 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

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-37433	Pool Code 97627	Pool Name Ishee Lake; Abo ✓
Property Code 37943	Property Name GIZZARD "18" FEDERAL	Well Number 4H
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3650'

Surface Location

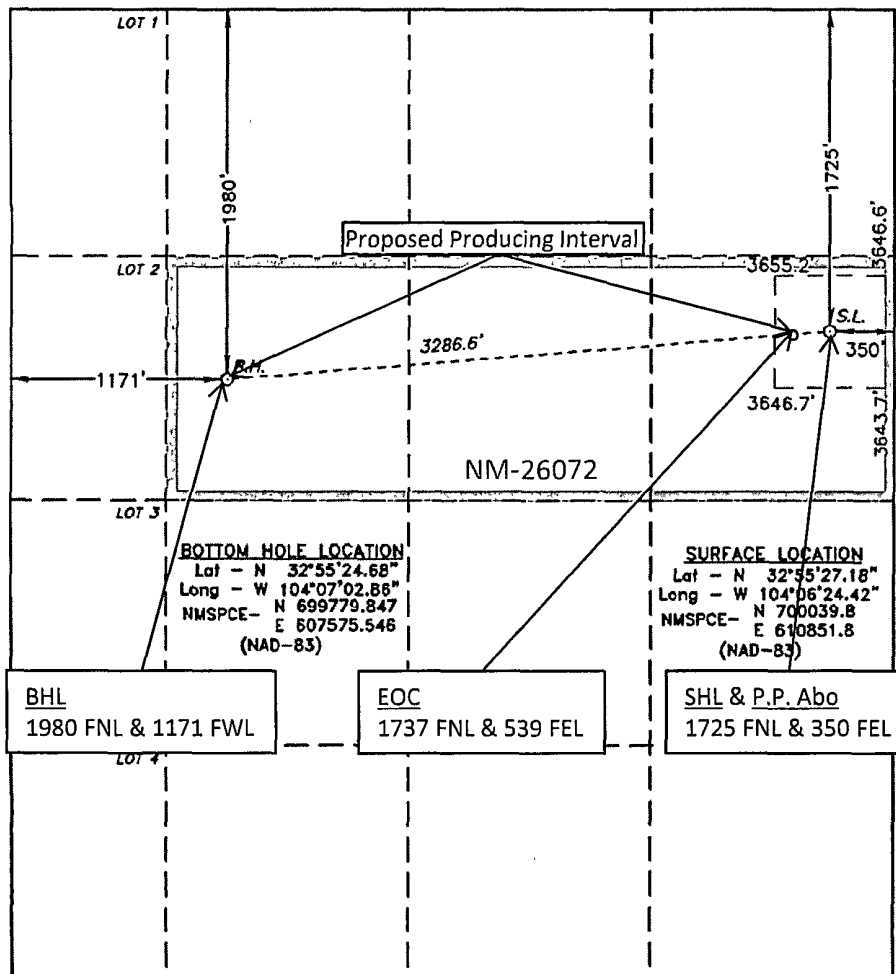
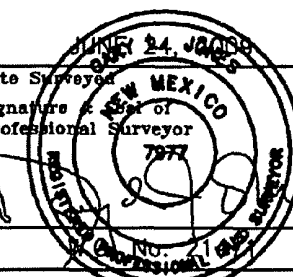
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	18	16 S	29 E		1725	NORTH	350	EAST	EDDY

Bottom Hole Location If Different From Surface

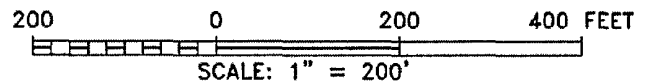
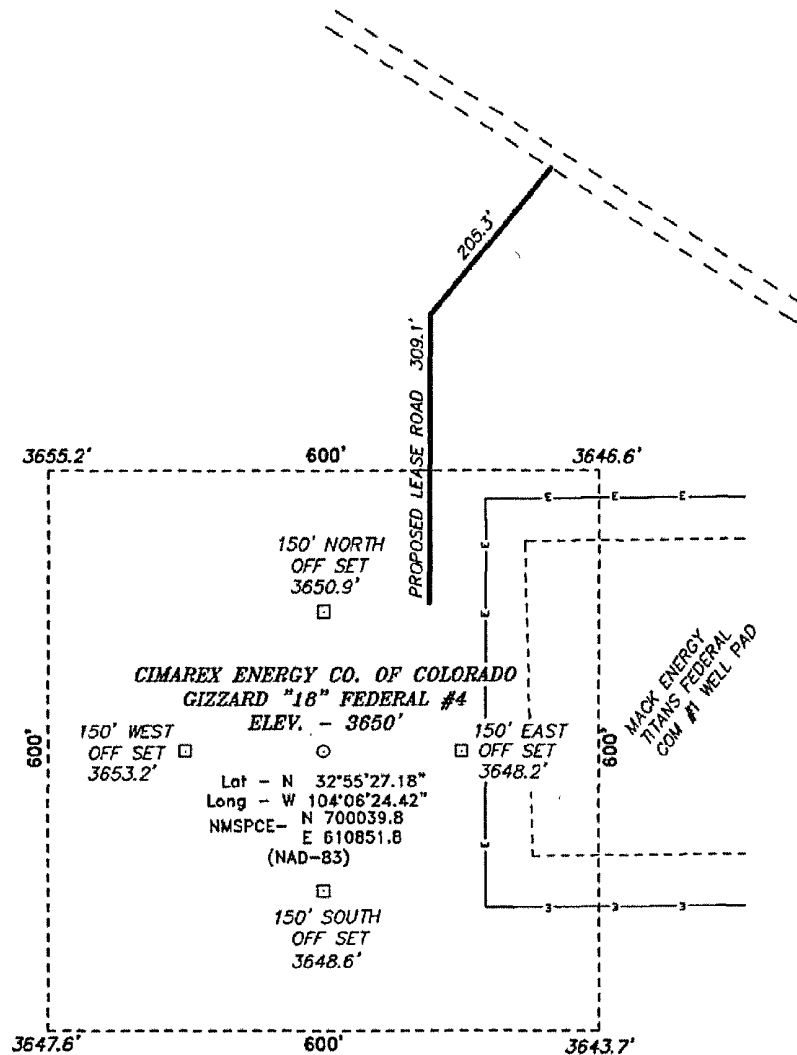
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	18	16 S	29 E		1980	NORTH	1171	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
120			

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>OPERATOR CERTIFICATION</p> <p>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.</p> <p><u>Zeno Farris</u> 7/29/2009 Signature Date</p> <p><u>Zeno Farris</u> Printed Name</p>
		<p>SURVEYOR CERTIFICATION</p> <p>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.</p> <p></p> <p>Date Surveyed _____ Signature _____ Professional Surveyor</p> <p>Certificate No. Gary L. Jones 7977</p> <p>BASIN SURVEYS</p>

SECTION 18, TOWNSHIP 16 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM THE JUNCTION OF OF US HWY 82 AND BARNIVAL DRAW; TO NORTH ON BARNIVAL DRAW FOR 6.8 MILES TO LEASE ROAD, ON LEASE ROAD GO WEST 1.4 MILES TO PROPOSED LEASE ROAD.

CIMAREX ENERGY CO. OF COLORADO

REF: GIZZARD "18" FEDERAL #4 / WELL PAD TOPO

THE GIZZARD "18" FEDERAL #4 LOCATED 1725'

FROM THE NORTH LINE AND 350' FROM THE EAST LINE OF

SECTION 18, TOWNSHIP 16 SOUTH, RANGE 29 EAST,

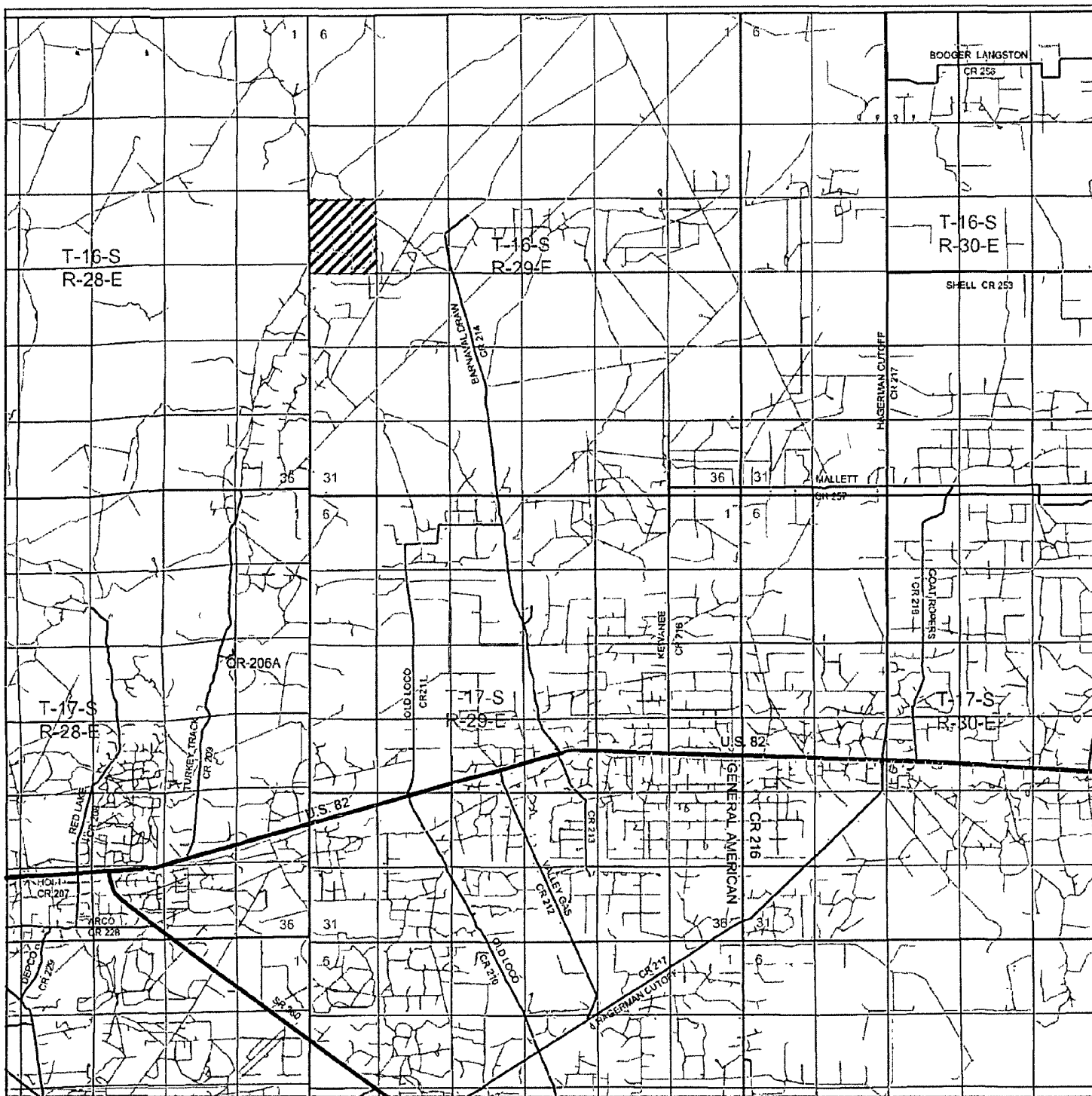
N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

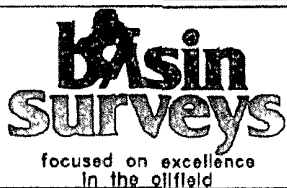
W.O. Number: 21471 Drawn By: J. SMALL

Date: 06-26-2009 Disk: JMS 21471

Survey Date: 06-24-2009 Sheet 1 of 1 Sheets



GIZZARD "18" FEDERAL #4
 Located 1725' FNL and 350' FEL
 Section 18, Township 16 South, Range 29 East,
 N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786
 1120 N. West County Rd.
 Hobbs, New Mexico 88241
 (575) 393-7316 - Office
 (575) 392-2206 - Fax
 basinsurveys.com

W.O. Number: JMS 21471

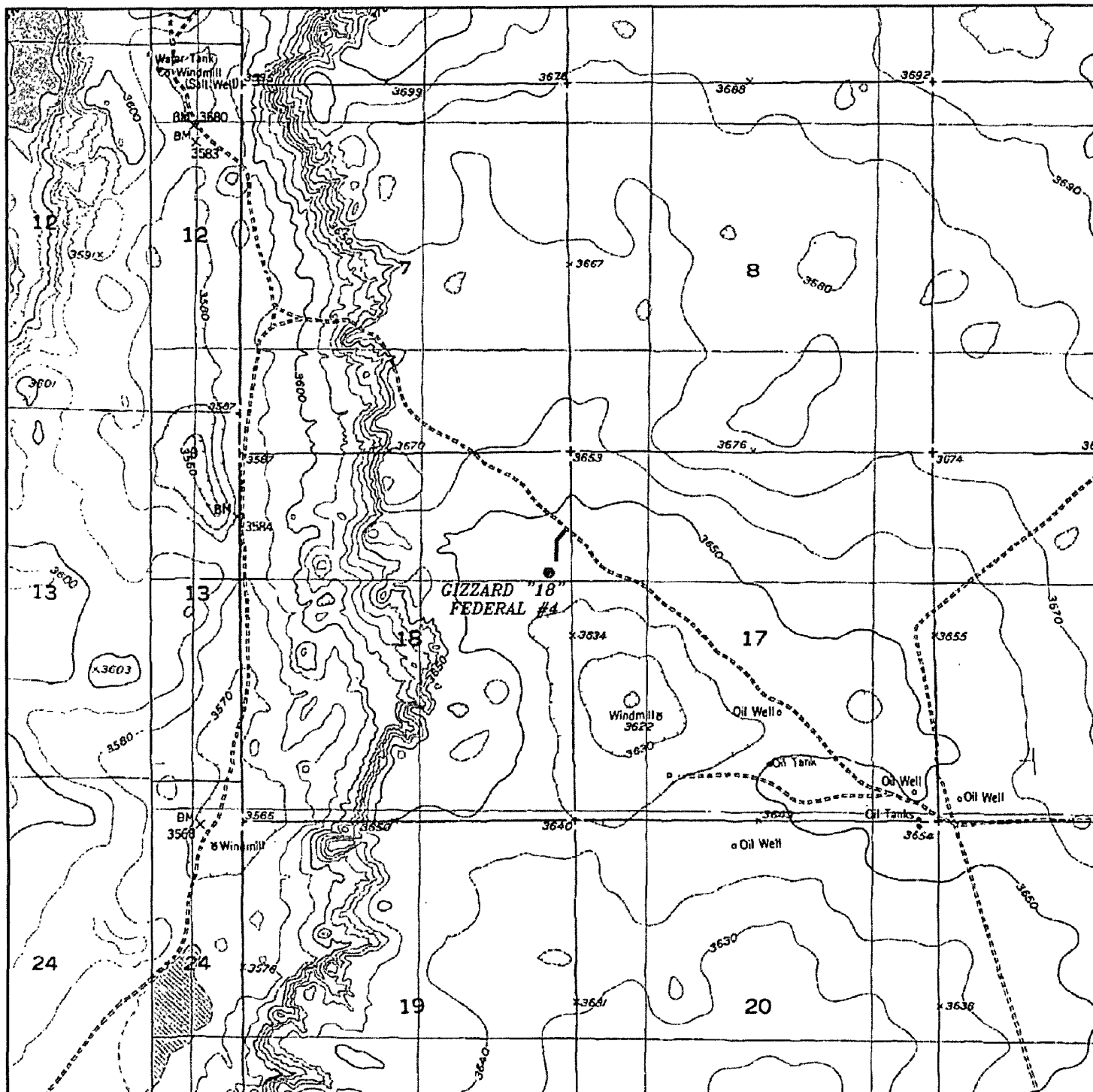
Survey Date: 06-24-2009

Scale: 1" = 2 Miles

Date: 06-26-2009

CIMAREX
ENERGY CO.
OF COLORADO

Exhibit B



GIZZARD "18" FEDERAL #4
 Located 1725' FNL and 350' FEL
 Section 18, Township 16 South, Range 29 East,
 N.M.P.M., Eddy County, New Mexico.

basin
Surveys
 focused on excellence
 in the oilfield

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 Hobbs, New Mexico 88241
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 (575) 392-2206 - Fax
 basinsurveys.com

W.O. Number: JMS 21471

Survey Date: 06-24-2009

Scale: 1" = 2000'

Date: 06-26-2009

CIMAREX
ENERGY CO.
OF COLORADO

Exhibit C

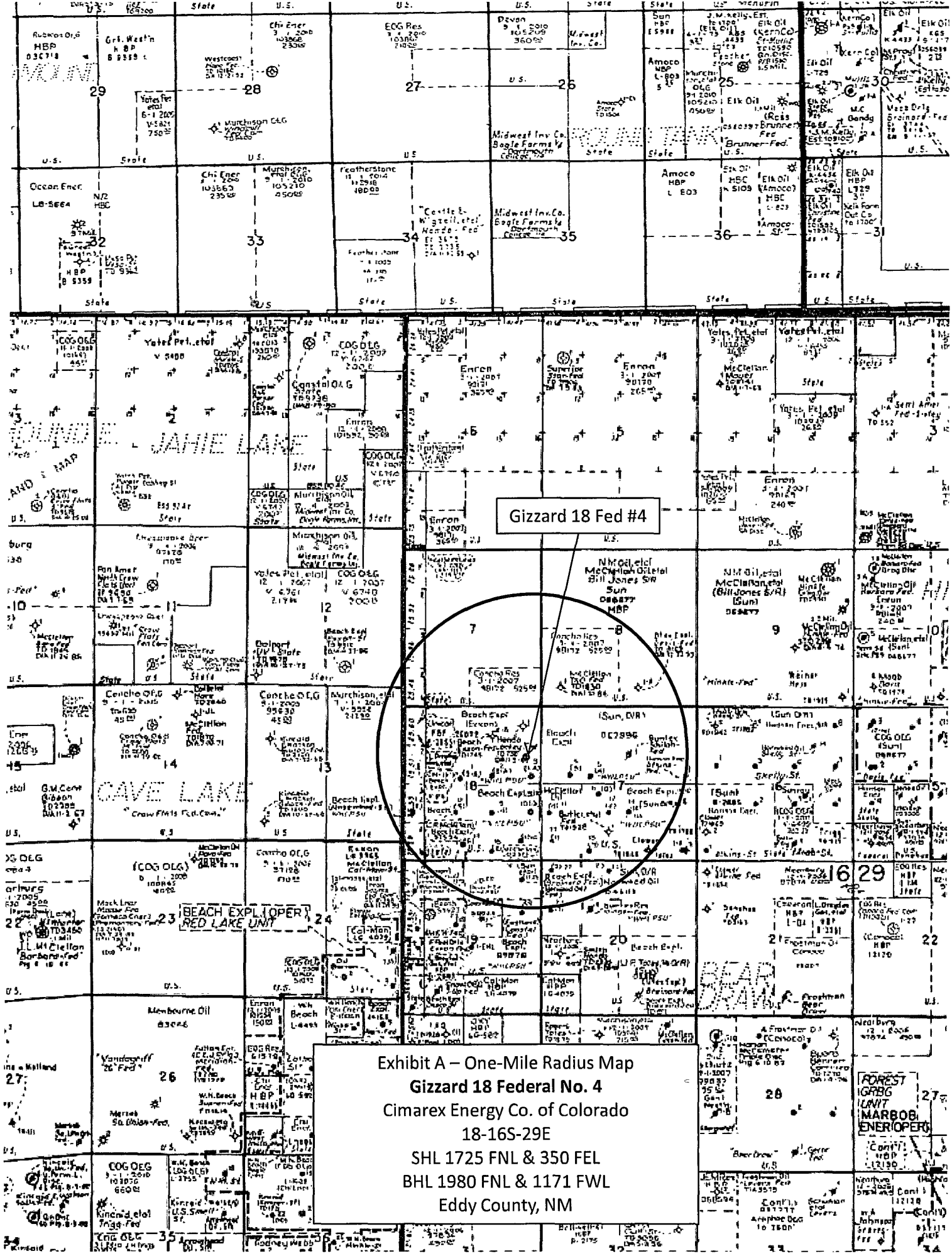


Exhibit A – One-Mile Radius Map
Gizzard 18 Federal No. 4
Cimarex Energy Co. of Colorado
18-16S-29E
SHL 1725 FNL & 350 FEL
BHL 1980 FNL & 1171 FWL
Eddy County, NM

Application to Drill
Gizzard 18 Federal No. 4
 Cimarex Energy Co. of Colorado
 Unit H, Section 18
 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 1725 FNL & 350 FEL
 BHL 1980 FNL & 1171 FWL

- 2 Elevation above sea level: 3,650 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: Pilot Hole 7300' MD 10915' TVD 6900'

- 6 Estimated tops of geological markers:

Queen	1486'	Base Anhydrite	6935'
Grayburg	1664'	Hueco (WC)	7049'
San Andres	2255'	Atoka	9758'
Glorieta	3767'		
L. Abo	6831'		

- 7 Possible mineral bearing formation:
 Abo Oil

- 8 Proposed Mud Circulating System: See COA

Depth			Mud Wt	Visc	Fluid Loss	Type Mud
0'	to	200'	8.4 - 8.6	28	NC	FW
200'	to	2500'	10.0	30-32	NC	Brine water
2500'	to	7300'	8.4 - 9.5	30-32	NC	FW, brine
6520'	to	10915'	9.0	28-32	May lose circ	Cut brine

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.

Proposed drilling Plan

After drilling and setting surface and intermediate casing, drill to vertical TD 7300' and log. Set 7" casing to 6620' and cross over to 2½" 2000 psi IJ fiberglass tubing underneath and cement in place. Drill out of the bottom of the 7" with a 6½" bit and through cement and fiberglass tubing to KOP @ 6680' and kick off to drill the lateral. The fiberglass tubing effectively circulates cement to surface and plugs back the open hole.

Kick off 6½" hole @ 6680.' Drill to TD 10915.' Run 4½" PEAK completion liner from RSB packer @ 6520' to TD @ 10915.' Split the liner with LTC from TD to EOC (6979') and BTC from EOC to TOL (6520'). Frac as needed.

Application to Drill
Gizzard 18 Federal No. 4
 Cimarex Energy Co. of Colorado
 Unit H, Section 18
 T16S-R29E, Eddy County, NM

9 Casing & Cementing Program: *See COA*

String	Hole Size	Depth	220'	Casing OD	Weight	Collar	Grade
Surface	17½"	0' to	200'	New 13½"	48#	STC	H-40
Intermediate	12¼"	0' to	2500'	New 9½"	40#	LTC	J-55
Pilot Hole	8¾"	0' to	6620'	New 7"	26#	LTC	P-110
Fiberglass	8¾"	6620' to	7300'	New 2½"	2.18#		IJ
Lateral Pt. 1	6⅝"	6520' to	6979'	New 4½"	11.6#	BTC	P-110
Lateral Pt. 2	6⅝"	6979' to	10915'	New 4½"	11.6#	LTC	P-110

10 Cementing:

Surface

Lead: 110 sx Premium Plus + 1% CaCl₂ + 0.125# Poly-e-flake (wt 12.5, yld 1.97)

Tail: 220 sx Premium Plus + 2% CaCl₂ (wt 14.8, yld 1.35)

TOC Surface

Intermediate

Lead: 415 sks Interfill C + 0.125# Poly-E-Flake (wt 11.9, yld 2.45)

Tail: 215 sks Premium Plus + 1% CaCl₂ (wt 14.8, yld 1.34)

TOC Surface

Pilot Hole

Lead: 370 sx Interfill H + 0.1% HR-7 + 0.125# Poly-e-flake (wt 11.9, yld 2.49)

Tail: 270 sx Super H + 0.5% Halad-344 + 0.4% CFR-3 + 1# Salt + 5# Gilsonite + 0.125# Poly-e-flake + 0.35% HR-7 (wt 13.2, yld 1.61)

TOC 2300'

Lateral Pt. 1

No cement needed. Peak completion assembly.

Fresh water zones will be protected by setting 13½" casing at 200' and cementing to surface. Hydrocarbon zones will be protected by setting 9½" casing at 2500' and cementing to surface, and by setting 7" casing at 6620' and fiberglass to 7300' and cementing to 2300.'

<u>Collapse Factor</u>	<u>Burst Factor</u>	<u>Tension Factor</u>
1.125	1.125	1.6

11 Pressure control Equipment:

Exhibit "E". A 13½" 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 and 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.

See COA { We are requesting a variance for testing the 13½" 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 13½" casing to 1000 psi using rig pumps. The BOP will be tested to 3000 psi by an independent service company.

Application to Drill
Gizzard 18 Federal No. 4
Cimarex Energy Co. of Colorado
Unit H, Section 18
T16S-R29E, Eddy County, NM

12 Testing, Logging and Coring Program: *See COR*

- A. Mud logging 2 man unit from 5000' to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
- C. No DSTs or cores are planned at this time.

13 Potential Hazards:

No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex does not anticipate that there will be enough H₂S from the surface to the Abo formations to meet the BLM's minimum requirements for the submission of an "H₂S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H₂S Safety package on all wells, attached is an "H₂S Drilling Operations Plan." 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 **2300 psi** Estimated BHT **110°**

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

Drilling expected to take 10-15 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.**



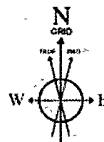
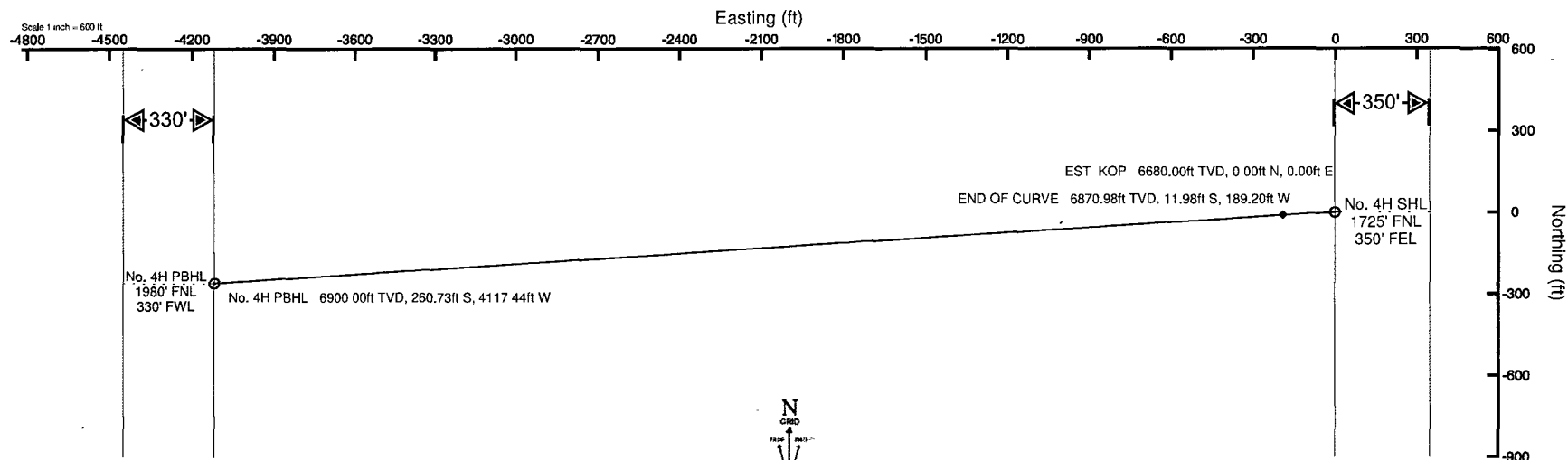
Cimarex Energy Co.

Location: Eddy County, NM
Field: (Gizzard) Sec 18, T16S, R29E
Facility: Gizzard 18 Fed No. 4H

Slot: No. 4H SHL
Well: No. 4H
Wellbore: No. 4H PWB

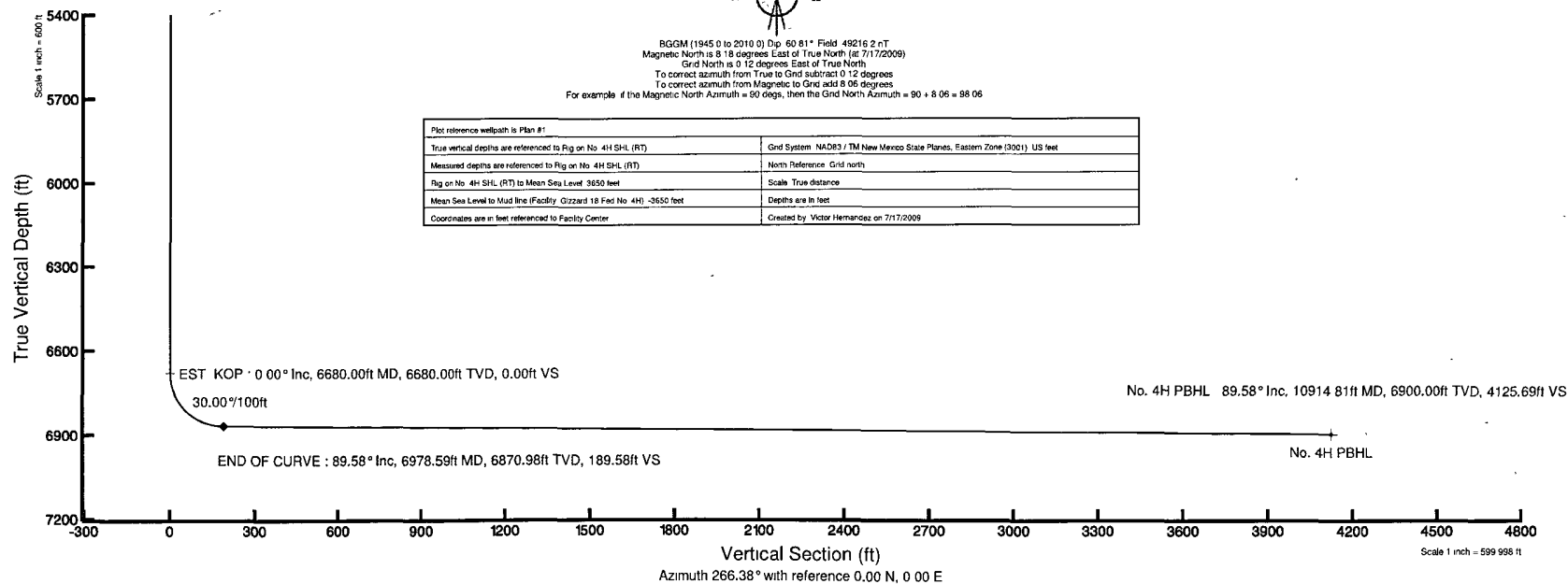
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	266.377	0.00	0.00	0.00	0.00	0.00
EST. KOP	6680.00	0.000	266.377	6680.00	0.00	0.00	0.00	0.00
END OF CURVE	6978.59	89.578	266.377	6870.98	-11.98	-189.20	30.00	189.58
No. 4H PBHL	10914.81	89.578	266.377	6900.00	-260.73	-4117.44	0.00	4125.69



BGGM (1945 0 to 2010 0) Dip 60.81° Field 49216.2 nT
Magnetic North is 8.18 degrees East of True North (at 7/17/2009)
Grid North is 0.12 degrees East of True North
To correct azimuth from True to Grid subtract 0.12 degrees
To correct azimuth from Magnetic to Grid add 8.06 degrees
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 8.06 = 98.06

Plot reference wellpath is Plan #1	
True vertical depths are referenced to Rig on No. 4H SHL (RT)	Grid System: NAD83 / TM New Mexico State Planes, Eastern Zone (3001) US feet
Measured depths are referenced to Rig on No. 4H SHL (RT)	North Reference: Grid north
Rig on No. 4H SHL (RT) to Mean Sea Level 3650 feet	Scale: True distance
Mean Sea Level to Mud line (Facility: Gizzard 18 Fed No. 4H) -3650 feet	Depths are in feet
Coordinates are in feet referenced to Facility Center	Created by Victor Hernandez on 7/17/2009





Planned Wellpath Report

Plan #1
Page 1 of 4



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Gizzard) Sec 18, T16S, R29E	Wellbore	No. 4H PWB
Facility	Gizzard 18 Fed No. 4H		

REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Victor Hernandez
Scale	0.999915	Report Generated	7/17/2009 at 3:32:33 PM
Convergence at slot	0.12° East	Database/Source file	WA_Midland/No. 4H_PWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[USft]	Northing[USft]	Latitude	Longitude
Slot Location	0.00	0.00	610851.80	700039.80	32°55'27.184"N	104°06'24.420"W
Facility Reference Pt			610851.80	700039.80	32°55'27.184"N	104°06'24.420"W
Field Reference Pt			610868.40	701434.90	32°55'40.988"N	104°06'24.190"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 4H SHL (RT) to Facility Vertical Datum	0.00ft
Horizontal Reference Pt	Facility Center	Rig on No. 4H SHL (RT) to Mean Sea Level	3650.00ft
Vertical Reference Pt	Rig on No. 4H SHL (RT)	Facility Vertical Datum to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 4H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	266.38°



Planned Wellpath Report

Plan #1
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Facility	Gizzard 18 Fed No. 4H		

WELLPATH DATA (46 stations) † = interpolated/extrapolated station								
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00	0.000	266.377	0.00	0.00	0.00	0.00	0.00	Tie On
6680.00	0.000	266.377	6680.00	0.00	0.00	0.00	0.00	EST. KOP
6780.00†	30.000	266.377	6775.49	25.59	-1.62	-25.54	30.00	
6880.00†	60.000	266.377	6845.40	95.49	-6.03	-95.30	30.00	
6978.59†	89.578	266.377	6870.98	189.58	-11.98	-189.20	30.00	END OF CURVE
6980.00†	89.578	266.377	6870.99	190.99	-12.07	-190.60	0.00	
7080.00†	89.578	266.377	6871.73	290.98	-18.39	-290.40	0.00	
7180.00†	89.578	266.377	6872.47	390.98	-24.71	-390.20	0.00	
7280.00†	89.578	266.377	6873.20	490.98	-31.03	-490.00	0.00	
7380.00†	89.578	266.377	6873.94	590.98	-37.35	-589.79	0.00	
7480.00†	89.578	266.377	6874.68	690.97	-43.67	-689.59	0.00	
7580.00†	89.578	266.377	6875.41	790.97	-49.99	-789.39	0.00	
7680.00†	89.578	266.377	6876.15	890.97	-56.31	-889.19	0.00	
7780.00†	89.578	266.377	6876.89	990.96	-62.63	-988.98	0.00	
7880.00†	89.578	266.377	6877.63	1090.96	-68.95	-1088.78	0.00	
7980.00†	89.578	266.377	6878.36	1190.96	-75.27	-1188.58	0.00	
8080.00†	89.578	266.377	6879.10	1290.96	-81.58	-1288.38	0.00	
8180.00†	89.578	266.377	6879.84	1390.95	-87.90	-1388.17	0.00	
8280.00†	89.578	266.377	6880.58	1490.95	-94.22	-1487.97	0.00	
8380.00†	89.578	266.377	6881.31	1590.95	-100.54	-1587.77	0.00	
8480.00†	89.578	266.377	6882.05	1690.95	-106.86	-1687.57	0.00	
8580.00†	89.578	266.377	6882.79	1790.94	-113.18	-1787.36	0.00	
8680.00†	89.578	266.377	6883.52	1890.94	-119.50	-1887.16	0.00	
8780.00†	89.578	266.377	6884.26	1990.94	-125.82	-1986.96	0.00	
8880.00†	89.578	266.377	6885.00	2090.93	-132.14	-2086.75	0.00	
8980.00†	89.578	266.377	6885.74	2190.93	-138.46	-2186.55	0.00	
9080.00†	89.578	266.377	6886.47	2290.93	-144.78	-2286.35	0.00	
9180.00†	89.578	266.377	6887.21	2390.93	-151.10	-2386.15	0.00	
9280.00†	89.578	266.377	6887.95	2490.92	-157.42	-2485.94	0.00	
9380.00†	89.578	266.377	6888.68	2590.92	-163.74	-2585.74	0.00	



Planned Wellpath Report

Plan #1
Page 3 of 4



REFERENCE WELLPATH IDENTIFICATION			
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WELLPATH DATA (46 stations) † = interpolated/extrapolated station								
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
9480.00†	89.578	266.377	6889.42	2690.92	-170.06	-2685.54	0.00	
9580.00†	89.578	266.377	6890.16	2790.92	-176.38	-2785.34	0.00	
9680.00†	89.578	266.377	6890.90	2890.91	-182.70	-2885.13	0.00	
9780.00†	89.578	266.377	6891.63	2990.91	-189.02	-2984.93	0.00	
9880.00†	89.578	266.377	6892.37	3090.91	-195.34	-3084.73	0.00	
9980.00†	89.578	266.377	6893.11	3190.90	-201.66	-3184.53	0.00	
10080.00†	89.578	266.377	6893.85	3290.90	-207.98	-3284.32	0.00	
10180.00†	89.578	266.377	6894.58	3390.90	-214.30	-3384.12	0.00	
10280.00†	89.578	266.377	6895.32	3490.90	-220.61	-3483.92	0.00	
10380.00†	89.578	266.377	6896.06	3590.89	-226.93	-3583.72	0.00	
10480.00†	89.578	266.377	6896.79	3690.89	-233.25	-3683.51	0.00	
10580.00†	89.578	266.377	6897.53	3790.89	-239.57	-3783.31	0.00	
10680.00†	89.578	266.377	6898.27	3890.89	-245.89	-3883.11	0.00	
10780.00†	89.578	266.377	6899.01	3990.88	-252.21	-3982.91	0.00	
10880.00†	89.578	266.377	6899.74	4090.88	-258.53	-4082.70	0.00	
10914.81	89.578	266.377	6900.00†	4125.69	-260.73	-4117.44	0.00	No. 4H PBHL



Planned Wellpath Report

Plan #1
Page 4 of 4



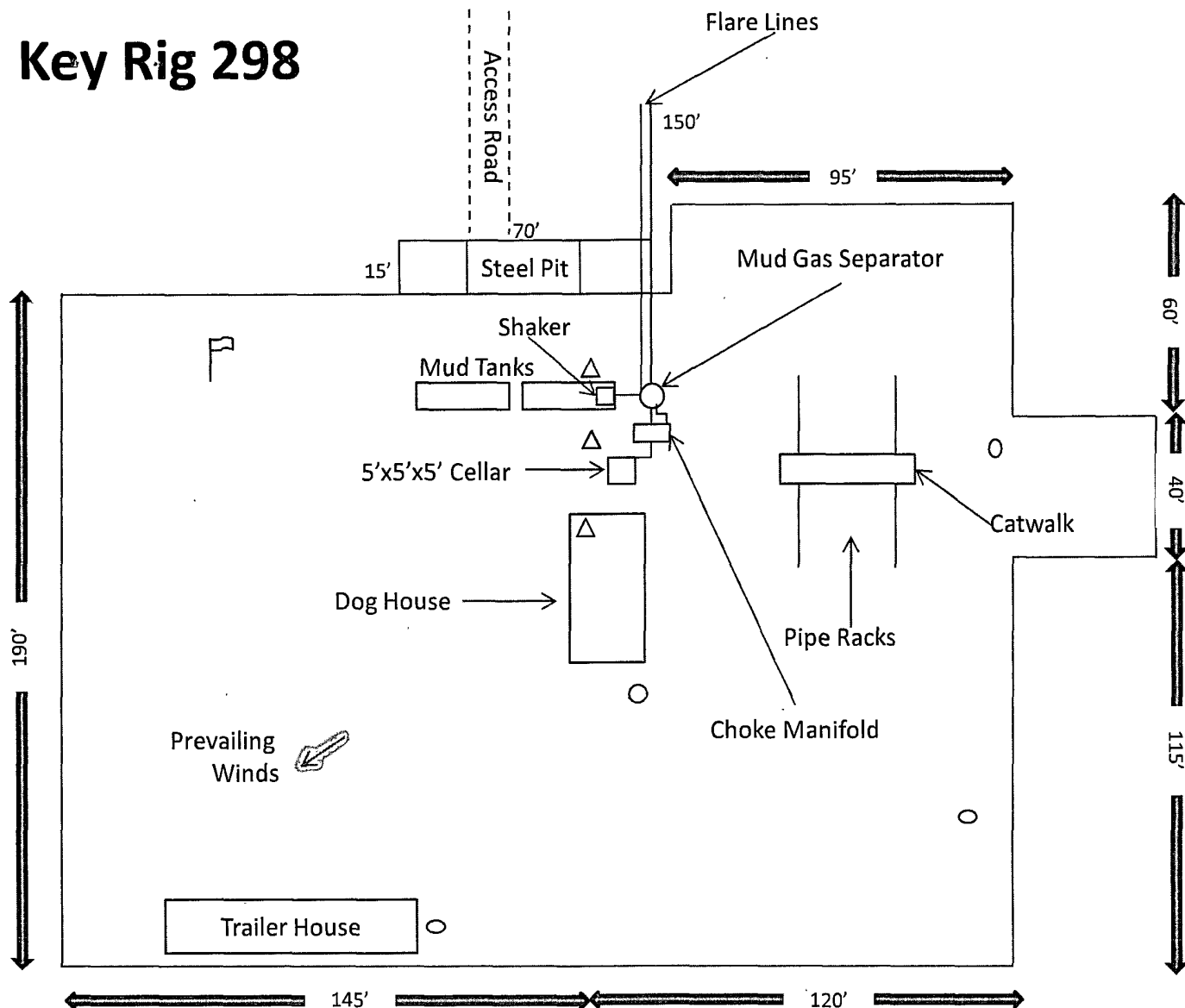
INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 4H SHL
Area	Eddy County, NM	Well	No. 4H
Field	(Gizzard) Sec 18, T16S, R29E	Wellbore	No. 4H PWB
Facility	Gizzard 18 Fed No. 4H		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
1) No. 4H PBHL	10914.81	6900.00	-260.73	-4117.44	606734.72	699779.09	32°55'24.689"N	104°07'12.730"W	point

SURVEY PROGRAM Ref Wellbore: No. 4H PWB Ref Wellpath: Plan #1				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	10914.81	NaviTrak (Standard)		No. 4H PWB

Key Rig 298



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

Revised Rig Diagram
Gizzard 18 Federal No. 4
 Cimarex Energy Co. of Colorado
 18-16S-29E
 SHL 1725 FNL & 350 FEL
 BHL 1980 FNL & 1171 FWL
 Eddy County, NM

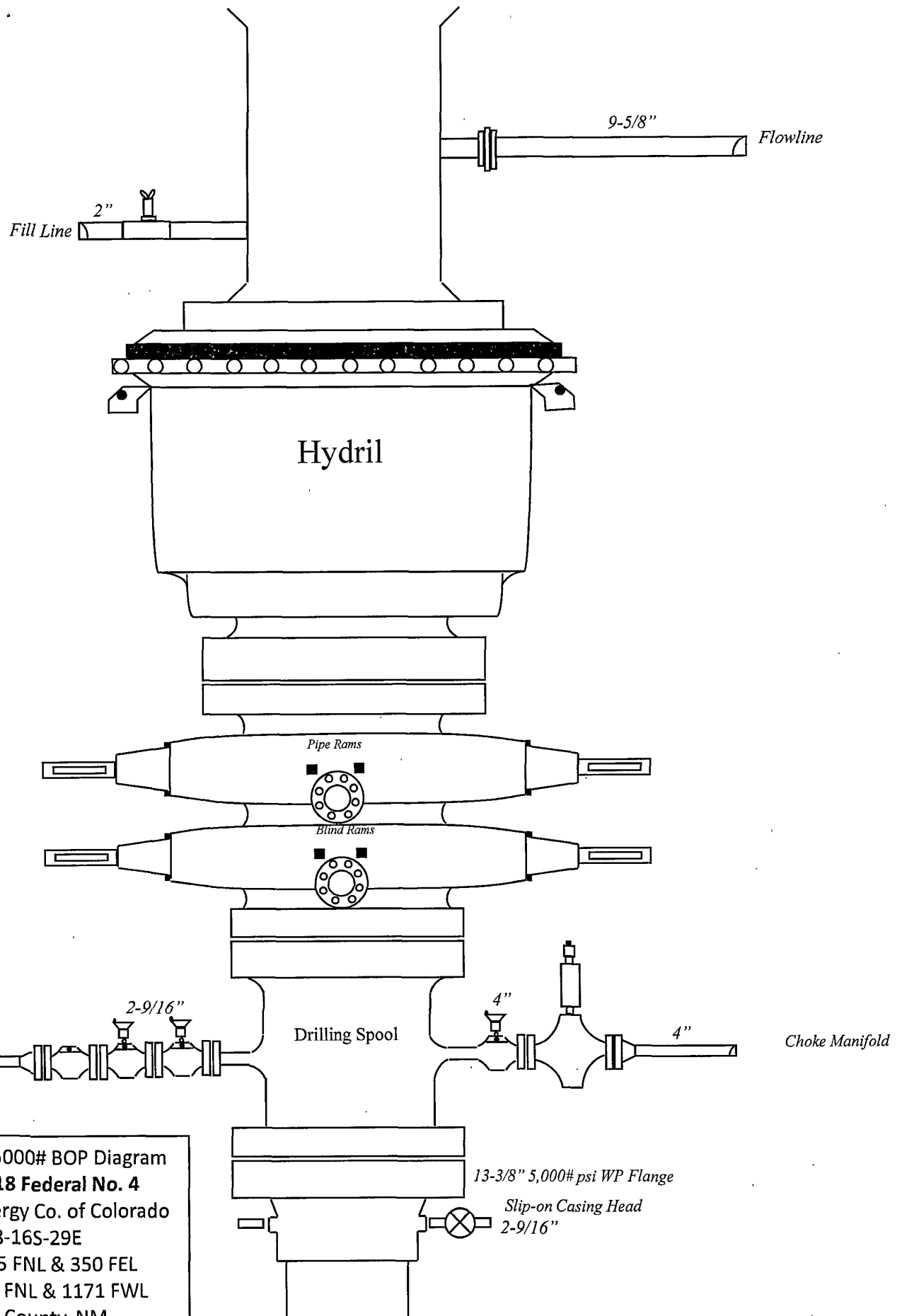


Exhibit E – 5000# BOP Diagram
Gizzard 18 Federal No. 4
 Cimarex Energy Co. of Colorado
 18-16S-29E
 SHL 1725 FNL & 350 FEL
 BHL 1980 FNL & 1171 FWL
 Eddy County, NM

**DRILLING OPERATIONS
CHOKE MANIFOLD
5M SERVICE**

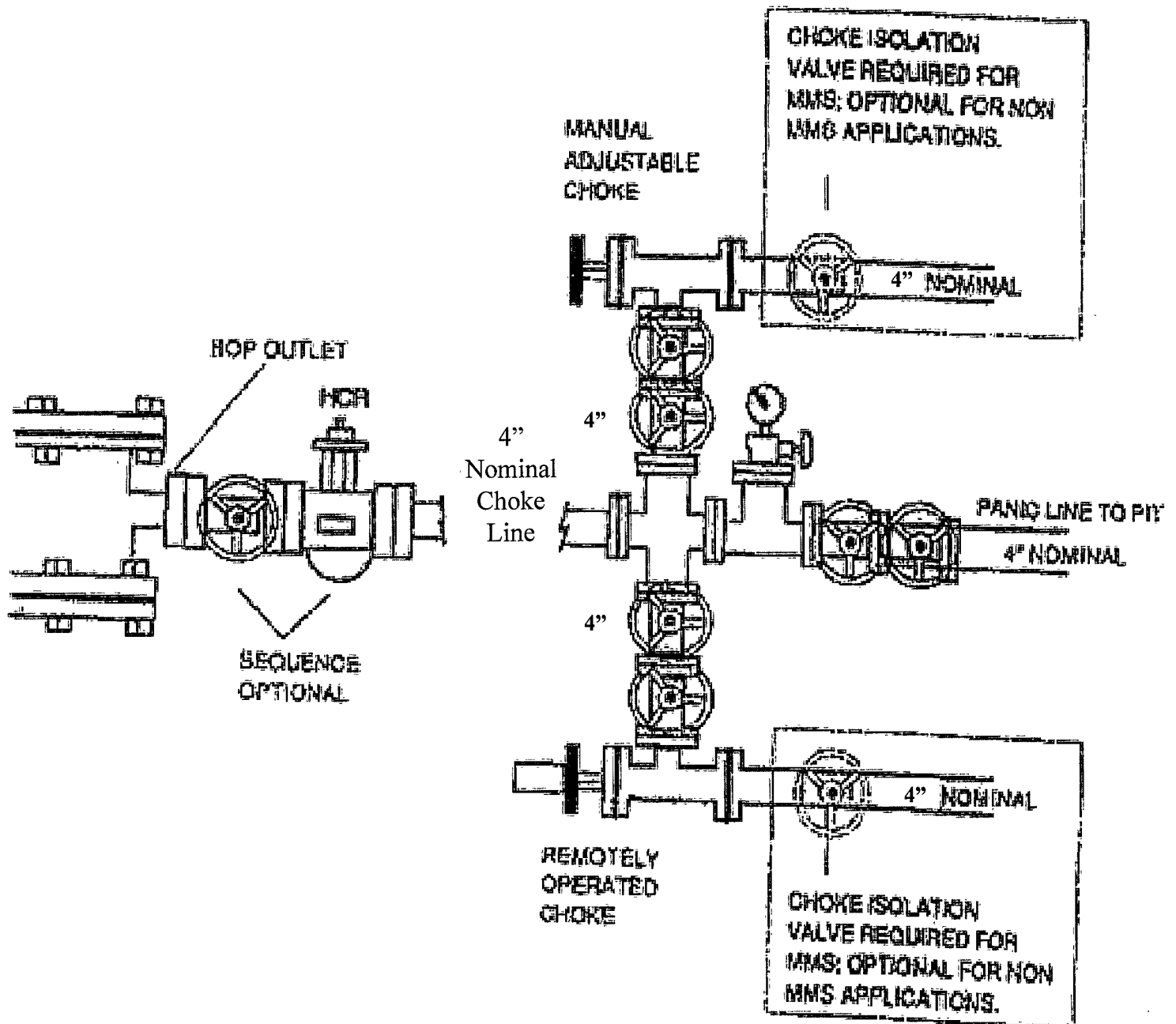


Exhibit E-1 – Choke Manifold Diagram
Gizzard 18 Federal No. 4
 Cimarex Energy Co. of Colorado
 18-16S-29E
 SHL 1725 FNL & 350 FEL
 BHL 1980 FNL & 1171 FWL
 Eddy County, NM

- 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 or cores 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.

H₂S Contingency Plan
Gizzard 18 Federal No. 4
Cimarex Energy Co. of Colorado
Unit H, Section 18
T16S-R29E, Eddy County, NM

Emergency Procedures

In the event of a release of gas containing H₂S, the first responder(s) must:

- ★ Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- ★ Evacuate any public places encompassed by the 100 ppm ROE.
- ★ Be equipped with H₂S monitors and air packs in order to control the release.
- ★ Use the "buddy system" to ensure no injuries occur during the response.
- ★ Take precautions to avoid personal injury during this operation.
- ★ Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- ★ Have received training in the:
 - ◆ Detection of H₂S, and
 - ◆ Measures for protection against the gas,
 - ◆ Equipment used for protection and emergency response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas.

Characteristics of H₂S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.189 Air=1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	2.21 Air=1	2 ppm	N/A	1000 ppm

Contacting Authorities

Cimarex Energy Co. of Colorado's personnel must liaise with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Cimarex Energy Co. of Colorado's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

H₂S Contingency Plan Emergency Contacts

Gizzard 18 Federal No. 4

Cimarex Energy Co. of Colorado

Unit H, Section 18

T16S-R29E, Eddy County, NM

Company Office			
Cimarex Energy Co. of Colorado		800-969-4789	
Co. Office and After-Hours Menu			
Key Personnel			
Name	Title	Office	Mobile
Doug Park	Drilling Manager	972-443-6463	972-333-1407
Dee Smith	Drilling Super	972-443-6491	972-882-1010
Jim Evans	Drilling Super	972-443-6451	972-465-6564
Roy Shirley	Field Super		432-634-2136
Artesia			
Ambulance		911	
State Police		575-746-2703	
City Police		575-746-2703	
Sheriff's Office		575-746-9888	
Fire Department		575-746-2701	
Local Emergency Planning Committee		575-746-2122	
New Mexico Oil Conservation Division		575-748-1283	
Carlsbad			
Ambulance		911	
State Police		575-885-3137	
City Police		575-885-2111	
Sheriff's Office		575-887-7551	
Fire Department		575-887-3798	
Local Emergency Planning Committee		575-887-6544	
US Bureau of Land Management		575-887-6544	
Santa Fe			
New Mexico Emergency Response Commission (Santa Fe)		505-476-9600	
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs		505-827-9126	
New Mexico State Emergency Operations Center		505-476-9635	
National			
National Emergency Response Center (Washington, D.C.)		800-424-8802	
Medical			
Flight for Life - 4000 24th St.; Lubbock, TX		806-743-9911	
Aerocare - R3, Box 49F; Lubbock, TX		806-747-8923	
Med Flight Air Amb - 2301 Yale Blvd S.E., #D3; Albuquerque, NM		505-842-4433	
SB Air Med Service - 2505 Clark Carr Loop S.E.; Albuquerque, NM		505-842-4949	
Other			
Boots & Coots IWC		800-256-9688	or 281-931-8884
Cudd Pressure Control		432-699-0139	or 432-563-3356
Halliburton		575-746-2757	
B.J. Services		575-746-3569	

Surface Use Plan
Gizzard 18 Federal No. 4
Cimarex Energy Co. of Colorado
Unit H, Section 18
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 Barnival Draw, go North on Barnival Draw for 6.8 miles to lease road. On lease road, go West 1.4 miles to proposed lease road.
- 2 Planned Access Roads: 514.4' of on-lease access road will be constructed.
- 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"
- 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".

Surface Use Plan
Gizzard 18 Federal No. 4
Cimarex Energy Co. of Colorado
Unit H, Section 18
T16S-R29E, Eddy County, NM

7 Methods of Handling Waste Material:

- A. Drill cuttings will be separated by a series of solids removal equipment and stored in steel containment pits and then hauled to a state-approved disposal facility.
- 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. Drilling fluids will be contained in steel pits in a closed circulating system. Fluids will be cleaned and reused. Water produced during testing will be contained in the steel pits and disposed of at a state approved disposal facility. 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.

9 Well Site Layout:

- A. Exhibit "D" shows location and rig layout.
- C. Mud pits in the closed circulating system will be steel pits and the cuttings will be stored in steel containment pits.
- D. Cuttings will be stored in steel pits until they are hauled to a state-approved disposal facility.
- E. If the well is a producer, 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 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.

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
Gizzard 18 Federal No. 4
Cimarex Energy Co. of Colorado
Unit H, Section 18
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. In lieu of an archaeological survey report, Cimarex will be submitting an MOA application for this well pad and access road since they are within the MOA boundary.
- D. There are no know dwellings within 1½ miles of this location.

Operator Certification Statement

Gizzard 18 Federal No. 4

Cimarex Energy Co. of Colorado

Unit H, Section 18

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: July 29, 2009

TITLE: Manager Operations Administration

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Cimarex Energy Co
LEASE NO.:	NM26072
WELL NAME & NO.:	4 Gizzard 18 Fed 4
SURFACE HOLE FOOTAGE:	1725' FNL & 350' FEL
BOTTOM HOLE FOOTAGE:	1980' FNL & 1171' FWL
LOCATION:	Section 18, T. 16 S., R 29 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☐ **Special Requirements**

- ☒ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☒ **Road Section Diagram**
- ☒ **Drilling**
 - Logging Requirements
- ☒ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☒ **Closed Loop System/Interim Reclamation**
- ☐ **Final Abandonment/Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall stockpile the topsoil of the well pad. The topsoil to be stripped is approximately 6 inches in depth. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Closed Loop System: v-door east

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

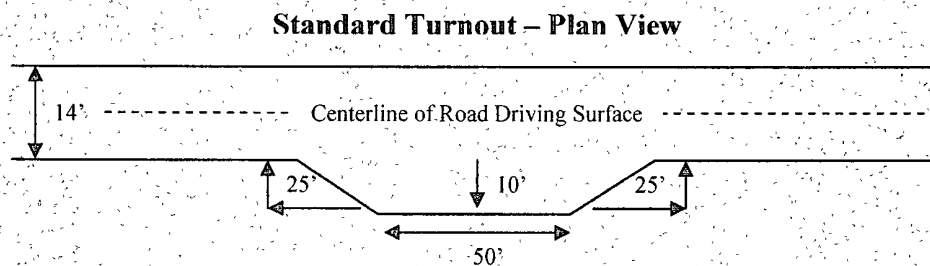
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

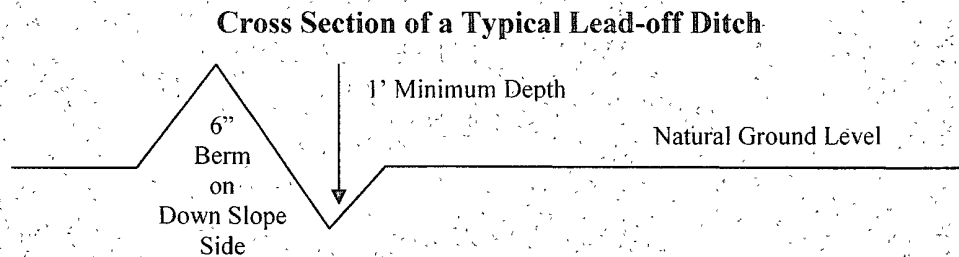
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

Fence Requirement

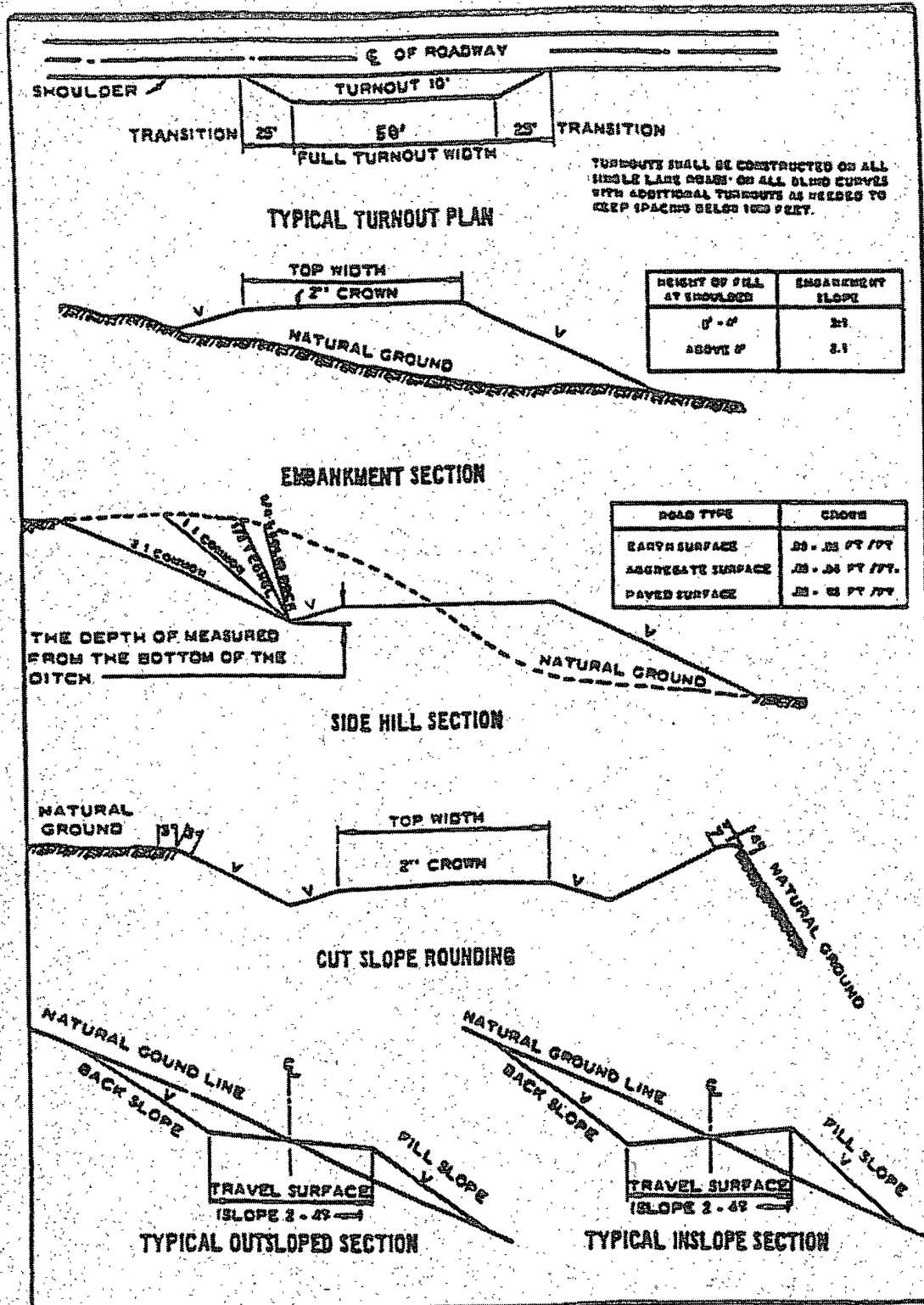
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 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;
(575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations 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 is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the CAL/GR/N well log run from TD to surface will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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 for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

**Possible lost circulation in the Grayburg, San Andres and Abo Formations
Possible high pressure gas bursts from the Wolfcamp Formation – applicable to pilot hole**

1. The 13-3/8 inch surface casing shall be set at **approximately 220 feet** and cemented to the surface. **If the salt is encountered at a shallower depth set surface casing 25 feet above the top of the salt. Freshwater based mud to be used to setting depth.**
 - 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 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 is to include the lead cement slurry.**
 - 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 cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:
☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.
3. The minimum required fill of cement behind the 7 inch production casing is:
☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

Centralizers required on horizontal leg, must be type for horizontal service and minimum of one every other joint.

4. The minimum required fill of cement behind the 4-1/2" inch production liner is:
 - ☒ Cement not required. Operator using Peak Completion Liner.
5. 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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M) psi**. **Operator is installing 5M, but testing as 3M.**
3. The appropriate BLM office shall be notified a minimum of 4 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. **Applicable to pilot hole.**
 - f. **Effective November 1, 2008, no variances will be granted on reduced pressure tests on the surface casing and BOP/BOPE. Onshore Order 2 requirements will be in effect.**

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. **Applicable to pilot hole.**

E. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

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VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color Shale Green, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES

C. ELECTRIC LINES

IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

The operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

Seed Mixture 1, for Loamy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains lovegrass (<i>Eragrostis intermedia</i>)	0.5
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sideoats grama (<i>Bouteloua curtipendula</i>)	5.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.