OCD Hobbs

RECEIVED

DEC 28 2009

HOBBSOCD

AT S-10-48

Form 3160-3
(April 2004)

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

5. Lease Serial No: NM-36916

6. If Indian, Allotee or Tribe Name:

1a Type of Work: ☒ DRILL ☐ REENTER

7 If Unit or CA Agreement, Name and No.: North Maduro Federal Unit

1b Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

8. Lease Name and Well No. (300530): North Maduro Federal Unit No. 3

2 Name of Operator: Cimarex Energy Co. of Colorado (162683)

9 API Well No.: 30-025- 39623

3a Address: 600 N. Marienfeld St., Ste. 600; Midland, TX 79701

3b. Phone No *(include area code)*: 432-571-7800

10. Field and Pool, or Exploratory: Tonto; Bone Spring, South (59476)

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At Surface: 2310 FNL & 560 FWL Unit E

At proposed prod. Zone: 1980 FNL & 330 FEL Unit H *Horizontal Bone Spring test*

11 Sec , T R M. or Blk. and Survey or Area: 20-19S-33E

14 Distance in miles and direction from nearest town or post office*

12 County or Parish: Lea

13. State: NM

15 Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig unit line if any)	16. No of acres in lease	17 Spacing Unit dedicated to this well
560'	320 acres	S2N2 160 acres
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	**19 Proposed Depth**	**20 BLM/BIA Bond No. on File**
N/A	MD 14227' TVD 9900'	NM-2575
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22 Approximate date work will start***	**23 Estimated duration**
3612' GR	12.15.09	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
2. A Drilling Plan
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)
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above)
5. Operator Certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25 Signature	Name *(Printed/Typed)*	Date
Zeno Farris	Zeno Farris	10.14.09

Title: Manager, Operations Administration

Approved By *(Signature)*	Name (Printed/Typed)	Date
/s/ Don Peterson	/s/ Don Peterson	DEC 22 2009
Title FOR 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)*

NM Oil Conservation Division

KZ

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-102
Revised October 12, 2005

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	59476	Tonto; Bone Spring, South

Property Code	Property Name	Well Number
300536	NORTH MADURO FEDERAL UNIT	3

OGRID No.	Operator Name	Elevation
162683	CIMAREX ENERGY CO. OF COLORADO	3612'

Surface Location

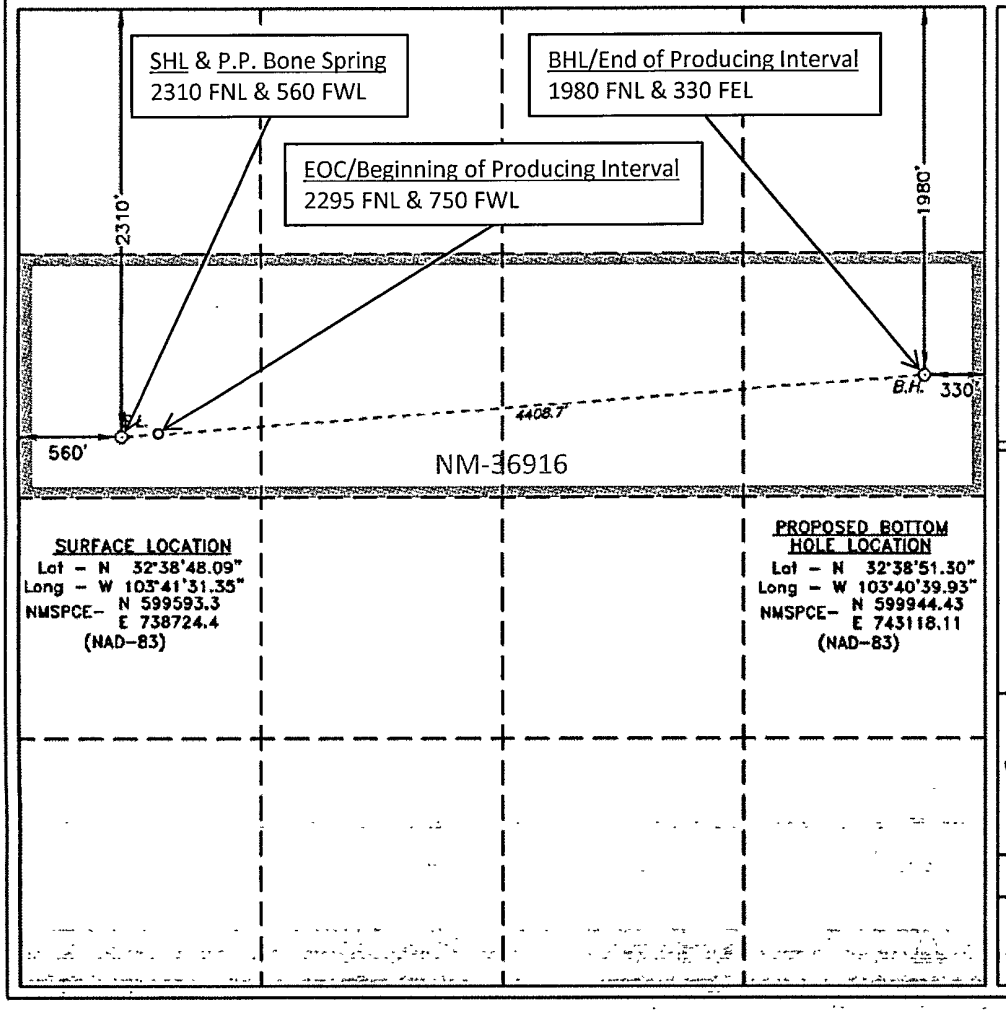
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	20	19 S	33 E		2310	NORTH	560	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	20	19 S	33 E		1980	NORTH	330	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160		U	

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I 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.

Zeno Farris 10/14/2009
Signature Date

Zeno Farris
Printed Name

SURVEYOR CERTIFICATION

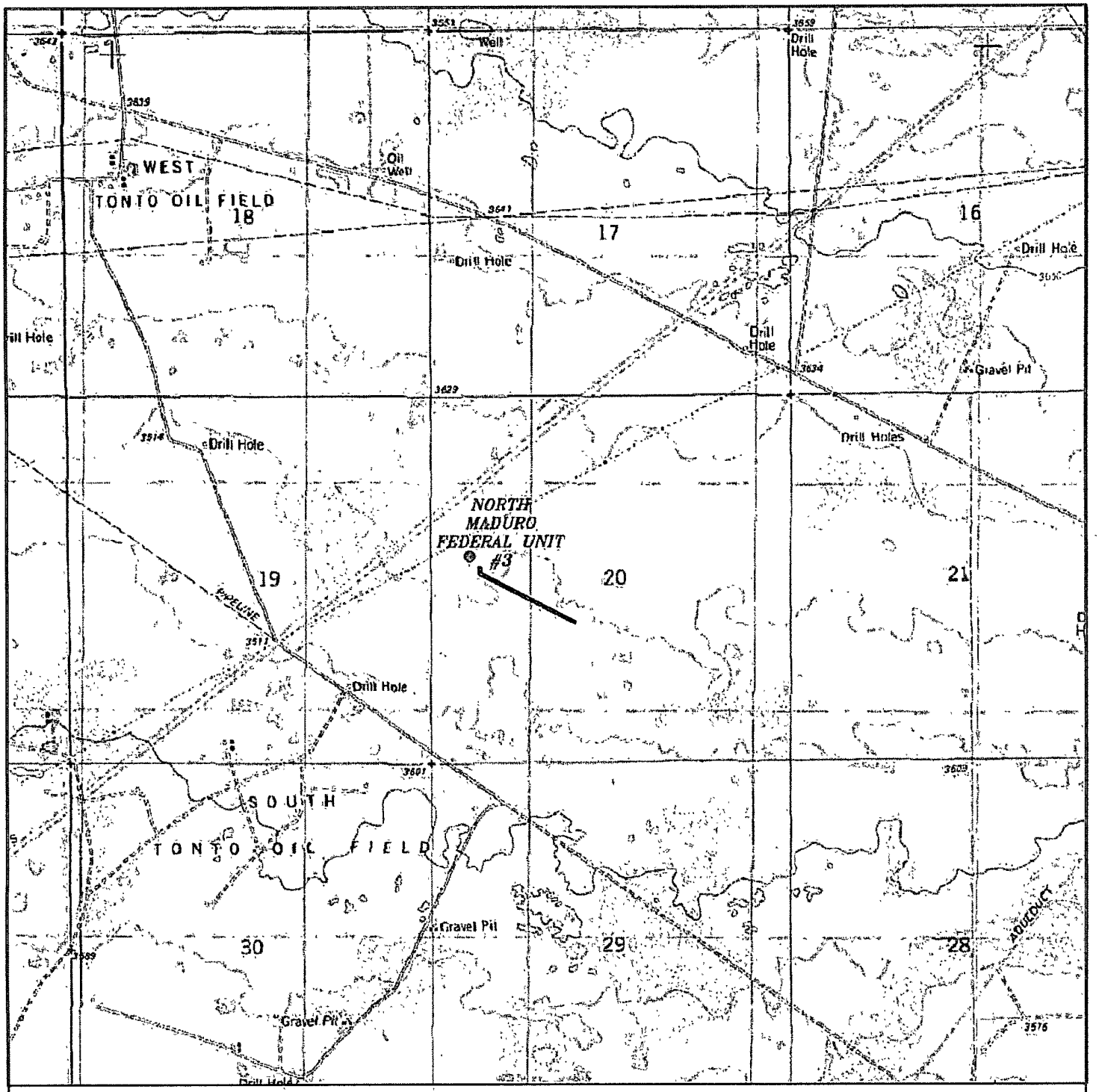
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief.

OCTOBER 5, 2009
Date Surveyed

Signature & Seal of Professional Surveyor
7977

Certificate No. Gary L. Jones 7977

BASIN SURVEYS



NORTH MADURO FEDERAL UNIT #3
Located 2310' FNL and 560' FWL
Section 20, Township 19 South, Range 33 East,
N.M.P.M., Lea County, New Mexico.

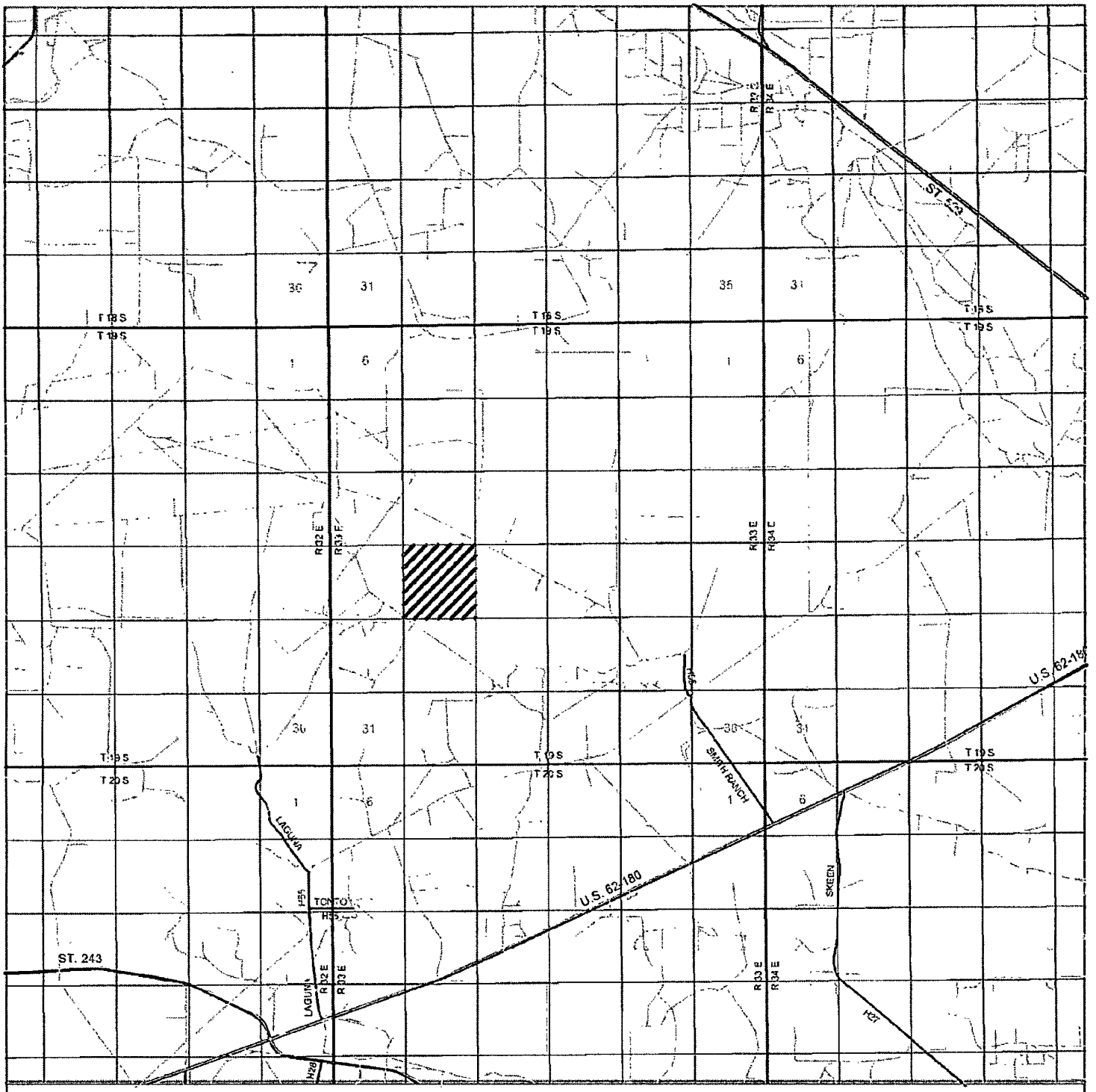
Basin Surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number:	JMS 21773
Survey Date:	10-05-2009
Scale:	1" = 2000'
Date:	10-07-2009

N

CIMAREX ENERGY CO. OF COLORADO

Exhibit C



NORTH MADURO FEDERAL UNIT #3
Located 2310' FNL and 560' FWL
Section 20, Township 19 South, Range 33 East,
N.M.P.M., Lea County, New Mexico.

basin surveys
...focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

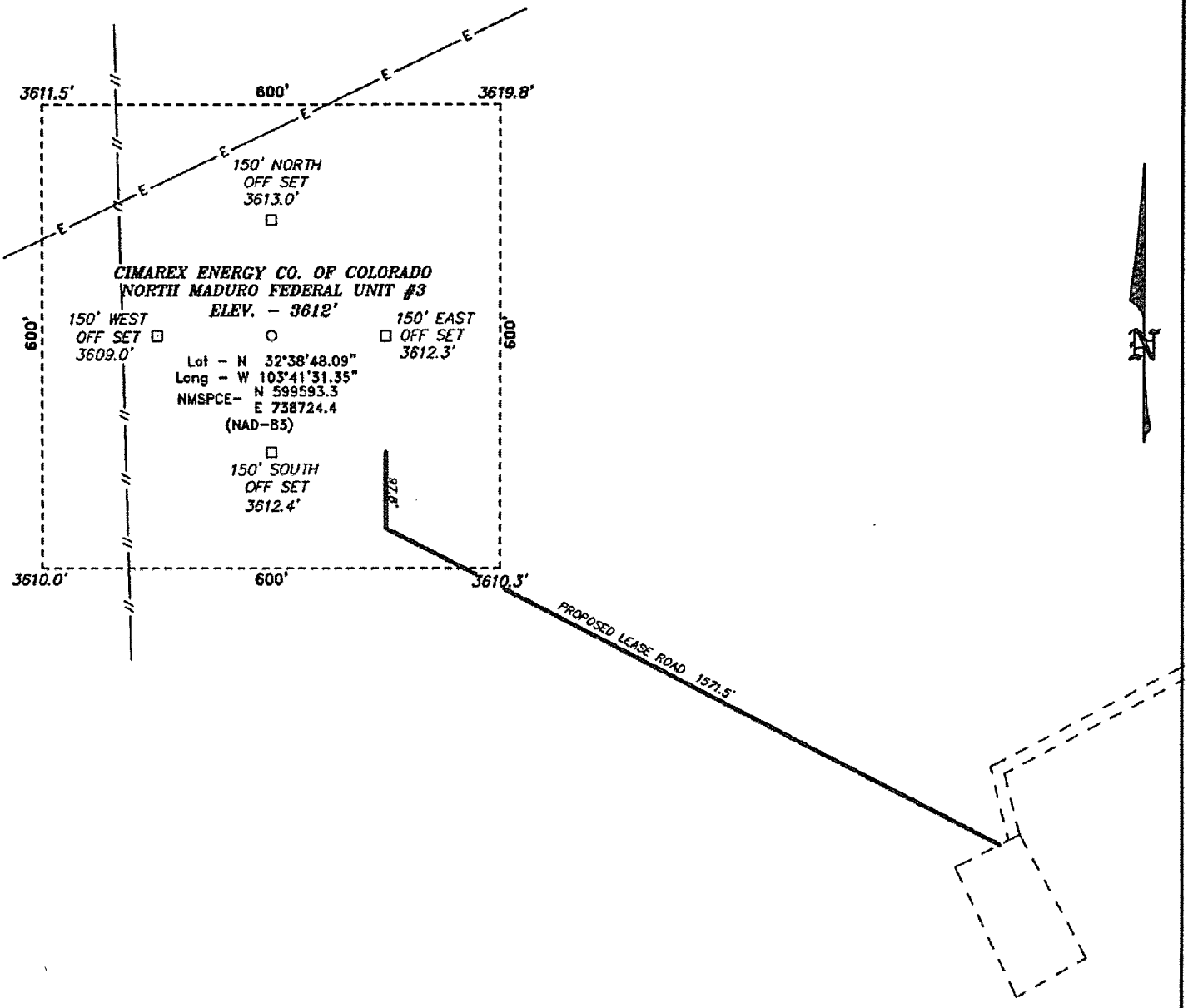
W.O. Number:	JMS 21773
Survey Date:	10-05-2009
Scale:	1" = 2 Miles
Date:	10-07-2009

N

CIMAREX ENERGY CO. OF COLORADO

Exhibit B

SECTION 20, TOWNSHIP 19 SOUTH, RANGE 33 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.



Directions to Location:

FROM THE JUNCTION OF 62-180 AND SMITH RANCH, GO NORTH ON SMITH RANCH TURNING INTO A LEASE ROAD FOR 3.8 MILES TO LEASE ROAD, ON LEASE ROAD GO SOUTHERLY 1.0 MILE TO WELL PAD AND PROPOSED LEASE ROAD.

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

W.O. Number: 21773	Drawn By: J. SMALL
Date: 10-07-2009	Disk: JMS 21773

CIMAREX ENERGY CO. OF COLORADO

REF: NORTH MADURO FEDERAL UNIT #3 / WELL PAD TOPO

THE NORTH MADURO FEDERAL UNIT #3 LOCATED 2310' FROM THE NORTH LINE AND 560' FROM THE WEST LINE OF SECTION 20, TOWNSHIP 19 SOUTH, RANGE 33 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO.

Survey Date: 10-05-2009	Sheet 1 of 1 Sheets

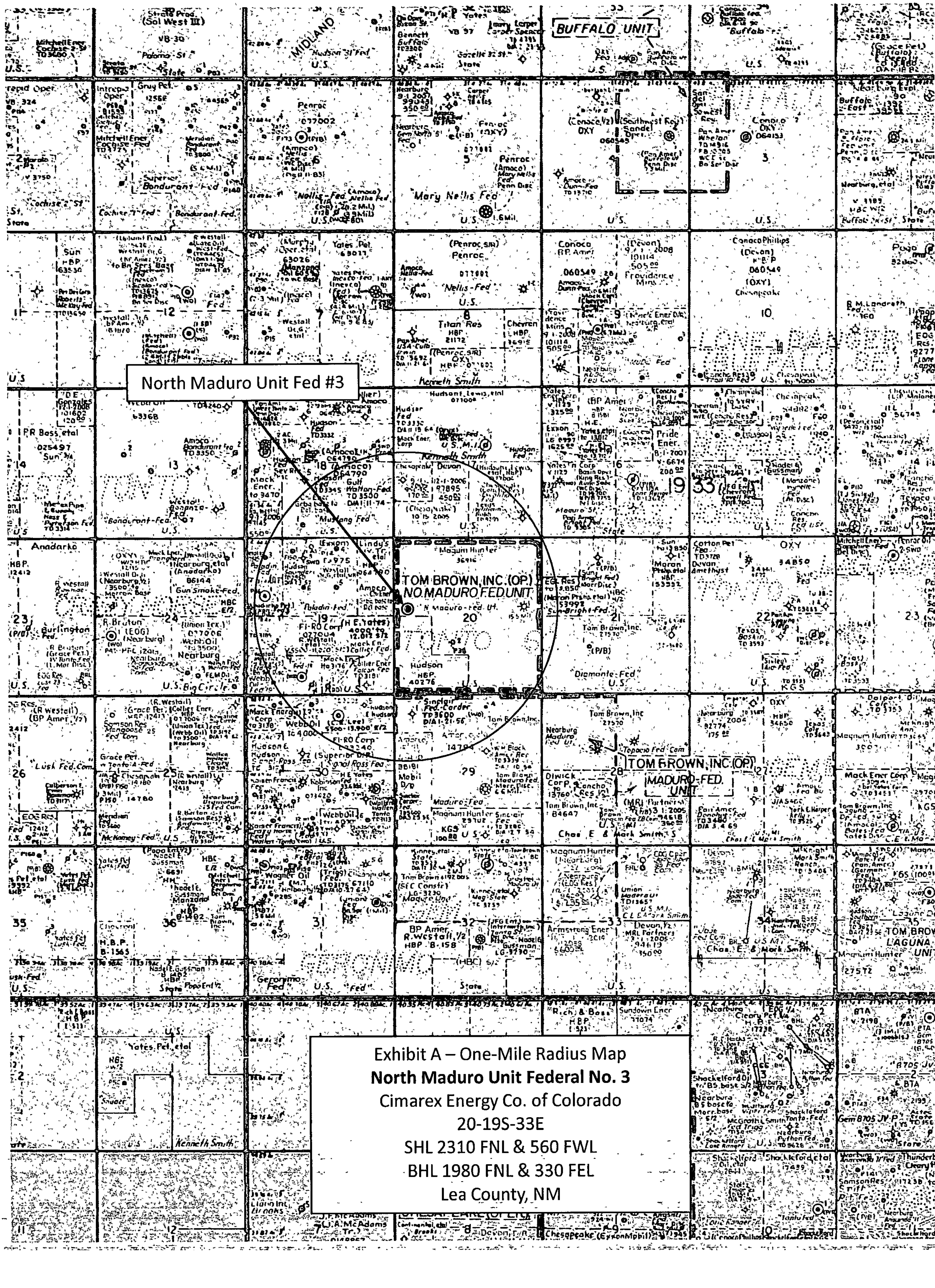


Exhibit A – One-Mile Radius Map
North Maduro Unit Federal No. 3
Cimarex Energy Co. of Colorado
20-19S-33E
SHL 2310 FNL & 560 FWL
BHL 1980 FNL & 330 FEL
Lea County, NM

Application to Drill
North Maduro Federal Unit No. 3
Cimarex Energy Co. of Colorado
Unit E, Section 20
T19S-R33E, ~~Eddy~~ Lea 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 2310 FNL & 560 FWL
BHL 1980 FNL & 330 FEL

2 Elevation above sea level: 3612' GR

3 Geologic name of surface formation: Quaternery 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: MD 14227' TVD 9900'

6 Estimated tops of geological markers:

Cherry Canyon	6000'
Bone Spring	7770'
1st BSS	8920'
2nd BSS	9650'

7 Possible mineral bearing formation:
Bone Spring Oil

8 Proposed Mud Circulating System: See COA

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to ~~460'~~	8.4 - 8.6	28	NC	FW
~~460~~ to 4800'	10.0	30-32	NC	Brine water
4800' to 9640'	8.4 - 9.5	30-32	NC	FW, brine
9710' to 14227'	8.4	28-32	NC	2% KCl

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.

8a. Proposed drilling Plan
After drilling and setting surface, intermediate, and production casing, drill out of the bottom of the 7" production casing with a 6⅛" bit to KOP @ 9710' and kick off to drill the lateral. Drill to TD 14227.' Run 4½" PEAK completion liner from RSB packer @ 9540' to TD @ 14227.' Split the liner with LTC from TD to EOC (10009') and BTC from EOC to TOL (9540').

Application to Drill
North Maduro Federal Unit No. 3
Cimarex Energy Co. of Colorado
Unit E, Section 20
T19S-R33E, ~~Eddy~~ Lea County, NM

9 Casing & Cementing Program: See COA

String	Hole Size	Depth			Casing OD		Weight	Collar	Grade
Surface	17½"	0'	to	~~460'~~ 1330	New	13⅜"	48#	STC	H-40
Intermediate	12¼"	0'	to	4950 ~~4800'~~	New	9⅝"	40#	LTC	J/K-55
Production	8¾"	0'	to	9640'	New	7"	26#	LTC	P-110
Lateral Pt. 1	6⅛"	9540'	to	10009'	New	4½"	11.6#	**BTC**	P-110
Lateral Pt. 2	6⅛"	10009'	to	14227'	New	4½"	11.6#	**LTC**	P-110

10 Cementing:

Surface 500 sx Premium Plus + 2% $CaCl_2$ (wt 14.8, yld 1.35) – See COA
TOC Surface

Intermediate Lead: 300 sx Econocem + 3% Salt + 2% $CaCl_2$ + 3 lbm/sk Gilsonite (wt 11.7, yld 2.06) See COA
Tail: 650 sks Premium Plus + 1% $CaCl_2$ (wt 14.8, yld 1.34)
TOC Surface

Production Lead: 360 sx EconoCem + 3% Salt + 5 lbm/sk gilsonite (wt 13.0, yld 1.71)
Tail: 365 sx HalCem (wt 14.8, yld 1.34)
TOC 4600'

Lateral No cement needed. Peak completion assembly.

Fresh water zones will be protected by setting 13⅜" casing at 460' and cementing to surface. Hydrocarbon zones will be protected by setting 9⅝" casing at 4800' and cementing to surface, and by setting 7" casing at 9640' and cementing to 4600.'

Collapse Factor	*Burst Factor*	*Tension Factor*
1.125	1.125	1.6

11 Pressure control Equipment:
Exhibit "E". A 13⅜" 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 nippled 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 13⅜" 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 13⅜ casing to 1000 psi using rig pumps. The BOP will be tested to 3000 psi by an independent service company.

12 Testing, Logging and Coring Program: See COA

A. Mud logging program: 2 man unit from 4800' 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 H_2S from the surface to the Bone Spring formations to meet the BLM's minimum requirements for the submission of an "H_2S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H_2S Safety package on all wells, attached is an "H_2S 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 **3000 psi** Estimated BHT **130°**

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.
Bone Spring pay will be perforated and stimulated.
The proposed well will be tested and potentialed as **an oil well.**

Cimarex Energy Co.

Location: Lea County, NM
Field: (North Maduro) Sec 20 T19S, R33E
Facility: North Maduro Fed Unit No. 3H

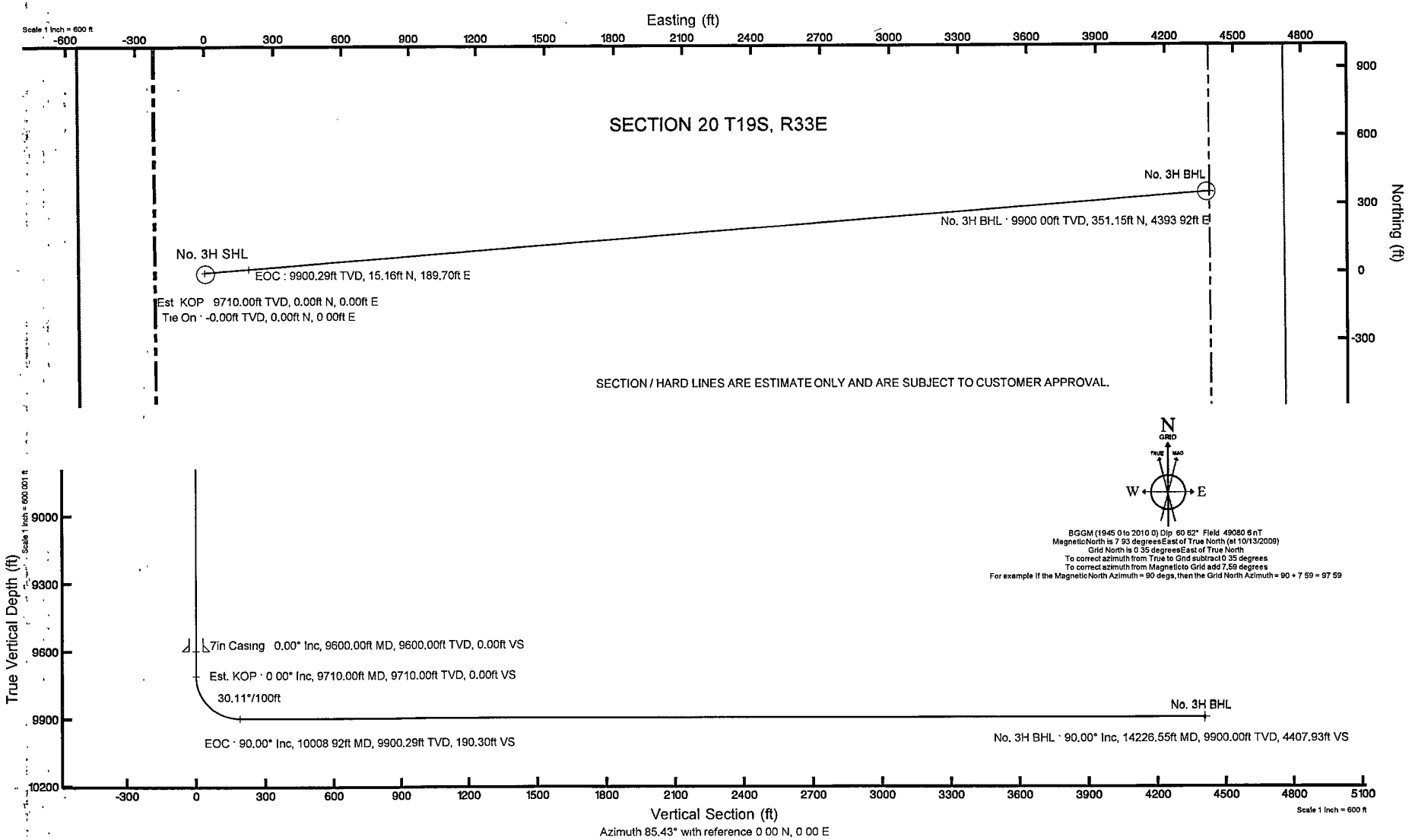
Slot: No. 3H SHL
Well: No. 3H
Wellbore: No. 3H PWB

BAKER HUGHES INTEQ

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	85.431	0.00	0.00	0.00	0.00	0.00
Est. KOP	9710.00	0.000	85.431	9710.00	0.00	0.00	0.00	0.00
EOC	10008.92	90.004	85.431	9900.29	15.16	189.70	30.11	190.30
No. 3H BHL	14226.55	90.004	85.431	9900.00	351.15	4393.92	0.00	4407.93

Plot reference wellpath is Preliminary Plan	
True vertical depths are referenced to Rig on No. 3H SHL (RT)	Grid System: NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No. 3H SHL (RT)	North Reference: Grid north
Rig on No. 3H SHL (RT) to Mean Sea Level: 3612 feet	Scale: True distance
Mean Sea Level to Mud line (Facility: North Maduro Fed Unit No. 3H): -3612 feet	Depths are in feet
Coordinates are in feet referenced to Facility Center	Created by: gomezacr on 10/13/2009



Planned Wellpath Report

Preliminary Plan

BAKER HUGHES INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	**Cimarex Energy Co.**	Slot	**No. 3H SHL**
Area	**Lea County, NM**	Well	**No. 3H**
Field	**(North Maduro) Sec 20 T19S, R33E**	Wellbore	**No. 3H PWB**
Facility	**North Maduro Fed Unit No. 3H**		

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	**Gomeoscr**
Scale	**0.999954**	Report Generated	**10/13/2009** at **4:16:29 PM**
Convergence at slot	**0.35° East**	Database/Source file	**WA_Midland/No._3H_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**	738724.40	599593.30	32°38'48.090"N	103°41'31.346"W
Facility Reference Pt			**738724.40**	**599593.30**	32°38'48.090"N	103°41'31.346"W
Field Reference Pt			**738724.40**	**599593.30**	32°38'48.090"N	103°41'31.346"W

WELLPATH DATUM

Calculation method	**Minimum curvature**	Rig on No. 3H SHL (RT) to Facility Vertical Datum	**0.00ft**
Horizontal Reference Pt	**Facility Center**	Rig on No. 3H SHL (RT) to Mean Sea Level	**3612.00ft**
Vertical Reference Pt	**Rig on No. 3H SHL (RT)**	Facility Vertical Datum to Mud Line (Facility)	**0.00ft**
MD Reference Pt	**Rig on No. 3H SHL (RT)**	Section Origin	**N 0.00, E 0.00 ft**
Field Vertical Reference	**Mean Sea Level**	Section Azimuth	**85.43°**

Planned Wellpath Report

Preliminary Plan

CIMAREX

BAKER HUGHES INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Lea County, NM	Well	No. 3H
Field	(North Maduro) Sec 20 T19S, R33E	Wellbore	No. 3H PWB
Facility	North Maduro Fed Unit No. 3H		

WELLPATH DATA (53 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00	0.000	85.431	0.00	0.00	0.00	0.00	0.00	Tie On
6000.00†	0.000	85.431	6000.00	0.00	0.00	0.00	0.00	Cherry Canyon
7770.00†	0.000	85.431	7770.00	0.00	0.00	0.00	0.00	Bone Spring
8920.00†	0.000	85.431	8920.00	0.00	0.00	0.00	0.00	1st BSS
9650.00†	0.000	85.431	9650.00	0.00	0.00	0.00	0.00	2nd BSS
9710.00	0.000	85.431	9710.00	0.00	0.00	0.00	0.00	Est KOP
9810.00†	30.110	85.431	9805.46	25.68	2.05	25.60	30.11	
9910.00†	60.220	85.431	9875.16	95.78	7.63	95.47	30.11	
10008.92	90.004	85.431	9900.29	190.30	15.16	189.70	30.11	EOC
10010.00†	90.004	85.431	9900.29	191.38	15.25	190.78	0.00	
10110.00†	90.004	85.431	9900.28	291.38	23.21	290.46	0.00	
10210.00†	90.004	85.431	9900.27	391.38	31.18	390.14	0.00	
10310.00†	90.004	85.431	9900.27	491.38	39.14	489.82	0.00	
10410.00†	90.004	85.431	9900.26	591.38	47.11	589.50	0.00	
10510.00†	90.004	85.431	9900.25	691.38	55.08	689.19	0.00	
10610.00†	90.004	85.431	9900.25	791.38	63.04	788.87	0.00	
10710.00†	90.004	85.431	9900.24	891.38	71.01	888.55	0.00	
10810.00†	90.004	85.431	9900.23	991.38	78.98	988.23	0.00	
10910.00†	90.004	85.431	9900.23	1091.38	86.94	1087.92	0.00	
11010.00†	90.004	85.431	9900.22	1191.38	94.91	1187.60	0.00	
11110.00†	90.004	85.431	9900.21	1291.38	102.87	1287.28	0.00	
11210.00†	90.004	85.431	9900.21	1391.38	110.84	1386.96	0.00	
11310.00†	90.004	85.431	9900.20	1491.38	118.81	1486.64	0.00	
11410.00†	90.004	85.431	9900.19	1591.38	126.77	1586.33	0.00	
11510.00†	90.004	85.431	9900.19	1691.38	134.74	1686.01	0.00	
11610.00†	90.004	85.431	9900.18	1791.38	142.71	1785.69	0.00	
11710.00†	90.004	85.431	9900.17	1891.38	150.67	1885.37	0.00	
11810.00†	90.004	85.431	9900.17	1991.38	158.64	1985.06	0.00	
11910.00†	90.004	85.431	9900.16	2091.38	166.60	2084.74	0.00	
12010.00†	90.004	85.431	9900.15	2191.38	174.57	2184.42	0.00	
12110.00†	90.004	85.431	9900.14	2291.38	182.54	2284.10	0.00	
12210.00†	90.004	85.431	9900.14	2391.38	190.50	2383.78	0.00	
12310.00†	90.004	85.431	9900.13	2491.38	198.47	2483.47	0.00	
12410.00†	90.004	85.431	9900.12	2591.38	206.44	2583.15	0.00	
12510.00†	90.004	85.431	9900.12	2691.38	214.40	2682.83	0.00	
12610.00†	90.004	85.431	9900.11	2791.38	222.37	2782.51	0.00	
12710.00†	90.004	85.431	9900.10	2891.38	230.33	2882.20	0.00	
12810.00†	90.004	85.431	9900.10	2991.38	238.30	2981.88	0.00	
12910.00†	90.004	85.431	9900.09	3091.38	246.27	3081.56	0.00	
13010.00†	90.004	85.431	9900.08	3191.38	254.23	3181.24	0.00	
13110.00†	90.004	85.431	9900.08	3291.38	262.20	3280.92	0.00	
13210.00†	90.004	85.431	9900.07	3391.38	270.17	3380.61	0.00	
13310.00†	90.004	85.431	9900.06	3491.38	278.13	3480.29	0.00	
13410.00†	90.004	85.431	9900.06	3591.38	286.10	3579.97	0.00	
13510.00†	90.004	85.431	9900.05	3691.38	294.07	3679.65	0.00	

Planned Wellpath Report

Preliminary Plan

BAKER HUGHES INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Lea County, NM	Well	No. 3H
Field	(North Maduro) Sec 20 T19S, R33E	Wellbore	No. 3H PWB
Facility	North Maduro Fed Unit No. 3H		

WELLPATH DATA (53 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
13610.00†	90.004	85.431	9900.04	3791.38	302.03	3779.33	0.00	
13710.00†	90.004	85.431	9900.04	3891.38	310.00	3879.02	0.00	
13810.00†	90.004	85.431	9900.03	3991.38	317.96	3978.70	0.00	
13910.00†	90.004	85.431	9900.02	4091.38	325.93	4078.38	0.00	
14010.00†	90.004	85.431	9900.01	4191.38	333.90	4178.06	0.00	
14110.00†	90.004	85.431	9900.01	4291.38	341.86	4277.75	0.00	
14210.00†	90.004	85.431	9900.00	4391.38	349.83	4377.43	0.00	
14226.55	90.004	85.431	9900.00[1]	4407.93	351.15	4393.92	0.00	No 3H BHL

HOLE & CASING SECTIONS Ref Wellbore: No. 3H PWB Ref Wellpath: Preliminary Plan

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
9.625in Casing	0.00	4800.00	4800.00	0.00	4800.00	0.00	0.00	0.00	0.00
7in Casing	0.00	9600.00	9600.00	0.00	9600.00	0.00	0.00	0.00	0.00
6.125in Open Hole	9600.00	14226.55	4626.55	9600.00	NA	0.00	0.00	NA	NA

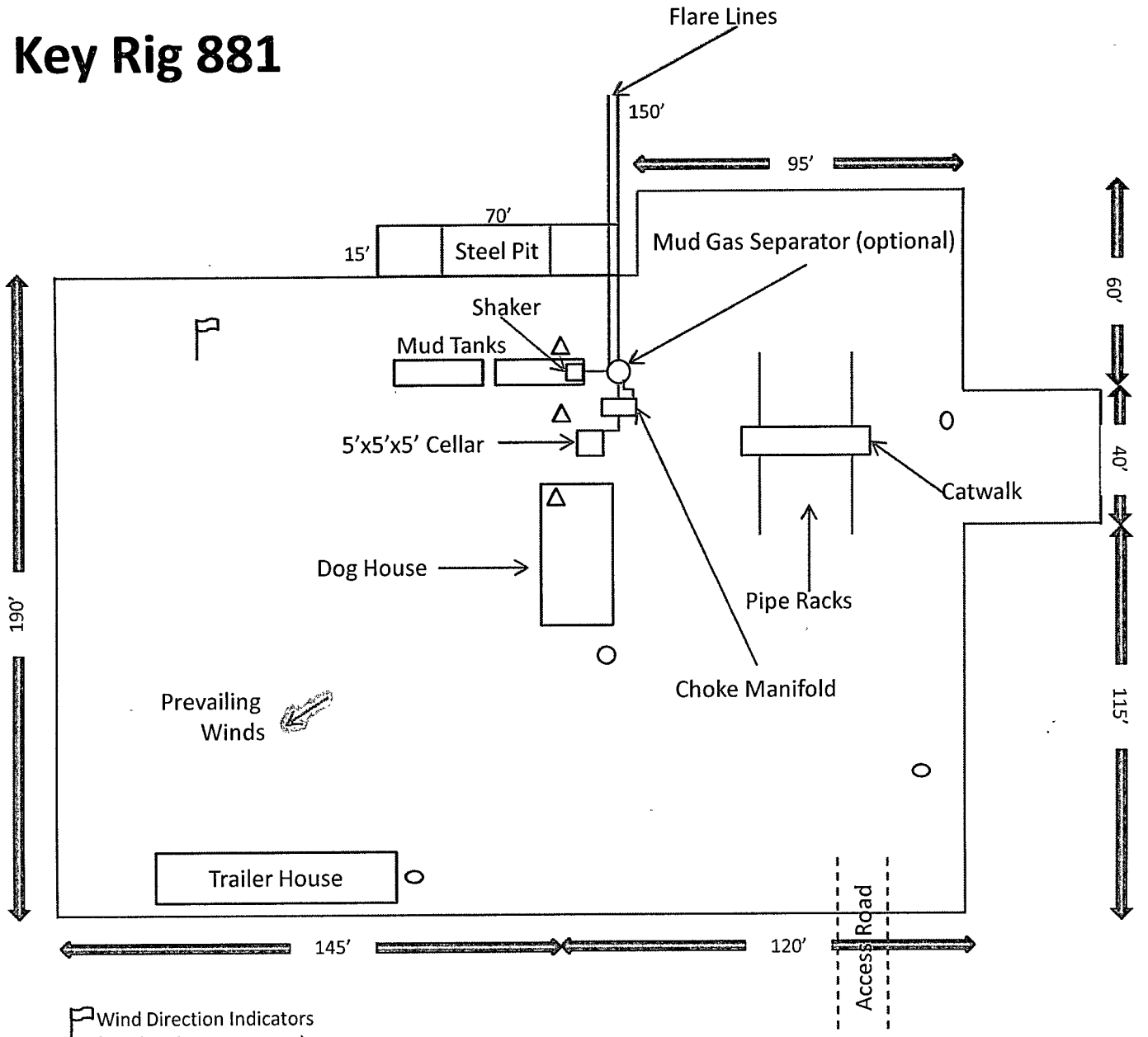
TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
1) No. 3H BHL	14226.55	9900.00	351.15	4393.92	**743118.11**	**599944.43**	32°38'51.299"N	103°40'39.934"W	point

SURVEY PROGRAM Ref Wellbore: No. 3H PWB Ref Wellpath: Preliminary Plan

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	14226.55	NaviTrak (Standard)		No. 3H PWB

Key Rig 881



Wind Direction Indicators
(wind sock or streamers)

△ H2S Monitors
(alarms at bell nipple and shale shaker)

○ Briefing Areas

○ Remote BOP Closing Unit

Exhibit D – Rig Diagram
North Maduro Unit Federal No. 3
Cimarex Energy Co. of Colorado
20-19S-33E
SHL 2310 FNL & 560 FWL
BHL 1980 FNL & 330 FEL
Lea County, NM

SR & A

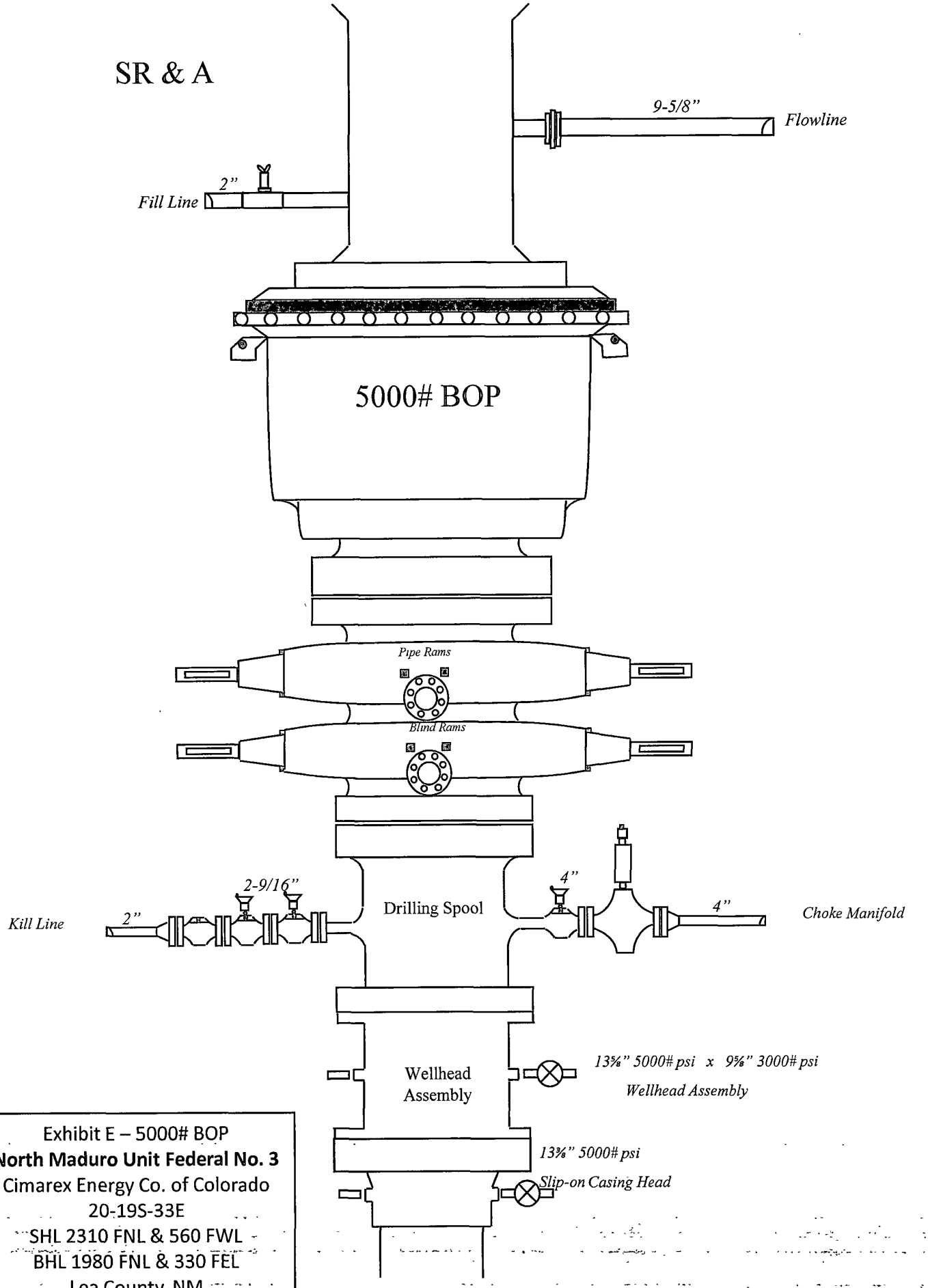
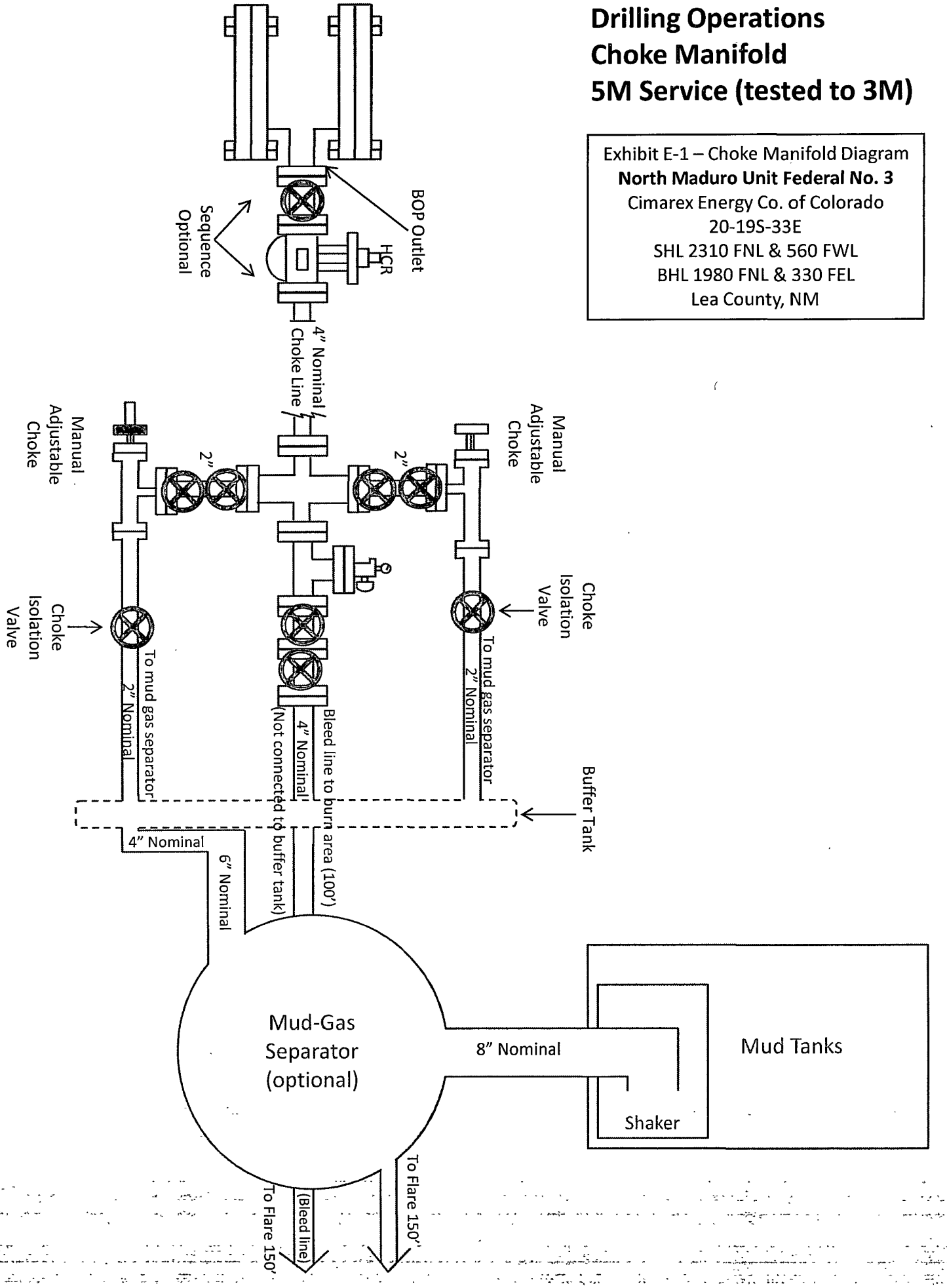


Exhibit E – 5000# BOP
North Maduro Unit Federal No. 3
Cimarex Energy Co. of Colorado
20-19S-33E
SHL 2310 FNL & 560 FWL
BHL 1980 FNL & 330 FEL
Lea County, NM

Drilling Operations
Choke Manifold
5M Service (tested to 3M)

Exhibit E-1 – Choke Manifold Diagram
North Maduro Unit Federal No. 3
Cimarex Energy Co. of Colorado
20-19S-33E
SHL 2310 FNL & 560 FWL
BHL 1980 FNL & 330 FEL
Lea County, NM



Hydrogen Sulfide Drilling Operations Plan
North Maduro Federal Unit No. 3
Cimarex Energy Co. of Colorado
Unit E, Section 20
T19S-R33E, ~~Eddy~~ Lea County, NM

1 All Company and Contract personnel admitted on location must be trained by a qualified H_2S safety instructor to the following:
   A. Characteristics of H_2S
   B. Physical effects and hazards
   C. Proper use of safety equipment and life support systems.
   D. Principle and operation of H_2S detectors, warning system and briefing areas.
   E. Evacuation procedure, routes and first aid.
   F. Proper use of 30 minute pressure demand air pack.

2 H_2S Detection and Alarm Systems:
   A. H_2S 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 (H_2S 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 H_2S has on tubular goods and other mechanical equipment.

9 If H_2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas seperator will be brought into service along with H_2S scavengers if necessary.

H_2S Contingency Plan
North Maduro Federal Unit No. 3
Cimarex Energy Co. of Colorado
Unit E, Section 20
T19S-R33E, ~~Eddy~~ Lea County, NM

Emergency Procedures

In the event of a release of gas containing H_2S, 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 H_2S 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 H_2S, 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 (SO_2). 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 H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	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).

H_2S Contingency Plan Emergency Contacts

North Maduro Federal Unit No. 3

Cimarex Energy Co. of Colorado

Unit E, Section 20

T19S-R33E, ~~Eddy~~ Lea 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	432-620-1934	972-333-1407
Dee Smith	Drilling Super	432-620-1933	972-882-1010
Jim Evans	Drilling Super	432-620-1929	972-465-0564
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

Operator Certification Statement
North Maduro Federal Unit No. 3
Cimarex Energy Co. of Colorado
Unit E, Section 20
T19S-R33E, ~~Eddy~~ Lea County, NM

Operator's Representative
Cimarex Energy Co. of Colorado
600 N. Marienfeld St., Ste. 600
Midland, TX 79701
Office Phone: (432) 571-7800
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: October 14, 2009

TITLE: Manager Operations Administration

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CIMAREX ENERGY CO. OF COLORADO
LEASE NO.:	NM36916
WELL NAME & NO.:	NORTH MADURO FEDERAL UNIT # 3
SURFACE HOLE FOOTAGE:	2310' FNL & 560' FWL
BOTTOM HOLE FOOTAGE	1980' FNL & 330' FEL
LOCATION:	Section 20, T. 19 S., R 33 E., NMPM
COUNTY:	LEA 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.

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)

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

UNIT PLAN OF DEVELOPMENT

Operator has not submitted a current Unit Plan of Development (UPOD) as required pursuant to Section 10 of the Unit Agreement. Contact BLM 575-234-5972 for UPOD guidelines.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Hobbs Field Station at (575) 393-3612 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 shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. RESERVE PITS

The operator has applied for a closed-loop system. 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.

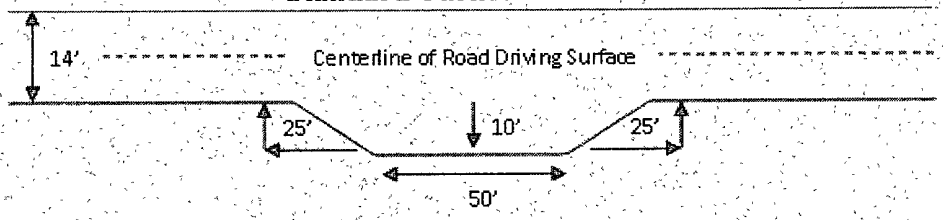
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

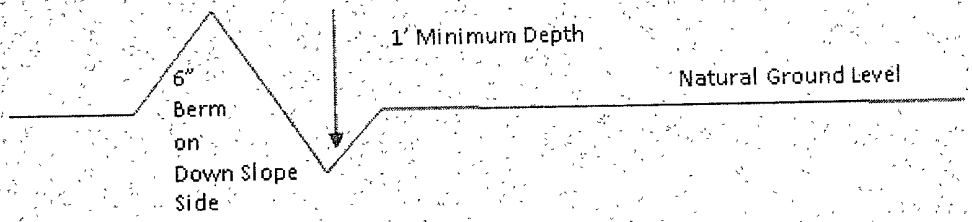
Standard Turnout – Plan View



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.

Cross Section Of Typical 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 foot road with 4% road slope: 400'/4% + 100' = 200' 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.

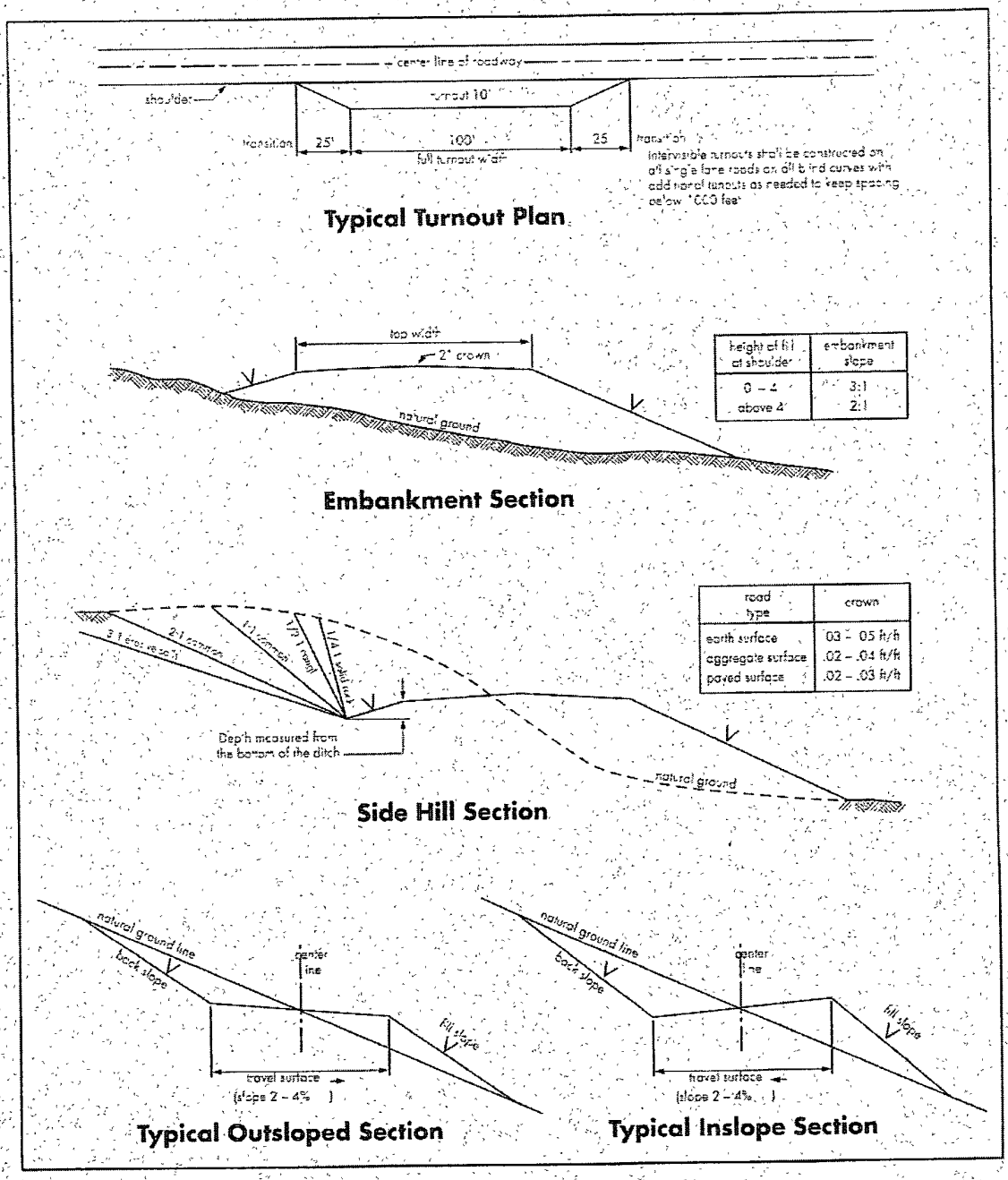
Fence Requirement

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

☒ **Lea County**
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 393-3612

1. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the **Bone Spring** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values 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 are 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. If available, a digital copy of the logs is to be submitted in addition to the paper copies. 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 Capitan Reef and Bone Spring Formations.

1. The **13-3/8** inch surface casing shall be set at **approximately 1380 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface. **Additional cement will be required, as excess calculates to -33% due to additional length. Fresh water 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 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 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.

If any lost circulation occurs below the Base of the Salt, the operator is to switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.

In addition, daily drilling reports are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning from the setting of the surface casing until the intermediate casing is set. Any lost circulation encountered is to be recorded on these drilling reports. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is: **This casing is to be set at 4950' in the base of the Capitan Reef. Additional cement may be required as the excess calculates to -11%**

   ☒ 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.

4. Cement not required on the **4-1/2"** liner. **Packer system being used.**

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 installing a 5M but testing as a 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. **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. DRILL STEM TEST

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

CRW 110609

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

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.

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 for LPC Sand/Shinnery 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 of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/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:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A
**Four-winged Saltbush	5lbs/A

* This can be used around well pads and other areas where caliche cannot be removed.

*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.

Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

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.